**WEB-BASED: INVENTORY MANAGEMENT SYSTEM FOR CULINARY ART STUDENTS: SAVORY GREEN DELIGHTS, AND OKRA BLOOM SEEDS OF BOUNTIFULBITESCO**

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# **BACKGROUND OF THE STUDY**

In this recent age of technology, it has become increasingly evident on how truly crucial technology has become in making everyone's life more efficient. Technology offers various solutions to problems that one might encounter in their day-to-day life, school, and even work. One of the prime examples of how technology has truly made everyone's life much more easier are Inventory Management Systems which is a helpful tool that could assist businesses, shops, restaurants, and more by tracking the products which they want to sell, the availability of their stocks, and even give reminders to restock their products when supplies are low.

Due to a collaboration between CART201A Group 1 and ICTE201A Group 5, the ICT research group from STI College Marikina, SY 2023-2024 have decided to help the aspiring entrepreneurs create a website with an Inventory Management System which would feature all the services mentioned beforehand which could help them manage and hopefully assist in making their growing business easier to run, specifically with keeping track of their products such as Savory Green Delights and Okra Bloom Seeds.

With this, the researchers' are hopeful that the creation of this website will be a helpful tool to all future entrepreneurs who are looking for a way to solve their inventory management problems so that they can just solely focus on creating and improving their products. and that unlike the past CART201A Group 1 who had to manually count their products by hand and write them down on paper, the researchers' will be able to create and implement a much more modern solution to their problem for them to use.

During this research, the researchers' take inspirations in creating their own effective Inventory Management System with the help of research papers similarly focused on creating Inventory Management Systems found in the STI College Marikina Library such as: Online Sales and Inventory Monitoring for Screwland Trading (#86), Library Utilization and Book Inventory System for STI College Marikina (#91), and Online Stocks Monitoring System for Red Anura Footwear (#177).

# **OVERVIEW OF THE CURRENT STATE OF TECHNOLOGY**

The students of CART101A started their school year of 2022-2023 by forming a 6 member group for their research paper. In choosing an acceptable title, their group had a difficult time choosing and changed it multiple times. They focused their research on possible beneficial food dishes that could be helpful to the health of other people until they created an acceptable title. CART101A Group 1's initial target consumers were children who refused to eat food like Okra due to its slimy texture but was changed to STI College Marikina students since 'children' as a target audience was too broad. Throughout their Grade 11 school year, CART101A has a total of 2 trials for the creation of their chosen product.

The first trial of CART101A started on March 1, 2023, around their 2nd Semester. At the day of their first trial, the group members of CART101A listed the ingredients they needed in their phone which are: Okra, Bell Peppers, Carrots, Garlic, Onions, Eden Cheese, Lumpia Wrappers, Ham, and Salt and Pepper seasoning which they then tried to estimate the total cost of. Due to not being able to slowly save up money at the start of their school year, at the day they went to the wet market to buy their ingredients, each member of the 6 member group had to make a small contribution of 50 ₱ totalling to 300 ₱ to be able to buy their needed ingredients which they then handed to their leader, Larie Jane Cabunagan.

Afterwards, all of the members of the group went to the Concepcion Wet Market, one of the nearest wet markets around STI College Marikina and known for its cheaper prices compared to the ingredients sold at supermarkets. The first ingredients bought were Okras which costed 50 ₱ for 12 pcs, 2 pcs of Bell Peppers for 30 ₱, 1 large Carrot for 20 ₱, 1 Garlic for 8 ₱, and 2 Onions for 16 ₱, all of them bought from the same nie-sam-meat and vegetables stall in the Concepcion Wet Market. Next, they bought 1 Eden Cheese for 57 ₱, 25 pcs of Lumpia Wrapper for 25 ₱, and Ham which cost 50 ₱ in total. Overall, the group spent 256 ₱ buying their ingredients.

After buying the necessary ingredients, the members of the CART Group 1 except one member headed to one of the group member's, Kristine Baquial, house located at Marikina Heights, Apitong Street to start the creation of one of their products, Savory Green Delights. After arriving in the house, the members prepared the tools and cleaned the ingredients they will be using. After their preparation, the group noticed they were missing some salt and pepper which was to be used for seasoning. Some members of the Group quickly went out to buy the missing ingredients which cost 8₱ in total at the nearest Sari-sari store then returned to the house to continue their work, with each member doing their own task.

Kristine Baquial seasoned the bell peppers, Aira Mae Co started the removal of the Okra's mucilage which are the slimy parts of the Okra before slicing the Okra into strips, Kristine, after seasoning the bell peppers, began grating the carrots, Louise Anne Latosa started cutting the Ham into pieces, Larie Jane Cabunagan then sliced the bell pepper into strips, and James Andrei Gestoso started mincing the cheese, garlic, and onions. When it came to the flavor of the dish, all of the members helped in figuring it out. Aira and Kristine prepped the pan with some cooking oil to prepare the frying of the Lumpiang Okra or also known as Savory Green Delights. After the frying process was finished, the group waited for the Savory Green Delights to cool down before taste testing the dish to see if the flavor was bland or not. After tasting, the CART101A Group 1 members each agreed that the taste was bland and seasoned it with more salt and pepper before frying it again. Afterwards, they taste tested it again and decided that the taste was much better compared to the first taste test.

The group carried on wrapping the rest of the Savory Green Delights with no specific size of length in mind. At the end, CART101A Group 1 ended up wrapping 20 pieces of the Savory Green Delights, 5 of which were used for taste testing. The 15 pieces of ready-to-cook Savory Green Delights were kept in the refrigerator by Larie Jane to be brought to school the day after so that the group could fry it in the school and keep its crispness.

The day after, the group cooked the 15 pieces of Savory Green Delights in the school then they prepared the plating so that it could be taste tested by a few members of the faculty, specifically Ms. Divine, Mr. Homer, Mr. Gerard, Mr. Baysa, and Mr. Alminar. The feedback the CART101 Group 1 received was that the Savory Green Delights still retained some of its slimy texture and that concluded the first trial and error of CART101A Group 1.

The second trial and error of CART101A occurred on March 17, 2023. The group started their trial by listing the ingredients necessary on a piece of paper before transferring it to their phone after finalizing it. Unlike their 1st trial and error, the ingredients they bought came from Puregold Concepcion, a supermarket. Their choice to switch suppliers was brought by the fact that they believe ingredients found in supermarkets have a much better quality and are cleaner compared to the ingredients bought from a wet market. At the end, the group spent a total of 150 ₱, this was due to the fact that there were still some extra supplies from their last group project, specifically ground meat, left in Kristine's house so they didn't spend as much money as before. The only ingredients they needed were: Bell Peppers, Carrots, and Eden Cheese.

Afterwards, when all the members finished buying and went back to Kristine's house, the members quickly went to their assigned roles, which were the same as their first trial. Using Miss Divine's advice from CART101A's first trial and error, a microwave was used to hopefully dry the Okra but after 10 minutes, it proved to be unsuccessful. Afterwards, they diced the Okra strips in hopes of lessening the slimy texture. Kristine focused on frying the Okras, Larie Jane started wrapping the Okras and while waiting for the Okras to fry, Kristine also started dicing the onions and garlic, Ashley Nicole Lancetas started mincing the bell peppers and carrots and as for the leftover ground meat, they fried it until it reached a golden brown color. The group taste tested the ground meat and approved of its flavor and used it alongside the Okra. After wrapping the ingredients and frying them, the group member tasted the dish and found out that it was tastier, crunchy, and smelt better compared to their Trial 1 and while it still retained some of the Okra's sliminess, it was still an improvement.

For this school year of 2023-2024, CART201A Group 1 still hasn't started their trial and errors but were able to slowly save money for their ingredients by saving 5 ₱ each day since the start of September. In the future, they plan to list all the ingredients and measurements they need in preparation of cooking their dishes so that it remains organized.

The product restocking process is structured as follows: when inventory reaches 60%, a first warning is triggered to remind the responsible member to initiate restocking. At this point, restocking should already be in process. The critical warning activates at 30%, indicating an urgent need for immediate action to produce and restock the product right away.

# **STATEMENT OF THE PROBLEM**

Culinary art businesses face challenges in efficiently tracking their diverse range of products, leading to difficulties in monitoring stock levels, product availability, and reducing the risk of ingredient shortages. Culinary students face the issue of precisely tracking a vast range of goods.

This challenge has an influence on their inventory management since they must keep exact records to guarantee they have the proper items at the right time for assignments and practical exercises. Inadequate product tracking can result in shortages, disturbing their culinary work and negatively impacting their academic success. Furthermore, it impedes their culinary skill development by restricting their capacity to explore and practice efficiently. Addressing this issue is critical to their success in culinary education and future professions in the fast-paced culinary business.

# **GENERAL PROBLEM**

How to design and develop a web-based Inventory Management System for Savory Green Delights?

# **SPECIFIC PROBLEM**

1. How to develop a Web-Based Inventory Management System?

2. How to implement Collaborative Features Between CART201A Group 1 and ICTE201A Group 5 in an Inventory Management System?

3. How to incorporate Automatic Product Restocking Reminders?

4. How to Conduct Usability Testing for the Website?

5. How to successfully integrate the Culinary Arts Academic Schedule into the Inventory Management System?

6. How to evaluate the Time-Saving Impact of the Web-based Inventory Management System in the Culinary Students?

7. How to ensure a User-Friendly Interface?

8. How to provide a Template for Future Collaborations?

# **OBJECTIVES**

# **GENERAL OBJECTIVES**

To design and develop a web-based Inventory Management System for Savory Green Delights and to increase the effectiveness of the partnership BountifulBitesCo. (CART201 GR-1), the researchers (ICTE201A GR-5) looked for a particular issue that would aid in the solution and determined that inventory management is the answer. Thus, they oversaw the components of their products and organized their support for the other essential needs when it came to management.

The goal of the researchers for the BountifulBitesCo. is to help them know what products and essential items are available in their inventory, help them manage their stocks and the estimated, and even record what’s sold out or unavailable for the BountifulBitesCo. can be notified to restock. Therefore, BountifulBitesCo. may no longer have to put some time into writing it down on paper like a logbook or listing it on the phone; so that’s why, the researchers seek a solution that would help the BountifulBitesCo. with a just-in-time inventory management system (JIT), it is simplified and tailor for them to expedite their processes. Additionally, the researchers’ inventory management system aims to record and monitor shortages of stocks so it cannot be a disturbance to BountifulBitesCo.’ procedures and produce a proper result for their products. Apart from that, the researchers' goal is also to reduce the time-consuming tasks, such as writing down the records of the stocks and items that they bought through wet markets and other aspects that can consume much time and effort.

To fulfill the job that was assigned, the researchers decided on a plan to develop a web-based inventory management system that would monitor their stocks and products and alert the system to the prevention of low-stock or out-of-stock and restock for the products and essential items. Therefore, BountifulBitesCo. Users indeed lack management when it comes to their essential items and how they optimize their capability to manage their inventory.

# **SPECIFIC OBJECTIVE**

**1. Develop a Web-Based Inventory Management System:**

Create a user-friendly web application that integrates an inventory management system tailored for Culinary Art students, specifically focusing on tracking products such as Savory Green Delights and Okra Bloom Seeds.

**2. Implement Collaborative Features Between CART201A Group 1 and ICTE201A Group 5:**

Facilitate collaboration between the CART201A Group 1 (Culinary Arts students) and ICTE201A Group 5 (ICT students) to ensure seamless integration of culinary product details and efficient functionality within the web-based inventory system.

**3. Incorporate Automatic Product Restocking Reminders:**

Integrate a feature within the system that automatically generates reminders for restocking culinary products, ensuring that inventory levels are maintained, minimizing the risk of shortages, and enhancing overall efficiency.

**4. Conduct Usability Testing for the Website:**

Perform usability testing involving Culinary Art students to evaluate the effectiveness and user-friendliness of the developed website, ensuring that it meets their specific needs and aligns with culinary research processes.

**5. Explore Integration with Culinary Arts Academic Schedule:**

Investigate options for aligning the inventory system with the Culinary Arts academic schedule, addressing challenges related to timelines and scheduling disparities between Culinary Arts and ICT departments.

**6. Evaluate Time-Saving Impact on Culinary Students:**

Assess the time-saving impact of the web-based inventory system on Culinary Art students, measuring the reduction in manual tracking efforts and the subsequent ability to allocate more time to culinary skill development and academic objectives.

**7. Ensure User-Friendly Interface:**

Design and implement a user-friendly interface for the system, incorporating standard culinary terms and processes to enhance user adoption and minimize the learning curve for Culinary Art students.

**8. Provide a Template for Future Collaborations:**

Develop a documentation template outlining the collaborative process, interdisciplinary approach, and outcomes of this project to serve as a guide for future collaborations between Culinary Arts and ICT students in similar research endeavors.

# **SIGNIFICANCE OF THE STUDY**

The researchers' study focuses on developing a website(webApp) to improve inventory management for the researchers' collaboration with CulArt students and future entrepreneurs in the food industry. Therefore, the collaboration between CulArt and us IT students underscores the approach to problem-solving. Also, the researchers' website that is being proposed aims to make inventory management procedures easier for students or future users studying CulArts and consequently, for aspiring food industry entrepreneurs. Furthermore, the researchers' study aims to improve the difficult task of manually tracking and managing inventory with the help of technology, freeing up time and energy for people to focus on their general activities, such as developing new products and enhancing their culinary abilities.

**StudentUsers** – CulArts students may save time by using the proposed website (WebApp), which is made to make inventory management more efficient, instead of having to manually track and monitor supplies. Moreover, this time-saving feature is essential for the researchers' collaboration including entrepreneurs students who are already managing a demanding academic schedule with hands-on culinary education. Also, students can refocus their time and frequency on developing their culinary abilities and producing fresh products by automating inventory-related tasks. Therefore, this guarantees that organizational and administrative difficulties won’t consume their main educational objectives.

**Future Research** – The significance of the researchers' research study goes further in meeting the immediate needs of CulArts students; it requires advanced inventory management techniques, support, collaboration, and entrepreneurship, and relates to more main developments in technological innovation. The research group's findings can have a beneficial effect on present and future student-users as well as act as a template for similar developments in other related-research projects.

**Cost Management** – The research study also seeks to solve the CulArt students’ program by offering a strong system for Inventory management/tracking. This helps with budget management and improves the program’s financial stability, which makes improved financial planning possible.

**Website Efficiency (WebApp)** – It focuses primarily on the demands of the research collaboration with CulArts users and allows the system to be precisely adjusted to meet the unique obstacles and specifications associated with the management of CulArts students' inventory.

**UFI’s (User-Friendly interface)** – A user-friendly interface for the system that corresponds with the standard terms and processes used in culinary research can be designed. This may result in a shorter learning curve for users as culinary students adopt the technology more quickly.

# **SCOPE AND LIMITATION**

**SCOPE -** The primary objective of the research group's research is the development of a specialized Inventory Management System tailored for the Culinary Arts discipline. The research group's focus remains dedicated towards creating an Inventory System designed to efficiency inventory management within this field.

It’s important to note the specific scope of this research; the researchers' efforts are exclusively only to the establishment and management of an inventory system. The researchers' purposely withhold from engaging in sales tracking or customer-related analyses within this study.

In this Inventory Management support, the researchers' attention is geared towards cataloging and managing the various products associated with the Culinary Arts. However, should the Culinary Arts program provide limited product information, the system will concentrate on effectively managing the singular available product, refraining from handling or presenting additional items beyond the defined scope inventory management within the Culinary Arts sector.

**LIMITATIONS -** In outlining the research constraints, a prominent challenge arises from the interdependence between the researchers' progress and the Culinary Arts department’s timeline. The research group frequently encounters delays as the researchers' advancement is dependent upon the completion of their processes, thus necessitating synchronization for us to proceed effectively. Additionally, a significant obstacle arises from the divergent scheduling between the Culinary Arts (CULARTS) and Information and Communication Technology (ICT) departments. The disparities in the researchers' schedules significantly limit the opportunities for regular meetings, hindering the collaborative process due to the infrequent alignment.

# **DEFINITION OF TERMS**

**Inventory system -** The process by which you track your goods throughout your entire supply chain, from purchasing to production to end sales.

**Inventory management -** The process of storing, ordering, and selling of goods and services. The discipline also involves the management of various supplies and processes.

**Management** - A solid organizational structure serves as a guide for workers and establishes the tone and focus of their work.

**Manageable** - Able to be managed, controlled, or accomplished without great difficulty.

**Inventory** - To provide a buffer between production and sales, smoothing out the flow of goods and ensuring that products are available when customers order them.

**Entrepreneurs** - Is an individual who identifies a need in the marketplace and works to fulfill it.

**Diverse range** - A group or range of things.

**Reducing** - Make smaller or less in amount, degree, or size.

**Shortages** - A state or situation in which something needed cannot be obtained in sufficient amounts.

**Inadequate** - Lacking the quality or quantity required; insufficient for a purpose.

**Capacity** - The maximum amount that something can contain.

**Administrative** - Relating to the running of a business, organization, etc.

**Organizational** - Relating to an organization or the way it is set up.

**Innovation** - The action or process of innovating.

**Tailored** - Made or changed especially to be suitable for a particular situation or purpose.

**Prominent** - Standing out or projecting beyond a surface or line.

**Interdependence** - Is the state of being dependent upon one another.

**Disparities** - A difference in level or treatment, especially one that is seen as unfair.

**Perishability -** refers to the concept that businesses can only store and sell certain products or services for a brief period of time.

**Just in time (JIT)** - JIT is an inventory management method in which items are only ordered as they are needed to minimize waste and storage costs.

**Mucilage** - The slimy part of an Okra which gives it its slimy texture.

# **REFERENCE:**

Alvero, P. P., Enriquez, R., Manzanero, E. R., & Sorio, J. J. (2018). Online stocks monitoring system for red aura footwear. [STI College Marikina]. A Thesis Presentated to the Faculty of Information and Communications Technology Program STI College Marikina.

Balatbat, A., Bonifacio, J. A., & Miranda, M. A. (2014). Online Ordering with Inventory Management System. [STI College Marikina]. A Thesis Proposal Presented to the Faculty of STI College Marikina.

Corpuz, J., Cruzado, Z., Mananquil, R. A., & Santos, M. (2013). Online Sales and Inventory Monitoring for Screwland Trading. [STI College Marikina] A Thesis Proposal Presented to the Faculty of STI College Marikina.

Agonias, C., Castillo, J. R., Marquez, C. E., & Sanchez, L. A. (2013). Library Utilization and Book Inventory System for STI College Marikina. [STI College Marikina] A Thesis Proposal Presented to the Faculty of STI College Marikina.