**CHAPTER 1**

**INTRODUCTION**

* 1. **PROJECT BACKGROUND**

This study is about billing system, a specialized system and hardware solution designed to manage and streamline various aspects of the billing, ordering, and payment processes within a coffee shop. It serves as the central point for handling customer orders, ensuring accurate billing, and facilitating smooth transactions. This shop often require an efficient and effective billing system to manage orders and process transactions accurately.

This study conducted in 1128 Tea & Café located at 70 Kalusugan St. Batasan Hills, Quezon City owned by Mr. Jonathan Gorillo Golo.

**1.1.1 Problem Opportunity / Description**

**1.1.1.1 Slow Checkout Process**

Long wait times to pay the bill, especially during busy hours, can be an issue that affects the customer's experience.

**1.1.1.2 Difficulty in Custom Orders and Special Requests**

The client difficulty handling customizations in invoicing the order of customer.

**1.1.1.3 Inaccurate Cash Handling and Change Calculations**

This issues can effect errors, produce improper to manage the cash and inaccurate change processing of cash transactions.

**1.1.2 Benefits**

**1.1.2.1 Shop Owner**

This system can benefit the shop owner by improving its operations, streamlining operations, increasing sales, enhance customer service, and improve efficiency.

**1.1.2.2 Customers**

They can benefit from a smooth and efficient ordering and payment process, reducing waiting times and enhancing their overall experience.

**1.1.2.3 Staff and Employees**

Staff can benefit from a simplified workflow that reduces the likelihood of order errors and allows them to focus on providing quality service.

**1.1.2.4 Future Researchers**

Researcher play an important part that benefit the development and advancement of numerous fields, by expanding our knowledge, solving problems, enchanting decision-making, and educating future generations.

**1.1.3 Goals**

**1.1.3.1** To provide login form for the security of data.

**1.1.3.2** To provide dashboard to easily navigate the system.

**1.1.3.3** To provide service quality to perceive a better expectations of a service with in order performance.

**1.1.3.4** To provide quality product to insure to the satisfaction of the customers that purchasing the brand of the product, able to encourage them to buy the products and increase the revenue.

**1.1.3.5** To provide invoice that process a charges a customers for goods or service, and such able to show all the information about a transaction.

**1.1.3.7** To provide serving a proper delivery of a product from the customers.

**1.1.3.8** To be able speed up the customer payments.

**1.1.3.9** To be able sales report it help to provide evaluate sales performance, analyze the sales and record of all sales activity taking place within a company over a certain period of time.

**1.1.3.10** To provide purchasing of a product at the right price and quality.

**1.1.3.11** To be able receiving or collecting payment from the customers after the orders are given to customers.

* 1. **PROJECT SCOPE**

This project scope aims about billing system that maintain the collecting payments, invoices, and prices from the shop, we include the to the website by conducting order database from the admin, ordering page for delivery platform, and menu for choosing a flavor, add quantity, sugar level, add-ons, checkout, checkout complete, and the background information about the coffee shop.

**1.2.1 Objectives**

**1.2.1.1 Fast checkout process**

It maintains the accuracy of shopping experience that allows to complete their purchases quickly and efficiently, it is possible to minimize the time to complete the transaction.

**1.2.1.2 Customize orders and special request**

This is provide personalized products or services to the client, by personalizing the purchases according to their unique needs and additional services beyond what is typically offered.

**1.2.1.3 Accurate cash handling and change calculations**

It is safekeeping of cash to ensure that all financial transactions are conducted, this include using secure safes or cash register, preparing correct change using counting cash, calculating the amount accurately.

**1.2.2 Project Deliverables / Work Products Description**

**1.2.2.1 Objective 1: Fast checkout process**

|  |  |
| --- | --- |
| **Project Deliverables** | **Work Products/Description** |
| **Digital Payment** | The payment is a transfer of money, goods, or services in exchange for a product or service, this include using cash, credit card, checks, and digital payments that able to transact. |
| **Order Management** | It refers to the process of a client purchasing a product, it is required to deliver the products as specified in the client’s purchase. |

**Table 1: Objective 1**

**1.2.2.2 Objective 2: Customize orders and special request**

|  |  |
| --- | --- |
| **Project Deliverables** | **Work Products/Description** |
| **Customization** | It is personal preference by the client, the modification can be applied option to make their own add to the design, flavor and feature to the product. |
| **Menu** | This provide a list of food and drinks offered to customers and the prices, which presents a list of options from the customers choose. |

**Table 2: Objective 2**

**1.2.2.3 Objective 3: Accurate cash handling and change calculations**

|  |  |
| --- | --- |
| **Project Deliverables** | **Work Products/Description** |
| **Calculator** | It is a device used to perform mathematical calculations used for various purposes including basic arithmetic operations such as addition, subtraction, multiplication it helps maintaining accurate records of transaction, this is essential for calculating the total amount of purchases. |
| **Security** | It is encompasses measures and protocols put in place to safeguard against potential threats and risks, it also includes cash handling procedures to helps minimize the risk of errors or intentional miscue of funds. |

**Table 3: Objective 3**

**1.2.3 Out of Scope**

**1.2.3.1 Online payment**

As a manual this payment method are not managed to the shop, the quality of the shop is manage the manual process the staffs are hands-on during the customers payment process.

**1.2.3.2 statistics of an salary**

This feature is not stable from creating a system, our topic is to gain a smooth flow of ordering and payments process as a manual from the shop.

**.2.3.3 Checks**

As a manual the shop is doesn’t have a check, but the shop have a database who have to purchase the product the date, time, flavor, pay and name of the customer has visible to see.

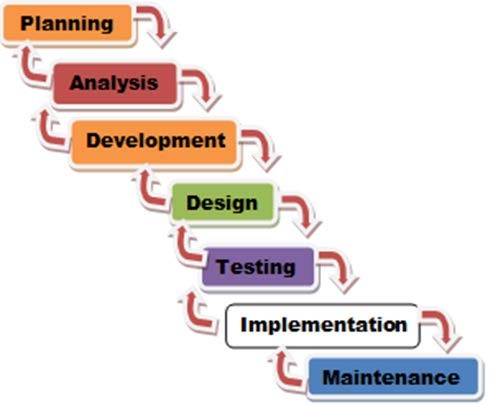
**1.2.3.4 Credits card payments**

this payment method is not allowed from the shop due to the shop is manual, as the only accept from the cash register is cash payments.

**1.2.3.5 Barcode on the product**

The coffee shop doesn’t have a barcode due to the managing process from the shop ordering and paying the product, the barcode are not allowed since to the manual transaction.

**1.3 PROJECT PLAN**

**1.3.1 Approach and Methodology**

**Figure 1: Waterfall Model (SDLC)**

**1.3.1.1 Planning**

This provide process of conducting by brainstorming, researching, thinking of the title, that manages by project manager who responsible for planning the system and assisting by the staffs.

**1.3.1.2 Analysis**

The client was suggested by business analyst, we gain information and conducting a interview to the client regarding about the billing system, that aimed as manual,transaction, payment, invoicing.

**1.3.1.3 Development**

This provide a growth and to make a progress by conducting a study regarding to the system, we have to reached the deepest part of the research to gain a much clearer study, writing codes for the program of the website, gain a knowledge from the study conducting a research.

**1.3.1.4 Design**

This is the process of a thinking that identify what themed for creating the website, by assisting of the system analyst to gain a fitter design for creating website.

**1.3.1.5 Testing**

This provide by programmer that writing code, using visual studio, writing code for creating the website, and assisting by the system analyst to insure the design is working.

**1.3.1.6 Implementation**

This provide processing of design, developing, testing and deploying a software or hardware, to meet the specific need to solve a particular problem from the study, preparing and careful research to the system to achieve clearly documentation and gain a smooth programming.

**1.3.1.7 Maintenance**

This refers to support the study and address different issues and needs ensuring the smooth functioning of a system, by assisting of the project manager and other staffs to maintain the accuracy doing creating the system.

**1.3.2 Project Timeline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Task Name** | **Start** | **Finish** | **Duration** |
| 1 | Forming group | September 14,2023 | September 27,2023 | 13 days |
| 2 | Brainstorming | September 28,2023 | September 29,2023 | 1 day |
| 3 | Creating a final system | October 3,2023 | October 4,2023 | 1 day |
| 4 | Assigning roles | October 18,2023 | October 19,2023 | 1 day |
| 5 | Finding client | December 16,2023 | December 17,2023 | 1 day |
| 6 | Request an endorsement latter | January 3,2024 | January 4,2024 | 1 day |
| 7 | Creating questionnaires | January 8,2024 | January 9,2024 | 1 day |
| 8 | Setting up an interview | January 8,2024 | January 9,2023 | 1 day |
| 9 | Doing project timeline | October 29,2023 | November 2,2023 | 4 days |
| 10 | Doing problem Opportunity/Description | October 29,2023 | November 2,2023 | 4 days |
| 11 | Doing benefits | October 29,2023 | October 2,2024 | 4 days |
| 12 | Setting goals | October 29,2023 | November 2,2023 | 4 days |
| 13 | Doing project scope | January 4,2024 | January 5,2024 | 1 day |
| 14 | Setting objective | January 5,2024 | January 6,2024 | 1 day |
| 15 | Doing project in Deliverables/work Description | January 5,2024 | January 6,2024 | 1 day |
| 16 | Doing out scope | January 16,2024 | January 17,2024 | 1 day |
| 17 | Setting project scope | January 6,2024 | January 7,2024 | 1 day |
| 18 | Doing project plan | January 11,2024 | January 12,2024 | 1 day |
| 19 | Doing project timeline | January 16,2024 | January 17,2024 | 1 day |
| 20 | Doing issues policy complication | January 12,2024 | January 13,2024 | 1 day |
| 21 | Setting risk management | January 13,2024 | January 14,2024 | 1 day |
| 22 | Doing service transition | January 13,2024 | January 14,2024 | 1 day |
| 23 | Doing technical feature | January 14,2024 | January 15,2024 | 1 day |
| 24 | Doing project organization and staffing | January 14,2024 | January 15,2024 | 1 day |
| 25 | Setting project budget | January 13,2024 | January 14,2024 | 1 day |
| 26 | Finding local studies | January 4,2024 | January 16,2024 | 13 days |
| 27 | Finding foreign studies | January 4,2024 | January 7,2024 | 4 days |
| 28 | Doing related literature | January 16,2024 | January 17,2024 | 1 day |
| 29 | Doing synthesis and relevance to the study  (Comparative analysis) | January 16,2024 | January 17,2024 | 1 day |
| 30 | Doing conceptual frame work | January 16,2024 | January 17,2024 | 1 day |
| 31 | Doing flowchart of the system | January 16,2024 | January 17,2024 | 1 day |
| 32 | Setting power point presentation | January 16,2024 | January 17,2024 | 1 day |
| 33 | Pre-oral defense | January 17,2024 | January 17,2024 | 6 hours |

**Table 4: Project Timeline**

**1.3.3 Issues Policy Implications**

**1.3.3.1 Plagiarism**

This issue is considered a violation, presenting work or ideas from another source as your own, with or without consent of the original author.

**1.3.3.2 Customer Rights/Customer Protection Act**

This issue against unfair practices in the coffee shop or any other marketplace, the customer’s right to be informed about their data processing, access their personal information, request correction of inaccuracies, and object to processing under specific circumstances.

**1.3.3.3 Data Privacy Act**

This act protects the privacy of individuals and ensures that their personal information is collected, processed and disclosed in a lawful and responsible manner.

**1.3.3.4 Copy Right**

It is role in protecting intellectual property rights and fostering creativity by providing creator with legal protections and incentives to produce new works.

**1.3.4 Risk Management Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk Factor** | **Probability**  **(H – M - L)** | **Impact**  **(H – M - L)** | **Risk Management Action** |
| Virus | H | H | Install antivirus that can detect and remove computer viruses and malware in real time. |
| Blackout | M | M | Prepare battery, install a backup power source, such as generator, to ensure that essential system remain operational during power outages. |
| Data breach | H | H | Implement continuous monitoring of network traffic, system logs, and user activities to detect any anomalous behavior. indicative of a potential breach. |
| Hacking | H | H | Ensure the security of the data requires a compilation of strong passwords, two-factor authentication, keeping your software and devices up to date, being cautious of phishing attempts, using VPN, educating your self and others, and reporting suspicious activity. |

**Table 5: Risk Management Plan**

**1.3.5 Service Transition**

**1.3.5.1 Training / Seminar**

It is individual and organizational growth, offer numerous benefits, such as skill development, networking opportunities, and personal growth, by attending workshops, courses, and conferences, professionals can stay updated with the latest industry trends and best practices.

**1.3.5.2 User Manual**

It is a comprehensive document that provides instructions, guidance, and information on the proper use, installation, maintenance, and troubleshooting of a specific product or system. It serves as a vital resource for users to understand the features, functionalities, and limitations of a product, ensuring optimal performance and user satisfaction.

**1.3.5.3 Initial Meeting**

This provide open communication, active listening, and a positive attitude throughout the meeting to ensure a successful outcome.

**1.3.5.4 Client feedback**

It is process of gathering information, opinions, and evaluations from clients about the products, services, or overall experience they receive from a business or service provider.

**1.4 TECHNICAL FEATURES**

**1.4.1 Hardware**

|  |  |
| --- | --- |
| **Hardware** | **Description** |
| Laptop | It is a personal computer, is a compact, lightweight, and versatile device for various computing tasks. |
| Computer | It is a perform a wide range of tasks, to their ability to execute instructions and manipulate data. |
| Wi-Fi Router | This provide a internet connection, it allows multiple devices, such as computers, smartphones, tablets, and smart home devices, to connect to the internet at the same time without need for physical. |
| Printer | This It allows multiple devices, such as computers, smartphones, tablets, and smart home devices, to connect to the internet. |

**Table 6: Hardware**

**1.4.1 Software**

|  |  |
| --- | --- |
| **Software** | **Description** |
| Visual Studio Code | It is a software application source code editor that is well-suited for developers working with a wide range of programming languages and technologies. |
| Microsoft Word | It is a word processing program developed by microsoft,it’s processing application that provides essential tools for creating and formatting various tupes of documents. |
| XAMPP | It is a code editor that is well-suited for developers working with a wide range of programming languages and technologies, the process of setting up a local testing environment and allows them to work on their projects without relying on a remote server. |
| MySQL | It is a open-source relational database management system, that is widely used for managing and storing data in various applications, SQL language offers a range of features, such as transactions, security, and scalability, to ensure the efficient management and protection of data. |

**Table 7: Software**

**1.5 PROJECT ORGANIZATION AND STAFFING**

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Name and Contact Information** | **Responsibilities** | **Time** |
| Project Manager | Drixx Iver C. Agravante  09106143694  [drixxiveragravante@gmail.com](mailto:drixxiveragravante@gmail.com) | This person is responsible for the planning, procurement, execution and completion of a project and the process of leading the work of the team. | Anytime |
| Programmer | Justine Kyle Ola  09301867107  [kyleola07@gmail.com](mailto:kyleola07@gmail.com) | This person is responsible for the program codes. Programmer is a crucial role in software development, whether it is creating application, websites, games, or any other type of software they write codes, test it, debug errors, and often collaborate with other members of a development team. | Anytime |
| System Analyst | Jester Gonzaga  0938 249 0396  [jestergonzaga0988@gmail.com](mailto:jestergonzaga0988@gmail.com) | This person is responsible in analyzing, designing, and implementing information system. They play a crucial role in bringing the gap between business needs and technology solutions. | Anytime |
| Business Analyst | Jhon Rafael L. Isanan  09052446024  [jhonisanan24@gmail.com](mailto:jhonisanan24@gmail.com) | This person is responsible in dealing with works with an organization to identify, analyze, and solve business problems. They bridge the gap between business needs and technology solutions, helping to improve processes, products, services, and software applications. | Anytime |
| Documentation Specialist | John Mark C. Elieza  09455018987  [Johnmarkelieza159@gmail.com](mailto:Johnmarkelieza159@gmail.com) | This person is responsible for specializes in creating, organizing, and managing various types of documents, have primary role is accessible, and well-structured for affective communication and reference. | Anytime |

**Table 8: Project Organization and Staffing**

**1.6 PROJECT BUDGET**

|  |  |  |
| --- | --- | --- |
| **Budget Item** | **Description** | **Budgeted Cost** |
| Laptop | Device that used in creating the documentation and creating codes for the study. | Php 30, 000.00 |
| Smart Phone | Device that used in online communication using group chat for the study. | Php 9, 000.00 |
| Tablet | device that used in creating the documentation and using research for the study. | Php 7, 000.00 |
| Computer | Device that used into creating codes for the study. | Php 55,000.00 |
| Foods | It serves as a source of energy and nutrients required for the body’s growth, development, and maintenance. | Php 1, 500.00 |
| Transportation | This essential to able transport the people and goods from one place to another. | Php 1, 860.00 |
|  |  |  |
| **Total Cost** | | Php 101,000.00 |

**Table 9: Project Budget**

**1.7 RELATED LITERATURE AND STUDIES**

**1.7.1 Local Study**

**1.7.1.1 Feasibility Study On Establishing Coffee Shop**

According to J.M Doming et al.(2018)Feasibility study on establishing coffee shop, the thunder coffee is envisioned to be the first class coffee shop serving the best coffee in llocos Norte. Its mission is to make Thunder Café to be competitive and well-known coffee shop in the North. Its objective includes the improvement of quality of life by offering the Ilocanos employment opportunities. It also aspires to promote the native delicacies of the Ilocanos. In putting up a coffee shop that reflects the culture of Ilocano greatly influenced the student proponents to conduct the aforementioned study. The vending machines and any convenient store in Laoag City can provide coffee but cannot accommodate the increasing number of coffee drinkers. Thus, the Thunder Cafë will surely be the one that will provide the service that they can't get from the said coffee distributors.

Source: https://www.scribd.com/document/445208288/feasibility-study-on-establishing-coffee-shop

**1.7.1.2 Local 2**

**1.7.1.3 Local 3**

**1.7.2 Foreign Study**

**1.7.2.1 Coffee Shop Management System C#**

According to Abhi(2019) Coffee Shop Management System is based on a concept to maintain orders and management of a particular coffee shop. There are two sections in this project, they are Coffee Ordering and Admin panel. By using this system, he/she can maintain ordering records of a day. By selecting Coffee Order the system displays a list of Available coffee drinks and the user has to place an order with item quantity. After that, he/she proceeds towards Order confirmation and Payment methods. Almost 80% of the population are coffee lovers. Coffee Shop Management Systemin C#.NET consists following modules such as; Login Module, Employee Module, Administrator Module. This project is developed in C#.NET using C# language and MicrosoftSQL database used. The role of the administrator is to maintain employee information including operations like modifying, deleting, updating the employee records and customer order records in the system.

Source: https://www.scribd.com/document/435834741/Coffee-shop-management-system-c?fbclid=IwAR2ZVYtD9\_zNmbim-MwJ0JbZ-\_yXCaH5FhY6j1gWxwP2K88beLHTuuDelT4

**1.7.2.2 Cafe BDU building System**

In the study N.J Akhi, et al.,(2022), Cafe BDU building Systemis web application to restaurant management. This system wakes to provide service facility to the café and to the customer. The services that are provided is food ordering and billing by the customer through the system online, admin information management and staff information management, menu information management and bill management. Main objectives to build this system is to provide ordering and bill service by online to the customer. With this system online, ordering and bill management will become easier and systematic to replace traditional system where paper is used.

Source: https://www.scribd.com/document/445208288/feasibility-study-on-establishing-coffee-shop

**1.7.2.3**

**1.7.3 Synthesis and Relevance to the study (Comparative Analysis)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Project/System Features** | **Local 1** | **Local 2** | **Local 3** | **Foreign 1** | **Foreign 2** | **Foreign 3** | ***Researcher stu*dy** |
| Ordering System |  |  |  |  |  |  |  |
| Login System |  |  |  |  |  |  |  |
| Admin Panel |  |  |  |  |  |  |  |
| Display total Cash and Card transactions |  |  |  |  |  |  |  |
| Add and Delete Coffee Items |  |  |  |  |  |  |  |
| Item Counter |  |  |  |  |  |  |  |
| Instant Order Preview |  |  |  |  |  |  |  |
| Staff registration module |  |  |  |  |  |  |  |
| Customer eegistration module |  |  |  |  |  |  |  |
| Billing module |  |  |  |  |  |  |  |
| Menu module |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**Table 10: Comparative Analysis**

**1.8 CONCEPTUAL FRAMEWORK**

**PROCESSS**

**OUTPUT**

**INPUT**

**Figure 2: Conceptual Framework**

**CHAPTER 2**

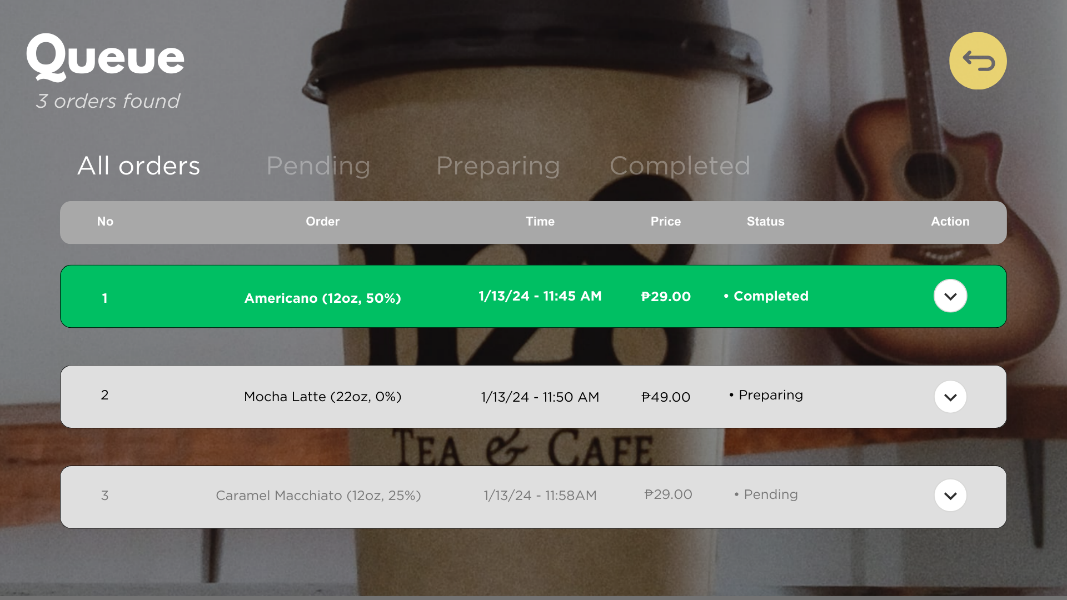
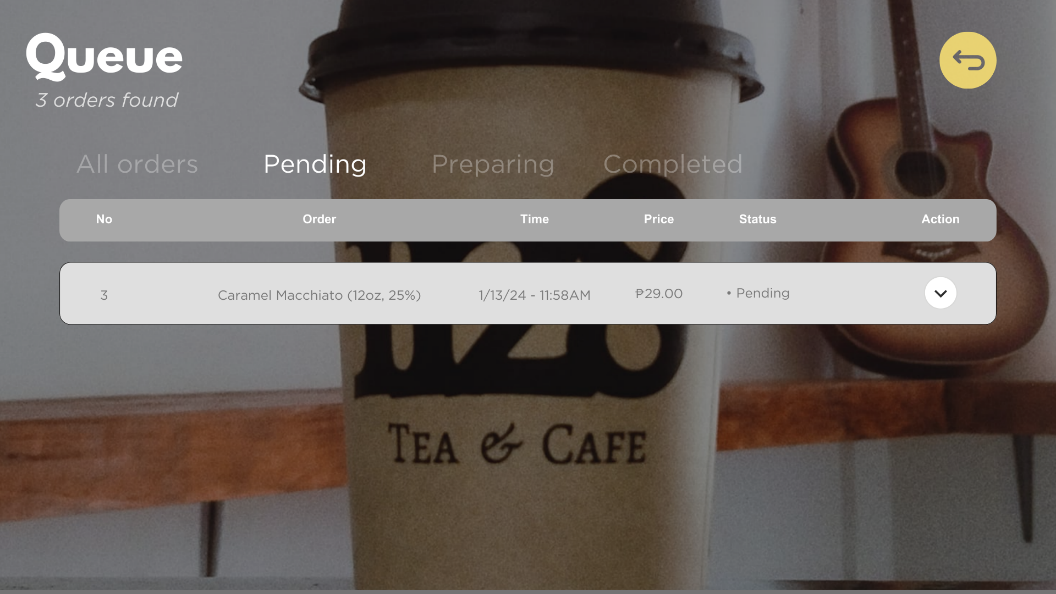
**PROJECT DEVELOPMENT**

**2.1 DESIGN / LAYOUT**

**2.1.1 Flowchart**

**2.1.2 For Admin**

**2.1.3 Design**

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