DATABASE MANAGEMENT SYSTEM OF THE MUNICIPAL AGRICULTURE OFFICE OF BATUAN, BOHOL

College of Technology and Allied Sciences
BOHOL ISLAND STATE UNIVERSITY
Zamora, Bilar, Bohol

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June 2022

DATABASE MANAGEMENT SYSTEM OF THE MUNICIPAL AGRICULTURE OFFICE OF BATUAN, BOHOL

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A Thesis
Presented to the Faculty of the
College of Technology and Allied Sciences
BOHOL ISLAND STATE UNIVERSITY
Bilar Campus, Zamora, Bilar

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In Partial Fulfilment
Of the Requirements for the Degree
Bachelor of Science in Computer Science

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Maria Fe J. Bangoy
Jennifer S. Cajegas
Mariel B. Llorente

June 2022

APPROVAL SHEET

This thesis entitled **"Database Management System of the Municipal Agriculture Office of Batuan, Bohol"** prepared and submitted by **Maria Fe J. Bangoy, Jennifer S. Cajegas and Mariel B. Llorente** in partial fulfillment of the requirements for the degree Bachelor of Science in Computer Science has been examined and recommended for acceptance and approval for oral defense.

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ACKNOWLEDGMENTS

The developers would like to express their countless gratitude to the Almighty God for making all things possible and for giving the developers guidance and protection that leads to the success of this study. A grateful thanks and appreciation to the number of people who had extended their immeasurable help and wholehearted cooperation, namely.

Mr. Dennis Dominic A. Quadra, Ms. Shiela G. Tabuno, Mrs. Leonida P. Revilla, Dr. Arlen B. Gudmalin, panellists during the defense, for sharing their ideas and sincere help towards the realization of this work despite all the trials encountered;

Mr. Joel A. Piollo, Thesis Adviser, for the untiring efforts in giving suggestions, advice, patience, understanding, guidance and encouragement which encouraged the developers to complete this study;

Dr. Cristina D. Bautista, Thesis Editor, for sparing her valuable time, effort and sincere help throughout the editing of the manuscript;

Dr. Arlen B. Gudmalin, Dean of College of Technology and Allied Sciences, for her supervision, concern, advices, support and encouragement;

Mrs. Mariflor Pagador, the Municipal Agriculturist of the Municipality of Batuan and the client/respondent of this study, for allowing the developers to conduct a study in the Database Management System of the Municipal Agriculture Office of Batuan Bohol, and for the reliable information which helps in the completion of the study;

With Great honor and respect, to the developers, parents, **Mr. and Mrs. Allan Bangoy, Mr. and Mrs. Teofilo Cajegas, and Mr and Mrs. Antonio Llorente Sr.,** for the generous financial support, the love and encouragement in every decision the developers made in life and for molding them to become a better person that leads to the attainment of their goals;

To the brothers and sisters, and love ones of the developers who gave their moral and financial support. To the supportive classmates, friends and roommates (chan2x, rose, Cyndi, mhabel, marvin, dexter, Julius, joshua, Benjie, rolando, basbas, lino) for the undying moral back-up, the ideas and opinions they shared for the improvement of the study, and

To all those who have been part in realizing this work, words are not enough to express the developers appreciation and gratitude.

The Developers

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ABSTRACT

This study aimed to develop a database management system of the Municipal Agriculture Office of Batuan, Bohol. Currently, the establishment uses a manual recording of farmer's information that leads to record misplacement, time-consuming in the retrieval of farmers' information, not up-to-date farmer's information due to the volume of data that needs to be analyzed and processed. The identified problems and issues in the management of recording has led the developers to come up with a solution that could can help lessen the problems encountered by the agricultural technician and the municipal agriculturist. Based on the identified needs, the database management system of the Municipal Agriculture Office was developed with the following features: offline mechanism, recording, data management, administration, and report generation. The system developed was tested and evaluated. The results revealed that the user or respondents "strongly agree" that the system met its system usability, indicating the respondents' expectations were achieved. The developers concluded that the developed system provided a convenient way to improve records organization and management using the computerized system in a customized application program that is based on the actual procedure practiced. It is then highly recommend implementing the Database Management System to have a well-organized recording of clients' information.

Chapter 1

THE PROBLEM AND ITS SCOPE

Rationale

Information and Communication Technology (ICT) is defined by the World Bank as “any device, tool, or application that permits the exchange or collection of data through interaction or transmission.” Information and Communication Technologies (ICTs) form an integral part on information flows, the data and information can be effectively generated, stored, analyzed, disseminated, and used to support farmers and farming communities to improve agricultural productivity and sustainability (FAO, 2017).

Agriculture plays a crucial part in the economy and is regarded as the backbone of the economic system in emerging countries. Highest productivity growth in agriculture has been an essential factor in achieving broader economic development in many countries (Blandford, 2012). Information of sufficient quality is a prerequisite for progress in all aspects of agriculture.

The office of the Municipal Agriculture was built as a partner agency of the Department of Agriculture responsible for the promotion of the Agriculture & fisheries development and growth. Municipal Agriculture Office initiates agricultural extension and technical assistance that promotes and ensures farmers’ adoption of recommended package of technology on rice, corn, Fishery, fruits and vegetable and other high value commercial crops (GovPh, 2021).

The Municipal Agriculture Office of Batuan uses manual methods in recording of its office transactions, resulting to recording management issues. There were also issues with record misplacement, time-consuming retrieval of farmers' information, not up-to-date farmer's information due to the volume of data that needs to be analyzed, and processes and recording of farmers' information was done using the record book. This massive data management necessitates a system capable of efficient and effective data recording, retrieval, and processing.

This research devised and constructed a computerized system in a safe keeping of information that guarantee a secure data basing management, as well as a huge storing capacity and retrieval of large amount of information. It corresponds to the government's call to encourage and employ technology in management. It could also be used to improve the performance of farmers and improves the living standards of farming communities.

Literature Background

In line with this study, Article XIV, Section 2 of the Philippine Constitution states that:

> *"Science and Technology are essential for national development and progress. The state shall give priority to research and development, innovation and their utilization; and to science and technology education training and service. It shall support indigenous appropriate and self-reliant scientific and technological capabilities and their application to the country's productive system and national life (Munoz 2002)."*

According to this article, the state must take into account science and technology adaptation through research and development. The researcher created and developed a system to cater database and information processing to provide more comfort to the Municipal Agriculturist as part of an academic requirement. It is critical that the government encourages and facilitates the use of cutting-edge technology so that it can quickly adjust to changes and advancement of the society.

Moreover, Republic Act No. 8435, known as “Agriculture and Fisheries Modernization Act of 1997”, states that:

> ***Agriculture and Fisheries Modernization Act of 1997(AFMA****) aims to transform the agriculture and fisheries sectors to technology-based, advance and competitive industry; ensure that the small farmers and fisherfolk have equal access to assets, resources and services; guarantee food security; encourage farmers and fisherfolk groups to bond together for more bargaining power; strengthen people’s organizations, cooperatives and non-government organizations by enhancing their participation in decision-making; pursue an aggressive market-driven approach to make the products more competitive in the market; stimulate further processing of agricultural products and make it more marketable; and implement policies that will invite more investors to establish business in the country. (De Venica 1997)*

This act aims to modernize Philippine agriculture in order for the country to compete on a global scale. Such facilities are outfitted with the adoption of computer aided record management is aligning to the program. The creation of this system would provide the farmers of Bohol with the storage space they require.

The following related theory and readings taken from the books and online were used as the foundation for the creation of the application system:

The maintenance of the records in the system uses the theory on Edgar F. Codd's Relational Database Management System Theory. This is a standard method by which information is organized and retrieved from computers. It treats a collection of data items into organized as a set of formally described tables for which data can be accessed easily. The theory based on the ideas that contain the data and interface tools which can manipulate the data. The relational database management system covers a standard method by organizing and retrieving data. This can be used to manage the records of farmers' information and allows information in the database to be retrieved and managed of the Municipal Agriculture office. In Municipal Agriculture office, it also requires the use of database management system to handle the data.

An ideal Database Management System must be able to control the retrieval, deletion, and security and integrity of data within the database. In the development of the database theory of relational database was applied. It covered the standard method of organizing related fields in a table establishing a relation to tables to share and be able to come up with new information. In addition, Edgar F. Codds for relational database management system theory which is the higher-level insert in updating and deleting rule. This rule explains that a system must support set-at-a-time insert, update and delete operators. This means that data can be retrieved from a relational database in sets

conducted at a data from multiple tables (Codd's, 1985). These rules state the insert, update and delete operations should be supported for any retrievable set rather than just for a single row in a single table. This theory is evident on how the tables are linked to create a relationship of tables enabling dynamic sharing of data.

There are numerous related systems that are available running in different organizations and institutions. Among those significant in this study are:

1. **Agricultural Information Management System Using GIS Technology.** This system uses GIS Technology to utilize and provide unified management of farm information about things like products, producers, yield, and quality (Nishiguchi et.al, 2009).
2. **Agricultural Land-Use Mapping with Remote Sensing Data**. The aim of this study is to develop an autonomous and intelligent system built on top of imagery data streams, which is available from low-Earth orbiting satellites, to differentiate crop areas from non-crop areas (Nguyen, 2020).
3. **A Cloud-Based Digital Farm Management System for Vegetable Production Process Management and Quality Traceability**. This study presents an integrated approach to track and trace production efficiently through our Digital Farm Management System (DFMS), which adopts the cloud framework and utilizes Quick Response (QR) codes and Radio Frequency Identification (RFID) technology (Yang, 2018).

4. **A Farm Management Information System Using Future Internet Technologies**. The latter have evolved from simple record keeping software into complex systems that can manipulate large amounts of data and provide decision support capabilities (Paraforos et al, 2016).
5. **Record management system at the municipal agricultural services**. This study aimed to design, develop and test the Farmers' Record Management System of the Municipality of Salcedo, Eastern Samar. This was conducted to help the Municipality specifically the Office of the Municipal Agricultural Services (OMAS) to come up with a form of information management system that is query-specific and meets the demands of a user looking for information based on certain criteria (Alburo et al; 2016).
6. **Farmers Information and Technology Services (FITS) Management System.** This aimed to develop a Computerize Farmers Information and Technology Services Management System. This was developed with the following features: recording, data management, acquisition, inventory and generation of reports (Alcala et al; 2019).
7. **Infographics and Database Management System of Rice Farmers in Bohol.** Plan to develop and design the management of rice farmers' information at the Office of the Provincial Agriculturist (OPA) caters the recording, processing, storage and dissemination of information (Magdura et al; 2018).

THE PROBLEM

Statement of the Problem

The main purpose of the study was to develop a computerized database management system of the Municipal Agriculture Office of Batuan, Bohol.

Specifically, the study sought to answer the following questions:

1. What are the operations and processes involved in recording and gathering of data in the Municipal Agriculture Office of Batuan, Bohol?
2. What are the problems and needs of the Municipal Agriculture Office of Batuan, Bohol in the management of the records of farmer's information and farm data collected in every commodity?
3. What is the possible solution of the problem encountered?
4. What is the level of system usability as perceived by the target users?

The developed system was called Database Management System of the Municipal Agriculture Office of Batuan, Bohol. The DBMS was developed with the following features:

1. Integrate a networking mechanism to use one centralized server for all the users in Municipal Agriculture Office of Batuan, including the Municipal Agriculturist, Corn Technician, Livestock Technician, High Value Crop Development Program (HVCDP) Technician, Rice Technician, and Fishery Technician;

2. Design and implement the following modules:
    a. recording;
    b. administration;
    c. data management;
    d. reports;
3. Implement business intelligence techniques for decision support to the office.

Scope and Delimitation

The study was called the Database Management System of the Municipal Agriculture Office of Batuan, Bohol. The System would serve as a database repository of all data and information of farmer's and its commodity. The following were the processes that were included in the system:

1. Offline Mechanism – This feature acts the management of the needs and requirements of the client. These provide tools for centralizing one server to be used by the agriculturist or the technician.
2. Recording - This would be the recording of farmer's information, addition and updates of farmer's information. This would also include inputting, storing, editing, processing, outputting, searching and retrieval of farmer's gathered data.
3. Data Management- This module would manage the data which includes the farmer's information, seedling beneficiary list, fishery production and farm information.

4. Administration- This module involves the maintenance of the system and creating, updating and deleting access account to users.
5. Reports- This will provide the enterprise reports and monitoring reports to serve the strategic management of the Municipal Agriculture Office of Batuan, Bohol. It would also involve data visualization like tabular reporting technique for all farmers in every barangay and commodity. Reports from the farmer's profile, high valued crops development program, fishery, livestock, rice, and corn are also generated.

The study was limited only to the current standard operation and procedures of the Municipal Agriculture Office of Batuan, Bohol. The user of the system was limited to the municipal agriculturist, corn technician, livestock technician, high value crop development program technician, rice technician, and fishery technician.

Significance of the Study

The implementation of the Database Management System of the Municipal Agriculture Office of Batuan, Bohol brought tactical, strategic as well as tangible and intangible benefits. This system would serve as the storage of all data of the farmers. Specifically, the system and information offered by the study would be greatly beneficial to the following:

Municipal Agriculturist. The one who serves as the head who managed the office. The overall management of the office is made easier through

customized recording system and would serve as a repository system providing information that is needed. The system would boost the morale of the employees of the office, thus, providing an efficient service to the farmers.

Agricultural Technician. The system would help the agricultural technician (corn, livestock, High Valued Crop Development Program (HVCDP), rice, and fishery), who is responsible for keeping and updating all the farmer's records. The system would be useful in managing the farmer's record and giving accurate reports in an efficient way, and also it is useful in managing all of the records and reports of farmer's information.

Farmers. It refers to the registered farmers in the Municipal Agriculture Office of Batuan who provide information and received services from agricultural technician. The system would help the farmers in providing updated information, showing full history, concerns and recommendation from the agricultural technician for personal need of data.

Researchers. This study would enhance their skills and knowledge in advanced technology by developing a system and become more aware of the existence and benefits of the new technology.

RESEARCH METHODOLOGY

Development Framework

Figure 1 shows the conceptual diagram of the study. It represents the model of the study that follows the principle of input-process-output. These inputs taken from the municipal agriculturist and agricultural technicians (corn, livestock, High Valued Crop Development Program (HVCDP), rice, and fishery). These processes include the recording, data management, administration and reports. The output provides reports from the database server.

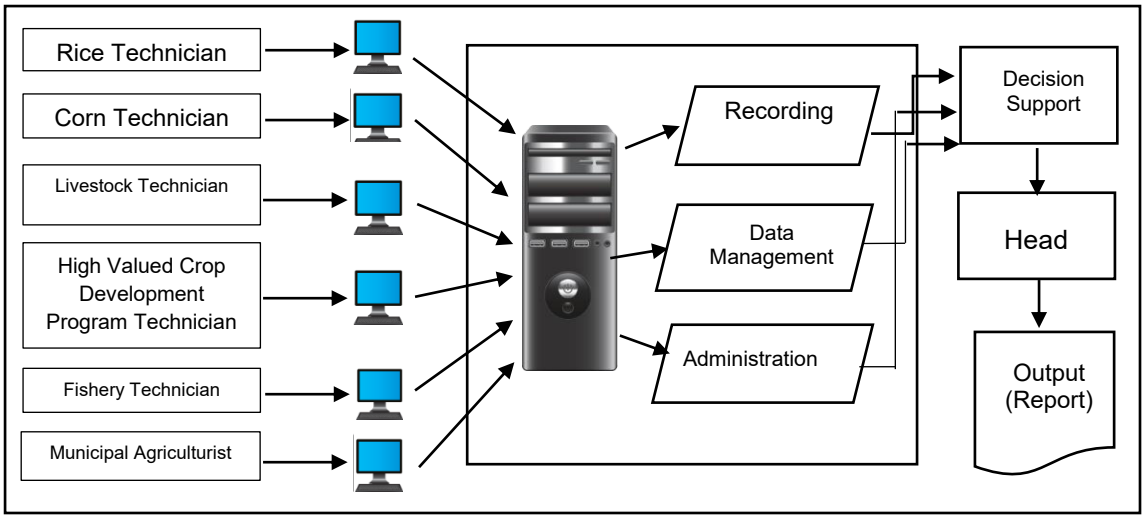


Figure 1. Conceptual Diagram of the Proposed System

The Figure 2 presents the block diagram of the developed Database Management System for the Municipal Agriculture of Batuan. The users were the Municipal Agriculturist and the Agricultural Technicians. It shows the input-process-output of the system which demonstrates on how the data are being processed in order to gain output.

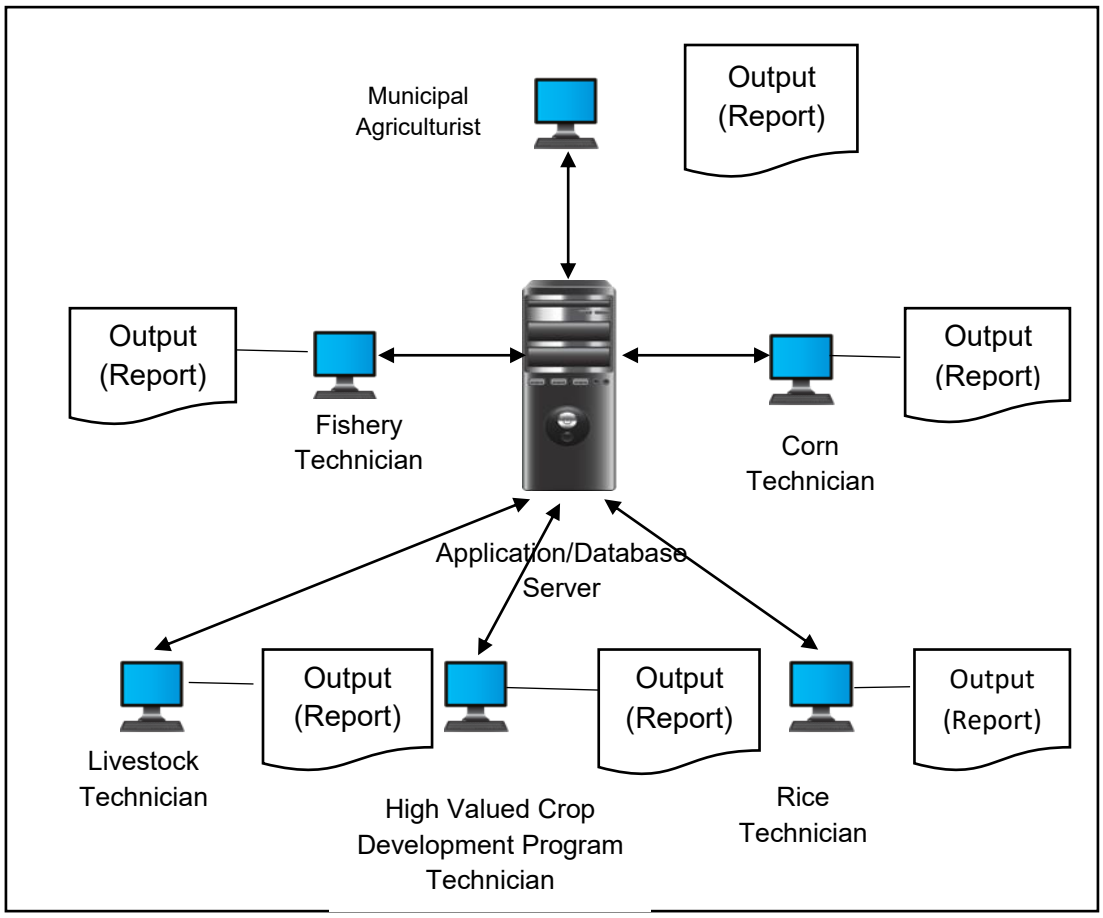


Figure 2. Block Diagram of the Study

Development Models and Approaches

In designing the software, the developers used the Rapid Application Development (RAD) a software development methodology that involves techniques like iterative development software prototyping. It has four phases to be followed. During the stage of analysis and quick design the developers, technician, and team members collaborated to determine the goals and expectations for the development and the current and potential issues that need to be addressed. The developers were also looking for any existing system to be the fundamental point of the study, gathered information such as asking

questions to the respondents of the survey. The developers also conducted a document review and observation of the processes to collect adequate details in developing the system.

The second stage covered the prototyping cycle. The developers built a prototype from the given quick design and the user evaluated it to recognize the strength and weakness of the system. Users were identified whether the process can evolve to reflect the changing organization requirements to identify process improvement. The developers defined the prototype together with additional information provided by the user. A new prototype was evaluated by the user again until the final prototype is developed once the user satisfied.

The third stage took the testing phase after extensive prototyping and cutting-edge designing. The beta system was presented to the Municipal Agriculture office to ensure that everything was running smoothly and that the clientele's expectations and goals were met. For the system's usability, the developers provide guide questions to fully assess all of its features.

The final stage was the implementation, where the finished program was deployed. Data conversion, final testing, as well as user training were all done by the developers. While the developers and clientele continue to look for bugs and potential issues to be addressed immediately, the finalization was completed.

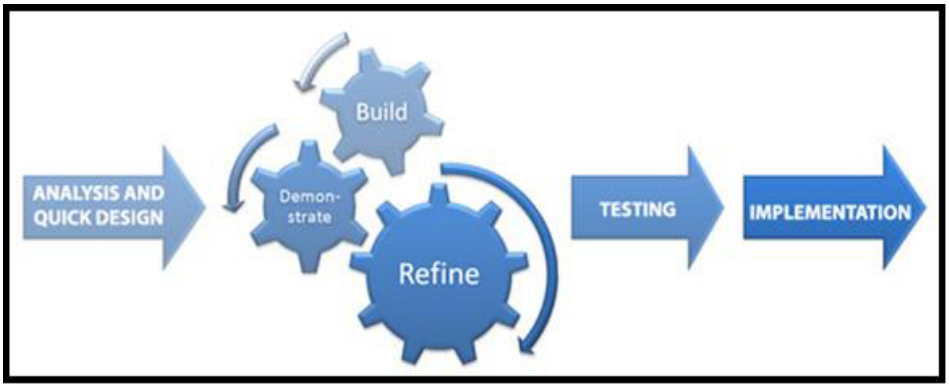


Figure 3. Rapid Application Development (RAD) Diagram

The following was the tools used in the development and analysis phase of the Database Management System of the Municipal Agriculture of Batuan, Bohol.

1. **Microsoft Visual Basic 2012 –** Programing language interface, advanced and owned via way of means of Microsoft Corporation to permit users to modify the written codes in the simple programming language known as Visual Basic seeks to alleviate the extensive programing language required to develop complex application. This programming language was used as a tool because it has the capability in creating executable files and active controls, especially in developing the system to create a complex application.
2. **Mysql** – Offers standard database driver connectivity for using MySql with applications and tools that are compatible with industry standards in the programming application of the developed system.
3. **WAMP –** It is a Windows web development environment tool that allows creating web applications with Apache, PHP, Python or Peri and MySQL

database that can be used to create an application on online viewing and data basing of the system.

4. **Crystal Report –** This will be used in creating a customize reports in the system. It is popular Windows Base Report writer (report generation program) that allows the programmer to create reports from a variety of data sources with a minimum written code and view reports or requested information to help the developed system to produce a report.

Environment and Participants

The study was conducted at the Municipal Agriculture Office of Batuan located at Poblacion Sur, Batuan, Bohol. The Municipal Agriculture Office of Batuan is open every Monday to Friday at 8:00 am to 5:00 pm. The average number of farmer registered was 1,700 farmers every year.

The participants of the study were the agricultural technicians and the municipal agriculturist who were directly involved in the management and processing of the records in the Municipal agriculture Office. Presently, the agricultural technician namely corn technician, livestock technician, high value crop development program technician, rice technician, and fishery technician were the in-charge in the recording, and processing of all the information inputted. These recorded data were stored in various formats such as excel files, document/forms, and archived records.

Data Collection

The developers sent a letter of permission to the municipal agriculturist. The developers conducted a personal interview with the identified respondents, as well as an actual observation of the office operation. To obtain the necessary information, a document review was also performed. The developers looked over some references in hard copies and soft copies to have a better understanding of the data structures and to see if there were any features that could be added. The demonstration was done with agricultural technicians to gain additional information regarding the Municipal Agriculture Office current practices, and the information was written down and recorded.

Table 1 presents the summary of the respondents.

Table 1

Summary of Respondents

Respondents	No. of Respondents
Municipal Agriculturist	1
Rice Technician	1
Corn Technician	1
Livestock Technician	1
High Valued Crops Development Program Technician	1
Fishery Technician	1
IT expert	1
TOTAL	**7**

After developing the system, functionality evaluation with system usability testing was conducted. In the system usability, testing was done by rating according to the system usability questionnaire by Lewis James R. The questionnaire was given in order to identify whether the users were satisfied with the system. There were 7 respondents of the system usability the following were: livestock technician, fishery technician, rice technician, corn technician, high value crop development program technician, the municipal agriculturist and the information technology expert. The guide for the interpretation of the result of the system usability was presented in the table 2.

Table 2

Interpretation Guide of the System Usability

Weight	Range	Description	Interpretation
7	6.4 – 7.0	Strongly Agree	The respondents strongly believe and confident that the system is very usable.
6	5.5 – 6.3	Agree	The respondents believe and confident that the system is usable.
5	4.6 – 5.4	Tend to Agree	The respondents tend to agree that the system is usable.
4	3.7 – 4.5	Neither Agree or Disagree	The respondents are neutral in trusting that the system is usable.
3	2.8 – 3.6	Tend to Disagree	The respondents tend not to trust that the system is usable.
2	1.9 – 2.7	Disagree	The respondents believe that the system is not usable.
1	1.0 – 1.8	Strongly Disagree	The respondents strongly confident that the system is not usable.

In the system usability, rating was done based using the System Usability Guidelines developed by the MIT Information Services Technology.

The questionnaire assessed eight (8) areas. The average weighted mean or the weight mean score was computed to evaluate/assess the system and the web acceptability level using the following formula:

$$\mathbf{WMS} = \frac{1f_1 + 2f_2 + 3f_3 + 4f_4 + 5f_5}{N}$$

Where:

WMS = Weighted Mean Score

f_1 = frequency of respondents given a rate of 1

f_2 = frequency of respondents given a rate of 2

f_3 = frequency of respondents given a rate of 3

f_4 = frequency of respondents given a rate of 4

f_5 = frequency of respondents given a rate of 5

n = total number of respondents

1, 2…7 = constant (rating for the service provided)

OPERATIONAL DEFINITION OF TERMS

To ensure thorough understanding of the study, the terminologies and acronyms used or mentioned in this study were further defined operationally as follow:

Commodity. The agricultural extension name for livestock, fishery, rice, corn, high valued commercial crops.

Corn Technician. The person who is responsible in keeping the records of the corn master list including total area of the farm, a farm location.

Database. The collection of data entry that is well organized by the user so that it can easily access, manage, and update information. This is the storage of the farmer's information.

Database Management System. It refers to the Database Management System of the Municipal Agriculture of Batuan, Bohol.

Farmer. It refers to the farmer/constituents who need or who receive and avail the service of the Department of Agriculture of the Municipality of Batuan.

Fishery Technician. The person who is responsible in keeping the records of the fishery grower's information, the number of blocks cover, type of fingerlings and the fish production.

High Valued Crop Development Program (HVCDP) Technician. The person who is responsible in keeping the records of the variety planted and the seedling materials provided to these growers. This includes the growers of vegetables, cacao, jackfruit, guyabano, citrus, banana, rambutan and ubi.

Livestock Technician. The person who is responsible in keeping the records of the animal population and the livestock specification a livestock grower had.

Municipal Agriculture Office. It is a partner agency of the Department of Agriculture that is responsible for the promotion of the rice, corn, fishery, high valued crops, and livestock development.

Municipal Agriculturist. The person who consolidates the collected data of the municipal agriculture office of Batuan and safe keeping of all the farmers record.

Rice Technician. The person who is responsible in keeping the records of the rice master list, the total area of the farm and its location.

Server. A series of computer that links the other computer or electronic device. It often provides essential services across a network, either to private users in a large organization or to public users via internet.

Services. It refers to all the services offered by the Municipal Agriculture Office of Batuan.

Chapter 2

PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION OF DATA

Existing Operation and Processes

The Municipal Agriculture Office kept all the records of farmer information. The identified processes of keeping and retrieving the farmers record were used through the manual method. Specifically, these were the following activities:

A. Inquiry Process

All inquiries accepted by the Municipal Agriculture Office used the record book as reference, depending on the needed data. The resident of Batuan asked for farm information and the assigned technician would answer the request needed. When asked for the available services of each commodity which include seedling and planting materials and other agricultural materials offered by the commodity, the technician assisted and provided the needed materials.

B. Process of Recording

The agricultural technician conducted a survey by barangay to gather all farmers' profile and their farm information. Application forms were given to trace farmer during the survey, to become a registered farmer. The new applicant would be added to the farmers list in the record book. All collected survey information, farmers' farm record and registration form collected were stored in the technician's file folder and this was the basis for the referral purposes as needed. The electronic file was also updated with the data from the record files.

C. Data Management

The collected farmer's information, new entry applicant form, seedling beneficiary list, and production data were compiled, organize and store in a technician file folder. The needed data for the report were inputted into the electronic file and were updated after the agricultural technician accomplished another farm survey in the barangay. The farmers list would be updated if a new registered farmer would be accepted. Those data were analysed. The analysed data would be ready for the report needed by the municipal agriculture.

D. Generate Reports

In Batuan Municipal Agriculture Office, the municipal agriculturist would request a monthly report of every commodity's valuable information gathered for the month. The assigned agricultural technician would process the report and forward to the municipal agriculturist for reporting. The same process happens to the yearly generated report. Some of these reports were about the list of farmers with their personal information in an excel file. Those accomplishments and generated reports were extracted manually from the excel file or in the documents available. The consolidated hard copies would be kept in a farmers file folder.

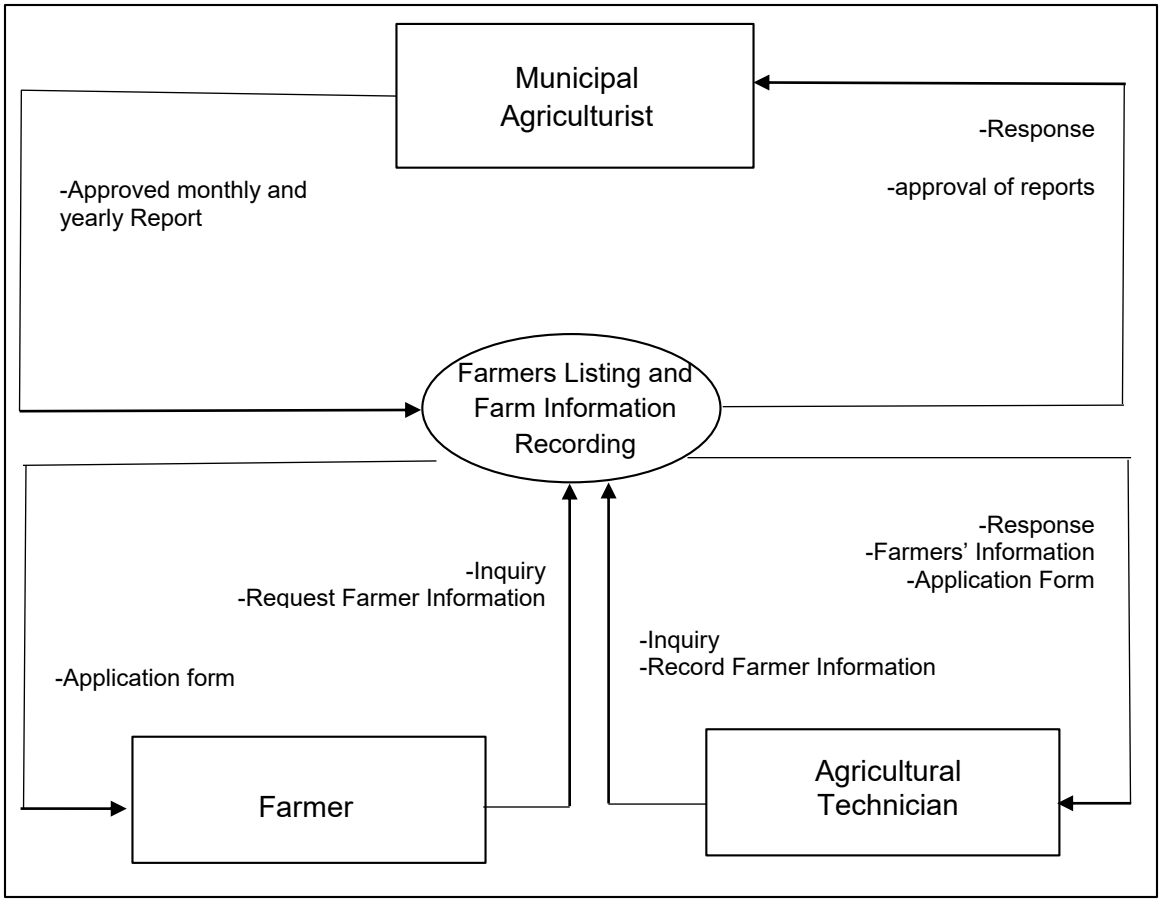


Figure 4: Context Diagram of the Present System

Event Specification

Event List:

1. Process Inquiry
2. Process of Recording
3. Data Management
4. Generaton of Reports

Event List Diagram of the Present System

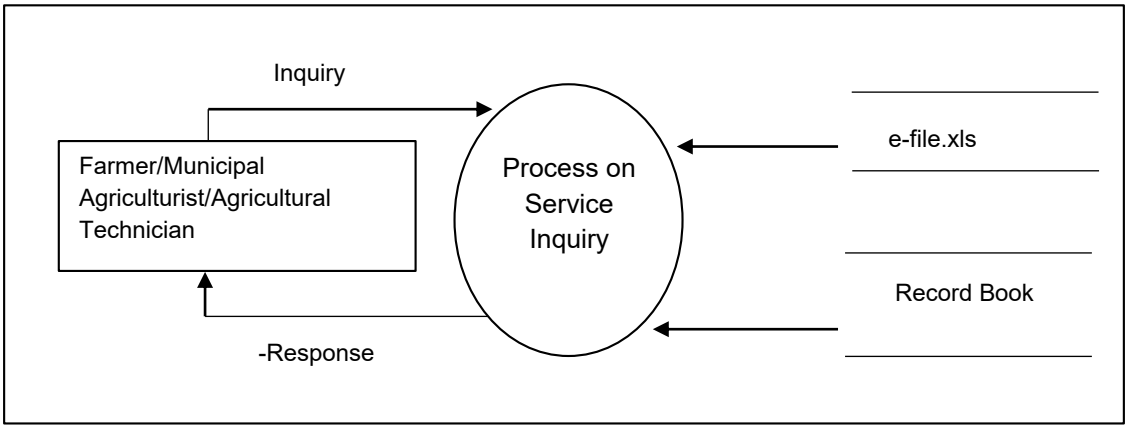


Figure 5. Service Inquiry (Event 1)

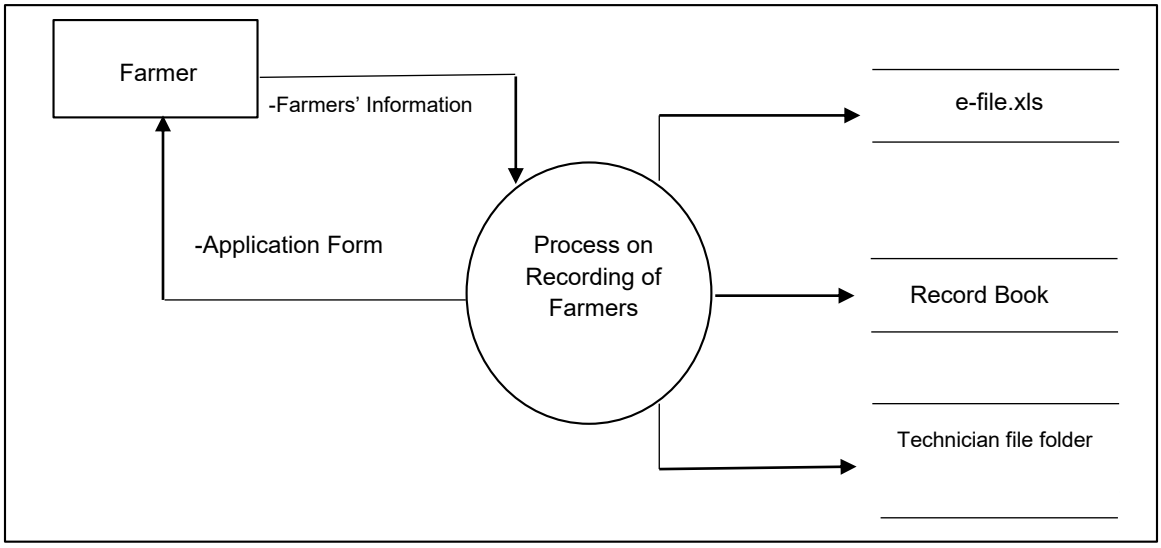


Figure 6. Process in Recording (Event 2)

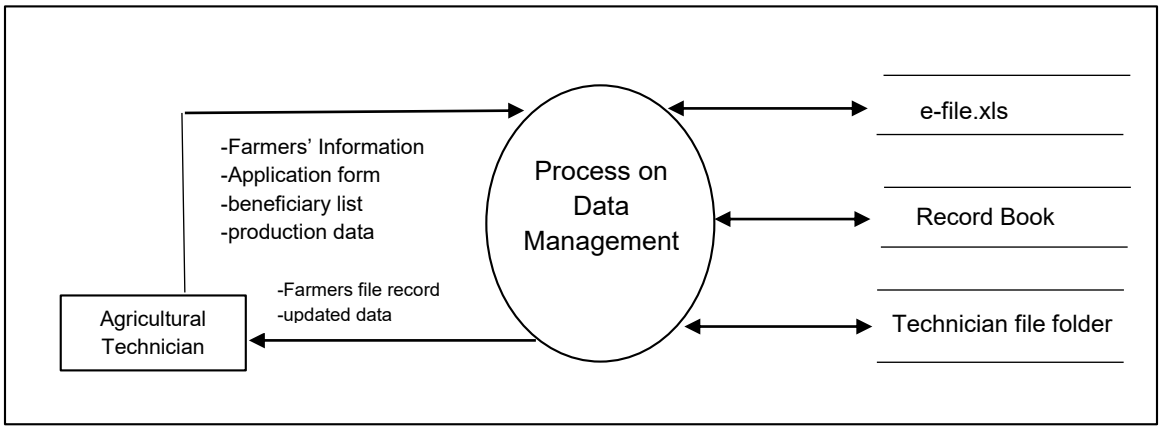


Figure 7. Data Management (Event 3)

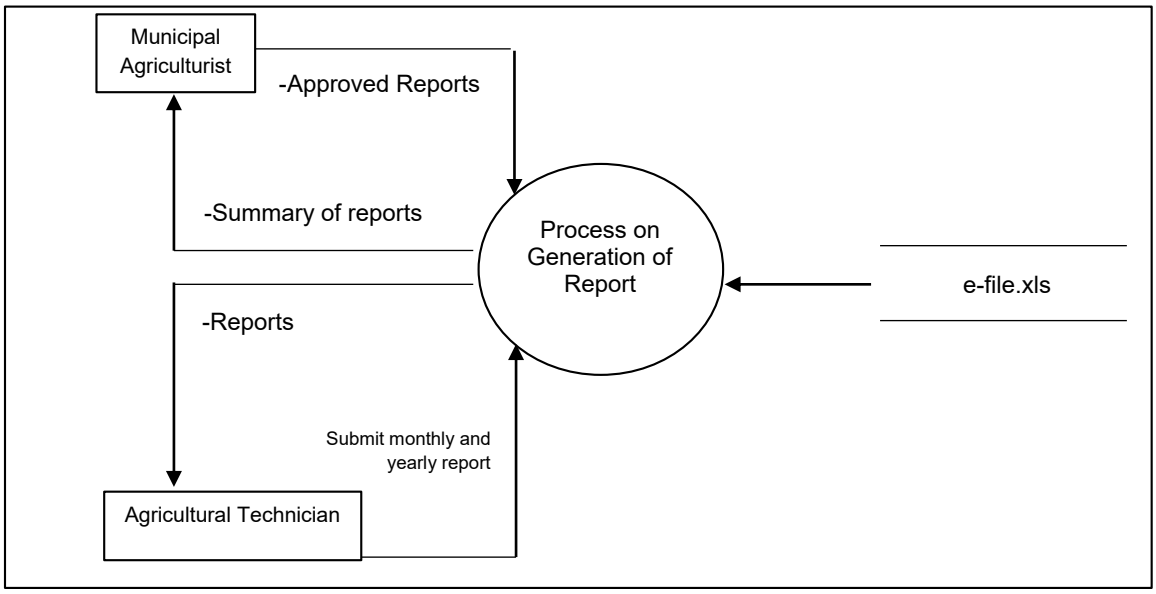


Figure 8. Generation of Reports (Event 4)

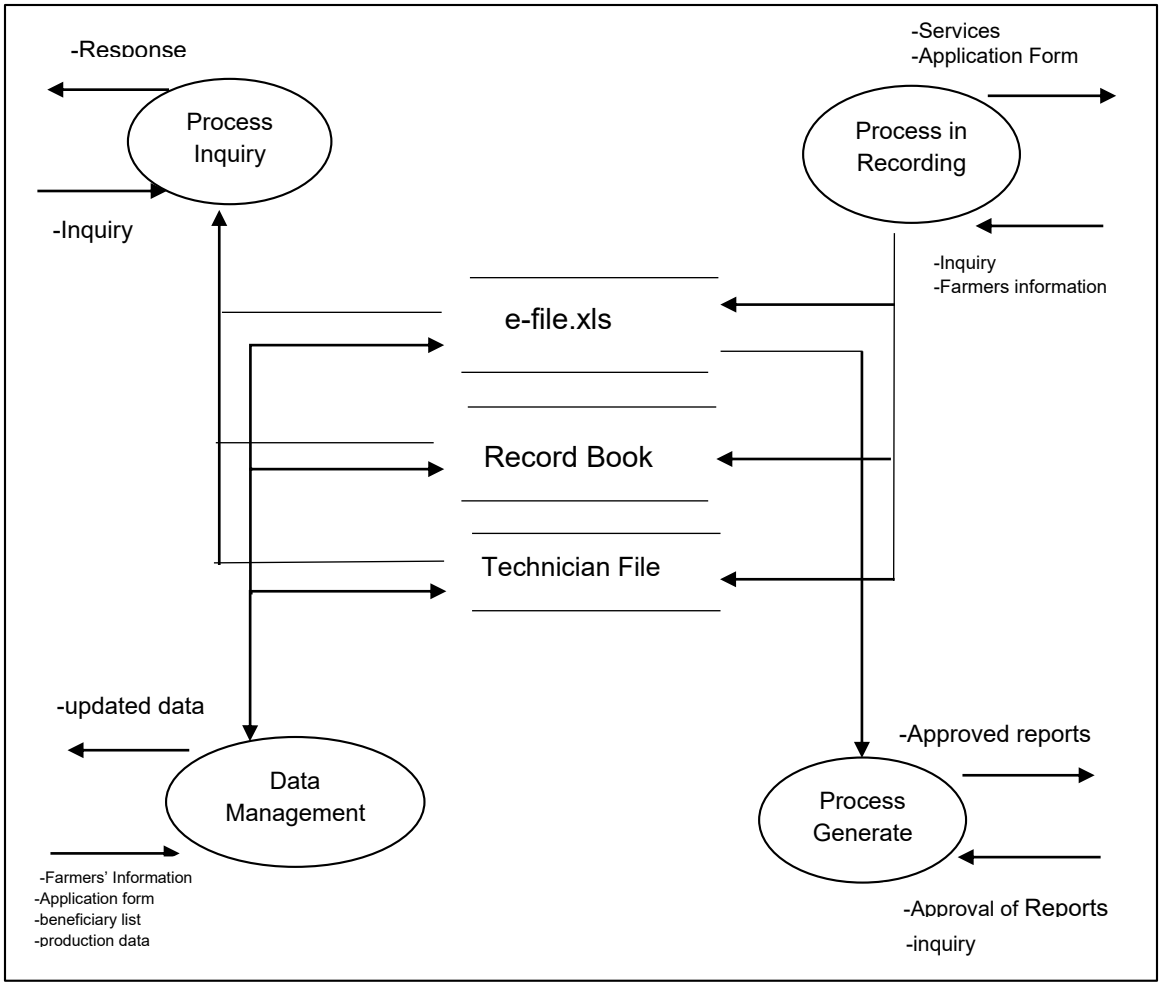


Figure 9. Top level of the present system

Needs of the Existing Operation

The present method of recording, in the Municipal Agriculture Office of Batuan, Bohol was in manual methods. Based on the developers' observation, they found out the following needs.

1. Establish and organize a secure farmer's record and services given. The farmers record file and other print out documents were stored in different folders. It added to office clutter and misplacement of these documents was possible. Records were more likely to be disarranged which was tedious during retrieval.
2. Improve the storage and retrieval of the farmers' record. Files from the survey were kept in and copied to another record book which contains similar data. The duplicity of these records promotes inconsistency of information which contributes difficulty in updating the farmers' recorded data.
3. Provide a secure database that would provide a real-time update to ensure the syncing of information across users and devices.
4. Provide a better mechanism in the monitoring of each commodity as well as collating data for reporting purposes.
5. Improve data and information dissemination. Agriculture information must be disseminated to the public to promote awareness.

Database Management System of the Municipal Agriculture Office of Batuan, Bohol

With the thorough gathering of all data and information, the developers have come up with the database management system based on the manual method of recording in the Municipal Agriculture Office. This system would cater the recording, processing and storing of information that is helpful in making the work easier, and faster. These were the following modules:

A. Administration

Log-in would be adopted by the user in order to access their responsible module and to ensure the security of all the records in the Database Management System of the Municipal Agriculture Office of Batuan, Bohol. The overall control of the system would be the municipal agriculturist who would serve as the administrator of the system. The rice technician, corn technician, livestock technician, high value crops development program technician, and fishery technician were the identified personnel registered in the system. The login would require the user type, username and password in the log in form, and should match in the table user account to access the features in their respective commodity.

B. Process in Recording

In the recording process, the farmers farm record and new applicant record gathered during the survey were inputted using the table tbfarmerslist,

tbricemasterlist, tblivestock, tbfisherymasterlist, tbcornmasterlist, tbfarmerlist, tbbeneficiaries and fishproduction. Each municipal agriculturist/agricultural technician would access for data entry to facilitate submission of data.

C. Data Management

In managing the data, the agricultural technician collected the farmer's information, new entry applicant form, seedling beneficiary list, and production data. These data were putted and updated to the system in the table tbfarmerslist, tbricemasterlist, tblivestock, tbfisherymasterlist, tbcornmasterlist, tbvegefarmerlist, tbbeneficiaries and fishproduction. The updated data were analyzed and prepare for submission of reports.

D. Generate Reports

The reports presented include the list of report from every commodity, namely: high valued crop development program masterlist report from tbvegefarmerlist, high valued crop development program beneficiaries from tbbeneficiaries, fishery report masterlist from tbfisherymasterlist, fishery production report from fishproduction, livestock report from tblivestock, rice report from tbricemasterlist, corn report from tbcornmasterlist. The graphical report included the masterlist by barangay and the masterlist report by commodity from tbfarmerlist and other commodity table.

Use Case Diagram

The Use Case Diagram presented the primary actors that were involved in the system, namely: the municipal agriculturist that checks the generated reports, rice technician, corn technician, livestock technician, fishery technician and high valued crop development program technician who record, manage and search and view farmer's information.

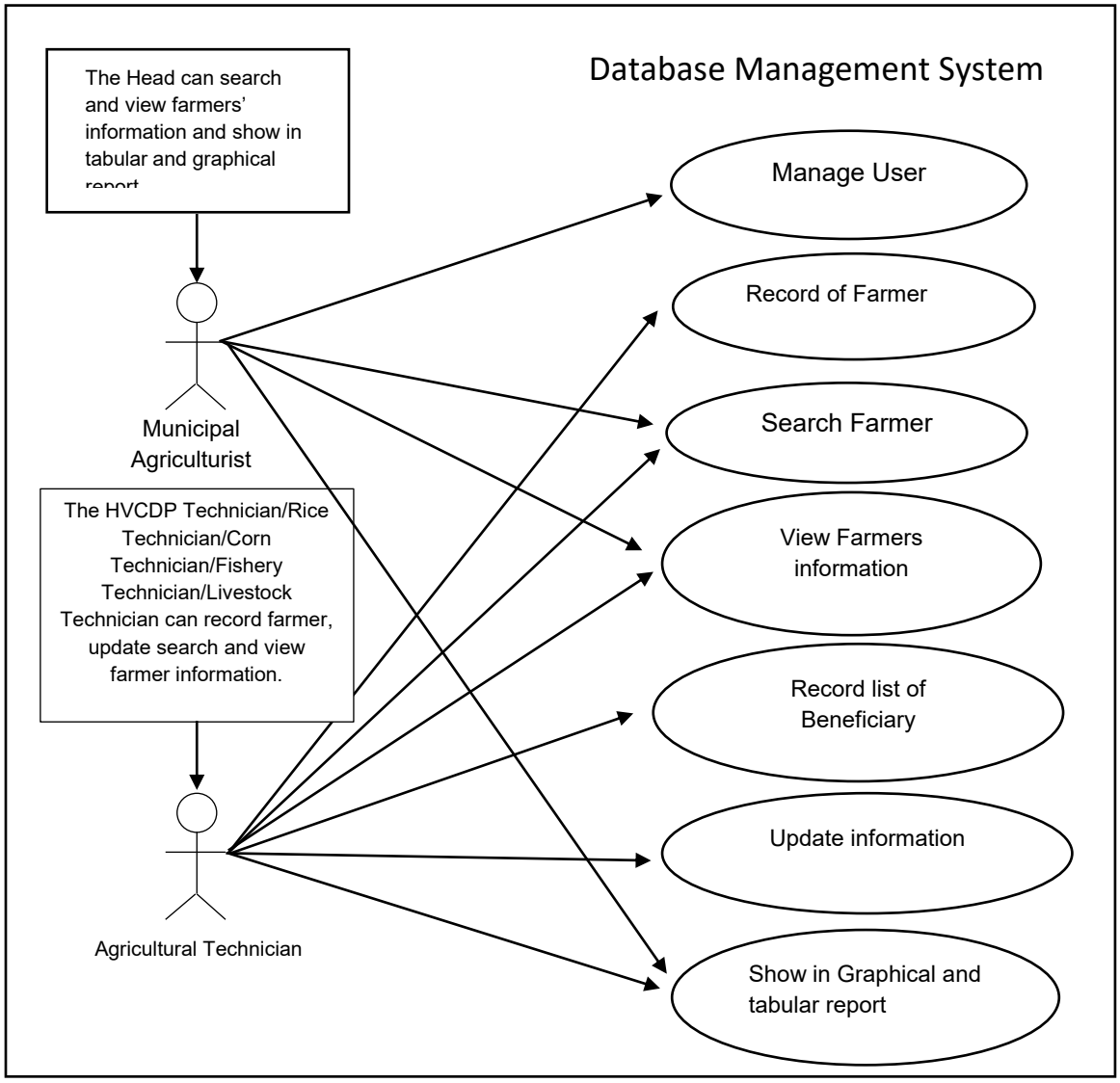


Figure 10. Use Case Diagram

Use Case Description

Table 3

Use Case Description- Manage User.

Use Case Name	Add User
Scenario	The Municipal Agriculturist will add user by allowing personnel to create an account based on the commodity handled by the technician.
Triggering Events	The head decides who will be saved as a user. creates an account by inputting the user type, name, username and password
Brief Description	After logging in the agricultural technician can access and input farmer's details.
Actors	Municipal Agriculturist.
Related Use Cases	
Stakeholders	Municipal Agriculturist/Agricultural Technician and other offices: view, update farmers details
Pre-Conditions	Add User; be able to fill out all necessary fields for login. Add button must be clicked.
Post-Conditions	New User will be saved to the Database server.

Table 4

Use Case Description- Record of Farmer's Profile.

Use Case Name	Record Farmer's Profile
Scenario	The Agricultural Technician will input the information of the farmer's profile and all the record of the survey conducted.
Triggering Events	The technician successfully logged in the account of the given commodity, agricultural technician to be able to access the input form of the system for farmers' profile and farm details.
Brief Description	The technician can input and save the data recorded in the database server.
Actors	Agricultural Technician (corn, livestock, HVCDP, rice, and fishery)
Related Use Cases	
Stakeholders	Municipal Agriculturist/Agricultural Technician and other offices: view, update farmers details

Pre-Conditions	Satisfy log in form; be able to fill out all necessary fields for input and update data that are needed. Save button must be clicked.
Post-Conditions	New data will be saved to the Database server and updated details will be made available.

Table 5

Use Case Description – Searching of Farmers Profile.

Use Case Name	Search Farmers Record
Scenario	The administrator and users can search the information of the farmer's profile and record.
Triggering Events	The Municipal Agriculture/Agricultural technician will input the textbox provided, then click the search button in order to see the list of farmers.
Brief Description	Users can Search farmer in the search box.
Actors	Municipal Agriculturist, Agriculture Technician (corn, livestock, HVCDP, rice, and fishery).
Related Use Cases	Recording
Stakeholders	Municipal Agriculturist, Agriculture Technician: search the updated rice farmer's details.
Pre-Conditions	Provide search field.
Post-Conditions	View the searched record

Table 6

Use Case Description – Viewing Farmer's Information

Use Case Name	View farmers' information
Scenario	The administrator and users can view the information of the farmer's profile and farm record.
Triggering Events	The administration and users will click the record menu and choose the information wanted to view, including masterlist, HVCDP, beneficiaries, livestock, rice, corn, and fishery and production.
Brief Description	The administration and users choose information wanted to view.
Actors	Municipal Agriculturist, Agriculture Technician (corn, livestock, HVCDP, rice, and fishery).
Related Use Cases	
Stakeholders	Municipal Agriculturist, Agriculture Technician: views updated farmer's detail.
Pre-Conditions	Permits viewing of farmers detail.
Post-Conditions	View updated farmers' detail.

Table 7

Table 7 Use Case Description – Recording of Beneficiary.

Use Case Name	Recording of Beneficiary
Scenario	The agricultural technician can record beneficiary in the record book
Triggering Events	The agricultural technician will input the textbox provided, then click the search button in order to see the list of farmers and then input the beneficiary receive.
Brief Description	The user can search farmer in the search box.
Actors	Agriculture Technician
Related Use Cases	Recording
Stakeholders	Agriculture Technician: adds and updates the beneficiary record
Pre-Conditions	Provide adding and updating of beneficiary
Post-Conditions	View the beneficiary list

Table 8

Use Case Description – updating farmers farm information.

Use Case Name	Updating farmers farm information
Scenario	The agriculture technician can update farm information after collecting new farm information and also new farmer applicant
Triggering Events	The agricultural technician can now update the farm information and the masterlist.
Brief Description	Users can add and update information
Actors	Agriculture Technician (corn, livestock, HVCDP, rice, and fishery).
Related Use Cases	Recording
Stakeholders	Agriculture Technician: updates farmer information
Pre-Conditions	Provide updating and editing
Post-Conditions	View the updated information

Table 9

Use Case Description- Showing tabular and graphical report

Use Case Name	Show Graphical Report
Scenario	The Municipal Agriculturist and Agriculture Technician want to view and print tabular and graphical representation
Triggering Events	The Municipal agriculturist and Agriculture Technician then view and print the Tabular and Graphical Report.
Brief Description	The Municipal Agriculturist shows and print records in tabular and Graphical Report.
Actors	Municipal Agriculturist, Agricultural Technician (corn, livestock, HVCDP, rice, and fishery)
Related Use Cases	
Stakeholders	Municipal Agriculturist/Agricultural Technician: show in a graphical report
Pre-Conditions	Able to show tabular and graphical report
Post-Conditions	Make a report and print out in tabular and graphical report.

Class Diagram

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structures of a system by showing the system's classes, their attributes, operation (or methods), and the relationship among the classes.

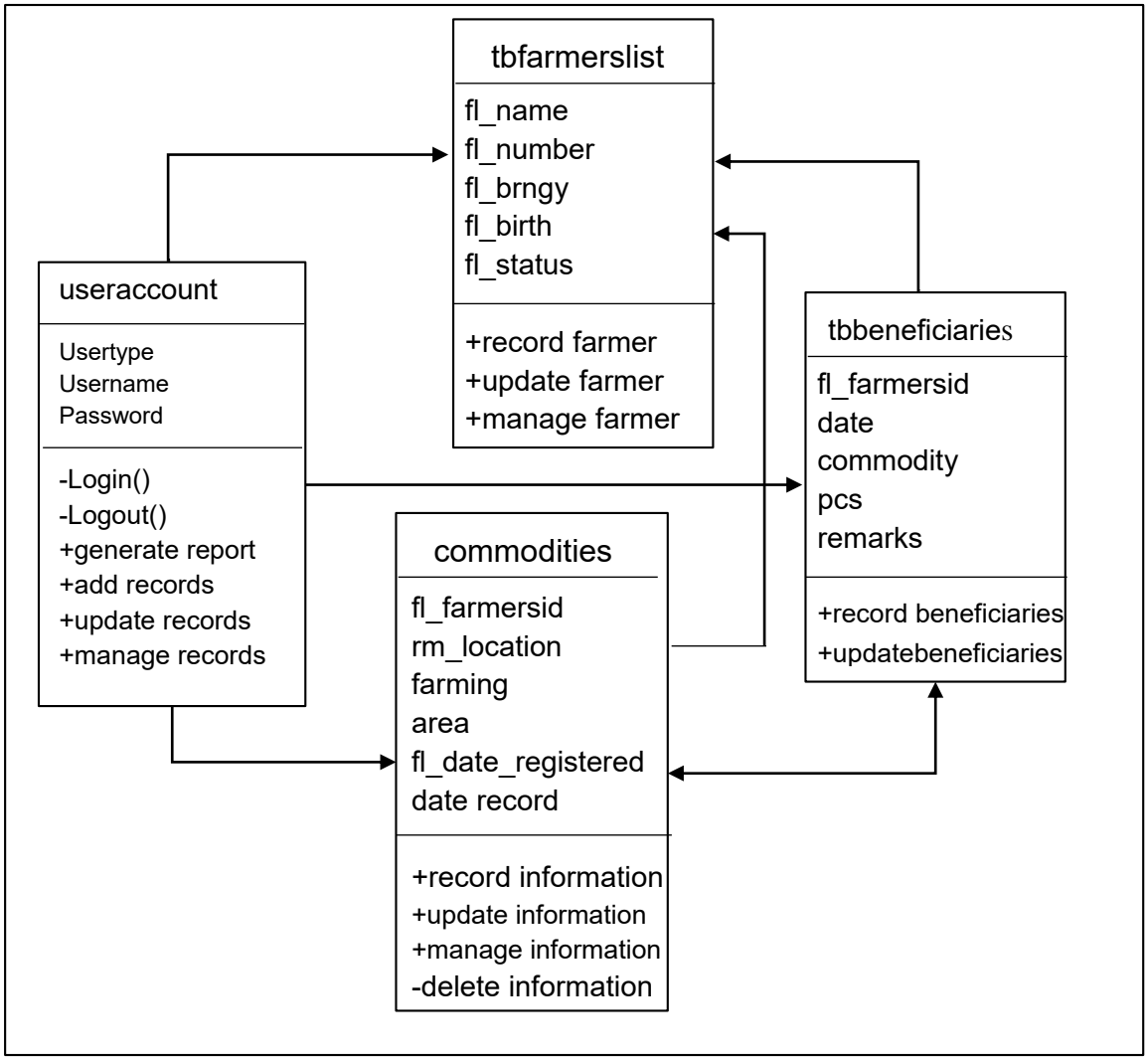


Figure11: Class diagram

Program Hierarchy

A program hierarchy is a chart to organize the flow of data through a business system's process. Each module is represented by a box which contains the module's name.

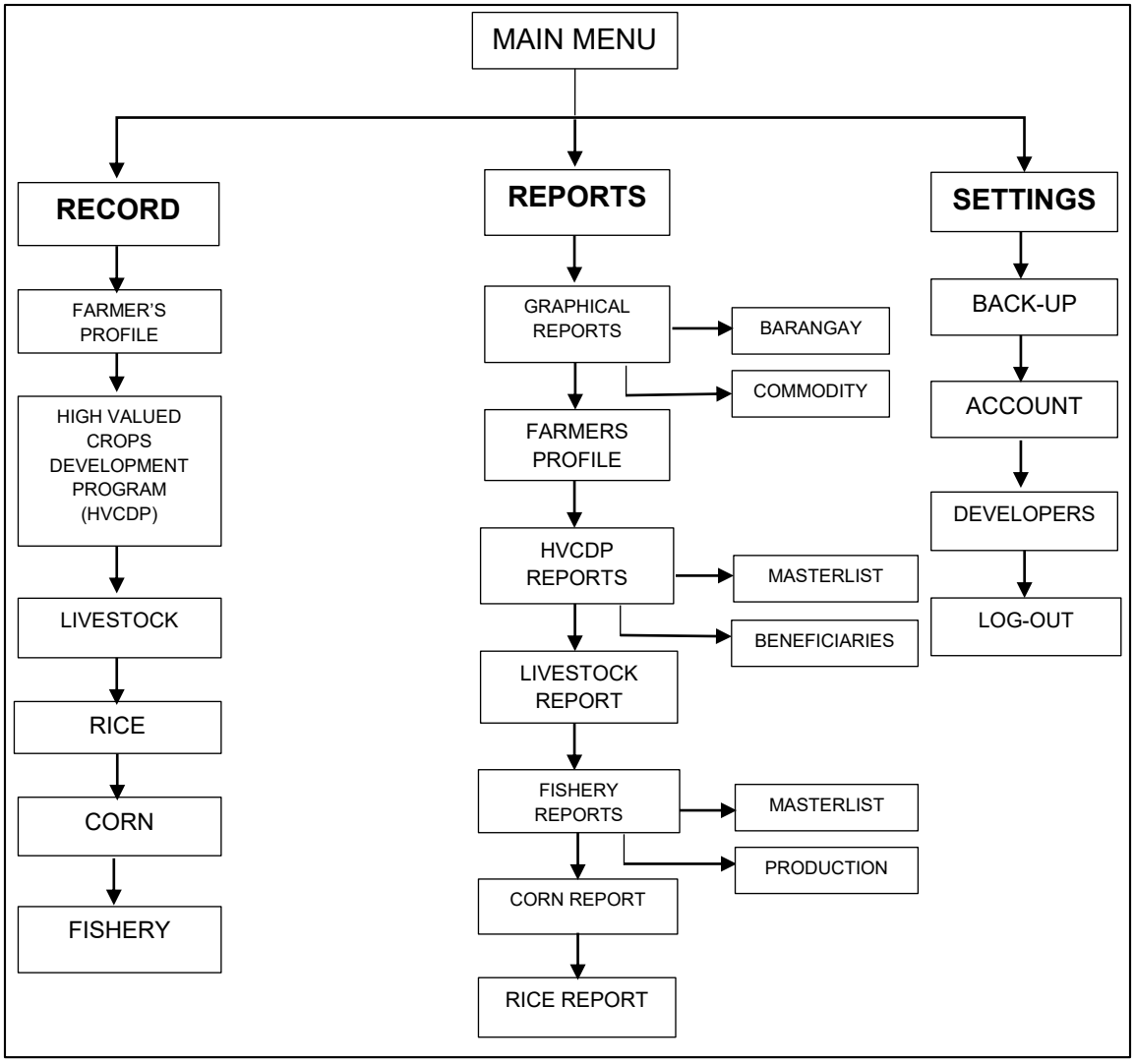


Figure 12. Program Hierarchy

Database Design

Designing the relational database is a crucial part of making the system. It serves as the building blocks of the system because it is the storage of important data and information that are needed by the system to function. The developers designed a new system which serves as a building of the system, enhance in checking the information of the farmers and to improve the recording and storage of all farmers' data.

The developer aimed a new system that would be used in the Municipal Agriculture Office of Bataun, Bohol. The Database Management System of the Municipal Agriculture office of Batuan, Bohol. The persistence of the design was to produce a solution to the problem and helps clients for an easy submission and retrieval of records.

Data Structure

Data Structure is an integral part in data design. It shows, field name, data type, expected size and description of the table.

Table 10

Data Structure for Login

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	User id
2	usertype	Varchar	30	User type
3	username	Varchar	30	User name
4	password	Varchar	30	User password

Table 11

Data structure for Farmers Masterlist

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	20	RBSA Registration no.
4	fl_lname	Varchar	20	Lastname of farmer
5	fl_fname	Varchar	20	Firstname of farmer
6	fl_mname	Varchar	20	Middlename farmer
7	fl_number	Varchar	12	Contact Number
8	fl_brgy	Varchar	20	Barangay Address
9	fl_purok	Varchar	15	Purok Address
10	fl_birth	Date		Birthdate of farmer
11	fl_age	Integer	3	Age of farmer
12	fl_sex	Varchar	7	Sex of farmer
13	fl_regist	Varchar	20	Registry status
14	fl_date_registered	Date		Date registered

Table 12

Data Structure for HVC Masterlist

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	30	RSBSA Farmer reg. no
4	variety	Varchar	20	Variety planted
5	hectare	Double		Total hectare planted
6	hills	Integer	10	Number of hills
7	dplanted	Date		Date of planted
8	dharvest	Date		Date of harvest
9	date_recorded	Date		Date Recorded

Table 13

Data Structure for HVC Beneficiaries

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmer's ID
3	date	Date		Date of distribution
4	lname	Varchar	20	Lastname of beneficiary
5	fname	Varchar	20	Firstname of beneficiary
6	mname	Varchar	20	Middlename beneficiary
7	brgy	Varchar	20	Barangay
8	purok	Varchar	15	Purok
9	commodity	Varchar	40	Type of Commodity
10	pcs	Varchar	10	Number of pieces
11	packs	Varchar	10	Number of packs
12	remarks	Varchar	30	Remarks

Table 14

Data Structure for Livestock Masterlist

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Lsid	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	20	RSBSA Farmer reg. no
4	ls_location	Varchar	30	Location of the farm
5	ls_category	Varchar	20	Category of livestock
6	ls_head	Integer	4	Number of heads
7	fl_date_registered	Date		Date registered

Table 15

Data Structure for Rice Masterlist

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	20	RSBSA Farmer reg. no
4	rm_location	Varchar	30	Ricefield's Location
5	farming	Varchar	20	Tilled land
6	area	Varchar	10	Total area of ricefield
7	fl_date_registered	Date		Date registered

Table 16

Data Structure for Corn Masterlist

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	20	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	20	RSBSA Farmer reg. no
4	farmlocation	Varchar	30	Ricefield's Location
5	variety	Varchar	20	Tilled land
6	hectare	Varchar	15	Total area of ricefield
7	fl_date_registered	Date		Date registered

Table 17

Data Structure for Fishery Masterlist

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	20	RSBSA Farmer reg. no
4	farmlocation	Varchar	30	Location of the farm
5	fisherytype	Varchar	20	Type of fishery
6	culturetype	Varchar	50	Type of culture
7	species	Varchar	20	Type of species
8	blocks	Varchar	12	Number of blocks
9	areasqm	Varchar	15	Area/square meter
10	fl_date_registered	Date		Date registered

Table 18

Data Structure for Fishery Production

FIELD	FIELD NAME	TYPE	WIDTH	DESCRIPTION
1	Id	Integer	50	Identification no.
2	fl_farmersid	Varchar	50	Farmers Id
3	registno	Varchar	20	RSBSA Farmer reg. no
4	production	Float		No of production
5	source	Varchar	50	Source of fingerlings
6	fingerlings	Varchar	20	No. of fingerlings
7	socking	Date		Date of socking
8	harvest	Date		Date of Harvest
9	old	Varchar	20	Month old
10	buyer	Varchar	50	Buyer of production
11	remark	Varchar	20	Remarks

Technical Requirements

Hardware, software and peopleware are the three important components required in the computerization of the system. This is necessary for proper usage so that system would be used to its fullest capacity.

The hardware refers to the physical part of the computer system. It has a component that basically facilitates the processing of data, namely; microprocessor, hard disk drive (HDD), Random Access Memory (RAM). These parts are responsible for fast processing of data and provide storage capacity and should be compatible and reliable.

Software is the intangible part of the computer system. It can read and perform tasks with the desired command. It is a set of instruction which the computer translates into a machine-readable format so that it can be

manipulated. The software produces an output that can be understood by human. A software has to be accurate, reliable, and user friendly.

Peopleware is the user who would operate the computer and who are involved in the system. These personnel must be capable of operating the system in order to have an effective and efficient result in processing information.

Minimum Hardware Specification

Minimum Specification refers to the stipulation of a hardware device that can still meet the minimum system requirements. This covers the minimum hardware specification needed by the software to function properly as intended and expected. These were based on what is available in the market and what most computer package system offers.

Component	Specification
Hard disk drive	280 gigabytes
Microprocessor	Intel Celeron 1.10 GHz
Random Access Memory (RAM)	2 gigabytes

Minimum Software Specification

The Database Management System of Municipal Agriculture Office of Batuan requires different software to function and operate properly. This software was enumerated below with its corresponding specifications.

Item	Specification
Operating System	Windows 7
Wamp Server	Version 3.2.3
Mysql	Version 55.7.31

Economic Performance

The Municipal Agriculture Office may know the benefits brought by the Database Management System. This section determines the proposed budget of resources that would be used.

In the presentation of the economic performance evaluation, the length of time it takes for the new system to operate and the system usability and expenses is determined, in order for them to give an idea whether they will precede the computerized or not.

Table 19

Initial Investment Annual Operating Cost

Items	Quality	Unit	Unit Price	Total
A. 1. Hardware				
Desktop Computer	1	Set	Php 17,000.00	Php 17,000.00
Printer	1	Unit	Php 7,500.00	Php 7,500.00
Router		Unit	Php 3,000.00	Php 3,000.00
			SUBTOTAL	Php 27,500.00
A. 2. Software				
Software			Php 15,000.00	Php 15,000.00
Software development			Php 3,000.00	Php 3,000.00
System installation			Php 1,000.00	Php 1,000.00
			SUBTOTAL	Php 19,000.00
	TOTAL			Php 46,500.00

B. Annual Operating Cost				
A. Office Supplies				
Bondpaper	5	Reams	Php 156.00	Php 780.00
Folder	6	Pieces	Php 6.00	Php 36.00
Fastener	6	Pieces	Php 2.00	Php 12.00
Printer ink cyan	6	Pieces	Php 275.00	Php 1,650.00
Magenta	1	Piece	Php 275.00	Php 275.00
Yellow	1	Piece	Php 275.00	Php 275.00
Black	1	Piece	Php 275.00	Php 275.00
			SUBTOTAL	Php 3,303.00

C. Utilities				
Electricity	12	Months	Php 2,300.00	Php 2,300.00
D. General Devices				
System Maintenance	4	Quarter	Php 2,500.00	Php 2,500.00
TOTAL				Php 8,103.00
GRAND TOTAL				Php 54,603.00

Functional Requirements

A functional requirement defines a function of a software system or its components. A function is described as a set of inputs, the behavior and outputs. Functional requirements may be calculations, technical details, data manipulation, and processing and other specific functionality that defines what a system is supposed to accomplish. The functional requirements were formulated with the use of prototype in eliciting the requirement. The functionalities mentioned were based from the existing standard requirements of the information system with the approval and coordination from the respondent as follows.

Process Log In

FREQ1: System Access must be password-protected

FREQ2: System Access must have a confirmation of the user type, username and password if it is correct

FREQ3: The system should have a confirmation of the user type, username and password if it is incorrect

Farmer's recording:

FREQ4: The system should allow the rice technician, corn technician, livestock technician, fishery and HVCDP to record the farmer's registration information

FREQ5: The system should allow the municipal agriculturist, rice technician, corn technician, livestock technician, fishery and HVCDP technician to search the farmer's information.

FREQ6: The system should allow recording of all farmer's commodity details.

FREQ7: The system should allow the municipal agriculturists to view all files from different commodities gathered information.

Data Management:

FREQ8: The system should allow the agricultural technicians to view, update and edit farmers' information.

FREQ9: The system should allow agricultural technicians to update, add, analyze and prepare the valuable data which is used, in the reporting process of the Municipal Agriculture Office.

FREQ10: The system should allow adding and updating farmers, farm information and new applicant of farmer for registration.

FREQ11: The system should allow the agricultural technician to view, add and update.

Process Reporting:

FREQ8: The system should allow the technicians to view, search and print reports.

FREQ8: The system should allow provides municipal agriculturist with graphical and tabular reports for business intelligence which is used in the decision making of the Municipal Agriculture Office.

Non Functional Requirements

Non-Functional Requirements are requirements that specify the criteria that would be used to judge the operation of a system, rather than specific behaviors. This should be contrasted with functional requirements that define specific behavior or function.

NFREQ1: This should operate on an operating system like windows.

NFREQ2: The system should be used in Local Area Network.

Test Cases

The test case is a set of condition under which a tester determines whether an application of software is working correctly or not. This is a detailed procedure that fully tests a feature, or an aspect of a feature. It is also a set of input values, execution preconditions, results, and executions, developed for a particular objectives or test condition, such as to exercise a program path or to verify compliance with a specific requirement.

These are the test case scenarios conducted during the acceptance testing. The test plan is to let the users use the system following the instructions in each test case of the proposed system. The system should perform the expected result in each test case in order to be considered successful. The following are the details of each test case.

Administration

User Account Log-in

Test Case 1:

Module: Login of the Municipal Agriculturist

Severity: 1

Instructions:

1. In the “Login form”, input the user type, username and password.
2. Then click “Login” button

Expected Results:

1. Homepage of the system for the municipal agriculturist should be displayed.

Test Case 2:

Module: Login of the High Value Crops Development Program (HVCDP) Technician

Severity: 1

Instructions:

1. In the “Login form”, input the user type, username and password.

2. Then click “Login” button.

Expected Results:

1. Homepage of the system for the high value crops development program (HVCDP) technician should be displayed.

Test Case 3:

Module: Login of the Livestock Technician

Severity: 1

Instructions:

1. In the “Login form”, input the user type, username and password.
2. Then click “Login” button.

Expected Results:

1.Homepage of the system for the livestock technician should be displayed.

Test Case 4:

Module: Login of the Rice Technician

Severity: 1

Instructions:

1. In the “Login form”, input the user type, username and password.
2. Then click “Login” button.

Expected Results:

1.Homepage of the system for the rice technician should be displayed.

Test Case 5:

Module: Login of the Corn Technician

Severity: 1

Instructions:

1. In the “Login form”, input the user type, username and password.
2. Then click “Login” button.

Expected Results:

1.Homepage of the system for the corn technician should be displayed.

Test Case 6:

Module: Login of the Fishery Technician

Severity: 1

Instructions:

1. In the “Login form”, input the user type, username and password.
2. Then click “Login” button.

Expected Results:

1.Homepage of the system for the fishery technician should be displayed.

Process in Recording

Test 1:

Module: Recording of the Masterlist

Severity: 1

Instructions:

1. On the main menu, click “Masterlist” button
2. Input farmer’s information.
3. Click “Save” button

4. Click “Yes” command for confirmation.

Expected Result:

1.It should be successfully saved.

2.The new added farmer should be displayed.

Test 2:

Module: Recording of the HVCDP Masterlist

Severity: 1

Instructions:

1.On the main menu, click “HVCDP Masterlist” button

2.Input HVC Farmer’s Information

3.Click “Save” button

Expected Result:

1.It should be successfully saved.

2.The new added farmer should be displayed.

Test 3:

Module: Recording of the Beneficiaries

Severity: 1

Instructions:

1.On the main menu, click “Beneficiary”.

2.Input Beneficiary information

3.Click “Save” button.

4.Click “Yes” command for confirmation.

Expected Result:

1.Beneficiaries form display report.

Test 4:

Module: Recording of the Livestock Farmers

Severity: 1

Instructions:

1.On the main menu, click “Livestock Masterlist” button

2.Input Livestock information

3.Click “Save” button.

4.Click “Yes” command for confirmation.

Test 5:

Module: Recording of the Rice Farmers

Severity: 1

Instructions:

1.On the main menu, click “Rice Masterlist” button

2.Input Rice information

3.Click “Save” button.

4.Click “Yes” command for confirmation.

Test 6:

Module: Recording of the Corn Masterlist

Severity: 1

Instructions:

1.On the main menu, click “Corn Masterlist” button

2.Input Corn information

3.Click “Save” button.

4.Click “Yes” command for confirmation.

Test 7:

Module: Recording of the Fishery Masterlist

Severity: 1

Instructions:

1.On the main menu, click “Fishery Masterlist” button

2.Input fishery information

3.Click “Save” button.

4.Click “Yes” command for confirmation.

Reports

Test1.

Module. List of Farmers Masterlist

Severity. 1

Instructions:

1. On the main menu, click "Report". Then select "Masterlist Report" in the sub menu.
2. Select Year then view the report.

Expected Result.

1. It should be successfully displayed.

Test 2:

Module: Graphical Report of Masterlist by Barangay

Severity: 1

Instructions:

1. On the main menu, click “Report”. Then select “G Report” in the sub menu. Then click “By Barangay”.
2. Select Barangay.
3. Input year. Then click “View Report”.

Expected Result:

1.It should be successfully displayed.

Test 3:

Module: High Valued Crops Development Program Masterlist Report

Severity: 1

Instructions:

1.On the main menu, click “Masterlist Report” button.

2.Select Date. Then click “View Report”.

Expected Result:

1.It should be successfully displayed.

Test 4:

Module: High Valued Crops Development Program Beneficiary Report

Severity: 1

Instructions:

1.On the main menu, click “Beneficiary Report” button.

2.Select Year and Commodity Distributed. Then click “View Report”.

Expected Result:

1.It should be successfully displayed

Test 5:

Module: Fishery Masterlist Report

Severity: 1

Instructions:

1.On the main menu, click “Masterlist Report”.

2.Select date recorded. Then click “View Report”.

Expected Result:

1.It should be successfully displayed.

Test 6:

Module: Fishery Production Report

Severity: 1

Instructions:

1.On the main menu, click “Production Report”.

2.Select Month. Then click “View Report”.

Expected Result:

1.It should be successfully displayed.

Test 7:

Module: Livestock Report

Severity: 1

Instructions:

1. On the main menu, click “Report”. Then select “Seeds Stock Report” in the sub menu. Then click “Rice”.

Expected Result:

1.It should be successfully displayed.

Test 8:

Module: Rice Masterlist Report

Severity: 1

Instructions:

1.On the main menu, click “Masterlist Report”.

2.Select date. Then “View Report”

Expected Result:

1.It should be successfully displayed.

Test 9:

Module: Corn Masterlist Report

Severity: 1

Instructions:

1. On the main menu, click “Masterlist Report”. Then select Date Recorded. Then click “View Report”.

Expected Result:

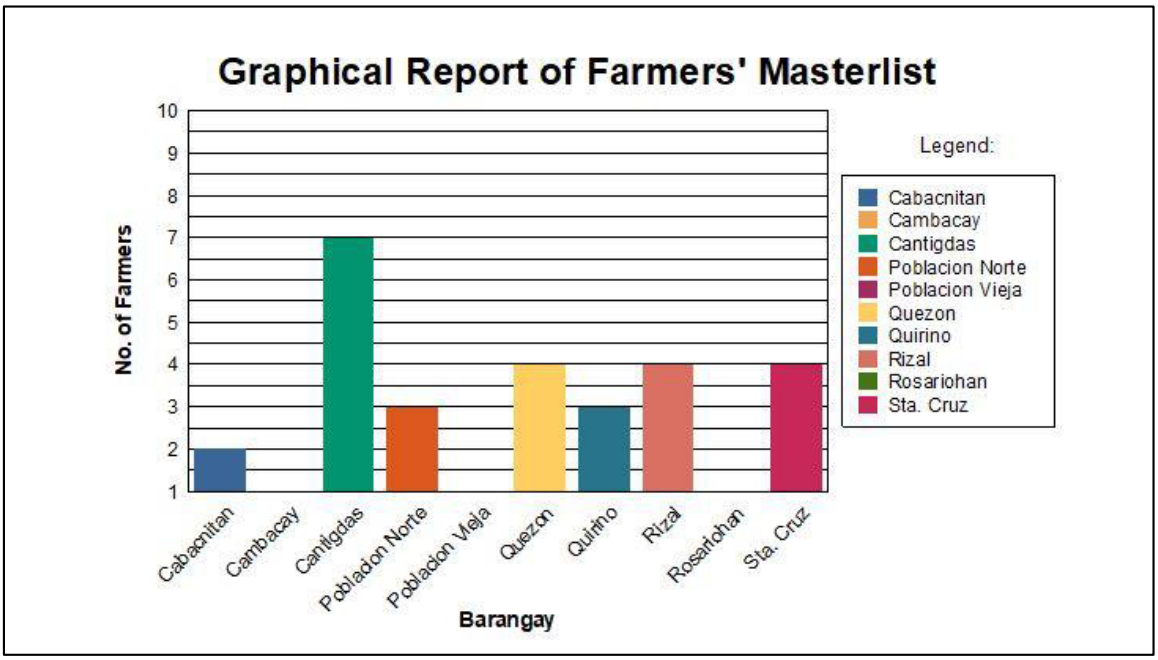
1. It should be successfully displayed.

Business Intelligence Integration

Business intelligence means the ability of an organization to collect, maintain, and organize knowledge. It aims to support better business techniques and decision-making with solutions that take Business Intelligence (BI) to a whole new level and get the right information.

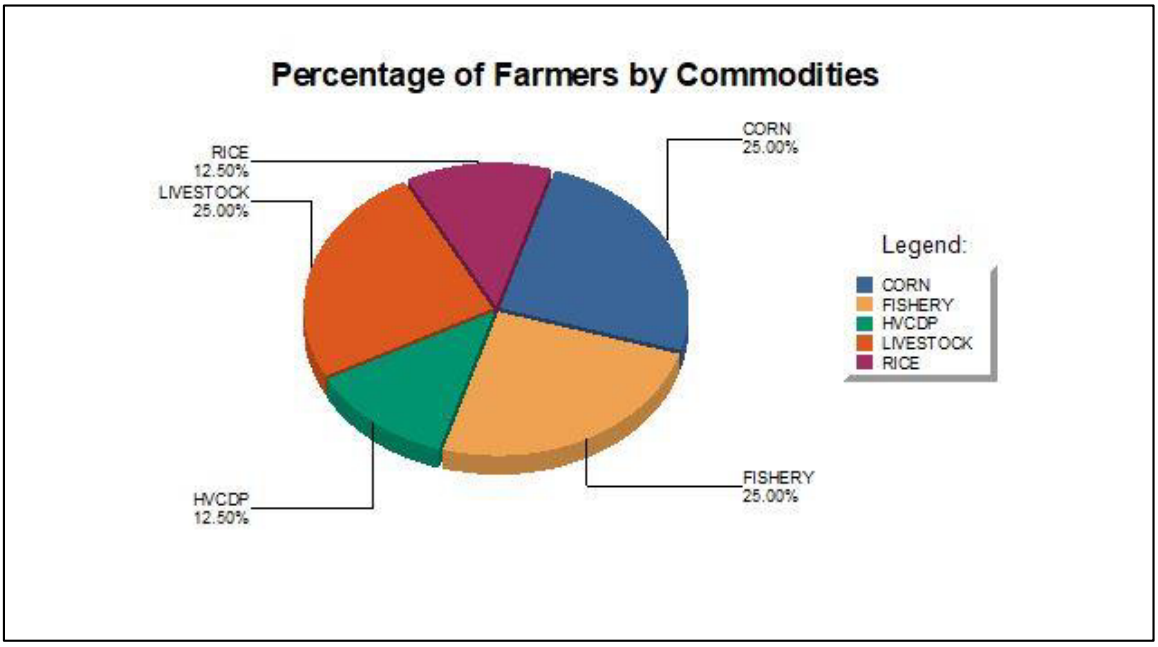
The system used the tabular and graphical type of Business Intelligence reporting. The system integrated business intelligence specifically in the query and reporting component. Each report is generated by joining more than on a table in the connectivity of the database. This ensures the accuracy and consistency of the data in the report. Reports are shown below on how business intelligence applied in the system.

Preview 1 shows the graphical report of farmers' masterlist by barangay.



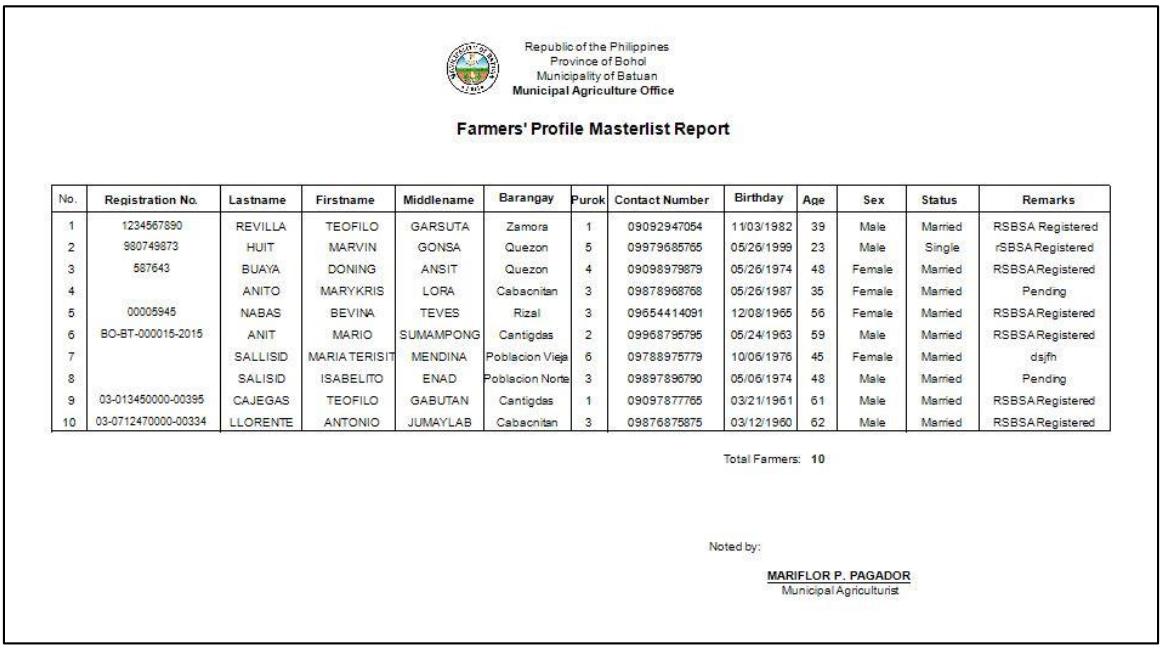
Preview 1. Graphical Report of Farmers' Masterlist by Barangay

Preview 2 illustrates the graphical report of farmers by Commodity.



Preview 2. Graphical Report of Farmers by Commodity

Preview 3 shows the farmers' profile masterlist report.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Farmers' Profile Masterlist Report

No.	Registration No.	Lastname	Firstname	Middlename	Barangay	Purok	Contact Number	Birthday	Age	Sex	Status	Remarks
1	1234567890	REVILLA	TEOFILO	GARSUTA	Zamora	1	09092947054	11/03/1982	39	Male	Married	RSBSA Registered
2	980749873	HUIT	MARVIN	GONSA	Quezon	5	09979685765	05/26/1999	23	Male	Single	rSBSA Registered
3	587643	BUAYA	DONING	ANSIT	Quezon	4	09098979879	05/26/1974	48	Female	Married	RSBSA Registered
4		ANITO	MARYKRIS	LORA	Cabacnitan	3	09878968768	05/26/1987	35	Female	Married	Pending
5	00005945	NABAS	BEVINA	TEVES	Rizal	3	09654414091	12/08/1965	56	Female	Married	RSBSA Registered
6	BO-BT-000015-2015	ANIT	MARIO	SUMAMPONG	Cantigdas	2	09968795795	05/24/1963	59	Male	Married	RSBSA Registered
7		SALLISID	MARIA TERISIT	MENDINA	Poblacion Vieja	6	09788975779	10/06/1976	45	Female	Married	dsjfh
8		SALISID	ISABELITO	ENAD	Poblacion Norte	3	09897896790	05/06/1974	48	Male	Married	Pending
9	03-013450000-00395	CAJEGAS	TEOFILO	GABUTAN	Cantigdas	1	09097877765	03/21/1961	61	Male	Married	RSBSA Registered
10	03-0712470000-00334	LLORENTE	ANTONIO	JUMAYLAB	Cabacnitan	3	09876875875	03/12/1960	62	Male	Married	RSBSA Registered

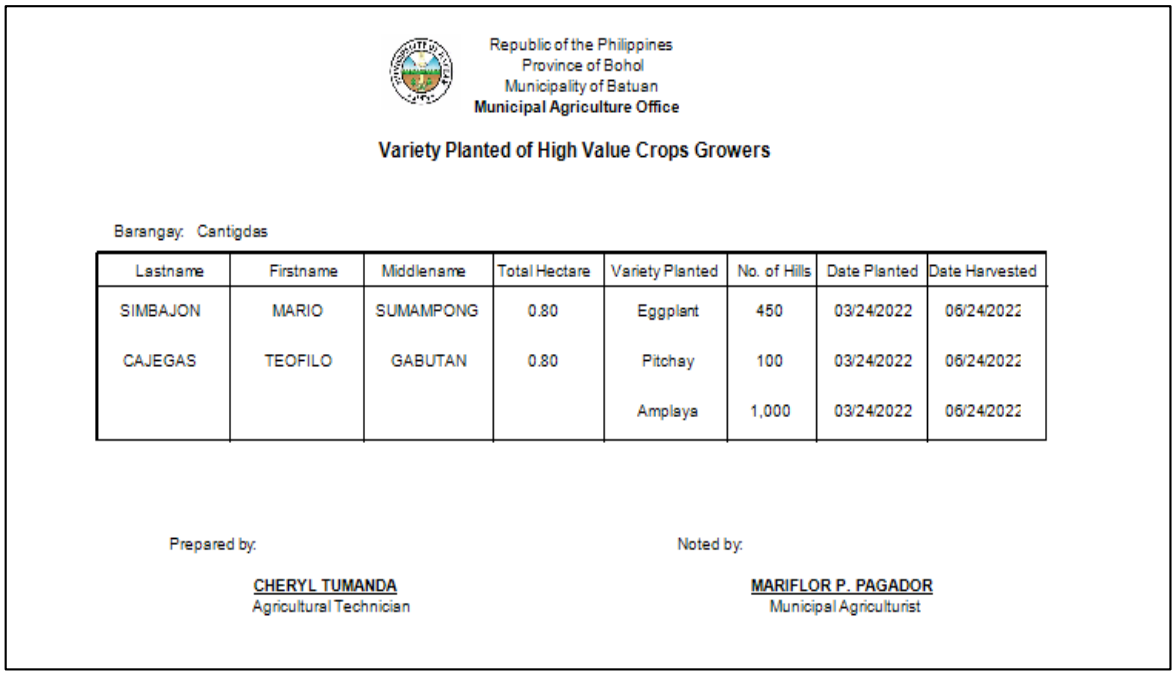
Total Farmers: **10**

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 3. Farmers' Profile Masterlist Report

Preview 4 presents the variety planted of high value crops growers.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Variety Planted of High Value Crops Growers

Barangay: Cantigdas

Lastname	Firstname	Middlename	Total Hectare	Variety Planted	No. of Hills	Date Planted	Date Harvested
SIMBAJON	MARIO	SUMAMPONG	0.80	Eggplant	450	03/24/2022	06/24/2022
CAJEGAS	TEOFILO	GABUTAN	0.80	Pitchay	100	03/24/2022	06/24/2022
				Amplaya	1,000	03/24/2022	06/24/2022

Prepared by:

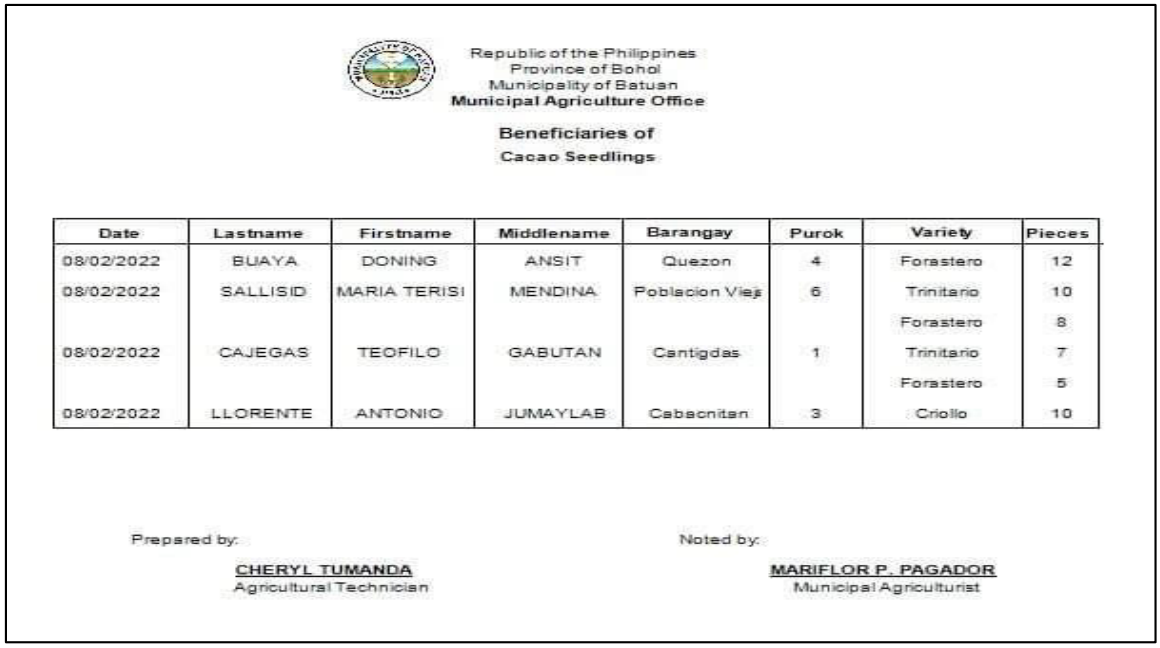
CHERYL TUMANDA
Agricultural Technician

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 4. HVCDP Report Planting

Preview 5 presents the beneficiary of cacao seedlings.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Beneficiaries of
Cacao Seedlings

Date	Lastname	Firstname	Middlename	Barangay	Purok	Variety	Pieces
08/02/2022	BUAYA	DONING	ANSIT	Quezon	4	Forastero	12
08/02/2022	SALLISID	MARIA TERISI	MENDINA	Poblacion Viej	6	Trinitario	10
						Forastero	8
08/02/2022	CAJEGAS	TEOFILO	GABUTAN	Cantigdas	1	Trinitario	7
						Forastero	5
08/02/2022	LLORENTE	ANTONIO	JUMAYLAB	Cabecnitan	3	Criollo	10

Prepared by:

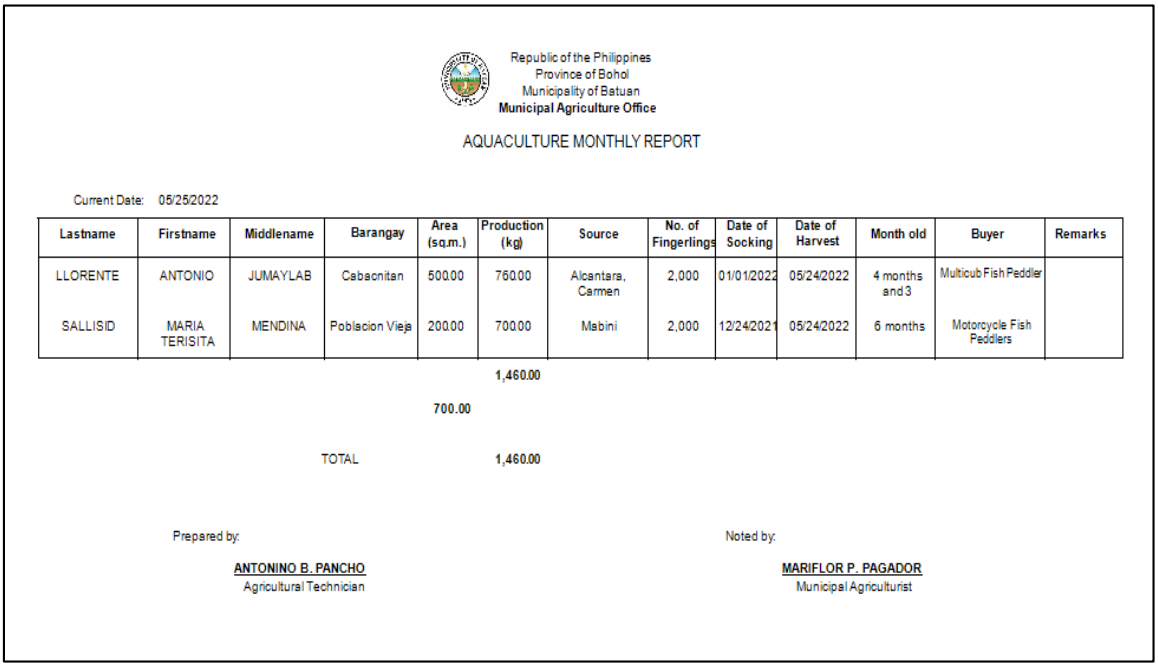
CHERYL TUMANDA
Agricultural Technician

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 5. Beneficiaries of Cacao Seedlings

Preview 6 shows the aquaculture monthly report.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

AQUACULTURE MONTHLY REPORT

Current Date: 05/25/2022

Lastname	Firstname	Middlename	Barangay	Area (sq.m.)	Production (kg)	Source	No. of Fingerlings	Date of Socking	Date of Harvest	Month old	Buyer	Remarks
LLORENTE	ANTONIO	JUMAYLAB	Cabacnitan	500.00	760.00	Alcantara, Carmen	2,000	01/01/2022	05/24/2022	4 months and 3	Multicub Fish Peddler	
SALLISID	MARIA TERISITA	MENDINA	Poblacion Vieja	200.00	700.00	Mabini	2,000	12/24/2021	05/24/2022	6 months	Motorcycle Fish Peddlers	
					1,460.00							
				700.00								
			TOTAL		1,460.00							

Prepared by:

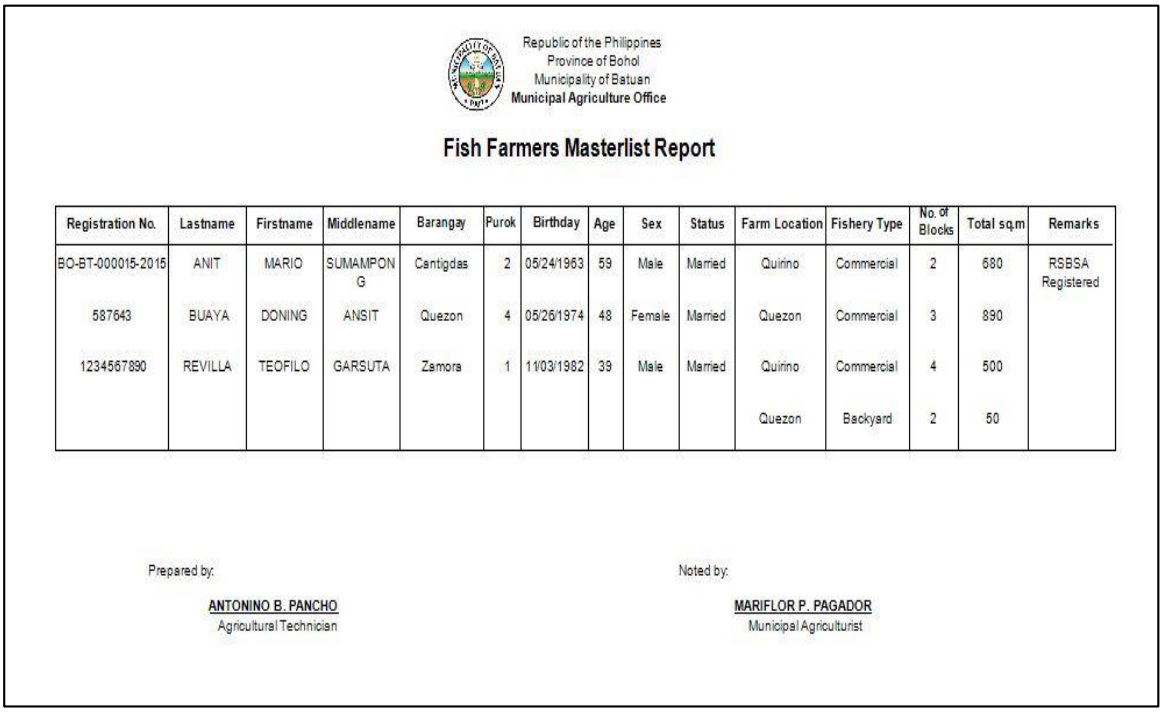
ANTONINO B. PANCHO
Agricultural Technician

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 6. Fishery Production Report

Preview 7 presents the fishery masterlist report.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Fish Farmers Masterlist Report

Registration No.	Lastname	Firstname	Middlename	Barangay	Purok	Birthday	Age	Sex	Status	Farm Location	Fishery Type	No. of Blocks	Total sq.m	Remarks
BO-BT-000015-2015	ANIT	MARIO	SUMAMPONG	Cantigdas	2	05/24/1963	59	Male	Married	Quirino	Commercial	2	680	RSBSA Registered
587643	BUAYA	DONING	ANSIT	Quezon	4	05/26/1974	48	Female	Married	Quezon	Commercial	3	890	
1234567890	REVILLA	TEOFILO	GARSUTA	Zamora	1	11/03/1982	39	Male	Married	Quirino	Commercial	4	500	
										Quezon	Backyard	2	50	

Prepared by:

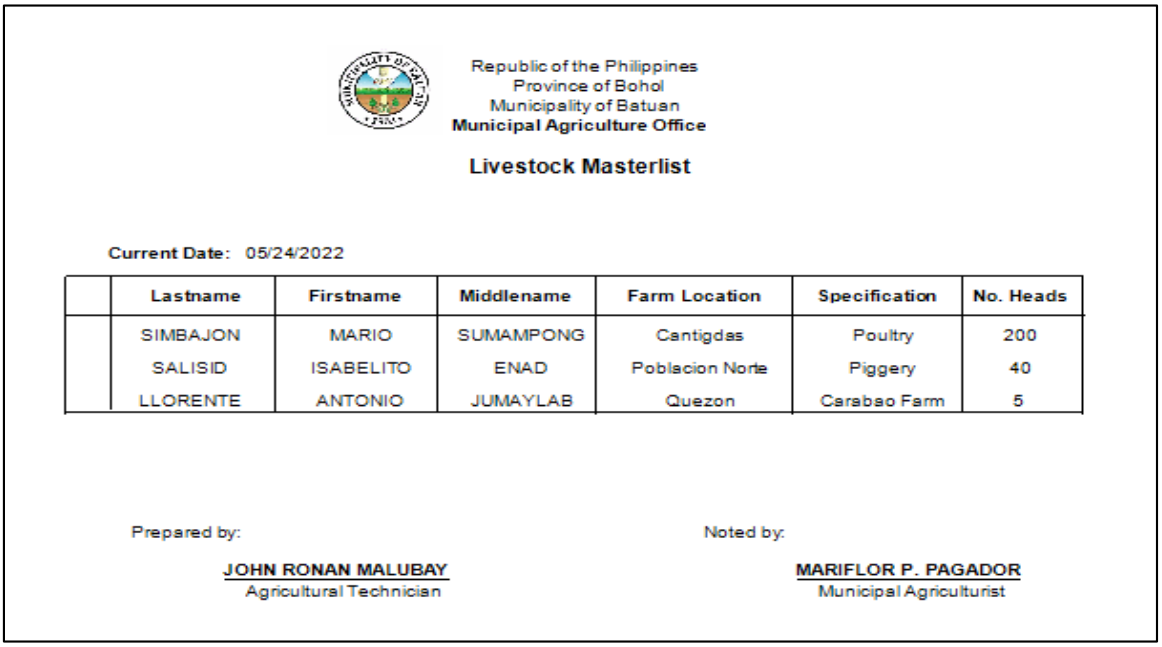
ANTONINO B. PANCHO
Agricultural Technician

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 7. Fishery Masterlist Report

Preview 8 illustrates the livestock masterlist report.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Livestock Masterlist

Current Date: 05/24/2022

	Lastname	Firstname	Middlename	Farm Location	Specification	No. Heads
	SIMBAJON	MARIO	SUMAMPONG	Cantigdas	Poultry	200
	SALISID	ISABELITO	ENAD	Poblacion Norte	Piggery	40
	LLORENTE	ANTONIO	JUMAYLAB	Quezon	Carabao Farm	5

Prepared by:

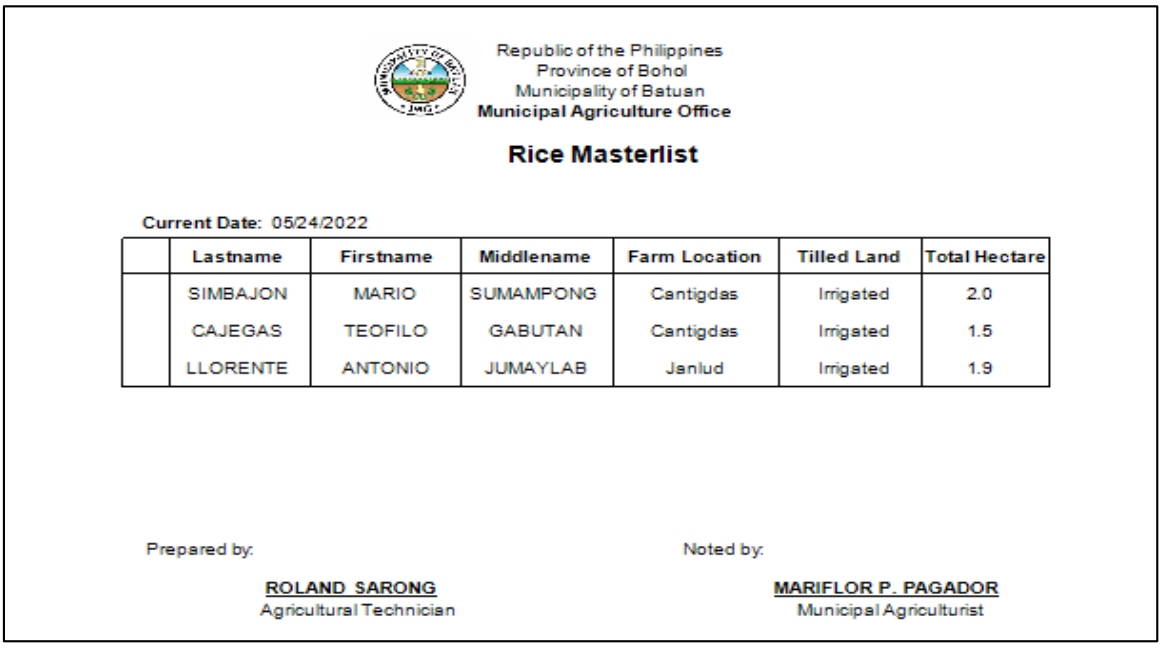
JOHN RONAN MALUBAY
Agricultural Technician

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 8. Masterlist of Livestock Report

Preview 9 shows the rice masterlist report.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Rice Masterlist

Current Date: 05/24/2022

	Lastname	Firstname	Middlename	Farm Location	Tilled Land	Total Hectare
	SIMBAJON	MARIO	SUMAMPONG	Cantigdas	Irrigated	2.0
	CAJEGAS	TEOFILO	GABUTAN	Cantigdas	Irrigated	1.5
	LLORENTE	ANTONIO	JUMAYLAB	Janlud	Irrigated	1.9

Prepared by:

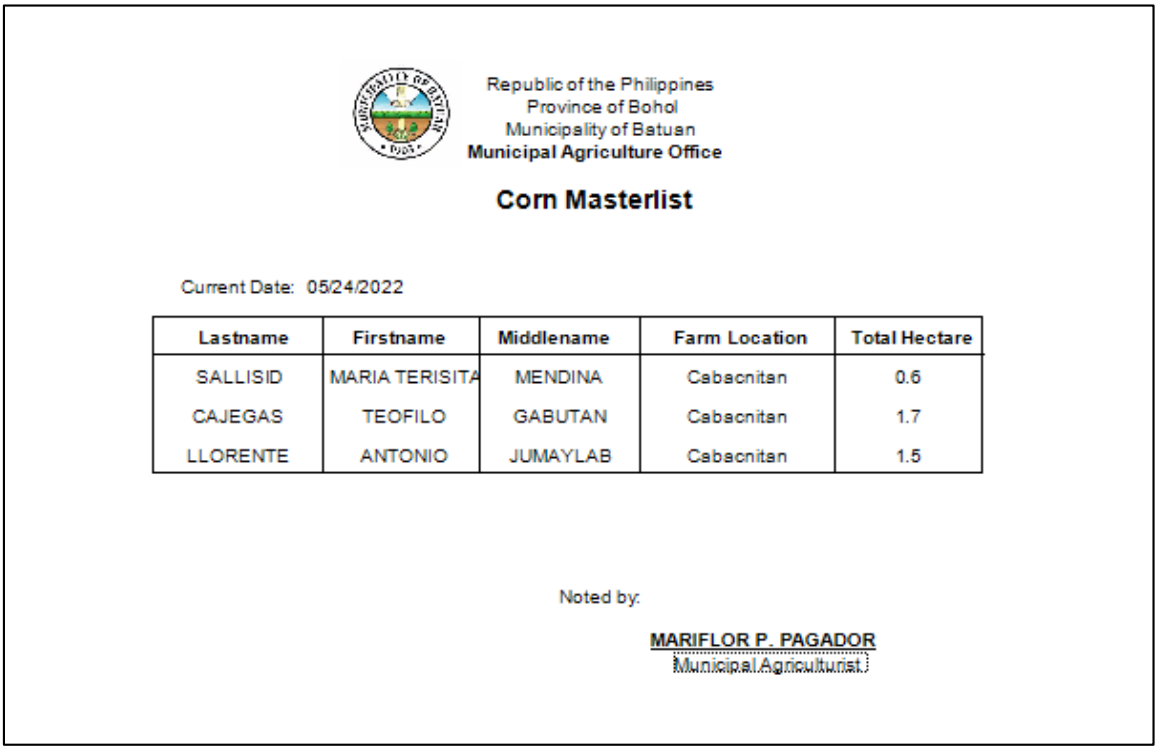
ROLAND SARONG
Agricultural Technician

Noted by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 9. Rice Masterlist Report

Preview 10 presents the corn masterlist report.



Republic of the Philippines
Province of Bohol
Municipality of Batuan
Municipal Agriculture Office

Corn Masterlist

Current Date: 05/24/2022

Lastname	Firstname	Middlename	Farm Location	Total Hectare
SALLISID	MARIA TERISITA	MENDINA	Cabacnitan	0.6
CAJEGAS	TEOFILO	GABUTAN	Cabacnitan	1.7
LLORENTE	ANTONIO	JUMAYLAB	Cabacnitan	1.5

Noted by:

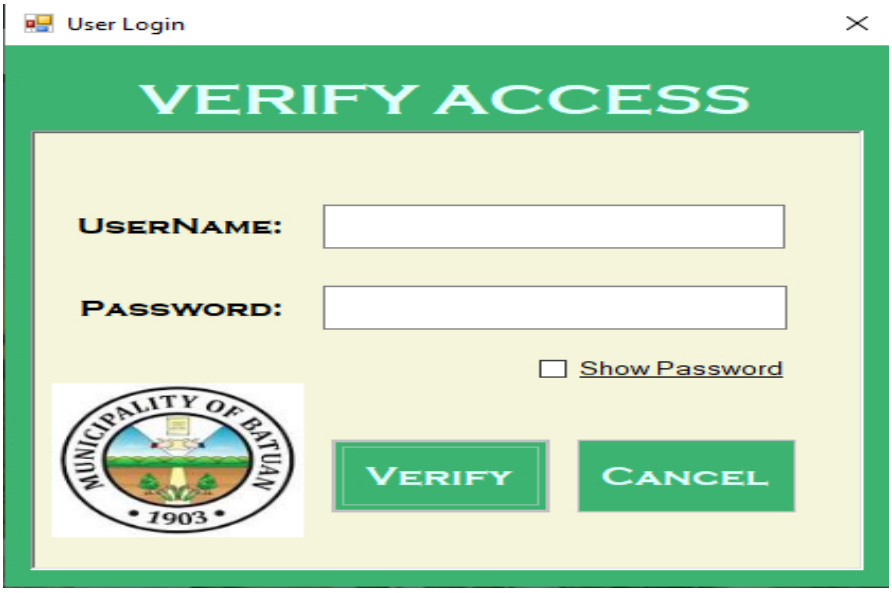
MARIFLOR P. PAGADOR
Municipal Agriculturist

Preview 10. Corn Masterlist Report

Screen Layout

Screen Layout is one of the many attributes of the system's user friendliness. It should be designed in such a way the browsers can navigate the system quickly and easily and it should provide a clear recognition of the task the users need to perform.

Preview 11 illustrates the login form to access the main form of the system.

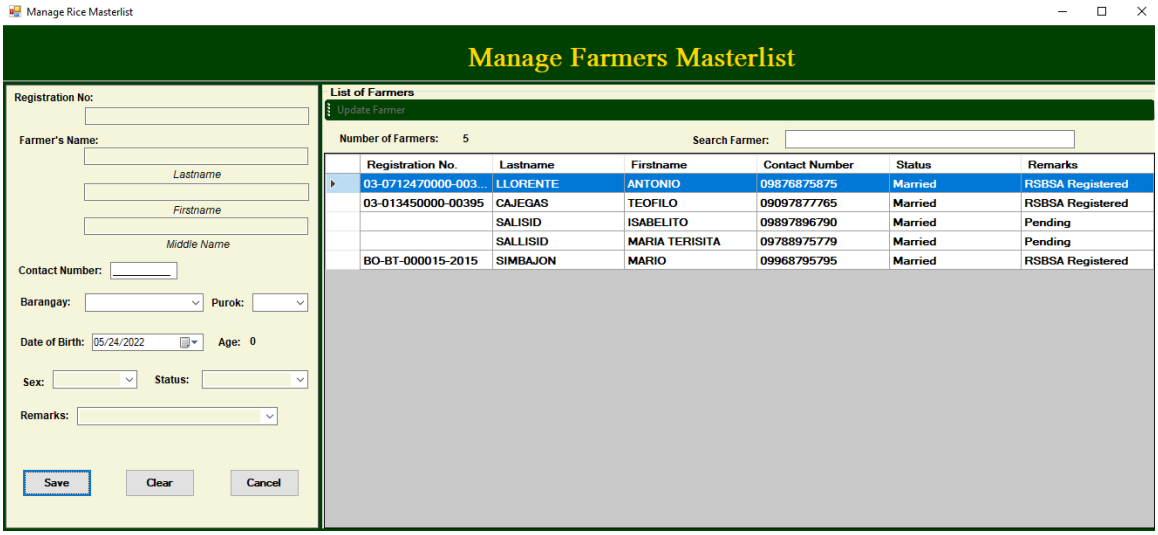


Preview 11. User's login form

Preview 12 shows the main form of the system that displays all the menus.

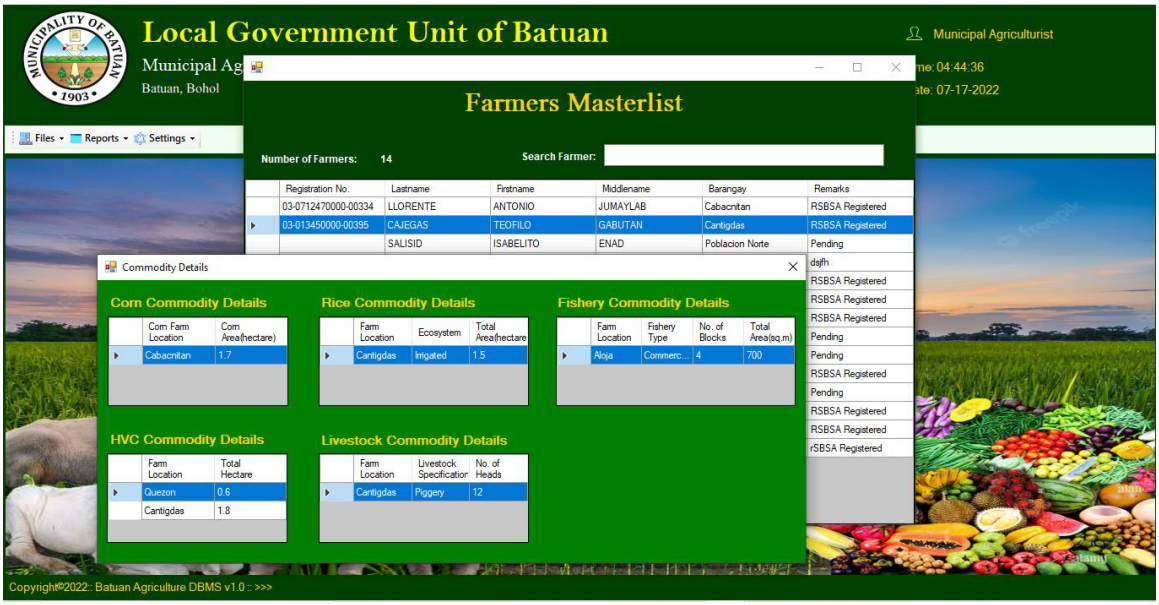
Preview 12. The Main Form

Preview 13 presents the form in adding masterlist information.



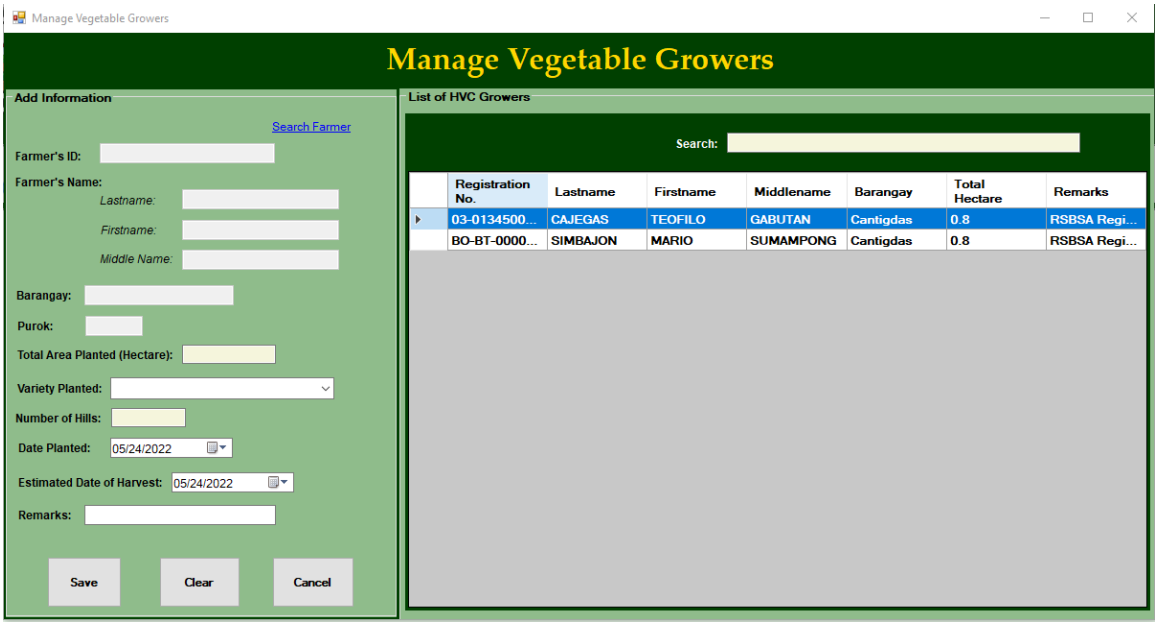
Preview 13. Adding Masterlist Information

Preview 14 shows the form in displaying the commodity owned by farmers.



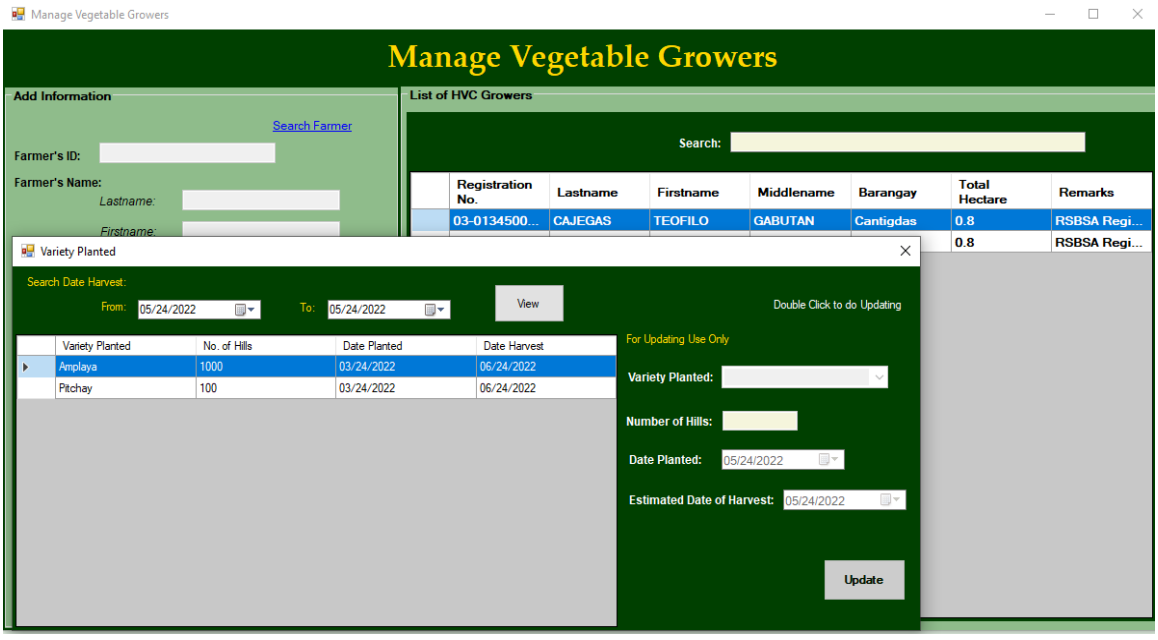
Preview 14. Commodity Owned by a Farmer

Preview 15 illustrates the form in Adding HVCDP Masterlist



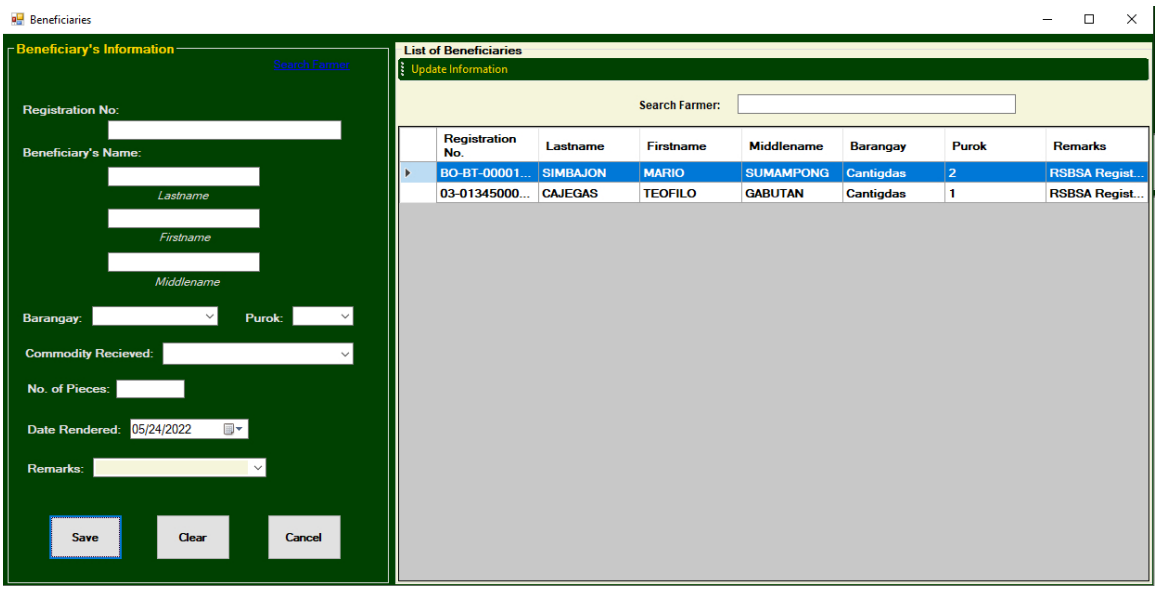
Preview 15. Adding HVCDP Masterlist

Preview 16 presents the form in HVCDP detail of each farmer.



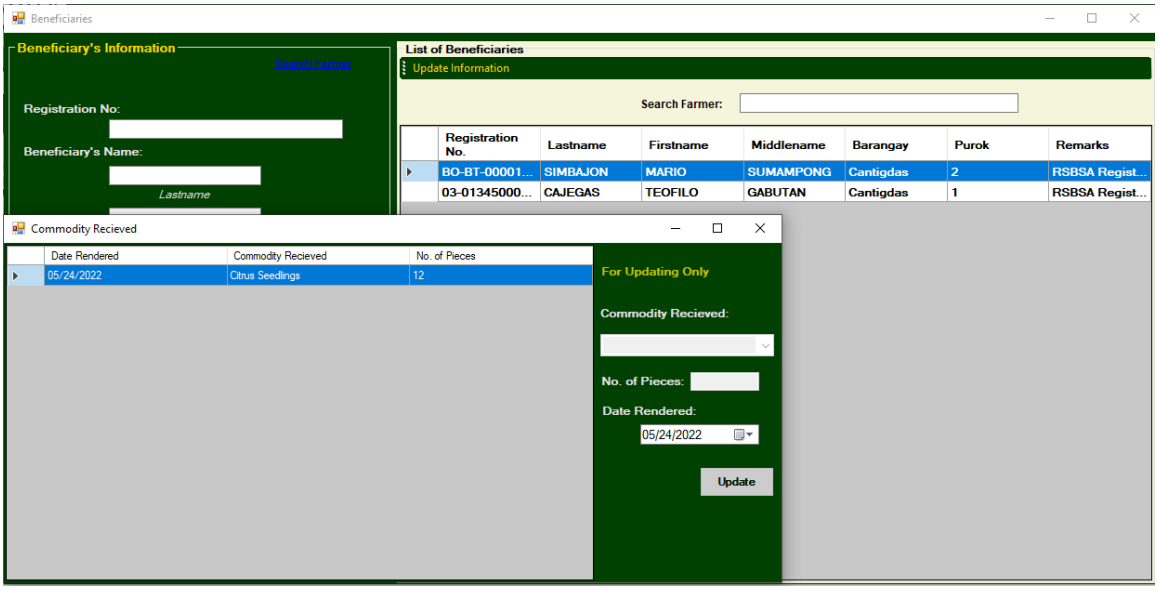
Preview 16. Update HVCDP Details of each Farmer

Preview 17 shows the form in HVCDP beneficiaries.



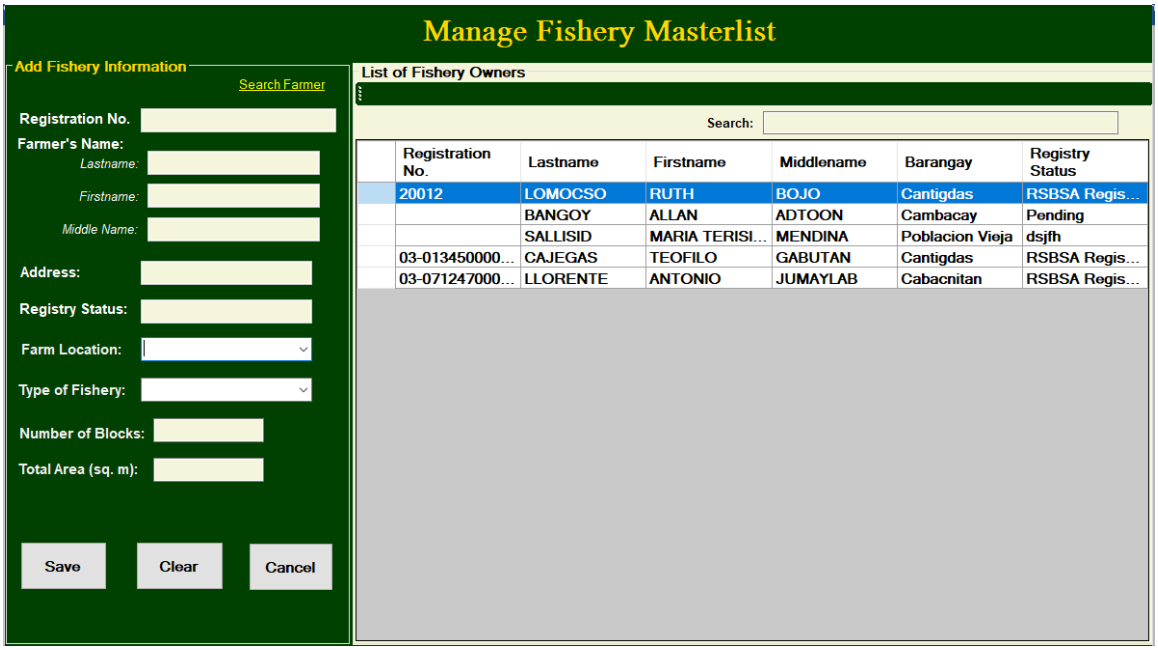
Preview 17. HVCDP Beneficiary

Preview 18 presents the details of commodity received by each beneficiary.



Preview 18. Details of Commodity Received of each Beneficiary

Preview 19 illustrates the form in adding fishery masterlist.



Preview 19. Adding Fishery Masterlist

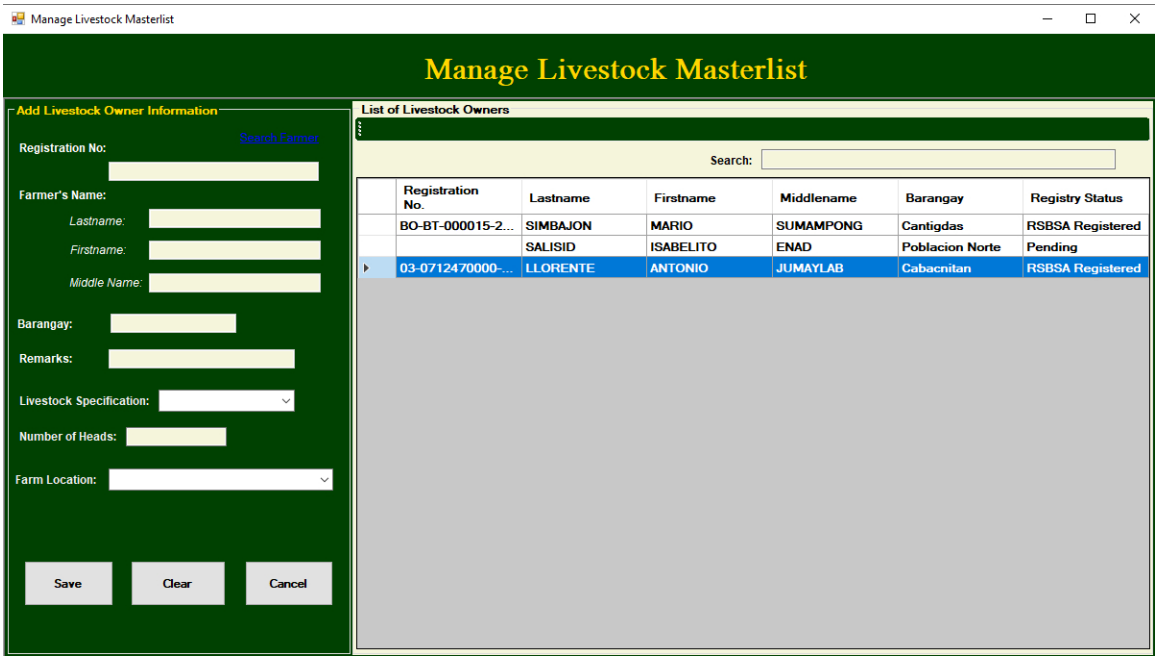
Preview 20 shows the form in fishery production.

Preview 20. Adding Fishery Production

Preview 21 presents the form in fishery production view details.

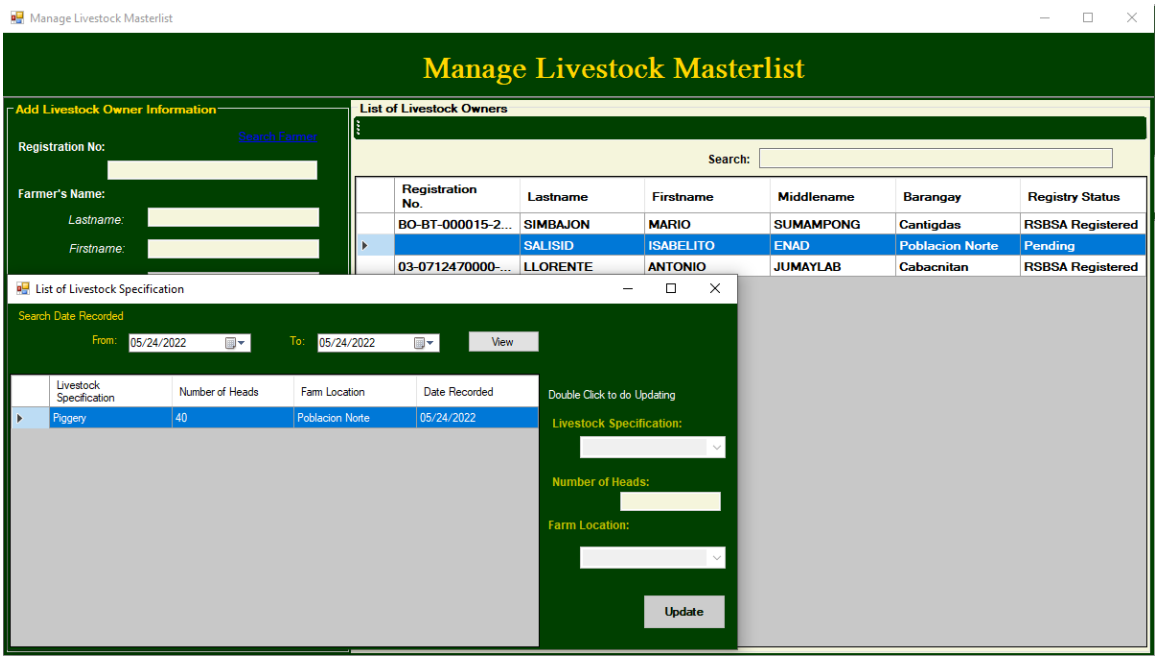
Preview 21. Updating Fishery Production details

Preview 22 illustrates the form in adding livestock masterlist.



Preview 22. Adding Livestock Masterlist

Preview 23 shows the form in livestock show details of each farmer.

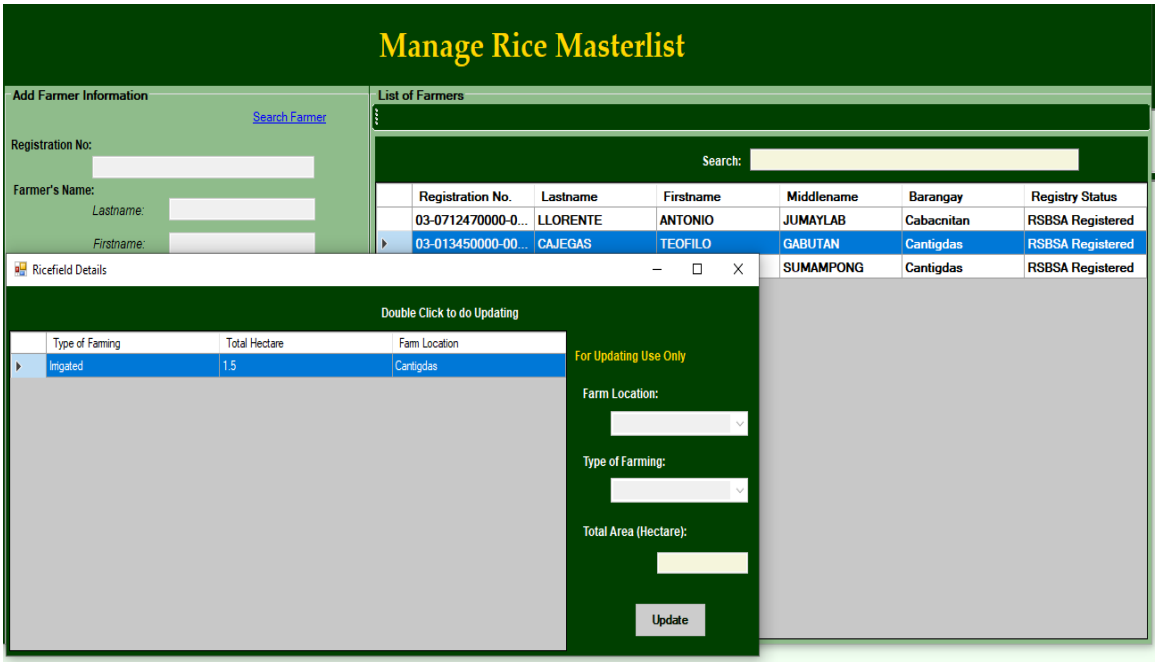


Preview 23. Shows and Update Livestock Details

Preview 24 presents the form in adding rice masterlist.

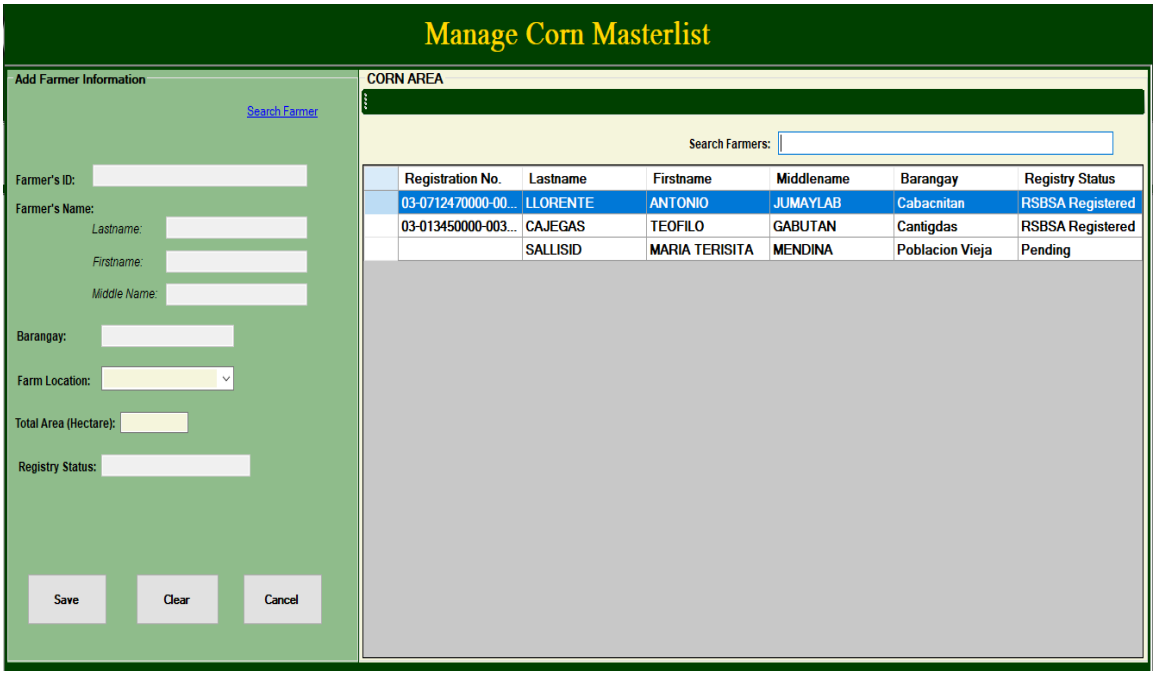
Preview 24. Adding Rice Masterlist

Preview 25 illustrates the form in rice details of each farmer.



Preview 25. Updating Rice Farm Details

Preview 26 shows the form in corn masterlist.



Preview 26. Adding Corn Masterlist

Preview 27 presents the form corn view details.

Preview 27. Updating Corn Details

Testing and Evaluation

Software testing is a method of finding out whether the software is working as it should be giving correct output, working fast enough, handling expected loads, responding to user inputs properly. Software evaluation is a process of judging how well the software's original intended goals have been achieved.

System Usability

The developers demonstrated the system's features detail using the modules in Administration, Manage Record and Reports. The developers also presented the graphical and tabular reports. During the testing, the municipal agriculturist, rice technician, corn technician, livestock technician, high valued crop development program technician, fishery technician and information technology expert used the system as to use to test the functionalities of the developed application. The testing also gauges the functionalities and responsiveness of the system as well.

The developers conducted the hands-on activity of the Database Management System at the office of the Municipal Agriculture of Batuan Bohol on May 25, 2022 at 10:35 to 12:05 at noon. It took 1 and a half hours in performing the demonstration and hands-on activity. After the actual hands-on, the developers asked the respondents to answer the system usability questionnaire.

Based from the result, the respondents gave a general rating of 6.7 with an interpretation of "Strongly Agree". The result generally indicated that the system was easy to use, effective, informative, easy to understand and clear in the management of farmer's information.

Table 20

System Usability Assessment Result

Criteria for System Usablility	Weights of mean	Rating
1. Overall, I am satisfied it with how easy it is in the system	6.8	Strongly Agree
2. It was simple to use this system	6.8	Strongly Agree
3. I can effectively complete my work using this system	6.8	Strongly Agree
4. I am able to complete my work quickly using this system	6.8	Strongly Agree
5. I am able to effectively complete my work quickly using this system	6.4	Strongly Agree
6. I feel comfortable using this system	7	Strongly Agree
7. It was easy to learn to use this system	7	Strongly Agree
8. I believe I become productive using this system	7	Strongly Agree
9. The system gives error messages that clearly tell me how to fix problem.	6.8	Strongly Agree
10. Whenever I make a mistake using the system, I recover easily and quickly	6.6	Strongly Agree
11. The information (such as online help, on-screen messages, and other documentation) provided by this system is clear	6.8	Strongly Agree
12. It is easy to find the information I needed	7	Strongly Agree
13. The information provided for the system is easy to understand	7	Strongly Agree
14. The information is effective in helping me complete the tasks and scenarios	7	Strongly Agree
15. The organization of information on the system screens is clear	6.2	Agree
16. The interface of this system is pleasant	6.4	Strongly Agree
17. I like using the interface of this system	6.4	Strongly Agree
18. This system has all the functions and capabilities I expect it to have	6.4	Strongly Agree
19. Overall, I am satisfied with this system	7	Strongly Agree
AVERAGE WEIGHTED MEAN	**6.7**	**Strongly Agree**

Chapter 3

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

After a thorough investigation and analysis conducted at the Municipal Agriculture Office of Batuan, Bohol, the developers found out that the municipal agriculturist needs to employ computerization to their present system in order to improve the management and eliminate the problems. The current system uses the manual processes resulted in problems such as (a) experience record misplacement; (b.) time-consuming retrieval of farmers' information; (c) not up to date farmer's information was evident due to the volume of data that needs to be analyzed and processed; and (d) recording of farmers' information was done using the record book

Based on the existing problems mentioned above, the records of the office needed a new strategy such as automation that will provide an accurate, fast and easy way of recording, data management and retrieving of data, promoting security and storage of medium data for the farmer information, and utilizing for effective and efficient data management. It was designed and implemented with the following modules: administration, recording and generation of reports that would be used as the basis for statistical and graphical information needed for assessment and dissemination.

After the design and development of the system, a usability test was conducted to evaluate the functionality of the system. The system usability

revealed an average, weighted of 6.7 with the interpretation of "Strongly Agree". This implied that the system was strongly high on its usability. The result suggested that the system should provide satisfaction among respondents. Likewise, it also reveals that the system was simple and easy to use, effective, informative, easy to understand and clear. Furthermore, this also implied that the respondents agreed with its capabilities, functions, and ease of using the system.

Conclusion

Based on the findings, the developers came up with the conclusion that the present system was using the manual method which resulted in recording and retrieval problems of the records in the Municipal Agriculture Office of Batuan Bohol, were office needs database management system for easy, secured, and accurate transactions. The developed system provided a convenient way using computerization by developing a customized application program based on the actual procedure practiced. The database design enabled the organization of records and presented reports, interactive of the municipality. The result of the system evaluation supported its acceptability by the client and applicability of the system needed of the Municipal Agriculture Office of Batuan. The developed functions and features were highly acceptable as assessed by the prospect users of the system.

Recommendations

The developers recommended resolving the constraints encountered. It is highly recommended that the following points should be well taken:

1. The Municipal Agriculture Office must adopt the system to improve the recording and retrieval of keeping records of the Municipal Agriculture Office.
2. Training must be conducted by the researcher for municipal agriculturist and agricultural technician in the Municipal Agriculture Office of Batuan for them to be familiarized and be oriented to the new system.
3. The Municipal Agriculture Office of Batuan should consider regular maintenance to be administered by the developers to ensure the security and integrity of the system.

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APPENDICES

APPENDIX A

Letter of Intent

Republic of the Philippines
Bohol Island State University
Bilar Campus
Zamora, Bilar, Bohol

March 28, 2022

MARIFLOR P. PAGADOR
Municipal Agriculturist
Batuan, Bohol

Ma'am:

Good day!

We, the 4th Year Students of Bachelor of Science in Computer Science of Bohol Island State University Bilar Campus will conduct a System Development project (Thesis) as requirements for graduation for the degree of Bachelor of Science in Computer Science.

In this regard, we would like to ask your good office to accommodate us for a short office visit, at any time of your convenience, in order to personally ask permission to conduct a system study.

We assure you that we shall honor secrecy and privacy to all data and information we shall be handling during our data collection which include interview, observation and document review. As we go along with our study, your approval will be a great help to the success of our study.

We anticipate your favorable response regarding this matter.

Thank you very much and more power!

Respectfully yours,

JENNIFER S. CAJEGAS

MARIEL B. LLORENTE

MA. FE J. BANGOY
Researchers

Noted by:

DARREL A. CARDAÑA
Subject Instructor

Recommended by:

SHEILA G. TABUNO
Chairperson, DCoS

JOEL A. PIOLLO
Thesis Adviser

Endorsed by:

ARLEN B. GUDMALIN, PhD
Dean, CTAS

Approved by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Letter of Implementation

Republic of the Philippines
Bohol Island State University
Bilar Campus
Zamora, Bilar, Bohol

May 25, 2022

MARIFLOR P. PAGADOR
Municipal Agriculturist
Municipal Agriculture Office
Batuan, Bohol

Dear Ma'am,

Good day!

It is our pleasure to inform you that the system developed **Database Management System of the Municipal Agriculture Office of Batuan, Bohol** conducted by us is now ready for testing and bench making. This is an important phase for assessment and to come up with a thesis result in the conduct of our project.
We would like to ask again your permission to allow us to test the application in your system scenario in order to gauge the effectively and efficiency of the system. The testing will involve the Municipal Agriculturist and the staff as the admin of the system.

May this be the start of our partnership as soon we shall turn over the system fully developed on you. Please answer the survey form and provide feedback for the improvement of the system. Lastly, your signature affixed would verify the veracity of the conduct of the activity.

Thank you and more power!

Respectfully yours,

JENNIFER S. CAJEGAS

MARIEL B. LLORENTE

MA. FE J. BANGOY
Researchers

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ARLEN B. GUDMALIN, PhD
Dean, CTAS

Approved by:

MARIFLOR P. PAGADOR
Municipal Agriculturist

Letter of Questionnaire Distribution

Bohol Island State University
Bilar Campus
Zamora, Bilar, Bohol

Dear Respondents,

Greetings!

We, the system developer of the new automated system, wherein we integrated computer application in the basic processes of the establishment had come up with the final phase of our project development which is the testing and implementation. We have put into operation the developed system and we want you to take part in the testing process.

We would like to get your views and opinion in the developed system thus this survey is conducted. We wished to know your feedback as we work for the improvement of the system. It is rightfully needed to hear your side since it would you who would be using the developed system. Your input would be very valuable.

We greatly would appreciate it if you would take time and complete the questionnaire. The data that would be gathered shall be used for rating statistics in our developed system. If there are items you are confused with, feel free to ask and we would gladly assist you.

As we end this project, we wish to convey our heartfelt gratitude to the establishment for allowing us to conduct the study, the people who had helped and of course you our dear clients/end users/customer who had inspire us too dream greater that what was conceivable by the mind. Thank you! Together let us build a better world for everyone.

Good day!

Developers

APPENDIX B
System Usability Questionnaire

Instructions:

- Please rate the usability questionnaire
- Try to respect to all the items
- For items that are not applicable, use N/A
- Make sure these fields are filled in

Rating Scale:
7 – Strongly Agree
6 – Agree
5 – Tend to Agree
4 – Neither Agree or Disagree
3 – Tend to Disagree
2 – Disagree
1 – Tend to Agree

System Usability Assessment Result

Criteria for System Usablility	Weighted mean	Rating
1. Overall, I am satisfied it with how easy it is in the system		
2. It was simple to use this system		
3. I can effectively complete my work using this system		
4. I am able to complete my work quickly using this system		
5. I am able to effectively complete my work quickly using this system		
6. I feel comfortable using this system		
7. It was easy to learn to use this system		
8. I believe I become productive using this system		
9. The system gives error messages that clearly tell me how to fix problem.		
10. Whenever I make a mistake using the system, I recover easily and quickly		
11. The information (such as online help, on-screen messages, and other documentation) provided by this system is clear		
12. It is easy to find the information I needed		
13. The information provided for the system is easy to understand		
14. The information is effective in helping me complete the tasks and scenarios		

15. The organization of information on the system screens is clear		
16. The interface of this system is pleasant		
17. I like using the interface of this system		
18. This system has all the functions and capabilities I expect it to have		
19. Overall, I am satisfied with this system		
20. Please list three things you liked most about this system software 1. 2. 3.		
Please list three things you liked least about this system software 1. 2. 3.		

Based on Lewis J.R.(1995)IBM Computer Usability Satisfaction Questionnaires: Pyschometric Evaluation & Instructions for use

INTERVIEW GUIDE QUESTIONS

Researchers guide for conducting the interview of the respondents:

Municipal Agriculturist

1. What are the services that the Municipal Agriculture Office offers?
2. Who can avail the services?
3. What are the requirements in order to avail the different services?
4. What are the problems that you've encountered in managing the present process?
5. How was the generation of the asked/needed report?
6. Have you encountered difficulties pertaining in monitoring of information?
7. What are the reports needed by the different commodities?
8. Are you willing to accept new technology such as computerization?

Agricultural Technicians (Rice, Corn, HVCDP, Fishery, and Livestock)

1. How is the present manual process of Batuan done?
2. What are the problems that you've encountered with the present process?
3. What are the services that the Municipal Agriculture Office offers?
4. Who can avail the services?
5. What are the requirements in order to avail the different services?
6. How are the records of the farmers saved and retrieved?
7. Where do you keep the records? Who is responsible in gathering all information?

9. How long does it take to retrieve the records?
10. Have you encountered difficulties pertaining in the recording of information?
11. What are the effects of these problems to problems?
12. What is the information needed by the different commodities?
13. What are the reports needed by the different commodities?
14. Are you willing to accept new technology such as computerization?
15. What are the operations and processes involved in recording and gathering data in the Municipal Agriculture Office of Batuan, Bohol?
16. What are the problems and needs of the Municipal Agriculture Office of Batuan, Bohol in the management of the records of farmer's information and data gathered in every commodity?
17. What is the possible solution of the problem encountered?
18. What is the level of system usability as perceived by the target users?

APPENDIX C

USER GUIDE

A. Administration Process

Accessing the System

Login

1. Choose UserType
2. Input Username
3. Input password
4. Click "Verify" Button to continue

Create Account

1. Input the Type of user, Fullname, Username and Password
2. Click “Save” Button to save account.

B. Record process

Recording of Farmer

1. On the main menu, click "Masterlist” button
2. Input the farmer’s personal information.
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of HVCDP Masterlist

1. On the main menu, click "Record HVCDP Masterlist” button
2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of HVCDP Beneficiaries

1. On the main menu, click "Beneficiaries” button
2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of Fishery Masterlist

1. On the main menu, click "Record Fishery Masterlist” button
2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of Fishery Production

1. On the main menu, click "Manage Fishery Production” button
2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of Livestock Masterlist

1. On the main menu, click "Record Livestock Masterlist” button
2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of Rice Masterlist

1. On the main menu, click "Record Rice Masterlist” button

2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Recording of Corn Masterlist

1. On the main menu, click "Record Corn Masterlist” button
2. Input information
3. Click "Save" button.
4. Click "Yes" command for confirmation

Manage HVCDP Details

1. On the main menu, click "Record HVCDP Masterlist” button
2. Click “search box”
3. Input “name/barangay” in search box.
4. Select the name and right click farmers name
5. Double Click to update
6. Input the variety planted, number of hills, date planted, estimated date of harvest
7. Click “update” button
8. Click "Yes" command for confirmation

Manage HVCDP Beneficiary Details

1. On the main menu, click "Record HVCDP Beneficiary Masterlist” button
2. Click “search box”
3. Input “name/barangay” in search box.

4. Select the name and right click farmers name
5. Double Click to update
6. Input the needed data
7. Click “update” button
8. Click "Yes" command for confirmation

Manage Fishery Details

1. On the main menu, click "Record Fishery Masterlist” button
2. Click “search box”
3. Input “name/barangay” in search box.
4. Select the name and right click farmers name
5. Double Click to update
6. Input the needed data
7. Click “update” button
8. Click "Yes" command for confirmation

Manage Livestock Details

1. On the main menu, click "Record Livestock Masterlist” button
2. Click “search box”
3. Input “name/barangay” in search box.
4. Select the name and right click farmers name
5. Double Click to update
6. Input the needed data
7. Click “update” button
8. Click "Yes" command for confirmation

Manage Rice Farm Details

1. On the main menu, click "Record HVCDP Masterlist” button
2. Click “search box”
3. Input “name/barangay” in search box.
4. Select the name and right click farmers name
5. Double Click to update
6. Input the needed data
7. Click “update” button
8. Click "Yes" command for confirmation

Manage Corn Farm Details

1. On the main menu, click "Record Corn Masterlist” button
2. Click “search box”
3. Input “name/barangay” in search box.
4. Select the name and right click farmers name
5. Double Click to update
6. Input the needed data
7. Click “update” button
8. Click "Yes" command for confirmation

Source Code

Login

```
Imports MySql.Data.MySqlClient
Imports System.IO
Public Class LoginForm1
    Dim tpass As String

    Dim source1 As New BindingSource()
    Dim x As Integer
    Sub fill()
        Dim dt As New DataTable
        Dim str As String = "Select id as `ID`,usertype as `User Type`,username as
`UserName`,password as `Password` from useraccount"
        Dim da As New MySqlDataAdapter(str, con)
        da.Fill(dt)
        da.Dispose()
        source1.DataSource = dt
        dgview.DataSource = dt

    End Sub
    Sub clr()
        ' actype.Text = Nothing
        username1.Text = Nothing
        password1.Text = Nothing
    End Sub
    Private Sub OK_Click(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles OK.Click
        If username1.Text = Me.dgview.SelectedCells(2).Value.ToString And
password1.Text = Me.dgview.SelectedCells(3).Value.ToString Then
            If dgview.SelectedCells(1).Value.ToString = "Administrator" Then
                headhome.Label5.Text = "Municipal Agriculturist"
                headhome.Show()
                clr()
            ElseIf dgview.SelectedCells(1).Value.ToString = "Rice Technician" Then
                homerice.trice.Text = "Rice Technician"
                clr()
                homerice.Show()
            ElseIf dgview.SelectedCells(1).Value.ToString = "Corn Technician" Then
                homecorn.Label5.Text = "Corn Technician"
                clr()
                homecorn.Show()
            ElseIf dgview.SelectedCells(1).Value.ToString = "Fishery Technician"
Then
                homefishery.Label5.Text = "Fishery Technician"
```

```
            clr()
            homefishery.Show()
        ElseIf dgview.SelectedCells(1).Value.ToString = "Livestock Technician"
Then
            homelivestock.Label5.Text = "Livestock Technician"
            clr()
            homelivestock.Show()
        ElseIf dgview.SelectedCells(1).Value.ToString = "HVCDP Technician"
Then
            homehvc.Label5.Text = "HVCDP Technician"
            clr()
            homehvc.Show()
        End If
    Else
        MsgBox("Please Double Check User Account", MsgBoxStyle.Information,
"System Check...")
        username1.Focus()
    End If
End Sub

Private Sub Cancel_Click(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles Cancel.Click
    Me.Close()
End Sub

Private Sub LoginForm1_Load(sender As Object, e As EventArgs) Handles
MyBase.Load
    fill()
End Sub

Private Sub CheckBox1_CheckedChanged(sender As Object, e As
EventArgs) Handles CheckBox1.CheckedChanged
    If CheckBox1.Checked = False Then
        password1.PasswordChar = "*"
    Else
        password1.PasswordChar = ""
    End If
End Sub

Private Sub username1_TextChanged(sender As Object, e As EventArgs)
Handles username1.TextChanged
    If username1.Text = "" Then
        source1.Filter = ""
        dgview.Refresh()
    Else
```

```
            source1.Filter = "[username] = '" & username1.Text & "' and [password] =
'" & password1.Text & "' "
            dgview.Refresh()
        End If
    End Sub

    Private Sub password1_TextChanged(sender As Object, e As EventArgs)
Handles password1.TextChanged
        If username1.Text = "" Then
            source1.Filter = ""
            dgview.Refresh()
        Else
            source1.Filter = "[username] = '" & username1.Text & "' and [password] =
'" & password1.Text & "' "
            dgview.Refresh()
        End If
    End Sub
End Class
```

Networking

```
Imports MySql.Data.MySqlClient
Imports System.IO
Public Class networking

    Dim stat As Boolean = False

    Private Sub Button1_Click(sender As Object, e As EventArgs) Handles
Button1.Click
        Try
            con = New MySqlConnection
            con.ConnectionString = "Server=" & ipad.Text & ";Database=" &
database.Text & ";User ID=" & userid.Text & ";Password=" & pass.Text & ""
            con.Open()
            MessageBox.Show("Succesfully Connected to Server!", "Confirmation",
MessageBoxButtons.OK, MessageBoxIcon.Information)
            con.Close()
            stat = True
            My.Settings.host = ipad.Text
            My.Settings.dbname = database.Text
            My.Settings.usid = userid.Text
            My.Settings.pwd = pass.Text

            Call setconnection()
            Me.Hide()
            LoginForm1.Show()
```

```
            Exit Sub
        Catch ex As Exception
            ex.ToString()
        End Try
        stat = False
        MessageBox.Show("Connection Failed!", "Error", MessageBoxButtons.OK,
MessageBoxIcon.Error)
    End Sub

    Private Sub networking_Load(sender As Object, e As EventArgs) Handles
MyBase.Load
        database.Enabled = False
    End Sub

    Private Sub CheckBox1_CheckedChanged(sender As Object, e As
EventArgs) Handles CheckBox1.CheckedChanged
        If CheckBox1.Checked = False Then
            pass.PasswordChar = "*"
        Else
            pass.PasswordChar = ""
        End If
    End Sub
End Class
```

Manage Farmers' Profile

```
Imports MySql.Data.MySqlClient
Public Class mngfarmerinfo
    Dim farmer As New Farmer
    Sub getage()
        With datetpick.Value
            Dim celebrate As DateTime = New DateTime(Now.Year, .Month, .Day)
            Dim age As Integer = Now.Year - .Year
            If celebrate > Now Then age -= 1
            lfage.Text = CStr(age)
        End With
    End Sub
    Sub fldclear()
        idenid.Text = Nothing
        fl_fid.Text = Nothing
        tblname.Text = Nothing
        tbfname.Text = Nothing
        tbmname.Text = Nothing
        tbnumber.Text = Nothing
        cbbargy.Text = Nothing
        cbpurok.Text = Nothing
        datetpick.Text = Now
```

```
        lfage.Text = "0"
        cbsex.Text = Nothing
        rmstatus.Text = Nothing
        cbregistry.Text = Nothing
        save.Enabled = True
    End Sub
    Sub listfarmers()
        Dim lf As String = "select id as 'id',fl_farmersid as `Farmer's ID`,fl_registid as
`Registration No.`, fl_lname as `Lastname`, fl_fname as `Firstname`, fl_mname
as `Middlename`, fl_number as `Contact Number`, fl_brgy as `Barangay`,
fl_purok as `Purok`, fl_birth as `Birthday`, fl_age as `Age`, fl_sex as
`Sex`,fl_status as `Status`,fl_regist as `Remarks` from tbfarmerslist where
fl_lname Like '%" + tsearch.Text + "%' or fl_fname Like '%" + tsearch.Text + "%'
or fl_mname Like '%" + tsearch.Text + "%'  or fl_brgy Like '%" + tsearch.Text +
"%' or fl_purok Like '%" + tsearch.Text + "%' or fl_sex Like '%" + tsearch.Text +
"%' or fl_regist Like '%" + tsearch.Text + "%' "
        Dim da As New MySqlDataAdapter(lf, con)
        con.Open()

        Dim ds As New DataSet
        da.Fill(ds, "tbfarmerslist")
        da.Dispose()
        dgview.DataSource = ds.Tables(0)
        con.Close()

        dgview.Columns(0).Visible = False
        dgview.Columns(1).Visible = False
        dgview.Columns(5).Visible = False
        dgview.Columns(7).Visible = False
        dgview.Columns(8).Visible = False
        dgview.Columns(9).Visible = False
        dgview.Columns(10).Visible = False
        dgview.Columns(11).Visible = False
    End Sub
    Sub countallfarmers()
        Dim sql As String = " SELECT COUNT(*) FROM tbfarmerslist"
        Dim cmd As New MySqlCommand(sql, con)
        con.Open()
        Dim count As Integer = cmd.ExecuteScalar
        con.Close()
        ltot.Text = count.ToString
    End Sub
    Function AutoID(ByVal Tablename As String, ByVal Fieldname As String) As
Int32
        Dim cmd As New MySqlCommand
        Dim dr1 As MySqlDataReader
```

```
        cmd.Connection = con
        cmd.CommandType = CommandType.Text
        cmd.CommandText = "select " & Fieldname & " from " & Tablename & "
Order by 1 Desc Limit 1 "
        If con.State = ConnectionState.Closed Then con.Open()
        dr1 = cmd.ExecuteReader()
        If dr1.Read = True Then
            AutoID = Microsoft.VisualBasic.Right(dr1(0), 4) + 1
        Else
            AutoID = 1
            dr1.Dispose()
        End If
        con.Close()
    End Function
    Function farmerAutoId() As String
        Dim id = "FARMERSID" & "-" & Format(AutoID("tbfarmerslist",
"fl_farmersid"), "000000")

        Return id
    End Function

    Function farmerRecordExist() As Boolean
        Dim qry As String = "Select * from tbfarmerslist WHERE (fl_lname='" &
tblname.Text & "' AND fl_fname='" & tbfname.Text & "' AND fl_mname='" &
tbmname.Text & "') "
        Dim cmd1 As MySqlCommand = New MySqlCommand(qry, con)
        con.Open()
        Dim count As Integer = cmd1.ExecuteScalar
        con.Close()
        If count > 0 Then
            Return True
        Else
            Return False
        End If
    End Function
    Sub getFarmerFromInfo()
        farmer.farmers_id = farmerAutoId()
        farmer.regist_id = idenid.Text
        farmer.first_name = tbfname.Text
        farmer.last_name = tblname.Text '
        farmer.middle_name = tbmname.Text
        farmer.number = tbnumber.Text
        farmer.brgy = cbbargy.Text
        farmer.purok = cbpurok.Text
        farmer.birth = datetpick.Value
        farmer.age = lfage.Text
```

```
        farmer.sex = cbsex.Text
        farmer.civil_status = rmstatus.Text
        farmer.reg_status = cbregistry.Text
    End Sub

    Sub getFarmerInfoFromDataGridView(ByVal row As DataGridViewRow)
        farmer.id = row.Cells("id").Value.ToString
        idenid.Text = row.Cells("Registration No.").Value.ToString
        tblname.Text = row.Cells("Lastname").Value.ToString
        tbfname.Text = row.Cells("Firstname").Value.ToString
        tbmname.Text = row.Cells("Middlename").Value.ToString
        tbfname.Text = row.Cells("Firstname").Value.ToString
        tbnumber.Text = row.Cells("Contact Number").Value.ToString
        cbbargy.Text = row.Cells("Barangay").Value.ToString
        cbpurok.Text = row.Cells("Purok").Value.ToString
        datetpick.Text = DateTime.Parse(row.Cells("Birthday").Value)
        lfage.Text = row.Cells("Age").Value.ToString
        cbsex.Text = row.Cells("Sex").Value.ToString
        rmstatus.Text = row.Cells("Status").Value.ToString
        cbregistry.Text = row.Cells("Remarks").Value.ToString
        save.Enabled = False
        tsbupdate.Enabled = True
    End Sub

    Sub saveFarmersRecord()
        getFarmerFromInfo()
        Try
            Dim s As String = "Insert into tbfarmerslist
(fl_farmersid,fl_registid,fl_lname,fl_fname,fl_mname,fl_number,fl_brgy,fl_purok,fl
_birth,fl_age,fl_sex,fl_status,fl_regist,fl_date_registered)values('" &
farmer.farmers_id &
                "','" & farmer.regist_id & "','" & farmer.last_name & "','" &
farmer.first_name & "', '" & farmer.middle_name & "','" & farmer.number & "','" &
farmer.brgy & "','" & farmer.purok & "','" & farmer.birth.ToString("yyyy-M-dd") &
"','" & farmer.age & "','" &
                    farmer.sex & "','" & farmer.civil_status & "','" & farmer.reg_status
& "','" & Date.Now.ToString("yyyy-M-dd") & "')"
            Dim cmd As New MySqlCommand(s, con)
            con.Open()
            cmd.ExecuteNonQuery()
            con.Close()
            fldclear()
            tsbupdate.Enabled = False
            MsgBox("Saving Complete!", MsgBoxStyle.Information, "Success")
        Catch ex As Exception
            con.Close()
```

```
            MsgBox("Something Went Wrong.  " + ex.Message,
MsgBoxStyle.Information, "ERROR")
        End Try
    End Sub

    Sub updateFarmerRecord()
        Try
            getFarmerFromInfo()
            Dim up As String = "Update tbfarmerslist set fl_registid='" &
farmer.regist_id & "',fl_lname='" & farmer.last_name & "', fl_fname='" &
farmer.first_name & "', fl_mname='" & farmer.middle_name &
                    "', fl_number='" & farmer.number & "', fl_brgy='" & farmer.brgy &
"',fl_purok='" & farmer.purok &
                    "', fl_birth='" & farmer.birth.ToString("yyyy-M-d") & "', fl_age='" &
farmer.age & "', fl_sex='" &
                    farmer.sex & "',fl_status='" & farmer.civil_status & "',fl_regist='" &
farmer.reg_status & "' WHERE id='" & farmer.id & "' "
            Dim cmd As New MySqlCommand(up, con)
            con.Open()
            cmd.ExecuteNonQuery()
            con.Close()
            MsgBox("Update Success", MsgBoxStyle.Information)
        Catch ex As Exception
            MsgBox("Error" + ex.Message, MsgBoxStyle.Critical)
        End Try
    End Sub
    Private Sub datetpick_ValueChanged(sender As Object, e As EventArgs)
Handles datetpick.ValueChanged
        getage()
    End Sub
    Private Sub save_Click(sender As Object, e As EventArgs) Handles save.Click
        If tblname.Text = Nothing Then
            MsgBox("Farmer's Lastname is Required!", MsgBoxStyle.Information,
"System Checked")
            tblname.Focus()
            Return
        ElseIf tbfname.Text = Nothing Then
            MsgBox("Farmer's Firstname is Required!", MsgBoxStyle.Information,
"System Checked")
            tbfname.Focus()
            Return
        ElseIf tbnumber.Text = Nothing Then
            MsgBox("Farmer's Contact Number is Required!",
MsgBoxStyle.Information, "System Checked")
            tbnumber.Focus()
            Return
```

```
        ElseIf cbbargy.Text = Nothing Then
            MsgBox("Farmer's Barangay Address is Required!",
MsgBoxStyle.Information, "System Checked")
            cbbargy.Focus()
            Return
        ElseIf cbpurok.Text = Nothing Then
            MsgBox("Farmer's Purok Address is Required!",
MsgBoxStyle.Information, "System Checked")
            cbpurok.Focus()
            Return
        ElseIf datetpick.Value = Now Or datetpick.Value > Now Then
            MsgBox("Farmer's Birth Date Must Be Set!", MsgBoxStyle.Information,
"System Checked")
            datetpick.Focus()
            Return
        ElseIf cbsex.Text = Nothing Then
            MsgBox("Farmer's Sex is Required!", MsgBoxStyle.Information, "System
Checked")
            cbsex.Focus()
            Return
        ElseIf rmstatus.Text = Nothing Then
            MsgBox("Farmer's Status is Required!", MsgBoxStyle.Information,
"System Checked")
            rmstatus.Focus()
            Return
        ElseIf farmerRecordExist() = False Then

            If MessageBox.Show("Save the record?", "System Checked",
MessageBoxButtons.YesNo, MessageBoxIcon.Question) =
Windows.Forms.DialogResult.Yes Then
                saveFarmersRecord()
                listfarmers()
                countallfarmers()
            End If
        Else
            MsgBox("Farmer already exists!", MsgBoxStyle.Information, "System
Checked")
        End If
    End Sub

    Private Sub tsearch_TextChanged(sender As Object, e As EventArgs)
Handles tsearch.TextChanged
        listfarmers()
    End Sub
```

```
    Private Sub mngricemasterlist_Load(sender As Object, e As EventArgs)
Handles MyBase.Load
        listfarmers()
        countallfarmers()
        tsbupdate.Enabled = False

    End Sub

    Private Sub ToolStripButton1_Click(sender As Object, e As EventArgs)
Handles tsbupdate.Click
        If dgview.RowCount = 0 Then
            MsgBox("Invalid Command!", MsgBoxStyle.Information)
            Return
        Else
            If MessageBox.Show("Save the changes?", "System Checked",
MessageBoxButtons.YesNo, MessageBoxIcon.Question) =
Windows.Forms.DialogResult.Yes Then
                updateFarmerRecord()
            listfarmers()
            fldclear()
        End If

        End If
    End Sub

    Private Sub Button2_Click(sender As Object, e As EventArgs)
        fldclear()
        save.Enabled = True
        tsbupdate.Enabled = False
    End Sub

    Private Sub Button3_Click(sender As Object, e As EventArgs) Handles
Button3.Click
        Me.Close()
    End Sub

    Private Sub tblname_Leave(sender As Object, e As EventArgs) Handles
tblname.Leave
        tblname.Text = StrConv(tblname.Text, VbStrConv.Uppercase)
    End Sub

    Private Sub tbfname_Leave(sender As Object, e As EventArgs) Handles
tbfname.Leave
        tbfname.Text = StrConv(tbfname.Text, VbStrConv.Uppercase)
    End Sub
```

```
    Private Sub tbmname_Leave(sender As Object, e As EventArgs) Handles
tbmname.Leave
        tbmname.Text = StrConv(tbmname.Text, VbStrConv.Uppercase)
    End Sub
    Private Sub dgview_CellMouseClick(sender As Object, e As
DataGridViewCellMouseEventArgs) Handles dgview.CellMouseClick
        If dgview.RowCount = 0 Then
            MsgBox("Invalid Command!", MsgBoxStyle.Information)
            Return
        Else
            id.Text = dgview.SelectedCells(0).Value
        End If
        If e.RowIndex >= 0 Then
            Dim row As DataGridViewRow
            row = Me.dgview.Rows(e.RowIndex)
            getFarmerInfoFromDataGridView(row)

        End If
    End Sub

    Private Sub Button1_Click_1(sender As Object, e As EventArgs) Handles
Button1.Click
        fldclear()
        save.Enabled = True
        tsbupdate.Enabled = False
    End Sub

    Private Sub dgview_CellContentDoubleClick(sender As Object, e As
DataGridViewCellEventArgs) Handles dgview.CellContentDoubleClick
        tsbupdate.Enabled = True
    End Sub
    Private Sub Button4_Click(sender As Object, e As EventArgs)
        Me.Close()
    End Sub

    Private Sub Button2_Click_1(sender As Object, e As EventArgs)
        fldclear()
    End Sub

    Private Sub tbnumber_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles tbnumber.KeyPress
        If Not IsNumeric(e.KeyChar) And Not e.KeyChar = ChrW(Keys.Back) Then
            e.Handled = True
        End If
    End Sub
```

```
    Private Sub tblname_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles tblname.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub tbfname_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles tbfname.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If

    End Sub

    Private Sub tbmname_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles tbmname.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub cbbargy_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles cbbargy.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub cbsex_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles cbsex.KeyPress
        If e.KeyChar <> vbBack And Char.IsLetter(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub rmstatus_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles rmstatus.KeyPress
        If e.KeyChar <> vbBack And Char.IsLetter(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub
```

```
    Private Sub cbregistry_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles cbregistry.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

End Class
```

Rice Commodity Masterlist

```
Imports MySql.Data.MySqlClient
Public Class ricemasterlist

    Sub ricefarmerlist()
        Dim sql As String = "SELECT DISTINCT(tbricemasterlist.fl_farmersid) as
`Farmer's ID`,tbfarmerslist.fl_registid as `Registration No.`,tbfarmerslist.fl_lname
as `Lastname`,tbfarmerslist.fl_fname as `Firstname`,tbfarmerslist.fl_mname as
`Middlename`,tbfarmerslist.fl_brgy as `Barangay`,tbfarmerslist.fl_regist as
`Registry Status` FROM tbfarmerslist INNER JOIN  tbricemasterlist
USING(fl_farmersid) WHERE tbfarmerslist.fl_farmersid like '%" + tsearch.Text +
"%' or tbfarmerslist.fl_lname like '%" + tsearch.Text + "%' or
tbfarmerslist.fl_fname like '%" + tsearch.Text + "%' or tbfarmerslist.fl_regist like
'%" + tsearch.Text + "%'  or tbfarmerslist.fl_brgy like '%" + tsearch.Text + "%'
ORDER BY fl_farmersid ASC"
        Dim da As New MySqlDataAdapter(sql, con)
        con.Open()
        Dim ds As New DataSet
        da.Fill(ds, "tbfarmerslist, tbricemasterlist")

        dgview.DataSource = ds.Tables(0)

        con.Close()
        dgview.Columns(0).Visible = False

    End Sub
    Sub countallfarmers()
        Dim sql As String = " SELECT COUNT(*) FROM  tbricemasterlist"
        Dim cmd As New MySqlCommand(sql, con)
        con.Open()
        Dim count As Integer = cmd.ExecuteScalar
        con.Close()
        lmtot.Text = count.ToString
    End Sub
    Sub clr()
```

```
        autoid.Text = Nothing
        lmlname.Text = Nothing
        lmfname.Text = Nothing
        lmmname.Text = Nothing
        lmbrgy.Text = Nothing
        lmregist.Text = Nothing
        farmlocation.Text = Nothing
        type.Text = Nothing
        hectare.Text = Nothing
        registnum.Text = Nothing
    End Sub

    Private Sub dgview_CellContentDoubleClick(sender As Object, e As
DataGridViewCellEventArgs) Handles dgview.CellContentDoubleClick
        Dim row As DataGridViewRow
        row = Me.dgview.Rows(e.RowIndex)
        registnum.Text = row.Cells("Registration No.").Value.ToString
        autoid.Text = row.Cells("Farmer's ID").Value.ToString
        lmlname.Text = row.Cells("Lastname").Value.ToString
        lmfname.Text = row.Cells("Firstname").Value.ToString
        lmmname.Text = row.Cells("Middlename").Value.ToString
        lmbrgy.Text = row.Cells("Barangay").Value.ToString
        lmregist.Text = row.Cells("Registry Status").Value.ToString
        add.Visible = True
        save.Visible = False
    End Sub

    Private Sub Button2_Click(sender As Object, e As EventArgs) Handles
Button2.Click

        clr()
    End Sub

    Private Sub Button3_Click(sender As Object, e As EventArgs) Handles
Button3.Click
        Me.Dispose()
    End Sub

    Private Sub LinkLabel1_LinkClicked(sender As Object, e As
LinkLabelLinkClickedEventArgs) Handles LinkLabel1.LinkClicked
        save.Visible = True
        ricelist.Show()
    End Sub

    Private Sub tsearch_TextChanged(sender As Object, e As EventArgs)
Handles tsearch.TextChanged
```

```
        ricefarmerlist()
    End Sub

    Private Sub ricemasterlist_Load(sender As Object, e As EventArgs) Handles
MyBase.Load
        save.Visible = True
        add.Visible = False
        ricefarmerlist()
    End Sub
    Function farmerRecordExist() As Boolean
        Dim qry As String = "Select * from tbricemasterlist WHERE (fl_farmersid='"
& autoid.Text & "') "
        Dim cmd1 As MySqlCommand = New MySqlCommand(qry, con)
        con.Open()
        Dim count As Integer = cmd1.ExecuteScalar
        con.Close()
        If count > 0 Then
            Return True
        Else
            Return False
        End If

    End Function
    Private Sub save_Click(sender As Object, e As EventArgs) Handles save.Click
        If autoid.Text = Nothing Then
            MsgBox("Farmer's Information is Required!", MsgBoxStyle.Information,
"System Checked")
            autoid.Focus()
            Return
        ElseIf farmlocation.Text = Nothing Then
            MsgBox("Farm Location is Required!", MsgBoxStyle.Information, "System
Checked")
            farmlocation.Focus()
            Return
        ElseIf type.Text = Nothing Then
            MsgBox("Type of Farming is Required!", MsgBoxStyle.Information,
"System Checked")
            type.Focus()
            Return
        ElseIf hectare.Text = Nothing Then
            MsgBox("Toatal Hectare is Required!", MsgBoxStyle.Information,
"System Checked")
            hectare.Focus()
            Return
        End If
        If farmerRecordExist() = False Then
```

```
        If MessageBox.Show("Save the record?", "System Checked",
MessageBoxButtons.YesNo, MessageBoxIcon.Question) =
Windows.Forms.DialogResult.Yes Then
            Dim s As String = "Insert into
tbricemasterlist(fl_farmersid,rm_location,farming,area,fl_date_registered,date_re
corded)values('" & autoid.Text & "','" & farmlocation.Text & "', '" & type.Text & "','"
& hectare.Text & "','" & Date.Now.ToString("yyyy-M-d") & "','" &
Date.Now.ToString("yyyy-M-d") & "')"
            Dim cmd As New MySqlCommand(s, con)
            If con.State = ConnectionState.Closed Then con.Open()
            cmd.ExecuteNonQuery()
            con.Close()

            s = "Insert into piemasterlist(fl_farmersid,commodity)values('" &
autoid.Text & "','" & lbrice.Text & "')"
            cmd = New MySqlCommand(s, con)
            If con.State = ConnectionState.Closed Then con.Open()
            cmd.ExecuteNonQuery()
            con.Close()
            ' con.Open()
            'cmd.ExecuteNonQuery()
            'con.Close()
            ricefarmerlist()
            countallfarmers()
            clr()
            MsgBox("Saving Complete!", MsgBoxStyle.Information, "Success")

        End If
    Else
        MsgBox("Farmer already exists!", MsgBoxStyle.Information, "System
Checked")
        clr()
    End If
End Sub

Private Sub type_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles type.KeyPress
    If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
        e.Handled = True
    End If
End Sub

Private Sub lmregist_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles lmregist.KeyPress
```

```
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub ViewDetailsToolStripMenuItem_Click(sender As Object, e As
EventArgs) Handles ViewDetailsToolStripMenuItem.Click
        If dgview.RowCount = 0 Then
            MsgBox("Invalid Command!", MsgBoxStyle.Information, "System
Checked")
            Return
        Else
            ricefielddetails.loadlist()
            ricefielddetails.Show()
            ricefielddetails.farmlocation.Enabled = False
            ricefielddetails.type.Enabled = False
            ricefielddetails.hectare.Enabled = False
            ricefielddetails.save.Enabled = False

        End If
    End Sub

    Private Sub add_Click(sender As Object, e As EventArgs) Handles add.Click
        If farmlocation.Text = Nothing Then
            MsgBox("Farm Location is Required!", MsgBoxStyle.Information, "System
Checked")
            farmlocation.Focus()
            Return
        ElseIf type.Text = Nothing Then
            MsgBox("Type of Farming is Required!", MsgBoxStyle.Information,
"System Checked")
            type.Focus()
            Return
        ElseIf hectare.Text = Nothing Then
            MsgBox("Toatal Hectare is Required!", MsgBoxStyle.Information,
"System Checked")
            hectare.Focus()
            Return
        End If
        If MessageBox.Show("Save the record?", "System Checked",
MessageBoxButtons.YesNo, MessageBoxIcon.Question) =
Windows.Forms.DialogResult.Yes Then
            Dim s As String = "Insert into
tbricemasterlist(fl_farmersid,rm_location,farming,area,date_recorded)values('" &
```

```
autoid.Text & "','" & farmlocation.Text & "', '" & type.Text & "','" & hectare.Text &
"','" & Date.Now.ToString("yyyy-M-d") & "')"
            Dim cmd As New MySqlCommand(s, con)
            con.Open()
            cmd.ExecuteNonQuery()
            con.Close()
            ricefarmerlist()
            countallfarmers()
            clr()
            save.Visible = True
            add.Visible = False
            MsgBox("Saving Complete!", MsgBoxStyle.Information, "Success")

        End If
    End Sub

    Private Sub farmlocation_KeyPress(sender As Object, e As
KeyPressEventArgs) Handles farmlocation.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub farmlocation_KeyDown(sender As Object, e As KeyEventArgs)
Handles farmlocation.KeyDown
        If e.KeyCode = Keys.Enter Then
            save_Click(Nothing, Nothing)
        Else
            Exit Sub
        End If
        e.SuppressKeyPress = True
    End Sub

End Class
```

Updating

```
Imports MySql.Data.MySqlClient
Public Class ricefielddetails

    Sub loadlist()
        Dim lt As String = "SELECT id as `ID`,tbricemasterlist.farming as `Type of
Farming` ,tbricemasterlist.area as `Total Hectare`,tbricemasterlist.rm_location as
`Farm Location` from tbricemasterlist where fl_farmersid  like '%" +
ricemasterlist.dgview.SelectedCells(0).Value + "%' order by id asc"
        Dim da As New MySqlDataAdapter(lt, con)
```

```
        con.Open()
        Dim ds As New DataSet
        da.Fill(ds, " tbricemasterlist")

        da.Dispose()
        dgview.DataSource = ds.Tables(0)
        dgview.Columns(0).Visible = False

        ' dgview.Columns(1).Visible = False
        con.Close()
    End Sub

    Private Sub save_Click(sender As Object, e As EventArgs) Handles save.Click
        If farmlocation.Text = Nothing Then
            MsgBox("Farm Location is Required!", MsgBoxStyle.Information, "System
Checked")
            farmlocation.Focus()
            Return
        ElseIf type.Text = Nothing Then
            MsgBox("Type of Farming is Required!", MsgBoxStyle.Information,
"System Checked")
            type.Focus()
            Return
        ElseIf hectare.Text = Nothing Then
            MsgBox("Total Hectare is Required!", MsgBoxStyle.Information, "System
Checked")
            hectare.Focus()
            Return
        End If
        If MessageBox.Show("Update the record?", "System Checked",
MessageBoxButtons.YesNo, MessageBoxIcon.Question) =
Windows.Forms.DialogResult.Yes Then
            Dim s As String = "Update  tbricemasterlist set rm_location= '" &
farmlocation.Text & "',farming='" & type.Text & "',area='" & hectare.Text & "'
where id='" & id.Text & "'"
            Dim cmd As New MySqlCommand(s, con)
            con.Open()
            cmd.ExecuteNonQuery()
            con.Close()
            loadlist()
            clr()
            save.Enabled = False
            farmlocation.Enabled = False
            type.Enabled = False
            hectare.Enabled = False
            MsgBox("Updated Successfully!", MsgBoxStyle.Information, "Success")
```

```
        End If
    End Sub
    Sub clr()
        id.Text = Nothing
        farmlocation.Text = Nothing
        type.Text = Nothing
        hectare.Text = Nothing
    End Sub
    Private Sub Label2_Click(sender As Object, e As EventArgs) Handles id.Click

    End Sub

    Private Sub dgview_CellContentDoubleClick(sender As Object, e As
DataGridViewCellEventArgs) Handles dgview.CellContentDoubleClick
        Dim row As DataGridViewRow
        row = Me.dgview.Rows(e.RowIndex)
        id.Text = row.Cells("ID").Value.ToString
        farmlocation.Text = row.Cells("Farm Location").Value.ToString
        type.Text = row.Cells("Type of Farming").Value.ToString
        hectare.Text = row.Cells("Total Hectare").Value.ToString
        save.Enabled = True
        type.Enabled = True
        farmlocation.Enabled = True
        hectare.Enabled = True
    End Sub

    Private Sub farmlocation_KeyPress(sender As Object, e As
KeyPressEventArgs) Handles farmlocation.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub type_KeyPress(sender As Object, e As KeyPressEventArgs)
Handles type.KeyPress
        If Char.IsLetter(e.KeyChar) = False And Char.IsControl(e.KeyChar) = False
And Char.IsSeparator(e.KeyChar) = False Then
            e.Handled = True
        End If
    End Sub

    Private Sub DeleteToolStripMenuItem_Click(sender As Object, e As
EventArgs) Handles DeleteToolStripMenuItem.Click
```

```
        If (MessageBox.Show("Delete the record?", "System Checked",
MessageBoxButtons.YesNo, MessageBoxIcon.Question) =
Windows.Forms.DialogResult.Yes) Then
            Dim s As String = "Delete from tbricemasterlist where id='" &
dgview.SelectedCells(0).Value & "'  "
            Dim cmd As New MySqlCommand(s, con)
            con.Open()
            cmd.ExecuteNonQuery()
            con.Close()
            loadlist()
            clr()
            MsgBox("Deleted Successfully!", MsgBoxStyle.Information, "Success")
        End If
    End Sub

    Private Sub dgview_CellMouseClick(sender As Object, e As
DataGridViewCellMouseEventArgs) Handles dgview.CellMouseClick
        Dim row As DataGridViewRow
        row = Me.dgview.Rows(e.RowIndex)
        id.Text = row.Cells("ID").Value.ToString
        farmlocation.Text = row.Cells("Farm Location").Value.ToString
        type.Text = row.Cells("Type of Farming").Value.ToString
        hectare.Text = row.Cells("Total Hectare").Value.ToString
        save.Enabled = True
        type.Enabled = True
        farmlocation.Enabled = True
        hectare.Enabled = True
    End Sub
End Class
```

Backup

```
Imports MySql.Data.MySqlClient
Imports System.IO
Public Class backup
    Dim s As String

    Private Sub Button1_Click(sender As Object, e As EventArgs) Handles
Button1.Click
        Dim file As String
        SaveFileDialog1.Filter = "SQL Dump File (*.sql)|*.sql|All files (*.*)|*.*"
        SaveFileDialog1.FileName = "dbbatuan-" + "Database Backup" +
DateTime.Now.ToString("yyyy-MM-dd HH-mm-ss") + ".sql"
        If SaveFileDialog1.ShowDialog = DialogResult.OK Then
            file = SaveFileDialog1.FileName
            Dim myProcess As New Process()
            myProcess.StartInfo.FileName = "cmd.exe"
```

```
            myProcess.StartInfo.UseShellExecute = False
            myProcess.StartInfo.WorkingDirectory =
"C:\wamp\bin\mysql\mysql5.5.8\bin"
            myProcess.StartInfo.RedirectStandardInput = True
            myProcess.StartInfo.RedirectStandardOutput = True
            myProcess.Start()
            Dim myStreamWriter As StreamWriter = myProcess.StandardInput
            Dim mystreamreader As StreamReader = myProcess.StandardOutput
            myStreamWriter.WriteLine("mysqldump -u root --password= -h localhost
""dbbatuan"" > """ + file + """ ")
            myStreamWriter.Close()
            myProcess.WaitForExit()
            myProcess.Close()
            MsgBox("Backup Created Successfully!", MsgBoxStyle.Information,
"Backup")

            Me.Close()
        End If
    End Sub
End Class
```

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Elementary : Gamut Central Elementary School
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Elementary : Cantigdas Elementary School
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Junior High School : Batuan National High School
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Senior High School : Batuan National High School
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Tertiary : Bachelor of Science in Computer Science
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Elementary : Cambailan Elementary School
Cambailan, Catigbian Bohol
2011-2012

Secondary

Junior High School : Hagbuaya National High School
Hagbuaya Catigbian Bohol
2015-2016

Senior High School : Bohol Northwestern Colleges
Poblacion, Catigbian, Bohol
2017-2018

Tertiary : Bachelor of Science in Computer Science
Bohol Island State University – Bilar
Zamora, Bilar, Bohol
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Work Experienced : On the Job Training
Accounting Office, Municipality of Catigbian
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