HOTEL MANAGEMENT SYSTEM - PROCUREMENT OF ANCILLARY SERVICES

A System Study presented to the
Faculty of the College of Computer and Information Sciences,
Polytechnic University of the Philippines, Sta. Mesa, Manila

In partial fulfillment for the course
INTE 40163 Capstone Project 2

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RECOMMENDATION SHEET

The system entitled Hotel Management System - Procurement of Ancillary Services has been examined and is recommended for acceptance and approval to the committee for oral examination.

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EXECUTIVE SUMMARY

In modern times, hotel businesses are dependent on Property Management Systems (PMS) to operate mass-scale. That is why functions such as Reservation Management, Room Management, and especially, the Management of Transaction Posting are important because hotels can't operate well without these. The accuracy of posting charges on the guests' account is essential because it maintains satisfaction among the guests when billing them, but failure in this part could lead to inconvenience, dissatisfaction, and worst, losing credibility in handling billing statements.

This capstone project is about the Procurement of Ancillary Services, a module of a Hotel Management System that handles Ancillary Services offered by the hotel. The main problem that was found in most existing property management systems' transaction posting module is the unreliability of the billing reports that are generated due to several problems that are causing it. To prevent that, the proponents proposed a solution, and that is to create a system that is user-friendly and easy-to-navigate, up to date, have role-based access control and an audit trail, and lastly, have a forecasting feature.

The system will be managed by an ancillary services manager, and a revenue manager. The posting of charges part will be the responsibility of the cashiers, and front desk clerks. In the system, the ancillary services manager has the authority to create, edit, and delete user accounts. They also have the authority to manage the offered ancillary services. The revenue manager has the authority to oversee the ancillary services revenue report and performance. They also have the authority to forecast the demand of ancillary services for the next few months. Furthermore, they also have an option whether to download or print the revenue and forecasted report as well as its generated graphs. Meanwhile, the cashier and front desk clerks have the authority to post a transaction onto the guests' account but are unable to edit or delete the transaction made unless the manager permits it by authenticating themselves on the system for safety purposes. Overall, all users have the capability of updating their user account details and password, and to view their activity log.

Hotel Management System is not limited to the hotel industry. This kind of system is also used in the academic field by students who are taking courses related to hospitality as a way of training. So, the proponents coordinated with the CTHTM students of Polytechnic University of the Philippines to be their evaluators. The survey questionnaire is the instrument that is used to obtain responses from the evaluators, and the questions are based on ISO 25010.

Based on the overall result of the survey, the Hotel Management System – Procurement of Ancillary Services has been able to meet the specific users' needs and satisfaction based on the measurement of the obtained data. Even though it received a great evaluation from the users, there are some things that can still be improved for similar systems in the future.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 – INTRODUCTION

This chapter will discuss the technical background, problem analysis, purpose and description, specific objectives and the scope and limitation of the study

1.1. **PROJECT CONTEXT**

Hotel businesses are one of the major contributors to the growth of the tourism industry of the country. The success of these businesses depends on how the management of the overall system of the hotel is implemented. In the modern time, hotel management requires a lot of data organization and needs to adapt to the changing needs of the industry, especially on the use of technology. To stay competitive in the business, hotels resorted to the use of Property Management Systems (PMS) in managing the information that is important for the business operation. PMS is a data management software that helps in the effective management of hotels and allows them not only to store data but also achieve their basic objectives for the whole organization (Moyeenudin et al., 2018)

The features of property management systems vary according to the needs of the hotel. Even though there can be features which are only optional, there are also functions that are important for every PMS such as reservation management, room management, and especially, the management of transaction posting. Accurate posting of charges is crucial to maintain good customer satisfaction as any error on this part could lead to customer complaints. Jinisys Software Inc (2021) mentioned that inaccuracy on charges to the guest's account could result in erroneous reports and receipts which then could cause the hotel to lose their credibility to potential guests in the future. This serves as a reminder that all transactions of the guest, especially on the procurement of ancillary services during their stay in the hotel must be accurately posted to their account to prevent problems with the creation of the billing statement.

Hotel property management system is not limited to the hotel industries. This kind of system is also used in the academic field by students who are taking courses related to

hospitality as a way of training. Therefore, the proponents coordinated with the Hospitality Management students of Polytechnic University of the Philippines Hasmin Hostel campus to be their user. This way, the PMS made by the proponents will also be evaluated by them.

1.2. **TECHNICAL BACKGROUND** (Environment)

1.2.1. Equipment/Hardware

Table 1

Hotel and Device Hardware

Hotel Hardware	
Item	Description
Telephone	(2) stationed at the Front Desk (1) per room
Device Hardware	
Item	Specification
Computer	Multi-core – 3.3 GHz processor or better. 4GB RAM or better. 500GB Hard drive or better.
Laptop	Dual-core – 3.3 GHz processor or better. 4GB RAM or better. 500 0GB Hard drive or better.
Internet Router	Any internet provider service.

Looking at the hotel industry, there are at least telephones that are used for communication between floors within the hotel, guest-to-staff or staff-to-staff. Also, there were at least (2) Computers stationed at the front-desk alongside (1) of the Wi-Fi routers and (1) Laptop for managerial use as well as the other (1) Wi-Fi router.

Additionally, in terms of analyzing the technical background of the target population, which is the future hoteliers from PUP CTHTM, they have a significant amount of computer desktops that can be used by the HM students and faculties. Also, students and faculties also own mobile devices or tablets that they use for academic purposes.

1.2.2. Software

The computer and laptop devices use at least Windows 7 OS, installation and use of the software requires access to the internet browser. Same goes for the mobile devices and tablets; android and iOS devices must have any kind of browser for the installation and use of the web application.

For the hotel industry, aside from the mentioned technicalities above, some of them are using desktop PMS software the company bought and some are still using the pen and paper mode of transaction. In terms of the chosen client, they don’t have current PMS software that they can use for training.

1.2.3. Peopleware/Manpower

Table 2

Peopleware / Manpower

No.	User Roles	Responsibilities
1	Cashiers	In-charge of posting procured ancillary service/s on to the guest's individual account
2	Front Desk Clerk	In-charge of posting obvious transactions to the guest's individual account.
3	Revenue Manager	Oversees/manages financial reports and decisions.
4	Ancillary Services Manager	Oversees/manages ancillary services and decisions

Looking at the manpower aspect of the hotel industries that are only limited to those who have accessed to the posting module of the overall posting system, there are at least four important personnel needed which are the: 1) Cashiers that posts used ancillary service/s on to the guest's individual account, 2) Front Desk Clerk that posts obvious transactions on to the guest's individual account, 3) Revenue Manager that oversees/manages financial reports and sales decision, and 4) Ancillary Service Manager that oversees/manages ancillary services and decisions.

1.2.4. Network Infrastructure/Architecture

In terms of the hotel industry today, they have network architecture in such a way that they have accessed to the cloud as well as the Internet and their components are connected to one another in a manner that their respective computers can work simultaneously. To fully show this, an image of current hotel network infrastructure is shown below.

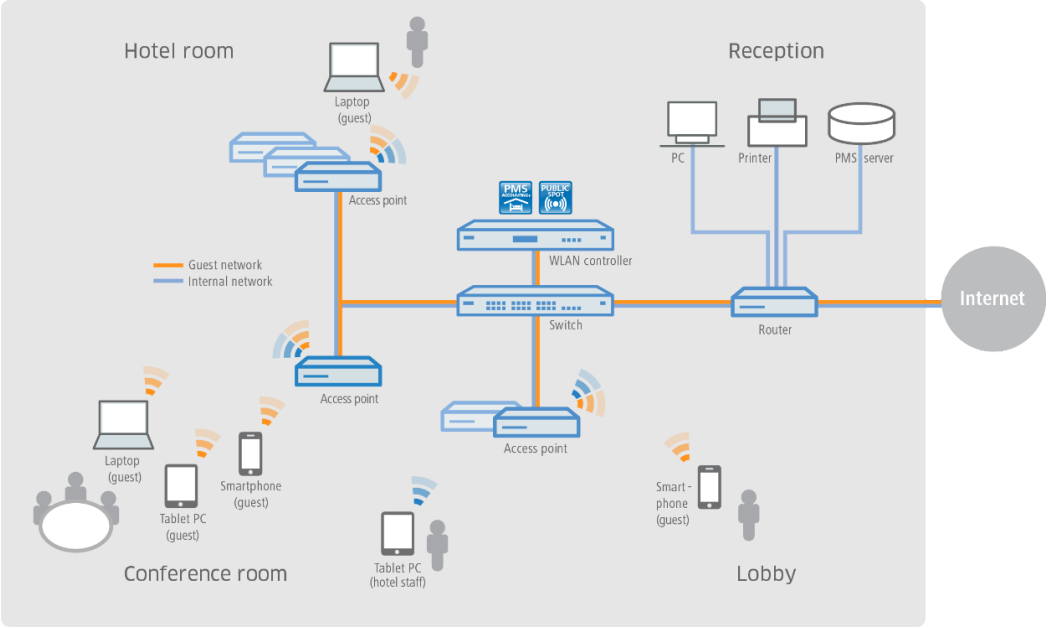


Figure 1. Current Hotel Network Infrastructure (wiSpot, 2021)

The usage of the Internet in the hotel business is recognized in the infrastructure, according to the image. Different regions of the hotel are connected in the same network using a WLAN controller, switch, router, and access points. Guests, managers, and hotel personnel have access to the Internet from anywhere in the hotel. Also, hotel receptions utilize their PMS in conjunction with the Internet to manage all hotel processes.

1.2.5. Storage, Backup and Recovery Procedure

Currently, the existing hotel property management system in some hotels store their data in their hard drives and even, the cloud. But some are still using the traditional paper or file cabinets and drawers since they don't have access to any existing hotel management systems today. Furthermore, those who use existing hotel management systems allow better recovery and automatic back up procedures of their data due to its automation.

1.2.6. Security Procedures

Due to the use of cloud, some existing Hotel PMS has better security procedures. They also have a high level of access in terms of their developed system.

1.2.7. Policies and Procedures

The following are the list of policies and procedures of the hotel property management posting module.

1. Whenever a hotel guest uses an ancillary service, that used service will immediately be posted on to the guest's account.
2. Cashiers and Front Desk Clerk can view and post transactions on to the guest's account.
3. Strictly only the Cashiers, Front Desk Clerk, and the Manager have access to the guest's account.
4. Strictly only the Managers are allowed to view the past sales reports, and the forecast of ancillary services demands.

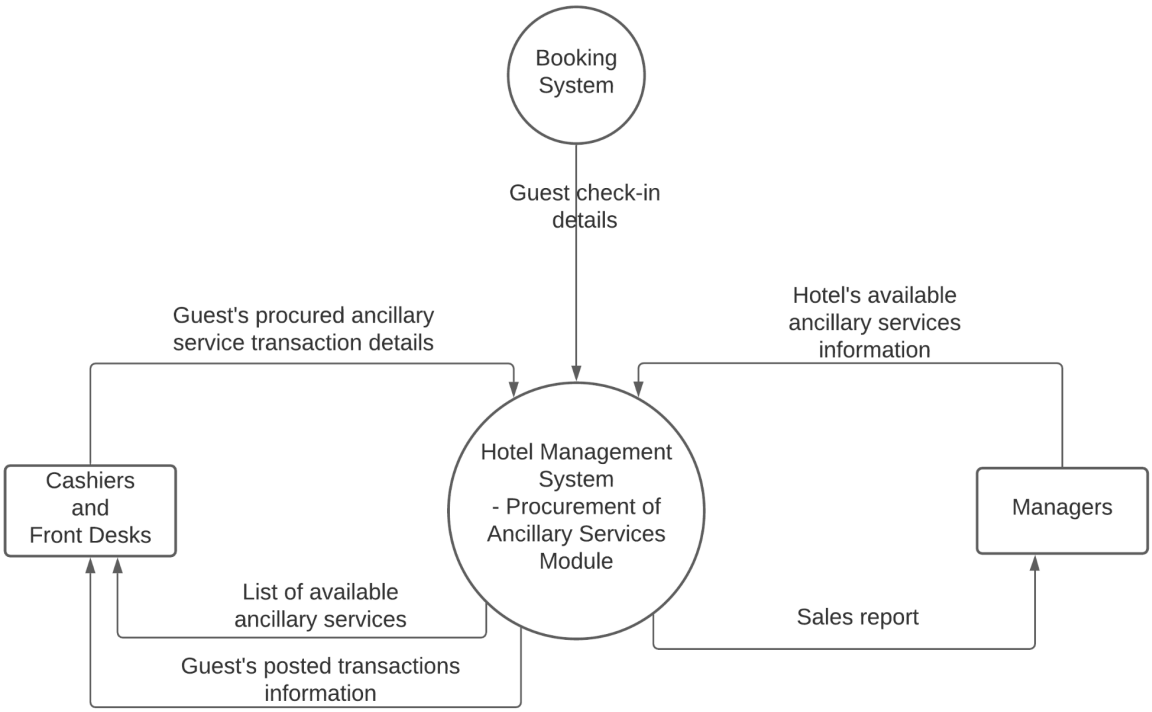


Figure 2: Context Diagram

The system starts with the guest's check-in information which shall come from the booking system module. In order for any guest to avail the ancillary services of the hotel, their names must be found on the list of the checked-in guests. The system will allow the cashiers and the front desks to see the guest list together with the summary of their posted ancillary service transactions .

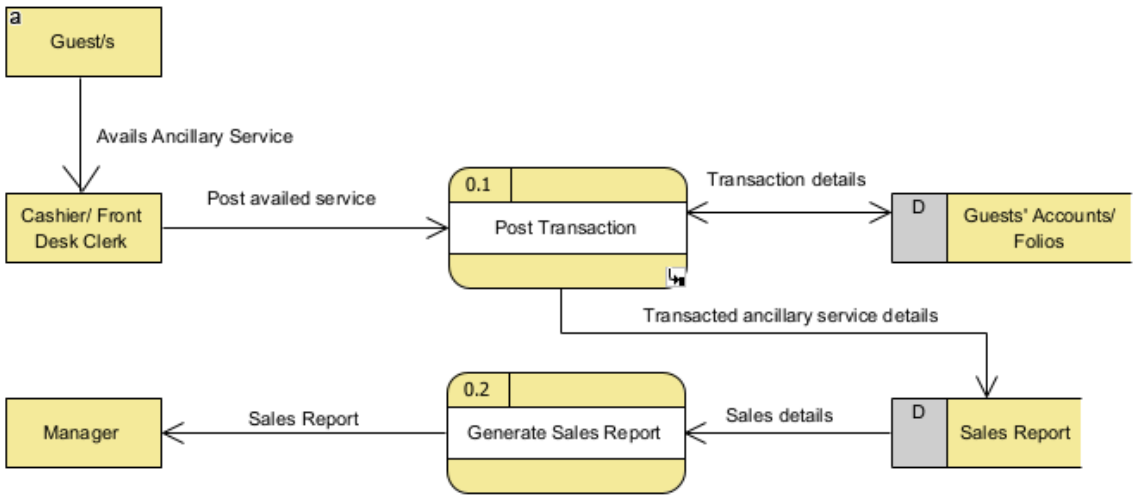


Figure 3: Data Flow Diagram - Level 1

Whenever a guest/s avails an ancillary service/s, it will already count as a transaction that the guest made. The cashier/front desk clerk will then post it onto the guests' account or folio. The sales on the ancillary services will then be recorded in the sales report data storage. If a manager wishes to see the summary of sales, the system will generate a sales report.

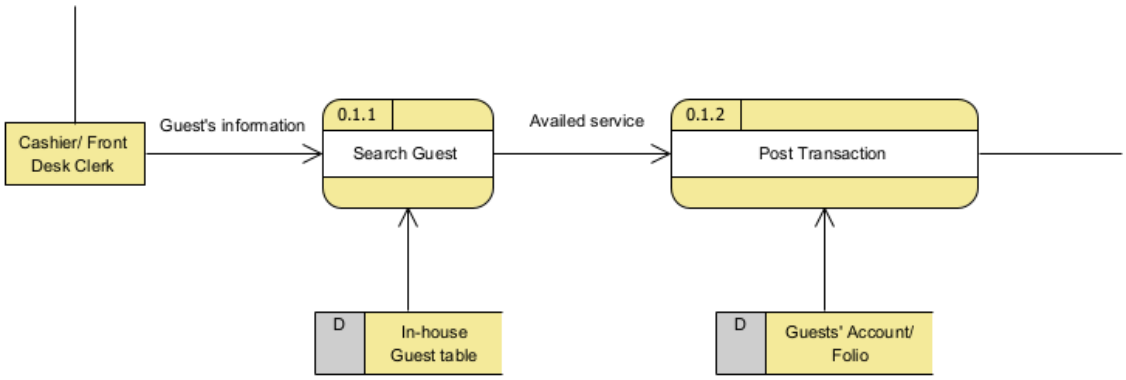


Figure 4: Data Flow Diagram - Level 2 : Process 1

This Data Flow Diagram Level 2 shows the detailed process of process 1. It shows that before posting the availed service to procure, the cashier will first verify the guest by searching their names or company name (if they came as a company or organization) on the In-house table. After verifying, the cashier will then post the availed transaction on to their accounts.

1.2.8 Data and Process

Process 1: Posting Transaction – Whenever a guest avails an ancillary service, the cashier will immediately verify the hotel guest by searching their names on the system. After verifying, the cashier will then post the transaction made on to the guests' account or folios. In this process, the cashier could post/ batch-post transactions and view the posted transactions.

Process 2: Generating Revenue Report – If the manager wishes to see the summarized revenue, this second process will generate revenue reports from revenue report data storage. This process allows the manager to view the report.

Process 3: Forecasting Service Demand – And if the manager wishes to see the forecast of ancillary service demands, this third process will generate forecast service demand based on the past and present sales report from sales report data storage. This process allows the manager to view the forecasted service demands in order to empower the manager's decision or plan.

1.3. **PROBLEM ANALYSIS**

1.3.1. Fishbone Diagram (diagram with textual /narrative discussion)

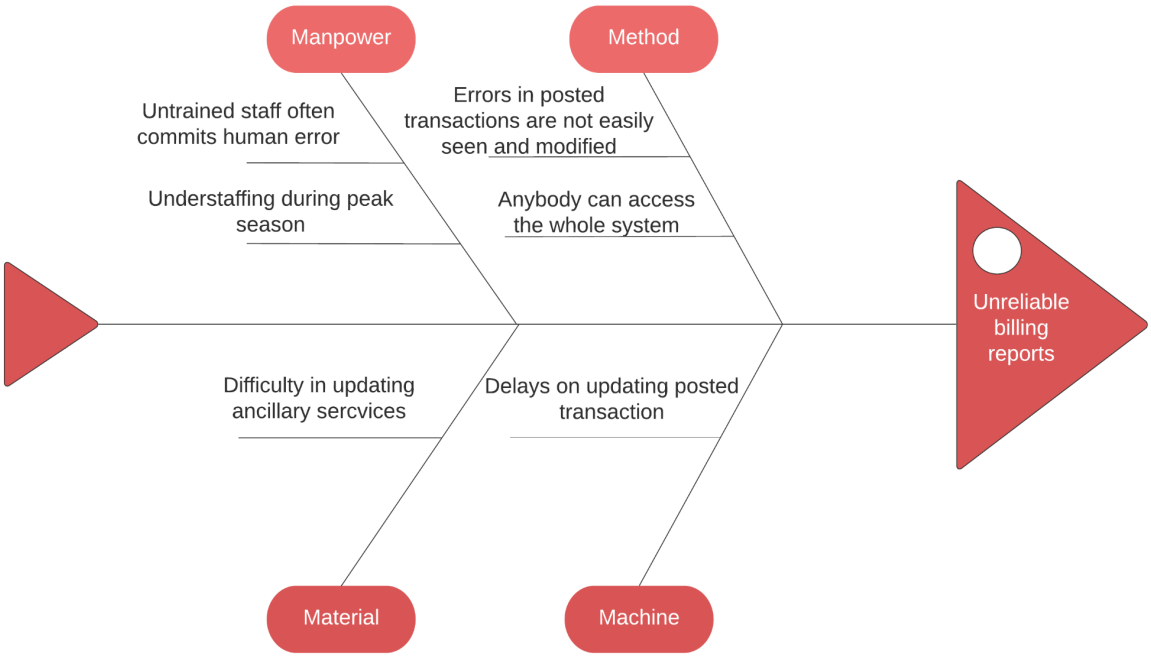


Figure 5: 4Ms Fishbone Diagram

The researchers identified that the unreliable billing reports is the major issue that is found on the posting module of existing hotel management systems. This problem is caused by different factors in method, security and management of the system. When it comes to the method, one of the issues found is that errors in posted transactions are not easily seen and modified. If the user inaccurately posted a transaction and was not able to review it, then a domino effect of problems would happen. Not being able to easily modify the posted transactions would result for the guests of the hotel to have a bill with charges that do not reflect his procured transactions during his stay. Another problem on the method part is that anybody can access the whole functionality of the system. If all users are allowed to access even those that should only be exclusive for the admin, then the integrity of the data and generated reports are questionable.

When it comes to manpower, the first problem identified is that untrained staff often commit human error. This problem is connected to the user-friendliness of the system's interface thus, a complicated interface contributes to the errors committed by the users. In addition to the problem with the human errors, hotel experiences understaffing during peak season which also affects the quality of their work. Management of the hotels must be able to determine what ancillary services are procured by most of the guests in order to prevent the staff from being overwhelmed.

On the machine part of the diagram, the researchers identified that there are delays on updating the posted transactions. The delays on data updates can also cause a huge problem with the correctness of the guest's billing statement. Next is the material part of the diagram wherein it is stated that there is a difficulty with updating the ancillary services offered by the hotel. Incorrect information about the offered ancillary services causes incorrect posted transaction details. Outdated information like the price of the service could affect the financial management of the hotel.

1.3.2. Problem and Solution Statement

The main problem of the existing property management systems particularly on the transaction posting module is the unreliability of the billing reports that are generated. The main contributor to this problem is the inaccuracy of the posted transaction on the guest's account which usually causes them to be overcharged by hotels. Furthermore, poor information management of the offered ancillary services is also evident, which may cause inconsistency of information on the posted transaction. There are also security issues found like the absence of user access control policy which can cause unreliability of the reports due to the fact that any user could access the whole system and make changes to the data.

With the problems that are identified on the related existing systems, the proposed solution of the proponents is to create a system that could help the users accurately post the procured ancillary service transactions of the guests. The system will also be given an

interface that will allow users to easily manage the data of the posted transactions and also allow them to view the posted records before it is sent to the final billing process. The admins of the system will also be given a chance to manage and modify the ancillary services information to always keep them updated. Moreover, the system will also have better data security with the implementation of the user access control policy and audit trail. Lastly, the proponents would also include forecasting in the system which is aimed to forecast the demands for the ancillary services which can help the hotel admins determine which type of ancillary services is availed by most of the guests and also help them focus on improving those highly demanded services.

1.3.3. Problem – Requirements Matrix

Table 3

Problem Requirement Matrix

PROBLEM		REQUIREMENT	
1	Errors in posted transactions are not easily seen and modified	R1	Ability to display, update or delete posted transactions of the guest before final billing
2	Anybody can access the system	R2	Ability to implement user access control policy
3	Untrained staff often commits human error	R3	Ability to have a user-friendly interface that can help in easy use of the system
4	Understaffing during peak season	R4	Ability to forecast demand of ancillary services
5	Delays in updating posted transactions	R5	Ability for the system to be a web-based application that uses modern database management tool
6	Difficulty in updating ancillary services	R6	Ability to create, update or delete information of ancillary services that is offered

The problem requirement matrix shows the needed solutions in every identified problem in the fishbone diagram.

1.4. PURPOSE AND DESCRIPTION

The purpose of this study is to develop a module of a property management system for the hotel in managing the procurement of ancillary services that will accurately post transactions and also implement forecasting to generate reports that can be used in decision making. The project will also be used to help the HM students of PUP Hasmin to have a reliable hotel management system software which they can use for academic purposes since existing related software have inaccurate posting issues and unreliable reports that could lead to wrong usage of the system.

1.5. SPECIFIC OBJECTIVES

1. To enumerate the problems of the existing related hotel management systems
2. To evaluate the identified problems which is the unreliability of reports due to the inaccurate posting of ancillary service transaction
3. To propose a solution that will solve the identified problems through the research study undertaken by the proponents
4. To identify the needed system features for the Hotel Management System - Procurement of Ancillary Services
5. To design a software that will include the accurate posting of the procurement of the hotel ancillary services
6. To develop a web application that will resolve the problems identified on the existing software and implement forecasting to predict the demand for ancillary services which can help the hotel admins to manage the number of staff needed to cater that demand
7. To evaluate the system according to its functional suitability, performance efficiency, usability, security and reliability

1.6. SCOPE AND LIMITATIONS

The study will focus on the accurate posting of the hotel guest's procurement of ancillary service transactions, managing the posted transactions, improving the system's data security, generating sales reports and forecasting the demand for ancillary services.

DEFINITION OF TERMS

Ancillary Services - a supplemental product or services that a hotel might sell in addition to its "core" hotel experience, which is providing accommodations.

Property Management System (PMS) - a software application for the operations of hospitality accommodations and commercial residential rental properties. It provides a centralized computer system to organize, schedule and perform the day-to-day functions and transactions involved in accommodations businesses.

PUP CTHTM - an acronym for Polytechnic University of the Philippines – College of Tourism, Hospitality and Transportation Management.

HM - an acronym for Hospitality Management. A program that provides students with a synthesis of different skills, concepts, and principles specializing in hospitality training.

Front Desk Clerk - they perform essential front desk administrative duties including answering phone calls, greeting clients, and overseeing the office budget. Also known as a front desk receptionist.

Module - a separate unit of software. One or more independently developed modules make up a program. Each module serves unique and separate business operations.

Posting - the process of adding or subtracting guest charges and payments to the guest's individual account.

CHAPTER 2 – REVIEW OF RELATED LITERATURE/SYSTEMS

This part of the study shows existing studies and literature that have relevance to this study. It will serve as a survey of scholarly sources on a specific topic that the researchers intend to discuss. Furthermore, it will provide an overview of this study allowing investigators to identify relevant theories, methods, and gaps in the existing research.

The global hotel industry revenue in 2016 was about $600bn USD, of which 80% was room spend and the other 20% was ancillary spend (e.g. food, beverage, entertainment, retail, gym/spa, etc.) Ancillary services are becoming an increasingly important part of the hotel business as hoteliers recognize their potential to drive revenue growth (Burg & Carlo 2017). This statistic states that hotels' ancillary services make 20% profit for the hotel, which is moderately big enough to lose an income if mistakes happen while procuring it on the guests' accounts.

In 2020, EyeforTravel survey stated that ancillary revenue is income that a hotel obtains from selling secondary services. Many hoteliers underestimate the money-making potential of their facilities or simply do not know how to tap into it. Around 70% of hoteliers said that they have no tools for effective AR management. EyeforTravel's statistics showed that ancillary revenue in the hospitality industry has increased due to high consumer demand. The statistic focuses on change in ancillary revenue streams from 2014 to 2017 by Revenue Management Systems. In the statistics, Sport and health facilities demand increased from 3.6% to 6.3% just in the span of 3 years. In-room services demand also increased from 13.5% to 18.8%. Whilst, Spa service demands doubled from 10.9% to 20.8%.

These studies prove that it is only important to track and post used ancillary services to the guests' account before settlement of payment as demand and its value increases, making it difficult to manage.

The researchers identified that the unreliable billing reports is the major issue that is found on the posting module of existing hotel management systems. Billing is a financial

accounting concept for business organizations such as the hotel industry to bill their customers for services rendered and the billing report is utilized by management to know the income generated. Hotel billing record system is used to capture the bill record of customers to come up with a total amount to be paid by the customer. The information is saved to a database to enable management or users to retrieve saved billing records. The service rendered by the hotel industry is associated with charges. It is therefore pertinent that accurate billing of the service rendered is properly documented. The application of the computer system to aid business transactions is very significant. (Oden, C., 2021)

The unreliable billing reports problem is caused by different factors in method, manpower, material, and machine of the system. The method factor would be that the errors in posted transactions are not easily seen and modified. This problem could result in inaccurate posted transactions on a guests' account. If we failed to prevent this problem, a domino effect would happen. Not being able to easily modify the posted transactions would result for the guests of the hotel to have a bill with charges that do not reflect his procured transactions during their stay. If not careful, it could cost the hotel's reputation to go down because it includes money. In 2019, there is a case where a guest in Malmaison hotel, Peter Lalor, an Australian journalist, was charged $99,983.64/ more than £55,000 for a bottle of beer. Peter Lalor mentioned that the hotel manager immediately admitted the mistake and promised to help him rectify it with his bank.

Posting is the process of processing guest charges and payment. The process consists of adding or subtracting guest charges and payments to the guest's individual account as guests acquire the hotel's ancillary services. The accurate and timely posting of guest charges and payments is important in maintaining accurate financial records, as the guest may decide to check out at any time during the day and will require an accurate statement of transactions. Posting charges and payments in a hotel with a PMS greatly increases the accuracy of the posting. (Bardi, J., 2010)

Another problem on the method part is that anybody can access the whole functionality of the system. If all users are allowed to access even those that should only be exclusive for the admin, then the integrity of the data and generated reports are questionable. The integrity of the data and generated reports of a system are not reliable if the system's functions are accessible to all users. The researchers point out that most systems give fully access to all types of user accounts that could result in unauthorized activities and internal attacks. The most significant and frequent cause of security issues is excessive employee access – giving employees authorization to too much data and too many applications. How does this happen? Well, if there are no clear role definitions, if there are inaccurate identity classifications, or if users are receiving access to all data in applications, problems will arise. (Laka, P., 2019)

In manpower factor, the issue would be the overwhelmed staff during peak season due to the inability to predict demands of ancillary services of a system could result in inconveniences for both hotel staff and guests (worst case scenario: guest dissatisfaction). During peak season, businesses like hotels, restaurants, and other light industrial warehouses get much busier, and it can be extremely hard to predict. It's not easy to deal with this fluctuation and get the right staff scheduled, so you're undoubtedly used to fire drills from clients who are short-staffed. (Loewe, A., 2019)

Furthermore, an incorrect prediction of future demand may lead to ineffective uses of labor resources and high food waste. In contrast, an accurate forecast allows managers to allocate sufficient staff and adequate resources to labor-intensive departments to ensure smooth operations during busy periods. (Sum, S., 2019)

Another issue in manpower is under-trained staff often commit human-error. Performing a task publicly with insufficient skill jeopardises service quality, and can demean and embarrass employees, yet anecdotal evidence overwhelmingly suggests training is poor, and employees are disciplined for their inability to perform (Poulston, J., 2008). This

statement shows that under trained staff may jeopardise service quality by committing human-error due to having insufficient skill.

Next is the material method wherein it is stated that there is a difficulty with updating the ancillary services offered by the hotel. Incorrect information about the offered ancillary services causes incorrect posted transaction details. Outdated information like the price of the service could affect the financial management of the hotel. This problem is most likely probably caused by an outdated system. In 2017, Panorama Consulting Group mentioned that it is time to consider investing in new software features if your system is struggling with next-generation technology and related systems. You might just be wasting time on irrelevant data, limited access, and stalled growth if the system is not in line with external technologies that it works hand-in-hand with.

Lastly, on the machine part of the diagram, the researchers identified that there are delays on updating the posted transactions. The delays on data updates can also cause a huge problem with the correctness of the guest's billing statement. In 2006 a former member of the SAP community had the same problem with the program they made. They mentioned that due to slow system performance, there is a delay on the standard table being updated. For this reason, when the update statement for the custom table is executed, the standard table has not been updated yet, causing the incorrect value in the custom table.

To avoid these problems that causes unreliable billing report in the procurement of ancillary services of Hotel Management System, the solution that the proponents concluded is that to establish such system that is up-to-date, must be a user-friendly and easy-to-navigate interface, have a Role-Based Access Control and Audit trail for logging, and lastly, with the feature of forecasting of service demand.

To also prevent errors in posted transactions and untrained staff committing human-error and miscalculations, the proponents proposed to design with consistency in mind because if a software application uses different terms in different places to describe the same things, users will get confused. Also, things which are near each other are perceived as being

related, so information design ensures that things are grouped together in ways that make sense to end users. Another important principle is software that speaks in the user's language will be more easily learned than software that requires learning new terminology. Additionally, software should be created to prevent errors. A quality user interface helps users avoid making mistakes that could be costly in terms of time or money. (Block, K., 2013)

As security is one of the most necessary for a system, it is best to only grant users access to the applications that they need to carry out their jobs (often referred to as 'least privilege' or 'need to know'). The most efficient way to achieve this is to implement and enforce Role-Based Access Control with a well-designed security model. (Ward, M., 2017)

To add another layer of security, Audit Trails are necessary to have in a system. Numerous industries use versions of an audit trail to provide a historical record of progression based on a sequence of events. These records provide proof of compliance and operational integrity. Audit trails can also identify areas of non-compliance by providing information for audit investigations. Whether it is logging the design changes of a product build, keeping the record of financial transactions for an e-commerce site, communication transactions, healthcare activity, or legitimizing the outcome of an election, an audit trail validates actions and outcomes. Audit trail records will contain details that include date, time, and user information associated with the transaction. (Marker, A., 2017)

To prevent being understaffed during peak seasons, the proponents agreed to add forecasting to the system in order to predict and plan future peak seasons. Forecasting is the process of making predictions of the future demands or sales based on past and present data. Forecasting the demand of a product or service is of critical importance because it does not only anticipate future business performance but also allows the managers of the hotel to make decisions that could optimize the hotel's revenue and even its manpower (Kumar, R.,2021). There are also several ways on how the demand for a product or service could be forecasted and one of which is by monitoring its revenue performance. According to Hyun (2021), reviewing the past revenues could help businesses know whether they are about to face a dip

or spike in the demands of the services that they offer. By doing this, the management can plan ahead of time and make necessary changes on the overall performance of the business.

To avoid machine and material factor problems, existing systems in hotels should be replaced with new or should be updated. Panorama Consulting Group also mentioned, updating will improve productivity by providing easier access to accurate data, increase organizational transparency, and reduce lead time. With this, updating ancillary services will be easy, and updating posted transactions won't be delayed again.

Synthesis

Studies indicate that to eliminate the major issue found on the posting module of existing hotel management systems, which is the Unreliable Billing Report, is to prevent issues on each of 4 M's factors that are causing the major issue by improving what it lacks. The 4 M's different factors are method, manpower, machine, and material. Errors in posted transactions, and all users having full access to the system by method factor. Understaffing during peak season, and under trained staff that may commit human-error in manpower factor. Difficulty in updating ancillary services due to material factors. And delays on updating posted transactions in machine factor. To prevent all of this from happening, the proponents proposed to establish such a system that is up-to-date, must be a user-friendly and easy-to-navigate interface, have a role-based access control and audit trail for logging, and lastly, with the feature of forecasting the demands on services.

CHAPTER 3 – METHODOLOGY

3.1. REQUIREMENTS ANALYSIS

3.1.1. Requirements – Features Matrix

Legends

R1 - Ability to display, update or delete posted transactions of the guest before final billing

R2 - Ability to implement user access control policy

R3 - Ability to have a user-friendly interface that can help in easy use of the system

R4 - Ability to predict demand of ancillary services

R5 - Ability for the system to be a web-based application that uses modern database management tool

R6 - Ability to create, update or delete information of ancillary services that is offered

Table 4

Requirements - Features Matrix

	Requirements					
Features	R1	R2	R3	R4	R5	R6
Good User Interface			✔			
Search View Update and Delete	✔	✔		✔		✔
Create Accurate Reports	✔			✔		✔
Security of Data/ Information	✔	✔		✔	✔	✔
Forecasting				✔		

3.1.2. Functional and Non-Functional Requirements

3.1.2.1 Functional Requirements

The functional requirements define the ability of the system in accept input, process the data and generate an output.

1. Manage ancillary service transaction posting– The system should allow the users to post procured ancillary services transactions and also manage the possible human errors in data entry to achieve accurate posting.

2. Manage hotel ancillary services– The system will provide a way to manage the ancillary services that are present in the hotel and allow the input of details about the specific product or service that they offer.

3. Forecasting - The system should be able to forecast the demand for the ancillary services and determine which is the mostly used ancillary service

4. Generate Reports – The system should be able to generate reports taken from the ancillary service transactions data whenever the management needs it.

3.1.2.2 Non-Functional Requirements

Non-functional requirements include the remaining requirements or characteristics that must be seen on the system which are not tackled in the functional requirements.

Usability

- The system must be user-friendly and can easily be learned by the new employees
- The system must be free from syntax and logical error

Availability

- The system should be available 24/7 and can be accessed as long as there is an internet connection

Reliability

- User email and password will be asked before entering the system to avoid any unauthorized changes in the system's data
- The system should produce correct and accurate reports
- The system should alert the user when procedures are completed, and if a process fails, the system should notify the user and provide an explanation for the failure.

Performance

- Once the system is active, all functions must be working well
- The database of the system should also be able to perform queries and other database functions without fail

Security

- Only registered managers and personnel should be given access to the system
- User access control policy should be implemented accordingly to the type of user

3.1.3. Event Decomposition

Table 5

Event Decomposition

Event	Trigger	Source	Use Case	Response	Destination
Front desks cashiers managers register and login	System users login	Front Desks Cashiers Managers	Manage Accounts	Overall employee information	Hotel Management System
Ancillary service transaction will be posted to guest's folio	Guest procured an ancillary service	Front Desks Cashiers Managers	Manage Ancillary Service Transaction Posting	Transaction posted to guest's folio	Hotel Management System
Update ancillary service information	Managers need to organize list of available ancillary service	Managers	Manage Hotel Ancillary Services Information	Overall ancillary services information	Hotel Management System
Create a revenue and forecasting report	Managers need to generate reports	Managers	Generate Report	System generates report and allows user to print it	Managers and Hotel Management System

Table 4 shows the event decomposition of the system. It represents how an event is triggered, the source of the trigger, in what use case it is found, the expected response of the system and the destination of the data.

3.1.4. Use Case Diagram

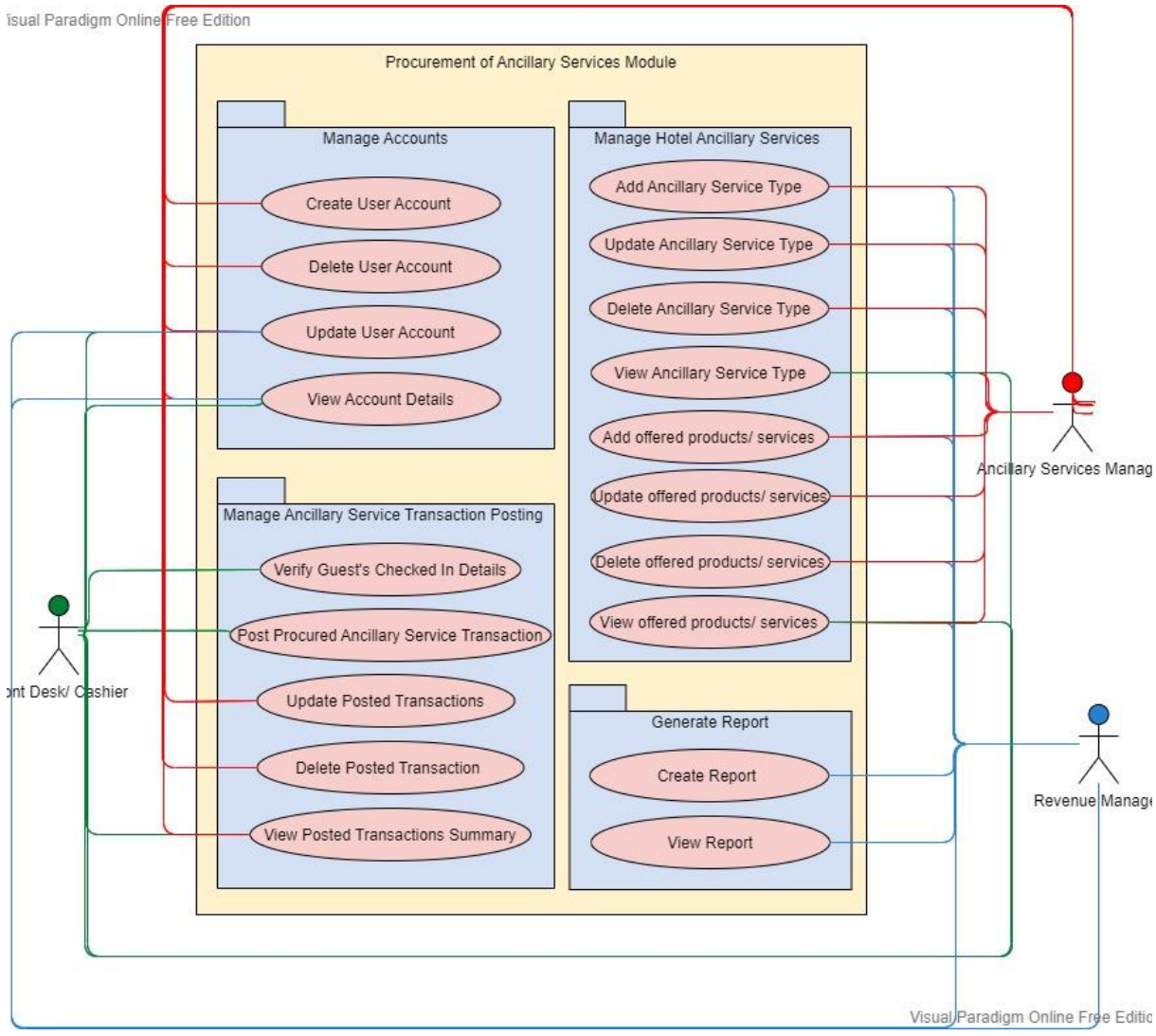


Figure 6: System Use Case Diagram

This use case diagram shows the overview of how the system will be used by the front desks / cashiers, the ancillary services manager and the revenue manager of the hotel.

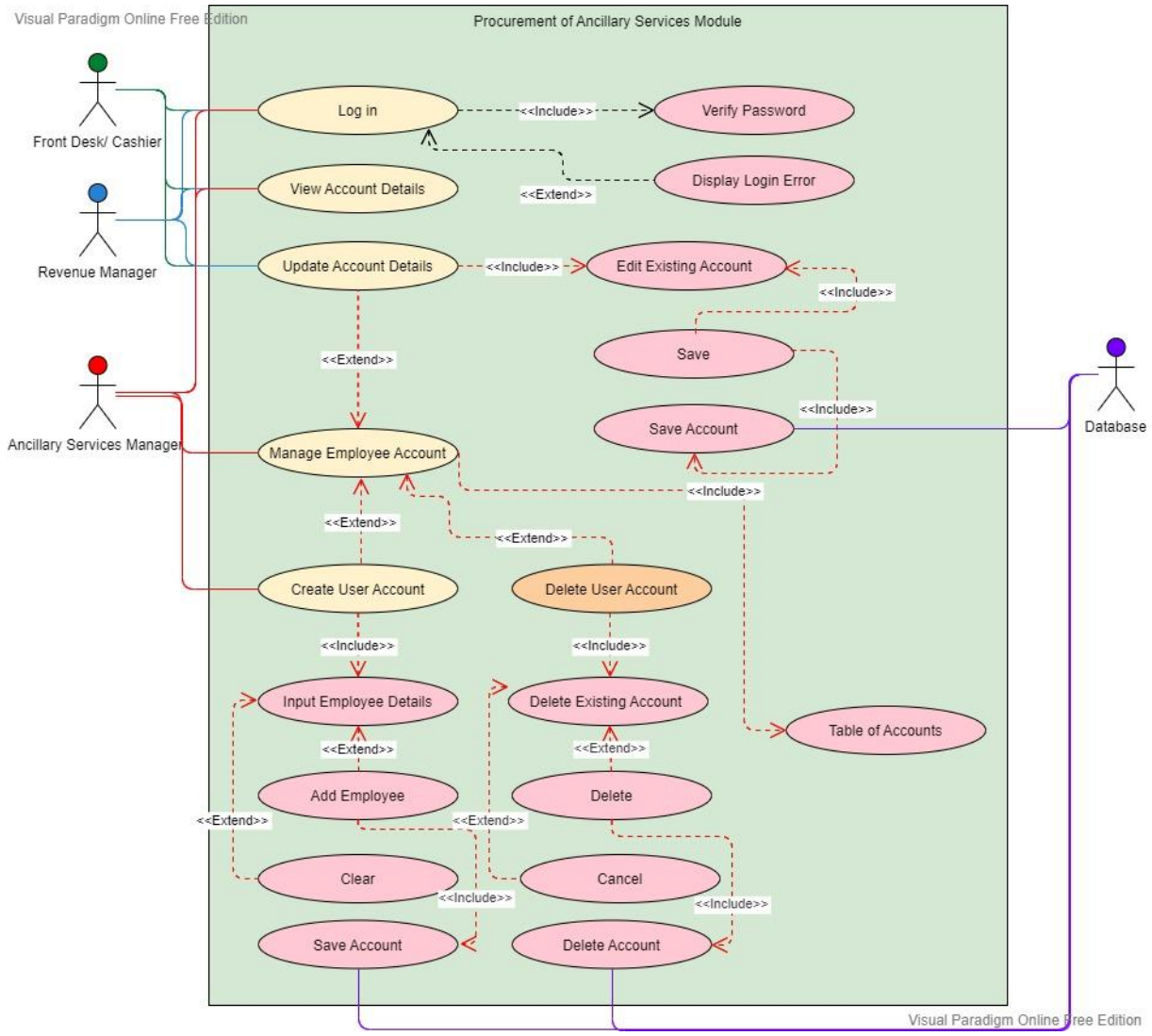


Figure 7: Detailed Use Case Diagram - Manage Accounts

This use case diagram presents the operations that the ancillary services managers of the hotel can do when they would create user accounts that would be used to access the system. It also shows that the front desks/cashiers are allowed to view their own account details.

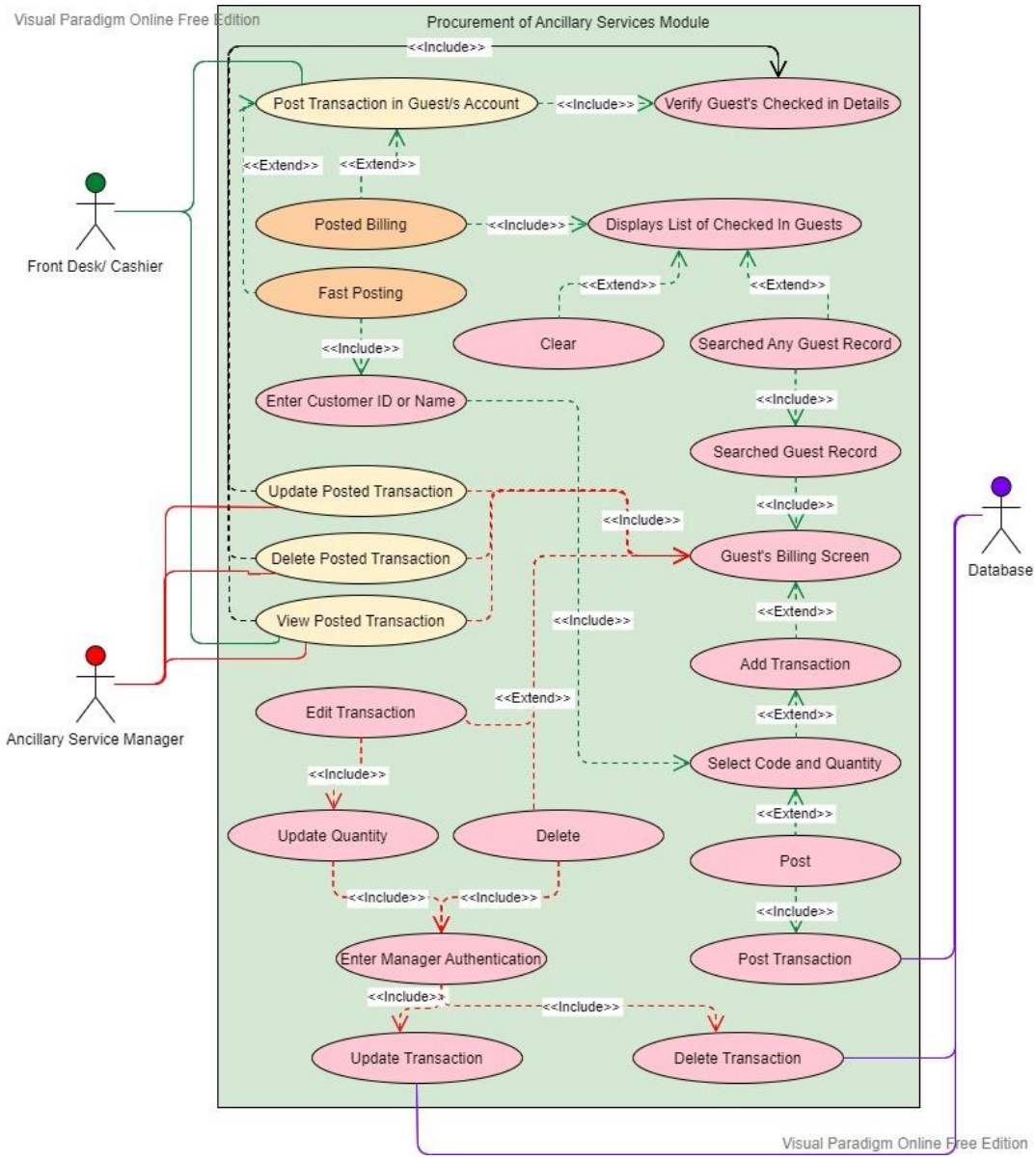


Figure 8: Detailed Use Case Diagram - Manage Ancillary Service Transaction Posting

This use case diagram presents how an ancillary services transaction would be managed by the front desks / cashiers and the ancillary services manager. It also shows the limits of the front desks and cashiers when it comes to updating and deleting posted transactions.

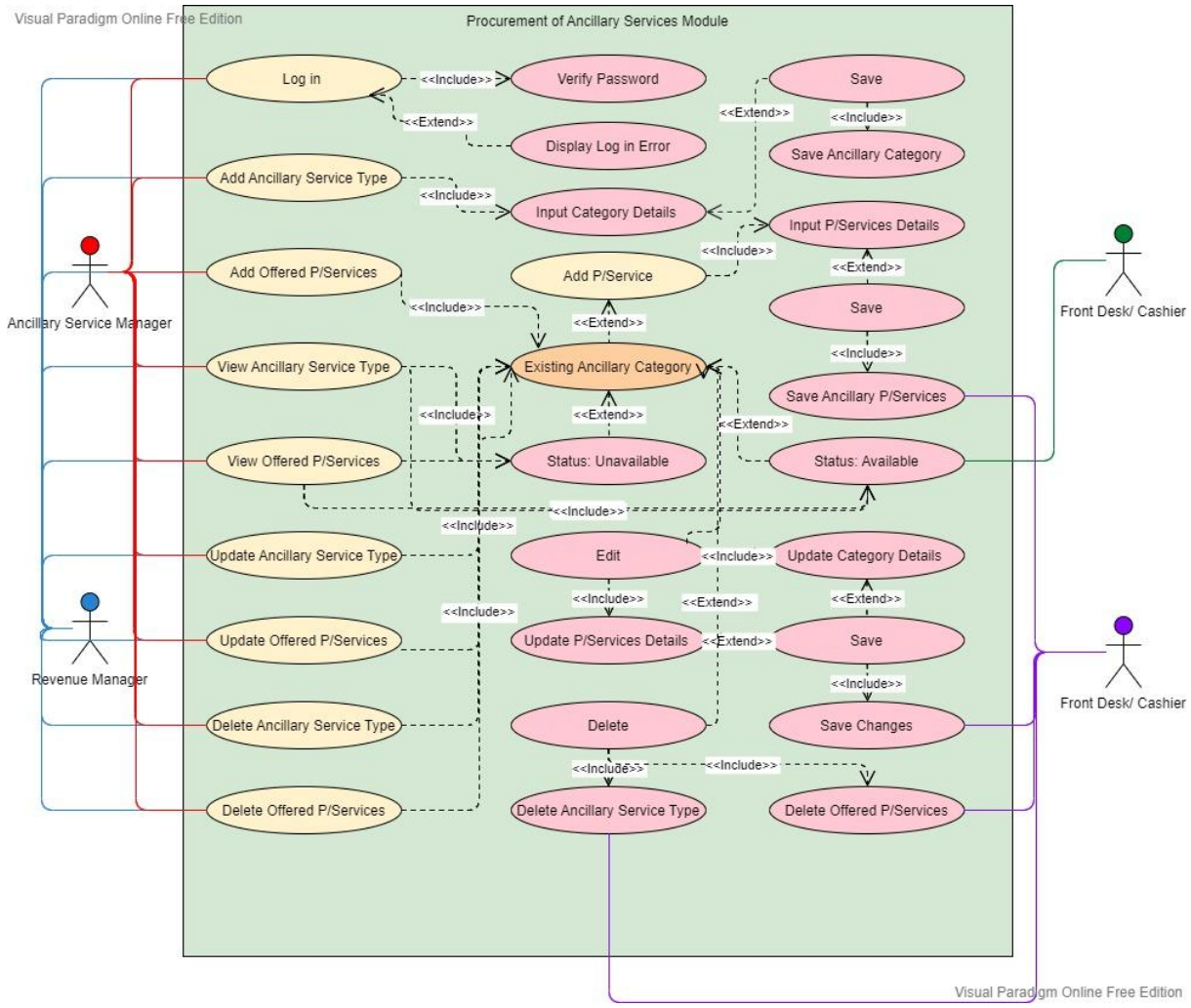


Figure 9: Detailed Use Case Diagram - Manage Hotel Ancillary Services

This use case diagram shows the management of the ancillary services that the hotel offers. Operations on the management for each product and service of the hotel ancillary is also presented in the diagram.

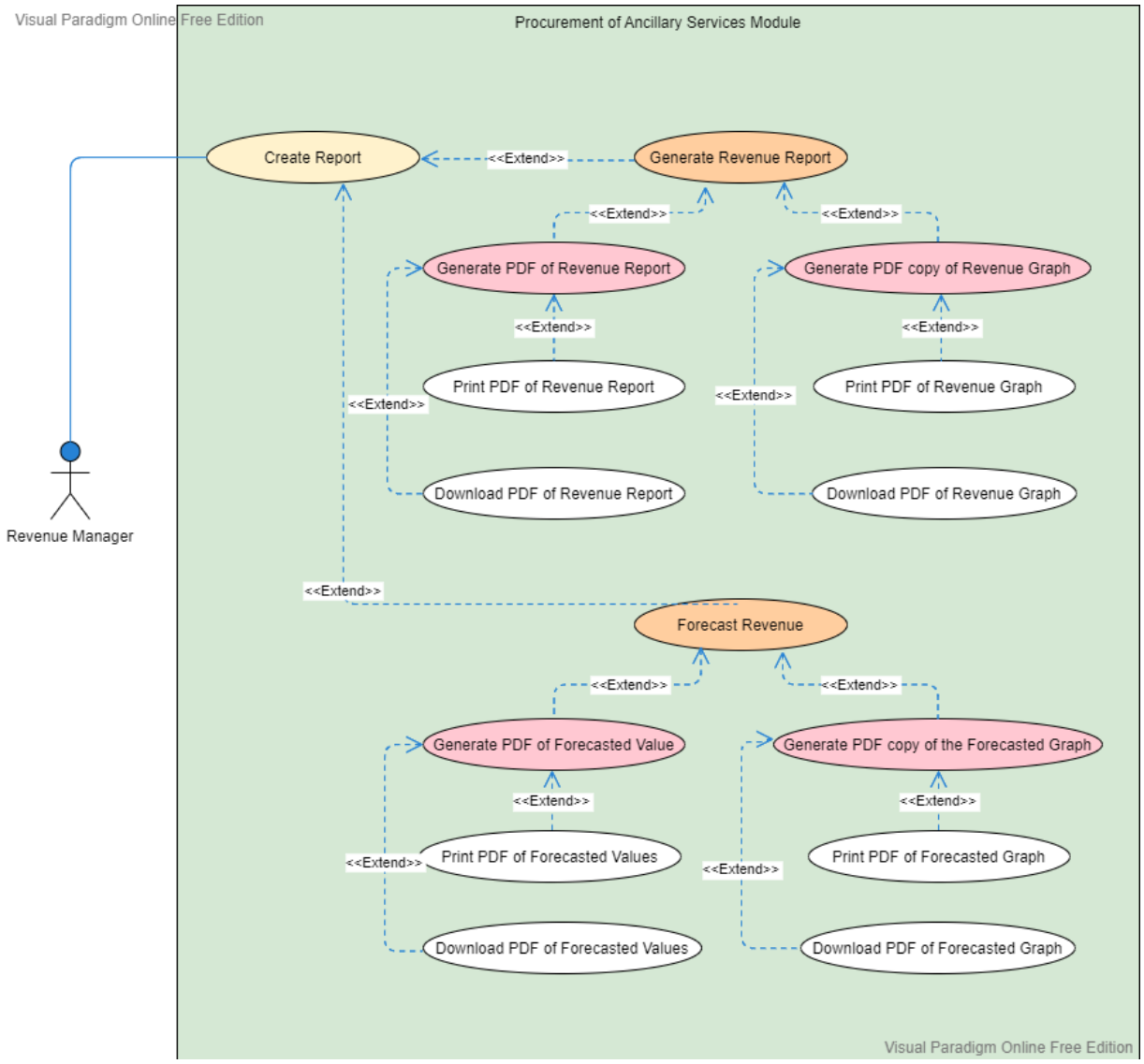


Figure 10: Detailed Use Case Diagram - Generate Report

This use case diagram presents the operations on generating reports that would be based from the transaction data of the hotel. It shows how the revenue manager would create printed reports and also view those created reports.

3.1.5. Use Case Report

Table 6

Use Case Report: Manage Accounts

Use Case ID:	UC-1
Use Case Name:	Manage Accounts
Actor/User:	Ancillary Services Manager , Front desks/cashiers (profile only), Revenue Manager (profile only)
Description:	Creating user accounts for the users in order for them to have access to the system.
Trigger:	When the manager clicks the "Manage Accounts" Tab on the Side Navigation Bar. When the users login or go to their profile
Preconditions:	1. The manager must have a built-in Account on the System. 2. The manager must have the Permission to Browse Users Tab 3. Roles and Permissions for each type of Users must be settled
Post conditions:	1. Front desks and cashiers should now have registered accounts. 2. Users should be able to login into the system and have access based on the given permission.

Normal Flow

Actor Action	System Response
1. The registered ancillary services manager will input login credentials which are the email and password	2. The system logs in the user and give access according to role
3. The ancillary services manager clicks the manage employee accounts at the side navigation bar	4. The system directs the user to the employee management page
5. The ancillary services manager inputs the required employee details on the add employees form and clicks the add employee button	6. The system saves the record of the employee to the database then send an email to the employee containing his/her account information

Alternative Flows

A1. The ancillary services manager clicks on the manage employee accounts at the side navigation bar	A2. The system directs the user to the employee management page
A3. The ancillary services manager selects an existing record of an employee and click the view button	A4. The system displays a modal containing the employee's information

B1. The ancillary services manager clicks on the manage employee accounts at the side navigation bar	B2. The system directs the user to the employee management page
B3. The ancillary services manager selects an existing record of an employee and click the edit button	B4. The system displays a modal containing the edit employee form
B5. The ancillary services manager edits information according to what is needed then click the save button	B6. The system updates the record of the employee
C1. The ancillary services manager clicks on the manage employee accounts at the side navigation bar	C2. The system directs the user to the employee management page
C3. The ancillary services manager selects an existing record of an employee and clicks the delete button	C4. The system displays a confirmation message
C5. The ancillary services manager clicks the delete button	C6. The system deletes the record of the employee
D1. The user input login credentials	D2. The system logs in the user and give access according to role
D3. The user clicks account icon and click the profile option	D4. The system directs the user to the profile page
D5. The user updates his profile information and click save settings button	D6. The system updates the user's information
E1. The user input login credentials	E2. The system logs in the user and give access according to role
E3. The user clicks account icon and click the profile option	E4. The system directs the user to the profile page
E5. The user clicks the change password button	E6. The system will display a modal containing the change password form
E7. The user creates a new password and click the save button	E8. The system updates the password of the user
F1. The user input login credentials	F2. The system logs in the user and give access according to role
F3. The user clicks account icon and click the activity log option	F4. The system directs the user to the activity log page and display the list of his/her system activities

G1. The user clicks the forgot password option at the login page	G2. The system directs the user to the forgot password page
G3. The user enters his/her email then click the reset password button	G4. The system sends an email to the user containing the password reset link
G5. The user clicks on the password reset link from his email	G6. The system directs the user to the change password page
G7. The user fills up the required fields then click the save password button	G8. The system updates the password of the user
Exceptions:	2.1 If ancillary services manager does not have a registered account in the database then login error message will be displayed B6.1 If the ancillary services manager used the an email that is already existing then the email will not be included to the information that will be updated D2.1 If user does not have a registered account in the database then login error message will be displayed D6.1 If user use a same email or contact number then it will not be included to the information that would be updated G4.1 If the user does not have a valid email then the system will not send a password reset link
Includes:	Roles and Permissions
Priority:	High
Frequency of Use:	Whenever a manager wants to register or modify an account for the system users. Whenever the user needs to update his/her account information
Assumptions:	Displayed data are for the intended user only
Notes and Issues:	The ancillary services manager can see all the details of every registered system user

This use case report, shows the flow of how the users would interact with the system when managing accounts. Only the ancillary services manager is allowed to create, update and delete accounts of other employees.

Table 7

Use Case Report: Manage Ancillary Services Transaction Posting

Use Case ID:	UC-2
Use Case Name:	Manage Ancillary Services Transaction Posting
Actor/User:	Front Desks / Cashiers, Ancillary Services Manager
Description:	Searching, Posting, Updating, Deleting, Viewing of ancillary services transactions
Trigger:	When the front desks / cashiers click one of the following: "Posted Billing" or "Fast Posting" tab on the side navigation bar.
Preconditions:	1. The user must have logged in to use the system. 2. All ancillary services information must be already stored on the database and ready for referencing. 3. The guest must have an active checked-in folio. 4. The guest procured an ancillary service.
Post conditions:	1. The posted ancillary service transaction must now be recorded in the database and can be viewed, updated or deleted.

Normal Flow

Actor Action	**System Response**
1. The guests requests to avail an ancillary service	
2. The front desk / cashiers or clicks "posted billing" at the side navigation bar	3. The system displays the list of checked-in guest
4. The front desk / cashiers inputs the name of the guest requesting for ancillary service in the search bar	5. The system displays the record of the searched guest
6. The front desk / cashiers click on the name of the searched guest	7. The system directs the user to the billing screen
8. The front desk / cashiers click on the post additional transaction button	9. The system directs the user to the posting screen
10. The front desk / cashiers fill up the required fields of the transaction row	
11. The front desk / cashiers click the "+" button	12. A new row of transaction form appears
13. The front desk / cashiers fill up additional transaction rows	
14. The front desk / cashiers click the "-" button	15. The selected transaction row would be removed

16. The front desk / cashiers click the post button	17. All transaction rows with complete details would be posted to the guest's account
Alternative Flows	
A1. The front desk / cashiers click "fast posting" at the side navigation bar	A2. The system directs the user to the fast posting screen
A3. The front desk / cashiers fill up the required fields of the transaction row	
A4. The front desk / cashiers click the "+" button	A5. A new row of transaction form appears
A6. The front desk / cashiers fill up additional transaction rows	
A7. The front desk / cashiers click the "-" button	A8. The selected transaction row would be removed
A9. The front desk / cashiers click the post button	A10. All transaction rows with complete details would be posted to the guest's account
B1.The front desk / cashiers click "posted billing" at the side navigation bar	B2. The system directs the user to the posted billing page
B3. The front desk / cashiers click on the name of the guest	B4. The system directs the user to the posting screen
B5. The front desk / cashiers selects a posted transaction and click the edit button	B6. The system should display the edit posted transaction modal
B7. The front desk / cashiers enter a new quantity of the posted transaction and requests for the ancillary services manager to enter his/her account details for validation	
B8. The ancillary services manager enters his/her account details and click the confirm button	B9. The system validates the account details of the ancillary services manager
	B10 The system save changes of the posted record to the database
C1.The front desk / cashiers click "posted billing" at the side navigation bar	C2. The system directs the user to the posted billing page
C3. The front desk / cashiers click on the name of the guest	C4. The system directs the user to the posting screen
C5. The front desk / cashiers selects a posted transaction and click the delete button	C6. The system should display manager authentication modal

C7. The front desk / cashiers requests for the ancillary services manager to enter his/her account details for validation	
C8. The ancillary services manager enters his/her account details and click the confirm button	C9. The system validates the account details of the ancillary services manager
	C10. The system deletes the posted transaction
Exceptions:	B10.1 If validation fails, the system will not update the posted transaction C10.1 If validation fails, the system will not delete the posted transaction
Includes:	Ancillary Services Information
Priority:	Very High
Frequency of Use:	Whenever a guest procured an ancillary service or have a problem with the posted ancillary services charges
Assumptions:	Ancillary services details are already defined in the database.
Notes and Issues:	None

In the managed ancillary service transaction posting use case, the main actors would be the front desks/ cashiers and the ancillary services managers. The users may post and view the transactions of the guest but only the managers are allowed to edit or delete posted transactions.

Table 8

Use Case Report: Manage Hotel Ancillary Services Information

Use Case ID:	UC-3
Use Case Name:	Manage Hotel Ancillary Services Information
Actor/User:	Ancillary Services Manager, Revenue Manager, Front desks / cashiers
Description:	Creating the information of the ancillary services that the hotel will offer. Using the available ancillary products/service for posting
Trigger:	When the manager clicks the "Ancillary Services" Tab on the Side Navigation Bar. When the front desks/cashiers clicks on the product/service code dropdown list on the posting screens
Preconditions:	1. The user must log in to the system.
Post conditions:	1. Information about the ancillary services can now be managed and be used as a reference for UC-2

Normal Flow

Actor Action	System Response
1. The ancillary services manager or the revenue manager clicks the ancillary services tab at the side navigation bar	2. The system directs the user to the ancillary services page
3. The ancillary services manager or the revenue manager clicks the add ancillary service category button	4. The system displays a modal containing the add ancillary category form
5. The ancillary services manager or the revenue manager fills up the required field and clicks the save button	6. The system saves the new ancillary category to the database
7. The ancillary services manager or the revenue manager clicks the "Click to mark as available button"	8. The system updates the status of the ancillary category to available
9. The ancillary services manager or the revenue manager selects an ancillary category and click the manage products/service button	10. The system directs the user to the product/service page
11. The ancillary services manager or the revenue manager clicks the add product/service button	12. The system displays a modal containing the add product/service form
13. The ancillary services manager or the revenue manager fills up the required fields and click the save button	14.The system adds the new product/service to the database

14. The ancillary services manager or the revenue selects existing product/service and click the ” Click to mark as available button”	15. System updates the status of the product/service to available.
Alternative Flows	
A1. The ancillary services manager or the revenue manager selects existing ancillary category and clicks edit button	A2. The system displays the edit ancillary category modal
A3. The ancillary services manager or the revenue manager updates ancillary category information and clicks save button	A4. The system saves changes to the database
B1. The ancillary services manager or the revenue manager selects existing ancillary category and clicks delete button	B2. The system displays a confirmation message
B3. The ancillary services manager or the revenue manager clicks the yes button	B4 The system deletes the ancillary category
C1. The ancillary services manager or the revenue manager selects an available ancillary category and click the “Click to mark as unavailable button”	C2. The system updates the status of the ancillary category to unavailable and the chosen ancillary would not have its product or service available for referencing in the posting screens
D1. The ancillary services manager or the revenue manager selects existing ancillary product/service and clicks view button	D2. The system displays the information about the selected product/service
E1. The ancillary services manager or the revenue manager selects existing ancillary product/service and clicks edit button	E2. The system displays a modal containing the edit ancillary product/service form
E3. The ancillary services manager or the revenue manager updates ancillary product/service information and clicks save button	E4. The system saves changes to the database
F1. The ancillary services manager or the revenue manager selects existing ancillary product/service and clicks the delete button	F2. The system displays a confirmation message
F3. The ancillary services manager or the revenue manager clicks the yes button	F4 The system deletes the product/service

G1. The ancillary services manager or the revenue manager selects an available product/service and click the "Click to mark as unavailable button"	G2. The system updates the status of the product/service to unavailable and the chosen product/service would not be available for referencing in the posting screens
H1. The front desks / cashiers click the dropdown list of product/service code on the posting screens	H2. The system displays all products/services that have a status of available
Exceptions:	6.1 If ancillary category code is not unique then an error message would be displayed 10.1 If ancillary product/service code is not unique then an error message would be displayed B4.1 If there are existing products/service under the selected ancillary category then system will not proceed to the deletion of the record and a message would be displayed F4.1 If there are existing procured transactions under the selected ancillary category then system will not proceed to the deletion of the record and a message would be displayed
Includes:	None
Priority:	High
Frequency of Use:	Whenever an admin wants to add, update or delete an offered ancillary service Whenever the front desks/cashiers will post a transaction
Assumptions:	The managers know what ancillary services do they offer
Notes and Issues:	None

The use case represented in table 7 explains how the offered ancillary services of the hotel would be managed. Only the ancillary services manager and revenue manager are allowed to manage the information of the ancillary categories and its product and services. Front desks/cashiers can view the existing ancillary services information on the different posting screens.

Table 9

Use Case Report: Generate Reports

Use Case ID:	UC-4
Use Case Name:	Generate Reports
Actor/User:	Revenue Managers
Description:	Creates a summary report for the sales of the ancillary services and also a report that shows the forecasted demand for the ancillary services.
Trigger:	A generated report is needed by the owner of the hotel.
Preconditions:	1. There must be a recorded procured transactions for the past 3 months which includes the current month in order for an ancillary category be available for forecasting
Post conditions:	The system will generate reports.

Normal Flow

Actor Action	System Response
1. The revenue manager clicks the reports option at the side navigation bar	2.The system directs the user to the reports page
3. The revenue manage clicks the generate pdf report button	4.The system opens a new tab and generate a monthly revenue report PDF
5. The revenue manager clicks the download button from the opened pdf file	6. The system downloads the pdf report to the user's computer
7. The revenue manager clicks print button	8. The system prepares sales report file for printing

Alternative Flows

A1. The revenue manager clicks create reports button at the side navigation bar	A2. The system directs the user to the reports page
A3.The revenue manager clicks the print graph button	A4. The system opens a new tab and generate a PDF copy of the monthly revenue graph
A5. The revenue manager clicks the download button from the opened pdf file	A6. The system downloads the pdf copy of the graph to the user's computer
A7. The revenue manager clicks print button	A8. The system prepares the pdf file for printing
B1. The revenue manager clicks the forecasting option at the side navigation bar	B2. The system directs the user to the forecasting page

B3. The revenue manager clicks on the dropdown list	B4. The system provides a list of ancillary categories that are available for forecasting
B5. The revenue manager selects an ancillary category and click the forecast button	B6. The system generates a forecasted revenue graph
B7. The revenue manager clicks the generate pdf report button	B8. The system opens a new tab and generate a pdf report of the forecasted revenue
B9. The revenue manager clicks the download button from the opened pdf file	B10. The system downloads the pdf report to the user's computer
B11. The revenue manager clicks print button	B12. The system prepares the forecasted report file for printing
C1. The revenue manager clicks the forecasting option at the side navigation bar	C2. The system directs the user to the forecasting page
C3. The revenue manager clicks on the dropdown list	C4. The system provides a list of ancillary categories that are available for forecasting
C5. The revenue manager selects an ancillary category and click the forecast button	C6. The system generates a forecasted revenue graph
C7. The revenue manager clicks the print graph button	C8. The system opens a new tab and generate a pdf copy of the forecasted graph
C9. The revenue manager clicks the download button from the opened pdf file	C10. The system downloads the pdf graph to the user's computer
C11. The revenue manager clicks print button	C12. The system prepares the pdf file for printing

Exceptions:	None
Includes:	UC-2
Priority:	High
Frequency of Use:	Whenever reports are requested and needed
Assumptions:	The reports are required for the business decision making of the admins.
Notes and Issues:	None

Table 8 depicts how reports would be generated. The revenue manager may view, generate pdf file and print sales reports and the forecasted ancillary service demand report.

3.2. DESIGN SPECIFICATIONS

3.2.1. Activity Diagram

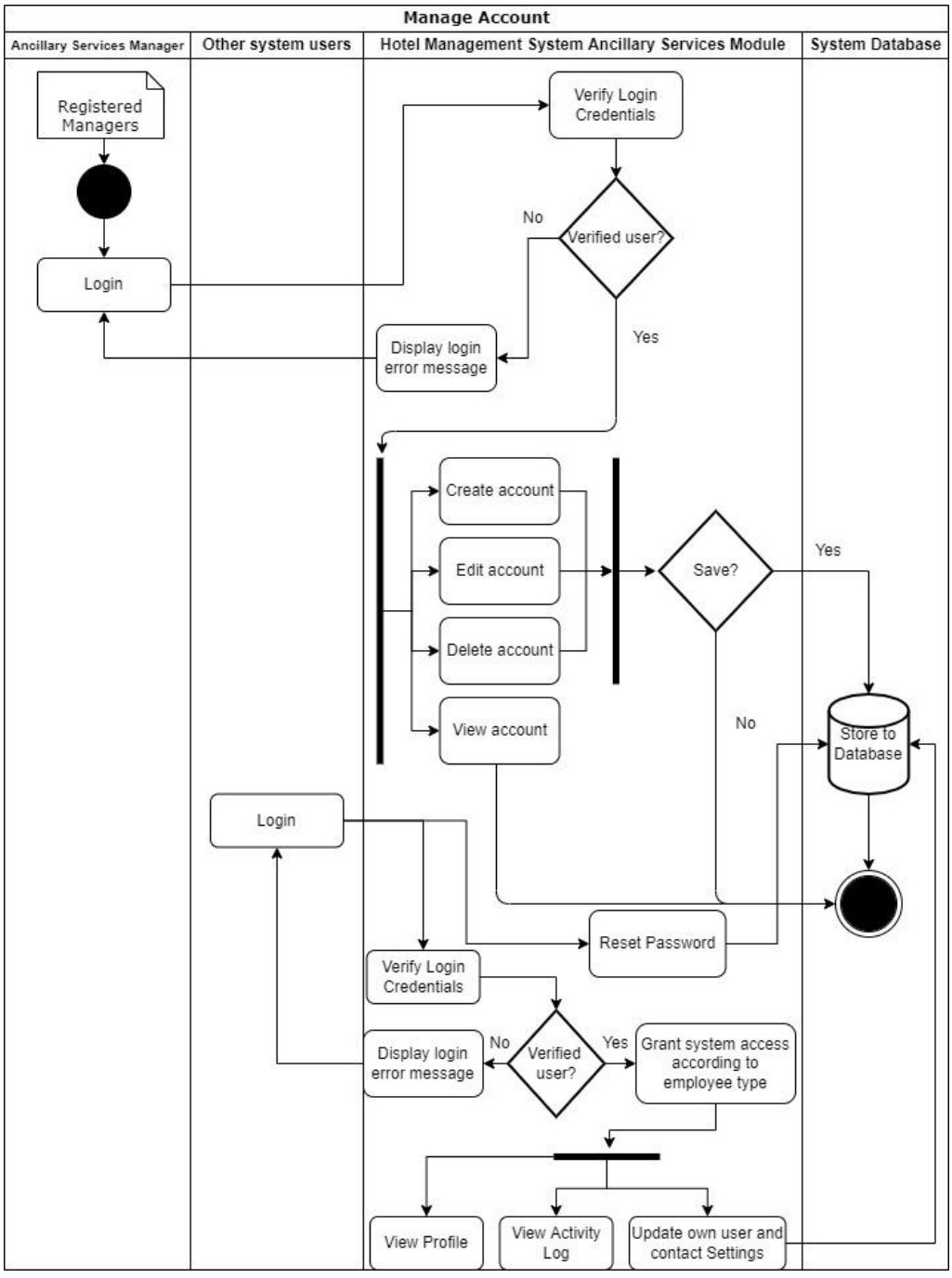


Figure 11: Activity Diagram - Manage accounts

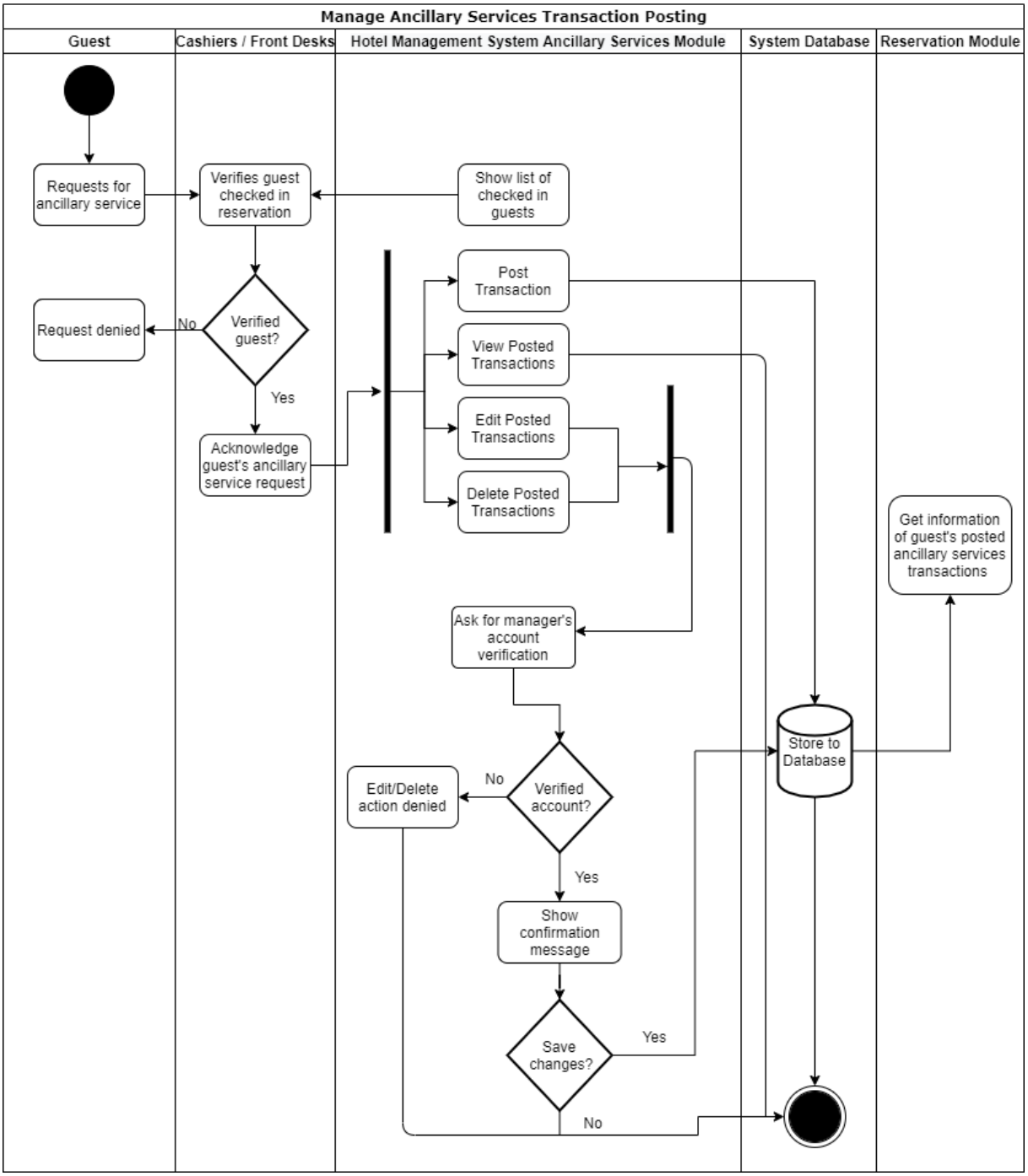


Figure 12: Activity Diagram - Manage Ancillary Services Transaction Posting

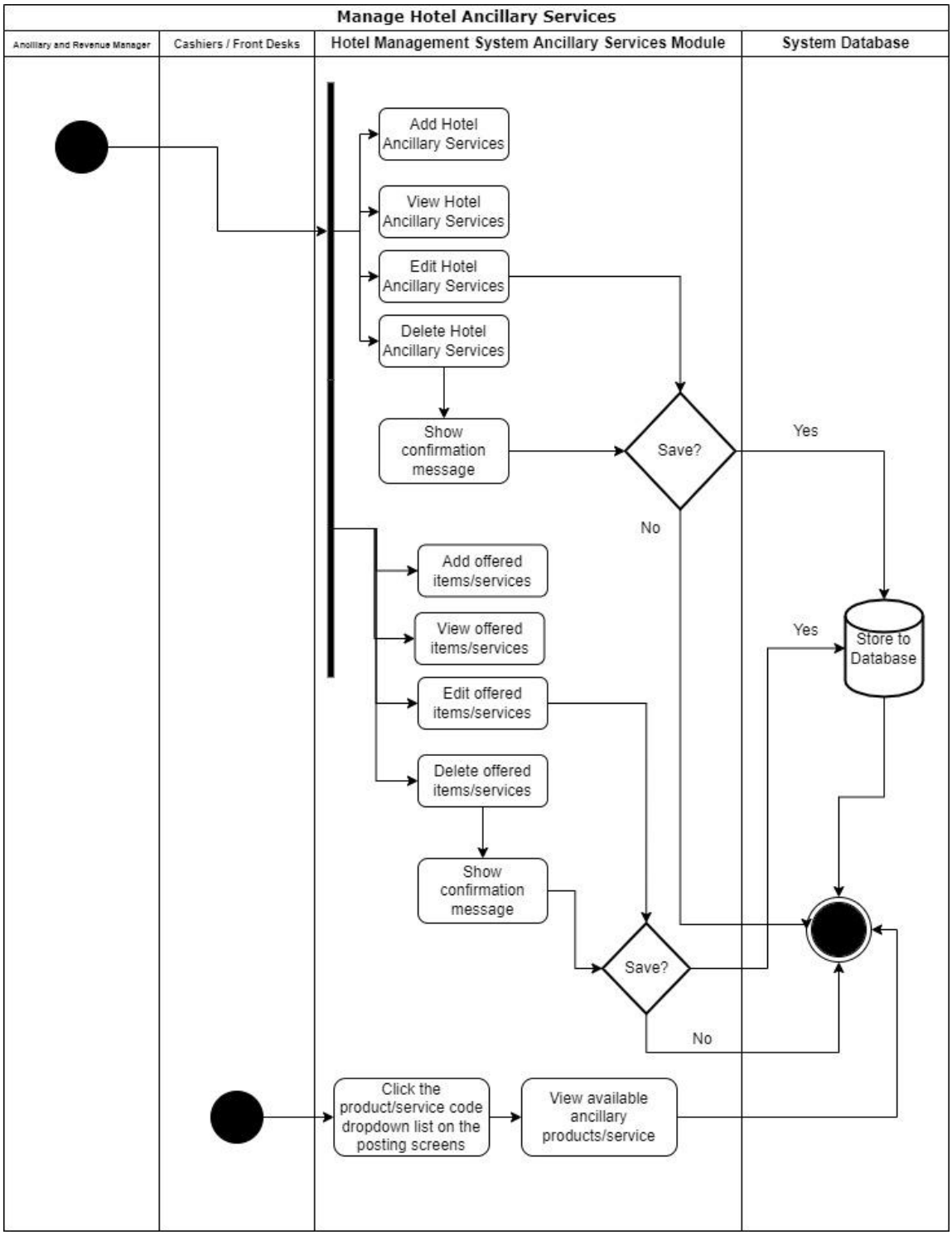


Figure 13: Activity Diagram - Manage Hotel Ancillary Services

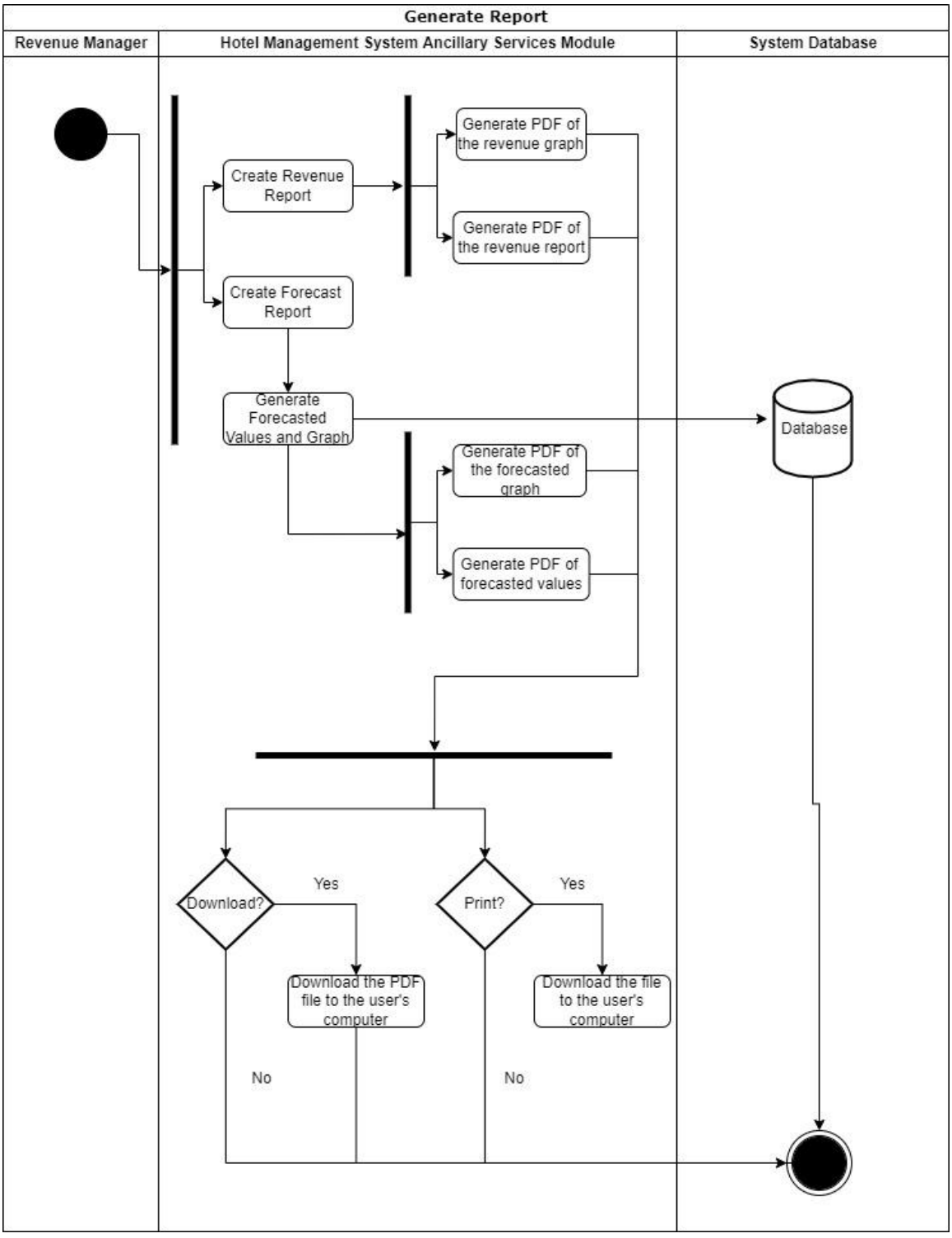


Figure 14: Activity Diagram - Generate Report

3.2.2. Class Diagram

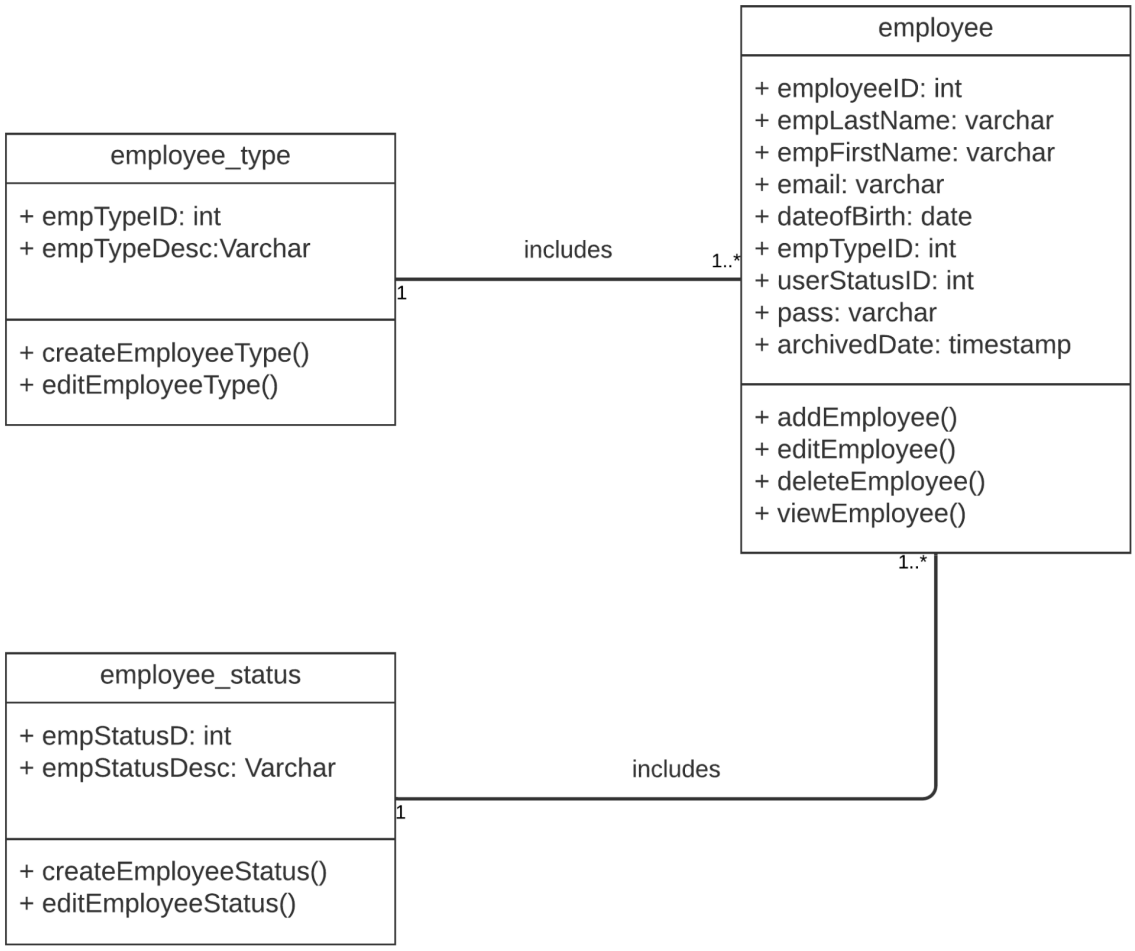


Figure 15: Class Diagram - Manage Accounts

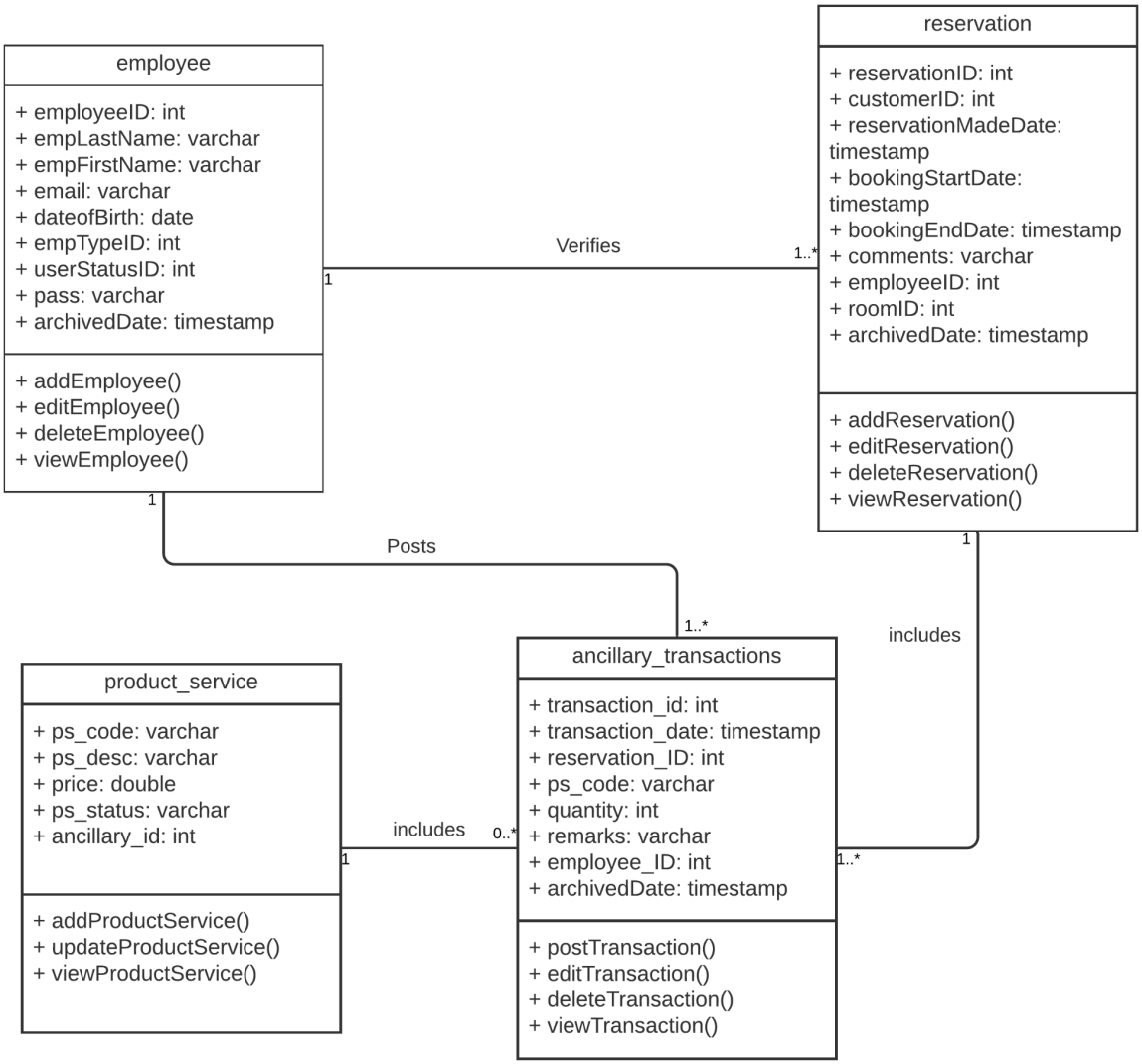


Figure 16: Class Diagram - Manage Ancillary Services Transaction Posting

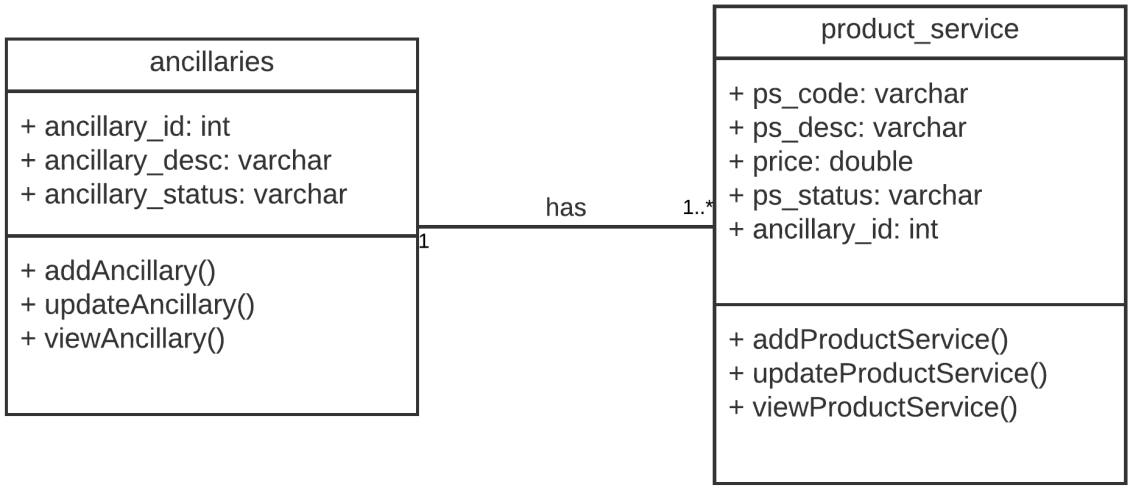


Figure 17: Class Diagram - Manage Hotel Ancillary Services

3.2.3. GUI Design (screen shots)

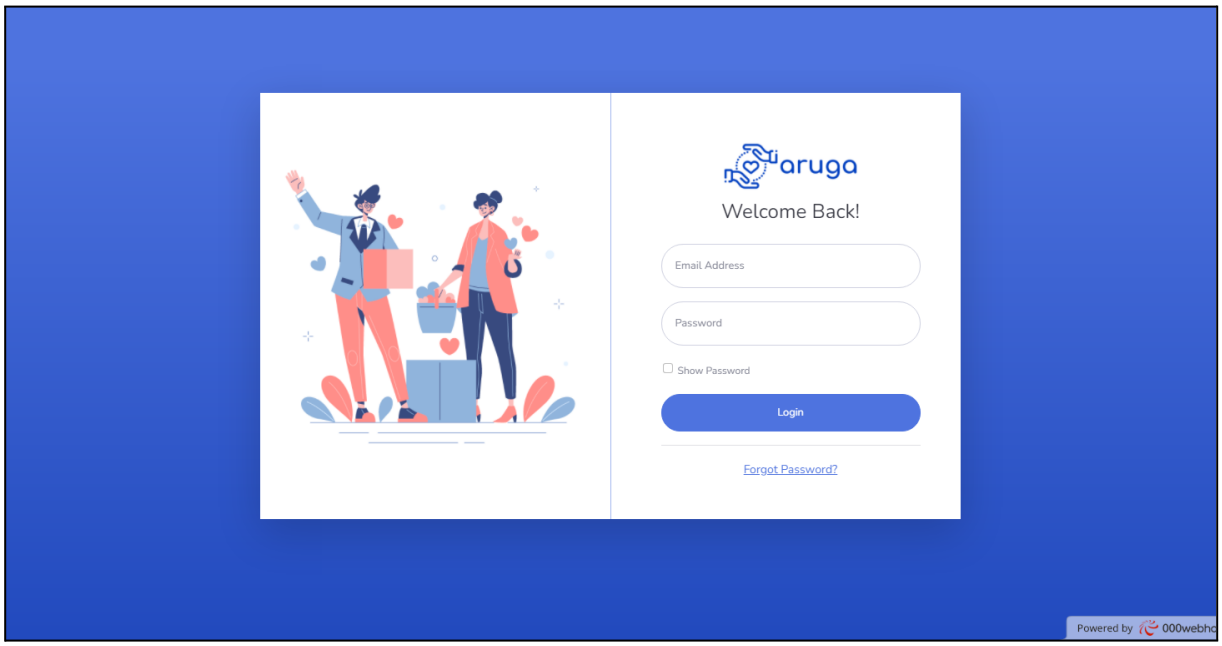


Figure 18: Login Page

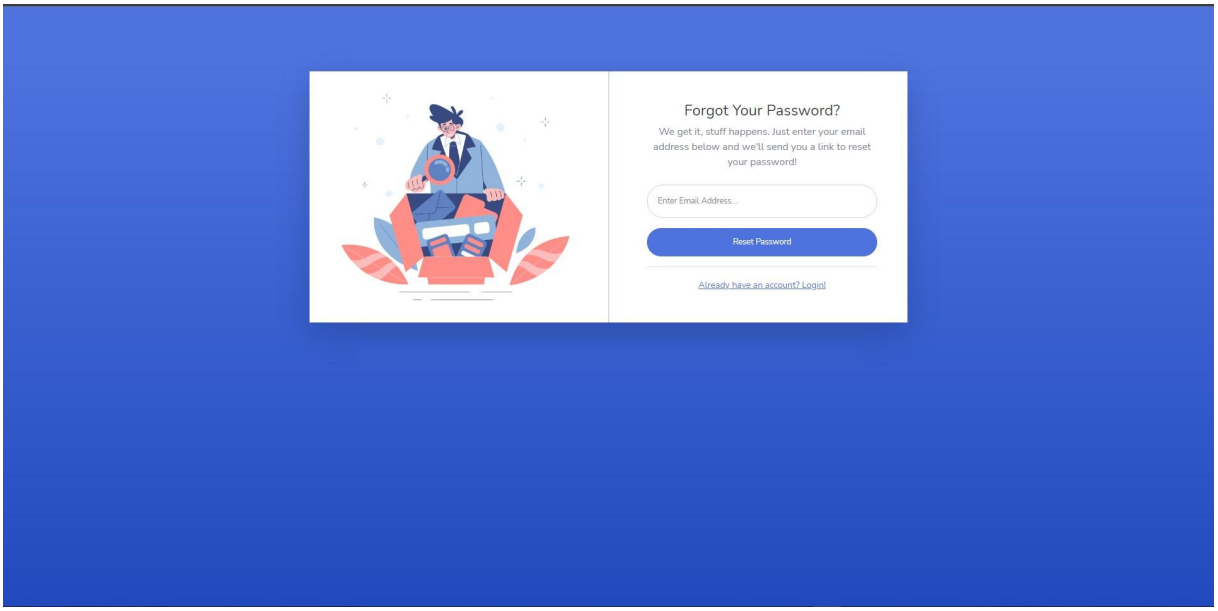


Figure 19 : Forgot Password Page

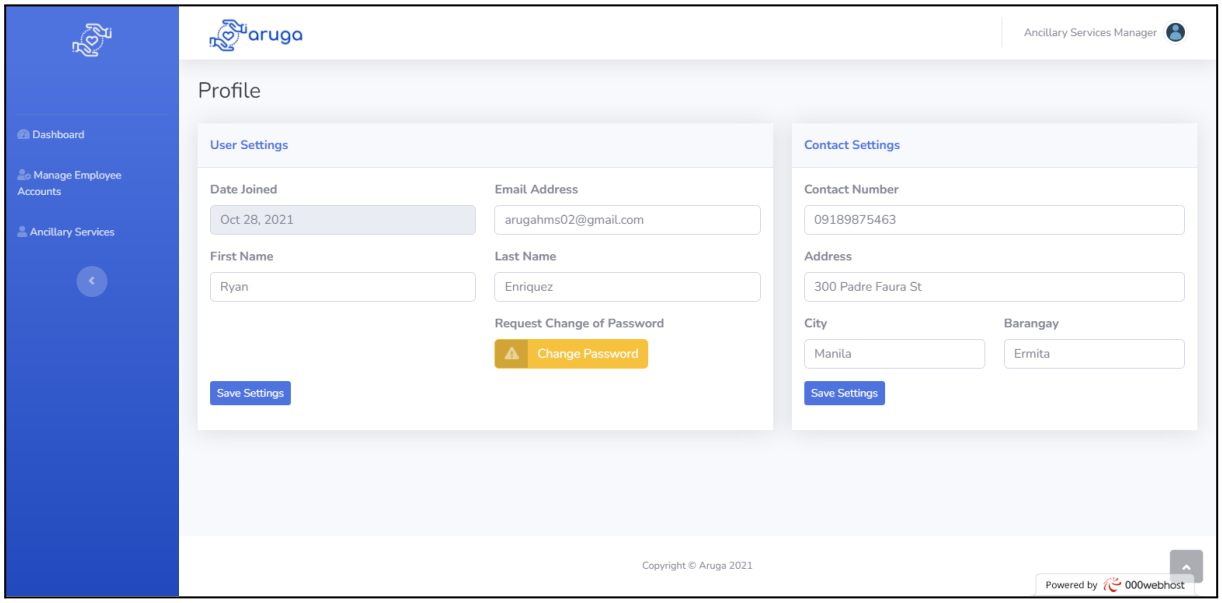


Figure 20: Profile Page

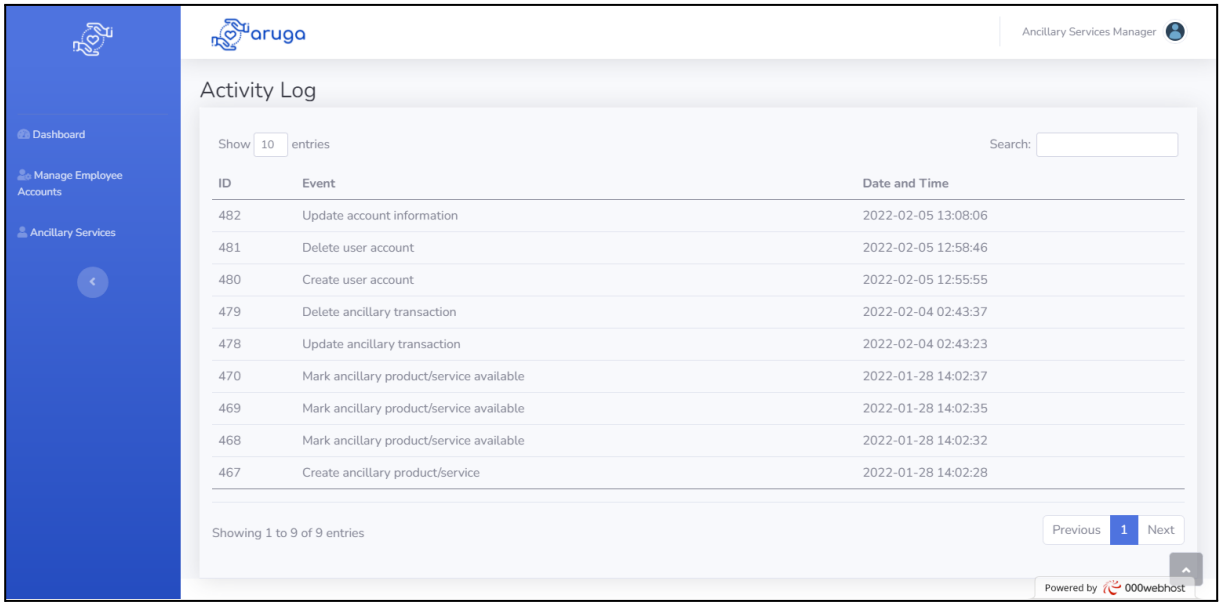
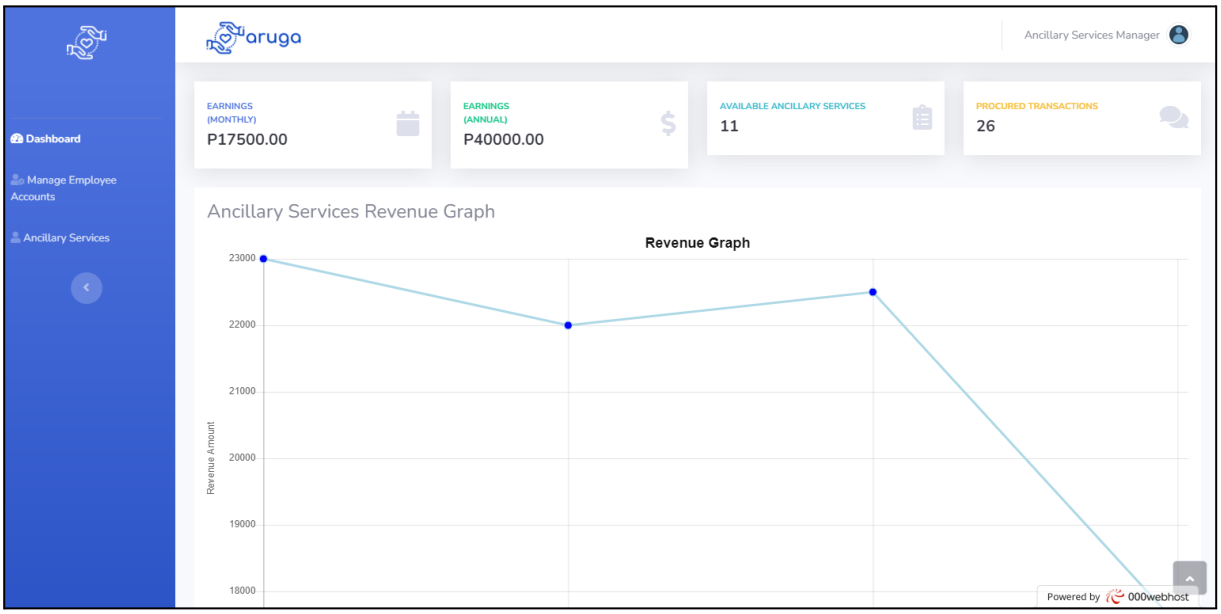


Figure 21: Activity Log Page



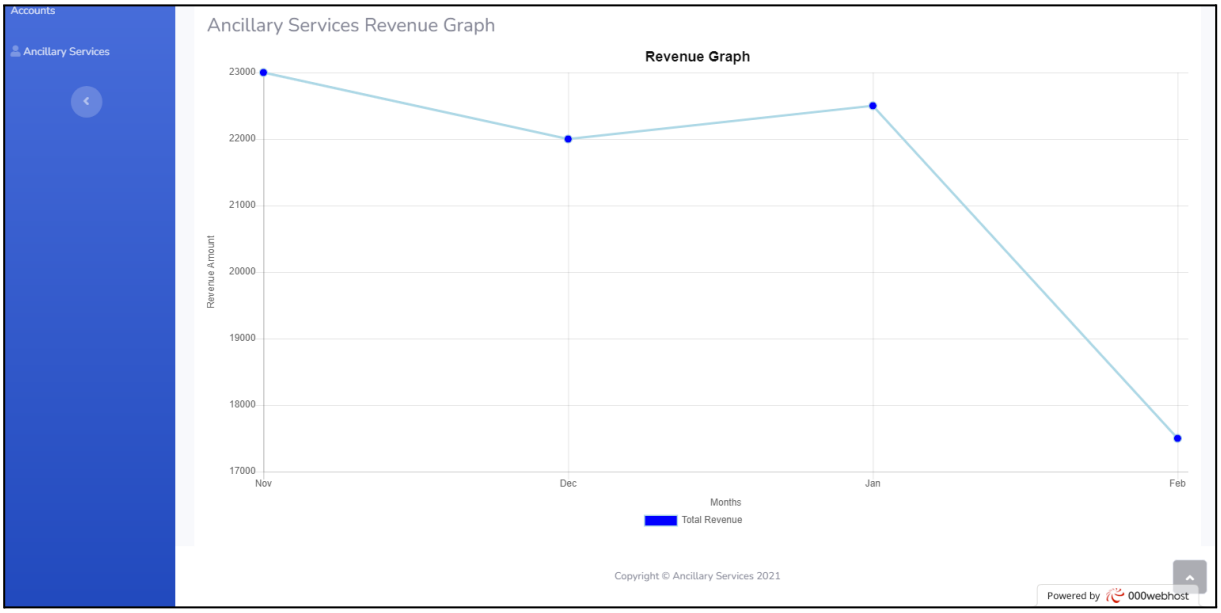


Figure 22 & 23: Dashboard Page

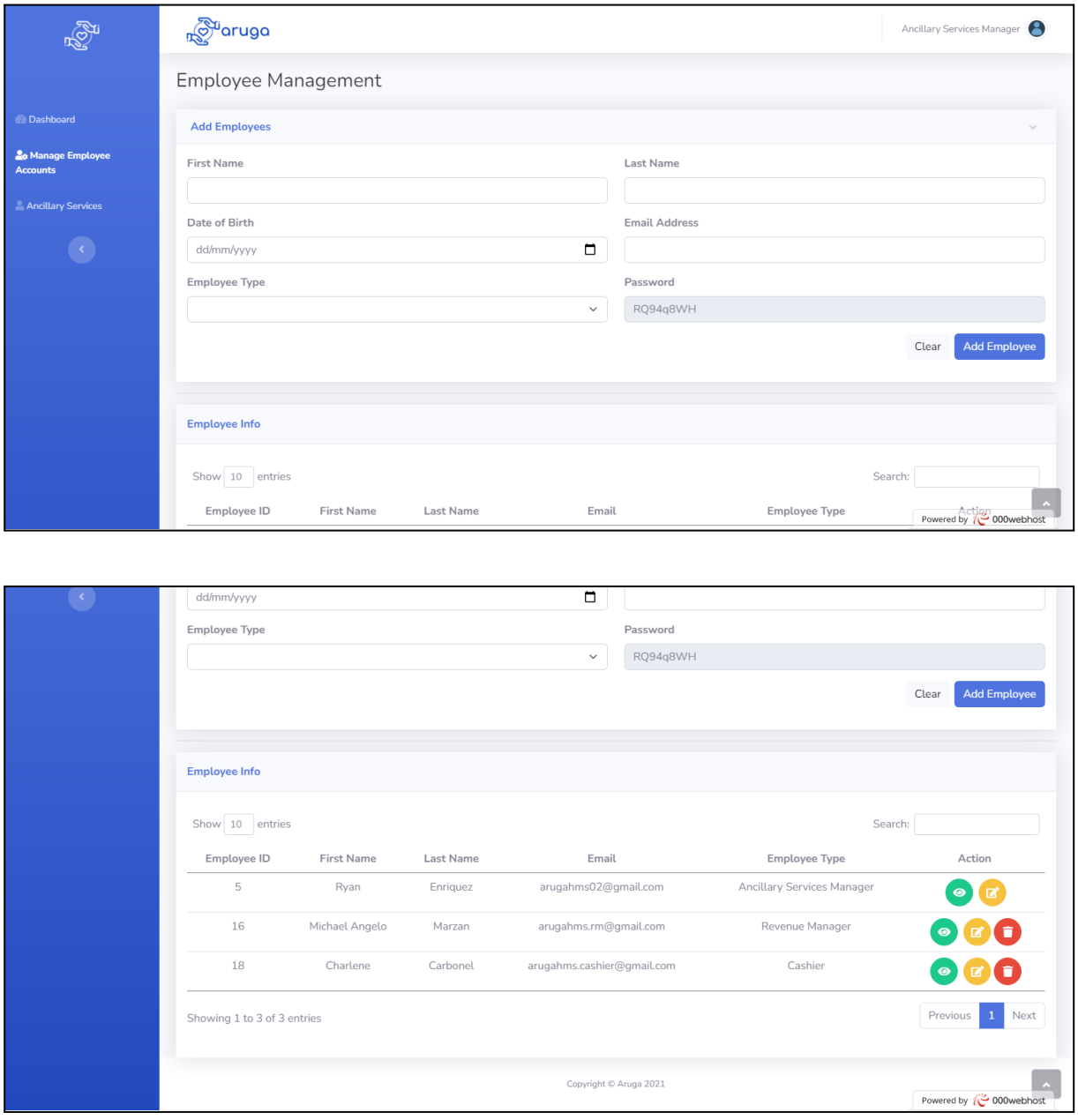


Figure 24 & 25: Ancillary Services Manager - Manage Employee Accounts Page

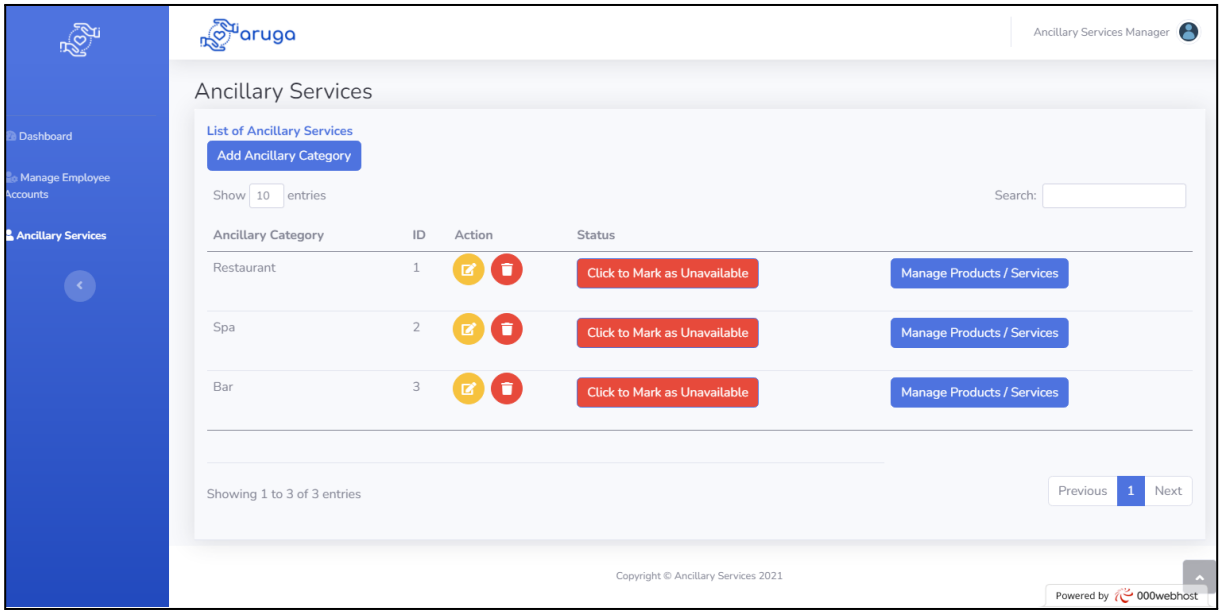


Figure 26: Ancillary Services Manager - Ancillary Services Page

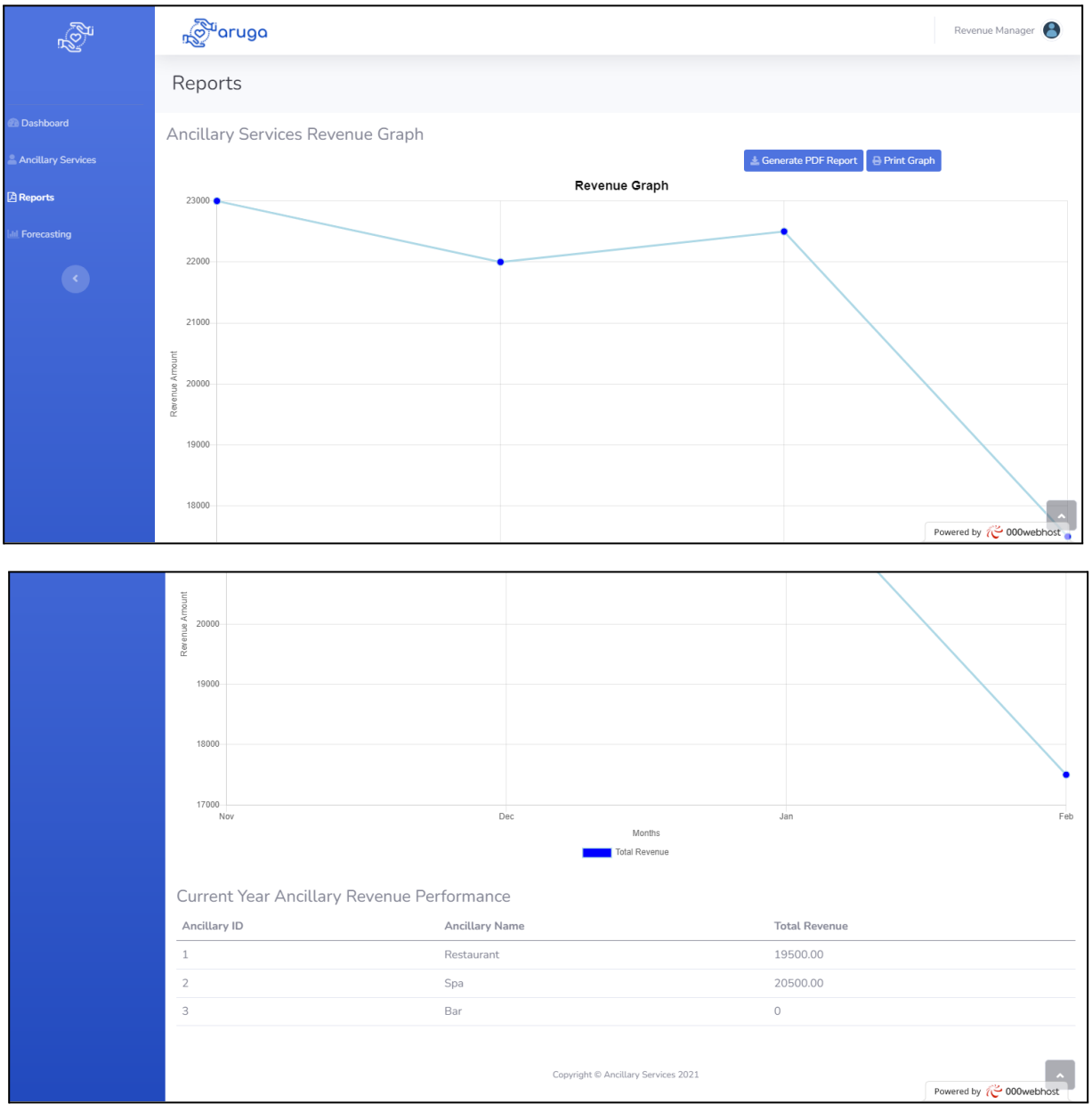


Figure 27 & 28: Revenue Manager - Reports Page

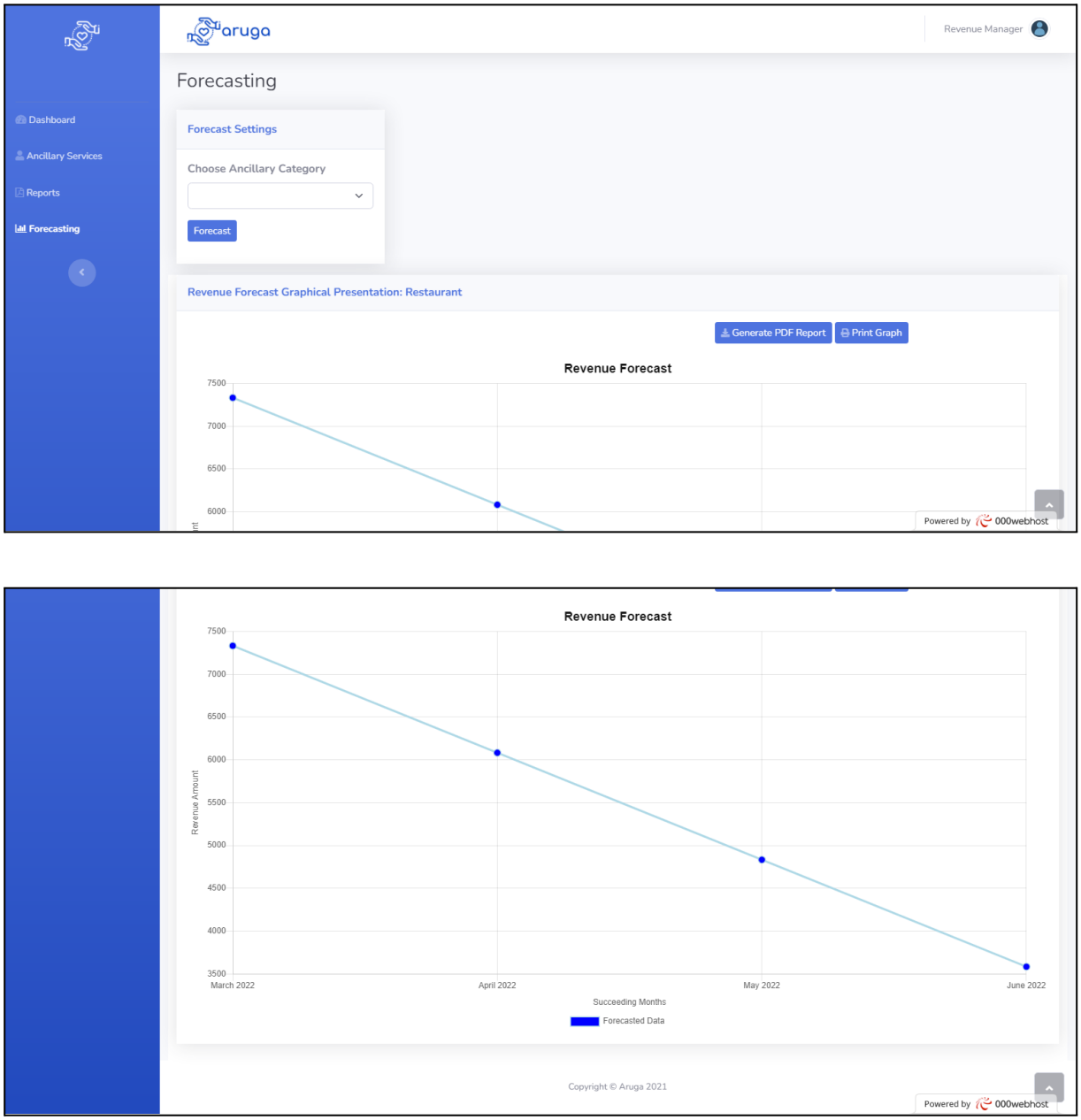


Figure 29 & 30: Revenue Manager - Forecasting Page

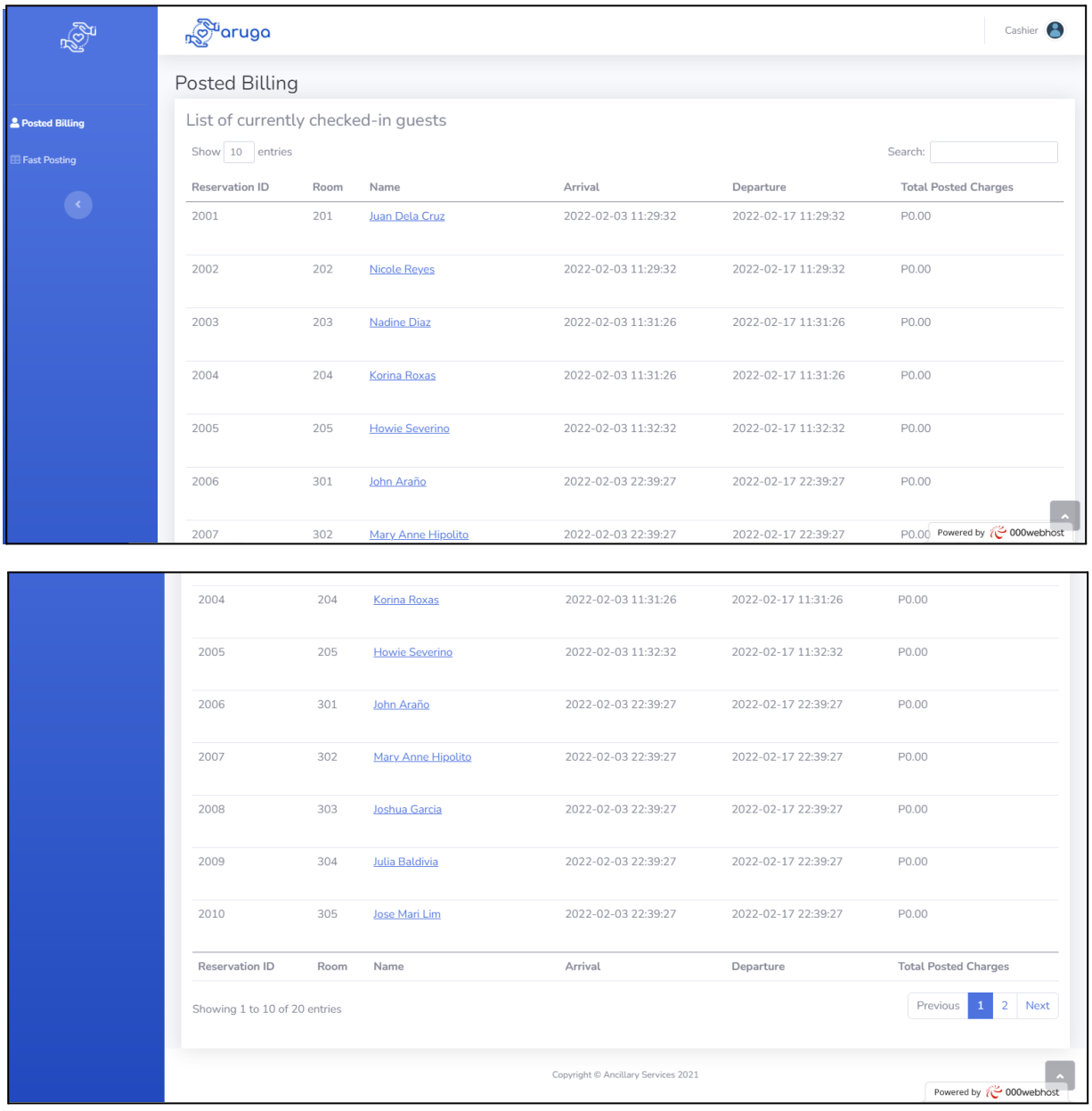


Figure 31 & 32: Cashier - Posted Billing Page

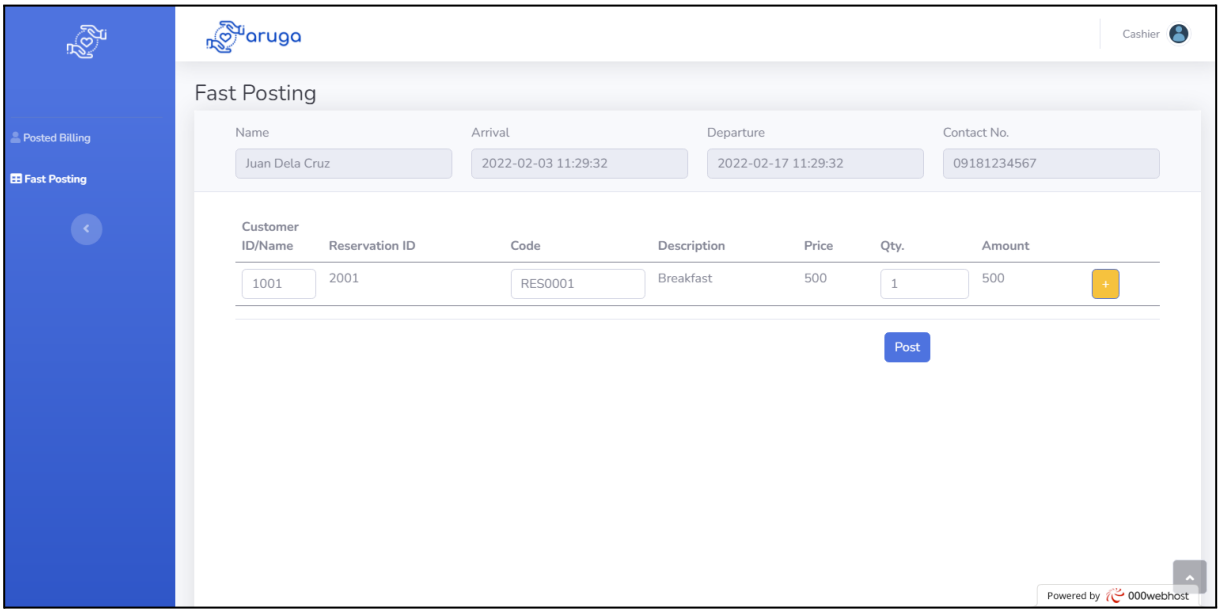


Figure 33: Fast Posting Page

3.2.4. Database Schema

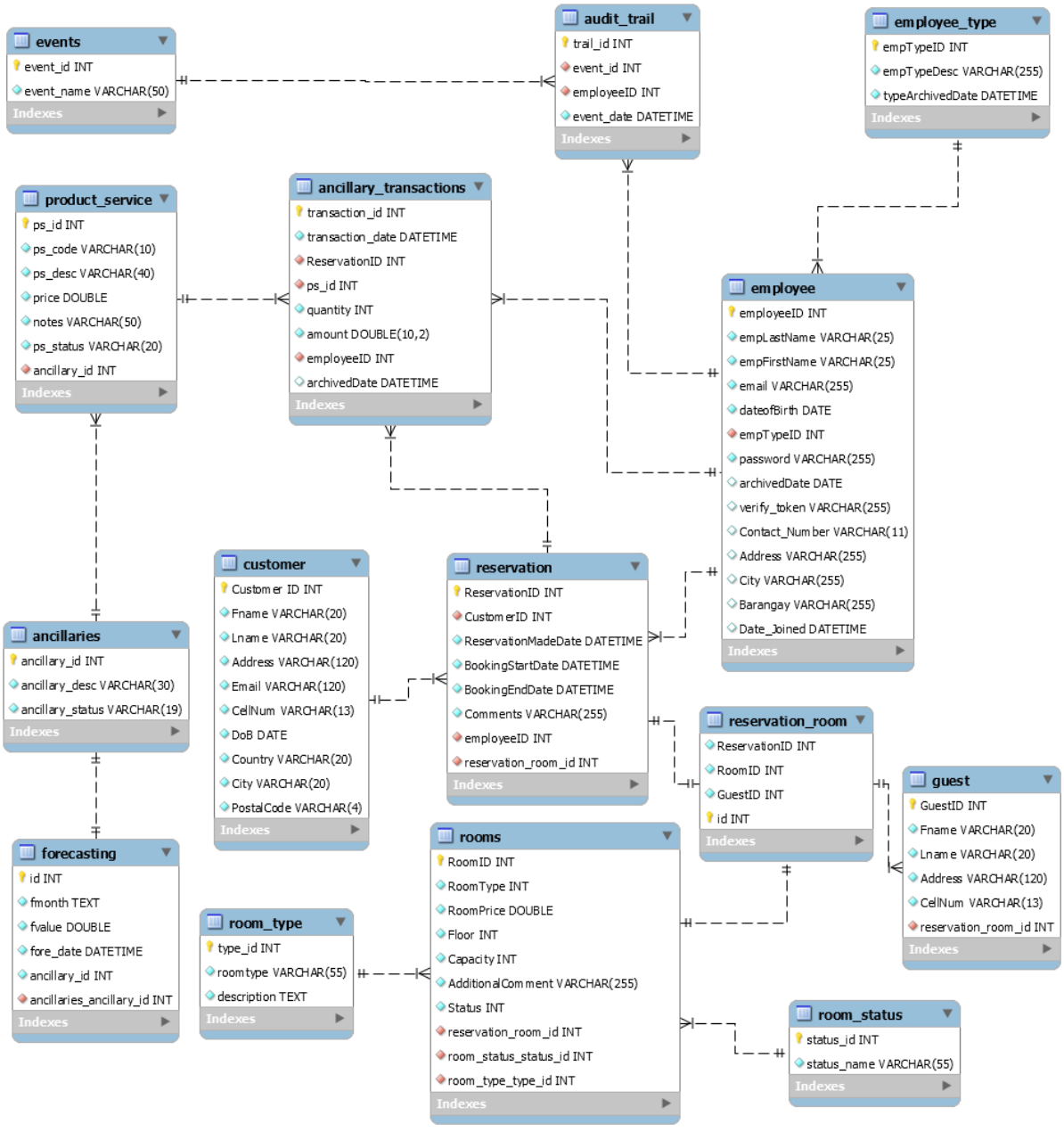


Figure 34: Database Schema

3.2.5. Data Dictionary

Table 10

Data Dictionary - ancillaries

DATA DICTIONARY - ancillaries						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
ancillary_id *(Primary)*	int(6)	No			Unique identifier of table ancillaries	1
ancillary_desc	varchar(30)	No			Ancillary description	Spa
ancillary_status	varchar(19)	No			Current status of the ancillary service	Available

Table 11

Data Dictionary - ancillary_transactions

DATA DICTIONARY - ancillary_transactions						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
transaction_id *(Primary)*	int(12)	No			Unique identifier of table reservation	102340
transaction_date	datetime	No			Date when the guest procured an ancillary service	8/25/2021 6:00:00 PM
reservationID	int(7)	No		ancillary_transactions →reservations	Foreign Key (FK)	5154873
ps_id	int(8)	No		ancillary_transactions →product_service	Foreign Key (FK)	SPA001
quantity	int(5)	No			Quantity of the availed ancillary service	1
amount	double(10,2)	No			Total amount	800
employeeID	int(7)	No		ancillary_transactions → employee	Foreign Key (FK)	1
archivedDate	timestamp	Yes	NULL		Date when the record is soft deleted	08/26/2021 8:00:00 AM

Table 12

Data Dictionary - audit_trail

DATA DICTIONARY - audit_trail						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
trail_id *(Primary)*	int(11)	No			Unique identifier of table audit_trail	1
event_id	int(11)	No		audit_trail ➔ events	Foreign Key (FK)	1
employeeID	int(11)	No		audit_trail ➔ employee	Foreign Key (FK)	1
event_date	datetime	No			Date when the event taken	

Table 13

Data Dictionary - customer

DATA DICTIONARY - customer						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
Customer ID *(Primary)*	int(7)	No			Unique identifier of table customer	1
Fname	varchar(20)	No			Customer's first name	Juan
Lname	varchar(20)	No			Customer's last name	Dela Cruz
Address	varchar(120)	No			Customer's address	01 Dahlia St.
Email	varchar(120)	No			Customer's email	jdcruz@gmail.com
CellNum	varchar(13)	No			Customer's cellphone number	9198765382
DoB	date	No			Customer's birthday	1/19/1999
Country	varchar(20)	No			Customer's address country	Philippines
City	varchar(20)	No			Customer's address city	Makati
Postal Code	varchar(4)	No			Customer's address postal code	1560

Table 14

Data Dictionary - employee

DATA DICTIONARY - employee						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
employeeID *(Primary)*	int(8)	No			Unique identifier of table employee	1000001
empLastName	varchar(25)	No			Last name of the employee	Dela Cruz
empFirstName	varchar(25)	No			First name of the employee	Maria
email	varchar(255)	No			Email address of the employee	maria@gmail.com
dateofBirth	date	No			Birthday of the employee	8/21/2021
empTypeID	int(8)	No		employee → employee_type	Foreign Key (FK)	1
password	varchar(255)	No			Password that the employee can use to enter the system	employeepass
archivedDate	timestamp	Yes	NULL		Date when the record is soft deleted	12/01/2021 8:00 am
verify_token	varchar(255)	Yes	NULL		Password reset verification token	eb8d1632eff2a72c2 3c12d23d4426129
Contact_Number	varchar(11)	Yes	NULL		Contact number of the employee	9276875354
Address	varchar(255)	Yes	NULL		Address address of the employee	101 Pioneer St.
City	varchar(255)	Yes	NULL		City Address of the employee	Pasig
Barangay	varchar(255)	Yes	NULL		Barangay address of the employee	Bambang
Date_Joined	datetime	Yes	current_ timestamp		Date when the employee joined	10/1/2021

Table 15

Data Dictionary - employee_type

DATA DICTIONARY - employee_type						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
empTypeID *(Primary)*	int(2)	No			Unique identifier of table employee_type	1
empTypeDesc	varchar(30)	No			Employee type description	cashier
typeArchivedDate	datetime	Yes			Employee type archived date	12/30/2021

Table 16

Data Dictionary - events

DATA DICTIONARY - events						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
event_id *(Primary)*	int(11)	No			Unique identifier of table events	1
event_name	varchar(50)	No			name of event	Create user account

Table 17

Data Dictionary - Forecasting

DATA DICTIONARY - forecasting						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
id *(Primary)*	int(11)	No			Unique identifier of table audit_trail	1
fmonth	text	No			Forecast month	Apr-22
fvalue	double	No			Forecast value	7500
fore_date	datetime	No			Date when record is forecasted	2/1/2022
ancillary_id	int(11)	No		forecasting➔ ancillaries	Foreign Key (FK)	1

Table 18

Data Dictionary - guest

DATA DICTIONARY - guest						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
GuestID *(Primary)*	int(7)	No			Unique identifier of table guest	1
Fname	varchar(20)	No			Guest's first name	Juan
Lname	varchar(20)	No			Guest's last name	Dela Cruz
Address	varchar(120)	No			Guest's address	01 Dahlia St. Makati
CellNum	varchar(13)	No			Guest's cellphone number	1

Table 19

Data Dictionary - product_service

DATA DICTIONARY - product_service						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
ps_id *(Primary)*	int(8)	No			Unique identifier of table product_service	1
ps_code	varchar(10)	No			Product/service code	SPA001
ps_desc	varchar(40)	No			Description of the product/service offered	Thai Massage
price	double(10)	No			Price of the product/service offered	800
notes	varchar(50)	Yes	""		Additional notes about the product/service	Package Inclusion
ps_status	varchar(20)	No			of the product/ service offered	Available
ancillary_id	int(6)	No		produtcs_service ➔ ancillaries	Foreign Key (FK)	1

Table 20

Data Dictionary - reservation

DATA DICTIONARY - reservation						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
reservationID *(Primary)*	int(7)	No			Unique identifier of table reservation	1
CustomerID	int(7)	No		reservation → customer	Foreign Key (FK)	1
ReservationMadeDate	timestamp	No			Date and time when reservation is made	8/26/2021 12:00:00 PM
BookingStartDate	timestamp	No			Date and time of checking in	08/29/2021 10:00 am
BookingEndDate	timestamp	No			Date and time of checking out	09/03/2021 10:00 am
Comments	varchar(30)	No	None		Additional Request or remarks	"Will checkout early"
employeeID	int(7)	No		reservation → employee	Foreign Key (FK)	1

Table 21

Data Dictionary - reservation room

DATA DICTIONARY - reservation_room						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
id (Primary)	int(11)	No			Unique identifier of table reservation_room	1
ReservationID	int(7)	No		reservation_room→ reservation	Foreign Key (FK)	1
RoomID	int(7)	No		reservation_room→ rooms	Foreign Key (FK)	201
GuestID	int(7)	No		reservation_room→ guest	Foreign Key (FK)	1

Table 22

Data Dictionary - rooms

DATA DICTIONARY - rooms						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
RoomID (Primary)	int(8)	No			Unique identifier of table reservation_room	201
RoomType	int(10)	No		rooms➔ room_type	Foreign Key (FK)	1
RoomPrice	double	No			Price of the room	5000
Floor	int(10)	No			Room floor	2
Capacity	int(10)	No			2	2
Additional Comment	varchar(255)	No			Additional comments	Do not disturb
Status	int(13)	No		rooms➔ room_status	Foreign Key (FK)	2

Table 23

Data Dictionary - room_status

DATA DICTIONARY - room_status						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
status_id *(Primary)*	int(7)	No			Unique identifier of table room_status	2
status_name	varchar(55)	No			status name	occupied

Table 24

Data Dictionary - room_type

DATA DICTIONARY - room_type						
Column	**Type**	**Null**	**Default**	**Links to**	**Description**	**Sample Data**
type_id *(Primary)*	int(11)	No			Unique identifier of table room_type	5
roomtype	varchar(55)	No			type of room	VIP
description	text	No			room type description	VIP room

3.3. DEVELOPMENT METHODOLOGY

3.3.1. Process Model

Waterfall Methodology

The researchers decided to apply the waterfall methodology as the basis for the system development life cycle. This model was chosen because the researchers find it as the most suited SDLC given the current pandemic situation and time frame allotted for the development of the system. According to Kienitz (2017), the waterfall development life cycle allows everyone to get up to speed quickly due to the fact that the initial requirements phase requires a thorough technical documentation which helps everyone to understand the objectives of the system development. When the developers know what are the objectives and things that are needed to do then it would be easier for them to catch-up with the development process even until the maintenance phase.

Martin (2021) mentioned that the waterfall model allows the project team to continue the development of the system even with minimum intervention of the client thus allowing the researchers to use and maximize their time developing the project. This is one of the advantages of waterfall methodology compared to other system development models specially during this time of pandemic where it is more difficult to have a formal face-to-face interaction and communication online can also be affected by factors such as internet speed which can affect the quality of the client intervention.

Another reason why the researchers decided to use the waterfall model is because it allows the researchers to check the development of the project on each phase which helps in ensuring that there are nearly no errors before proceeding to the next phase. According to Cavet (2021) “In a waterfall approach, each phase must be completed completely before the next phase can begin. At the end of each phase, a review takes place to determine if the project is on the right track or needs to be corrected”. With the help of the waterfall model, it is possible for the researchers to easily track the development progress of the project and see any mistakes on each phase.

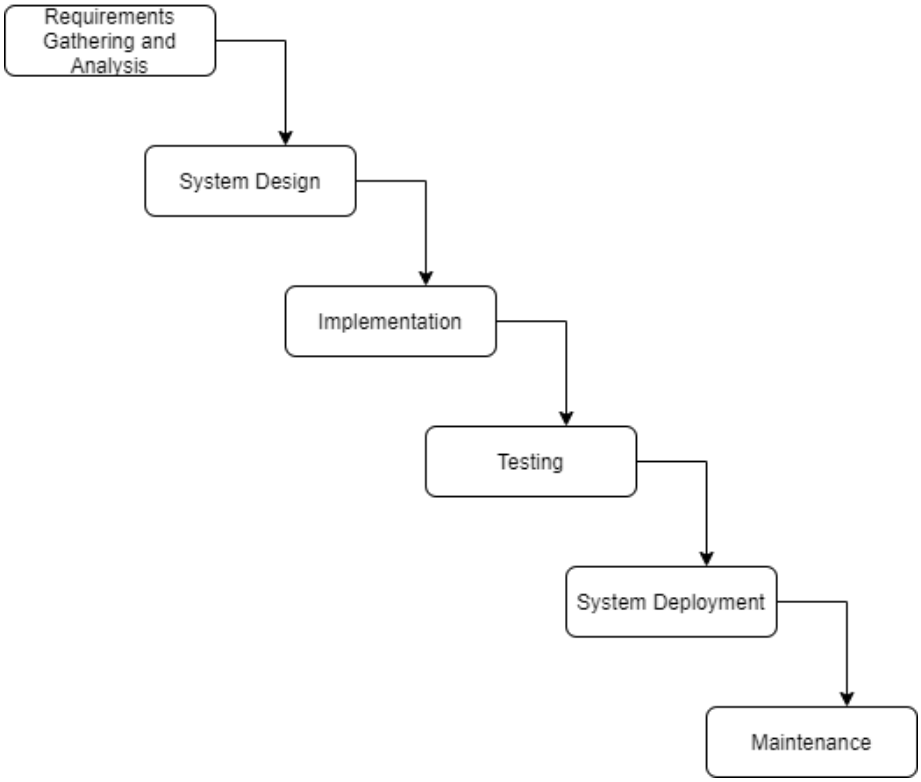


Figure 35: Waterfall Methodology Model

Requirements Gathering and Analysis

- This is the phase where the researchers would gather information about the existing related Property Management Systems. After gathering information, the researchers would then determine the requirements needed for the development of the project, analyze the existing system, find out the problems and give a proposed solution about it. The researchers would also interview professionals working on the Hospitality Management field to get a better overview about the different hotel management systems.

System Design

- For the designing process of the system, the researchers would first based on the problems and requirements determined on the previous phase. Required system functionality features would be added as well as the new features which will make the system unique from the existing hotel management systems. The researchers would also adapt some functionalities from Micros Opera but still add needed enhancements to bring a better user experience.

Implementation

- In this phase, the researchers would proceed on the development or coding of the system. The researchers would use different development tools such as Visual Studio Code, Bootstrap frameworks and use the REST API. The researchers would carefully implement the stated designs and ensure that the processes needed would be functional and useful.

Testing

- For the testing phase, the research team would conduct a series of tests according to standards of ISO 25010 and the stated objectives for the project development. The research team would also ask Hospitality Management students of PUP CTHTM to test the system and ask for their feedback in order to further improve the system.

System Deployment

- The deployment of the system will take place after the approval of the users coming from PUP CTHTM which now also includes professors of the concerned college department. The research team would continue to communicate with the users until they come up together with a specific system deployment date.

Maintenance

- The researchers will continue to improve and fix any possible bugs that will arise during the system usage. Users will be encouraged to report any problems that they will encounter so that the development team could address the issue at once and prevent further damages to the system.

3.3.2. Development Tools

Table 25

Development Tools

Programming Languages	HTML, CSS, JavaScript (Client Side) PHP (Server Side)
Relational Database Management System	MySQL
Integrated Development Environment (IDE)	Visual Studio Code
Bootstrap (Front End Framework)	Bootstrap (Front End Framework)
Server (Local Web Server for Testing)	Cross-Platform (X), Apache (A), MariaDB (M), PHP (P), and Perl (P)
Web Browser	Google Chrome

3.4. TEST METHODOLOGY/PROCEDURES

To verify that the system is fit for purpose and objective, the proponents decided to come up with several tactics and methodologies that will be employed for testing of the system. The testing procedures will ensure that the system under development has been thoroughly tested to ensure that it meets its given requirements and can operate successfully in all predicted environments while maintaining the needed usability and security. With that, the following testing strategies are enumerated based on the two categories namely the Functional Testing and Non-Functional Testing. The process of functional testing entails comparing the application to the business requirements. Non-functional testing, on the other hand, entails evaluating the application against

non-functional requirements, which often entail measuring/testing the application against specific technical criteria, such as vulnerability, scalability, and usability (Inflectra, 2020).

Functional Testing:

- System Testing

The proponents will administer system testing by checking the entire system processes by simulating real-world use based on the user-expected functioning conditions, allowing us to see if the system has flaws and bugs.

- Acceptance Testing

The proponents will ensure that all system requirements have been met, as well as that the system has been thoroughly tested by end-users and customers to ensure that it performs as expected and meets all expectations.

Non-Functional Testing:

- Security Testing

During this testing, the proponents will examine the system to see if confidentiality, integrity, authentication, availability, non-repudiation, and level of access to information are available and observed in the system. The process of prevention to unauthorized access to the system that can largely affect the program code itself will be also examined.

- Usability Testing

The proponents will examine the system's end-user usability during this testing. The proponents will test the ease with which users can access the system, allowing improved learnability, efficiency, satisfaction, memorability, and also, error prevention.

- Compatibility Testing

The proponents will check here to see if the system will work in different environments (web browsers) and if it is responsive (mobile devices) ensuring that the system performs as expected across all hardware/software combinations and that all features are supported consistently.

3.5. SYSTEM REQUIREMENTS

Table 26

Hardware Requirements

Hardware Component	Minimum Specification
Processor	3.3 gigahertz (GHz) or faster 64-bit dual core processor with SSE2 instruction set (Desktop, Laptop)
Installed Memory (RAM)	4.00 GB or more (Desktop, Laptop)
Hard Disk Drive	500GB or more (Desktop, Laptop)
Connection	Wi-Fi and 4G (Data Services) to be able to work with data services.

In order for the system to be used and evaluated, the following hardware requirements are specified on the table above. These are only minimum specifications that the users must have, thus having better hardware is also encouraged in order to achieve a smoother user experience.

Table 27

Software Requirements

Software Component	Minimum Specification
Microsoft Windows 7 - 10	64-bit (Desktop, Laptop)
XAMPP	7.1.32-0 / 7.2.22-0 / 7.3.9-0 (Desktop, Laptop)
DBMS – MySQL, phpMyAdmin	Any available versions (Desktop, Laptop)

For the software needed for the system, the proponents require Microsoft Windows 7-10 (64 bit), XAMPP (Versions listed in the table) and MySQL with phpMyAdmin to fully access both the system and database of the project. The researchers will focus on running the system on a Google Chrome browser for a better system interface. Other browsers such as Microsoft Edge and Mozilla Firefox can also be used as backup options.

3.6. **QUALITY PLAN**

In order to maintain the highest quality that the system can provide to its users and evaluators, the process of Code Review and System Testing will be highly acknowledged. These two ensures that there are no errors in the codes affecting the functions so that requirements are met with high quality and also, no inefficiencies will be encountered.

Alongside this, the development team also agreed to use the ISO/IEC 25010, a quality model that is the cornerstone of a product quality evaluation system. This standard determines which quality characteristics will be considered when evaluating the properties of a software product. Moreover, the quality of a system is the degree to which the system satisfies the stated and implied needs of its evaluators, and thus provides value. Those evaluators' needs (functionality, performance, security, maintainability, etc.) are precisely what is represented in the quality model, which categorizes the product quality into characteristics and sub-characteristics.

Software quality reflects how well software conforms to the design but also how it meets non-functional requirements such as security or maintainability as described by the characteristics in ISO 25010. Software quality measurement quantifies to what extent the software rates with regard to each of the characteristics.

Within the characteristics, the software can be assessed as to:

- Can be tested.
- Is easy to understand and follow.
- Is easy to edit and upgrade without introducing new errors.

ISO 25010 describes two quality models:

1. The quality in use model composed of five characteristics (some of which are further sub-divided into sub-characteristics) that relate to the outcome of interaction when a product is used in a particular context of use.

2. A product quality model composed of eight characteristics (which are further subdivided into sub-characteristics) that relate to static properties of software and dynamic properties of the computer system.

The characteristics and sub-characteristics provide consistent terminology for specifying, measuring, and evaluating system and software product quality. They also provide a set of quality characteristics against which stated quality requirements can be compared for completeness.

Table 28

8 General Characteristics of ISO 25010

8 QUALITY CHARACTERISTICS	QUALITY PLAN
Functional Suitability	The proponents must ensure that the whole system offers functions that meet stated and implied needs when operated under specified settings.
Performance Efficiency	The proponents should be able to reflect, under certain conditions, the best performance based on the quantity of resources used.
Compatibility	The proponents should create a system that can communicate with other systems, components, or modules, as well as fulfill its functions, all while sharing the same hardware or software environment.
Usability	The proponents should design a system that can be utilized by specific users to achieve specific goals in a specific context with efficacy, efficiency, and satisfaction.
Reliability	The proponents should create a system that executes specific functions for a set amount of time under specific conditions.
Security	The proponents should create a system that safeguards information and data, allowing people, other products, and systems to access data to the extent that their types and levels of authorization allow.
Maintainability	The effectiveness and efficiency with which the system can be updated to improve, correct, or adapt to changes in the environment and requirements should be valued by the proponents.
Portability	The proponents should demonstrate the system's effectiveness and efficiency in transitioning from one hardware, software, or other operational or consumption environment to another.

Specifically, the mentioned general characteristics have sub-characteristics which are shown below. The plan is also listed which also corresponds as a basis to the evaluation criteria of the system being made.

Table 29

Characteristics And Sub-Characteristics of ISO 25010

CHARACTERISTICS	SUB-CHARACTERISTICS	
Functional Suitability	Functional completeness	All of the mentioned tasks and user objectives are covered by the system's collection of functionalities.
	Functional correctness	The system produces accurate results with the required precision.
	Functional appropriateness	The system's functions make it easier to complete activities and achieve goals.
Performance Efficiency	Time behavior	When performing its functions, the system's response and processing times, as well as throughput rates, fulfills the criteria.
	Resource utilization	When the system performs its functions, the quantity and types of resources it uses fulfills the criteria.

	Capacity	The system parameter's maximum limits meet the requirements.
Compatibility	Co-existence	The system can carry out its functions effectively while sharing a shared environment and resources with other goods, with no negative consequences for any of them.
	Interoperability	Information can be communicated between two or more system modules, and the information exchanged can be used.
Usability	Appropriateness recognizability	Users can determine whether the system is suitable for their requirements.
	Learnability	The system can be used by specific users to achieve specific goals, such as learning to use the product or system effectively, efficiently, without danger, and with satisfaction in a specific setting.
	Operability	The system contains characteristics that make it simple to use and control.

	User error protection	Users are protected from making mistakes by the system.
	User interface aesthetics	The system's user interface allows for a pleasant and fulfilling engagement for the user.
	Accessibility	People with a wide range of features and talents can utilize the system to accomplish a specific goal in a specific setting.
Reliability	Maturity	During normal operation, the system meets the requirements for reliability.
	Availability	The system is up and running and ready to use whenever it is needed.
	Fault tolerance	Despite the presence of hardware or software flaws, the systems function as planned.
	Recoverability	In the event of a loss or interruption, the system can recover the data directly affected and restore the system to its desired state.

Security	Confidentiality	The system ensures that data is only available to those who have been granted access.
	Integrity	Unauthorized access to or modification of computer programs or data is prevented by the system.
	Non-repudiation	The activities or events of the system can be verified to have occurred such that they cannot be refuted afterwards.
	Accountability	The acts of a system from the perspective of an entity can be traced back to that entity.
	Authenticity	The system can show that a subject's or resource's identification is the one claimed.
Maintainability	Modularity	The system is composed of discrete components such that a change to one component has minimal impact on other components.
	Reusability	An asset can be used in several system modules or in the construction of other assets.

	Analyzability	The efficacy and efficiency with which a system's impact on an intended modification to one or more of its parts can be assessed, or a product's defects or reasons of failures can be diagnosed, or parts to be modified may be identified.
	Modifiability	The system can be updated effectively and efficiently without introducing flaws or diminishing the quality of the present system.
	Testability	The system's efficacy and efficiency, as well as the test criteria that can be set for the system and the tests that can be run to see if those criteria have been fulfilled.
Portability	Adaptability	The system can be modified to different or evolving hardware, software, or other operational or consumption contexts effectively and efficiently.
	Installability	The system's effectiveness and efficiency in successfully installing

		and/or uninstalling in a defined environment.
	Replaceability	In the same context, the system can replace another defined system for the same purpose.

The scope of application of the quality models includes supporting specification and evaluation of software and software-intensive computer systems from different perspectives by those associated with their acquisition, requirements, development, use, evaluation, support, maintenance, quality assurance and control, and audit. The models can, for example, be used by developers, acquirers, quality assurance and control staff and independent evaluators, particularly those responsible for specifying and evaluating software product quality. Activities during product development that can benefit from the use of the quality models include:

- Identifying software and system requirements.
- Validating the comprehensiveness of a requirements definition.
- Identifying software and system design objectives.
- Identifying software and system testing objectives.
- Identifying quality control criteria as part of quality assurance.
- Identifying acceptance criteria for a software product and/or software-intensive computer system.

Establishing measures of quality characteristics in support of these activities.

3.7. **EVALUATION PLAN**

The proponents will conduct an evaluation with the Hospitality Management students of PUP CTHTM. The evaluation will be taken online through an online survey questionnaire with the guidance of the proponents. The proponents will then start the evaluation by explaining the step-by-step process and functions of the system to the users. Functions and processes such as posting/ batch-posting transactions, generating sales reports, and generating forecasts of ancillary demands will be further explained. After explaining about the system, questions of the users will be entertained, as well as during the testing of the system for further understanding of the users. Then users will be given survey forms to fill up. The questions on the questionnaire are all based on the ISO 25010 quality plan, which are – functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability as well as its characteristics and sub characteristics.

Weighted mean will enable us to calculate an average that takes into account the importance of each value to the overall total . The questions in the survey questionnaire are answerable with the corresponding scale shown below:

$$\bar{x} = \frac{\Sigma x}{N}$$

Where:

$\bar{x}$ = mean

Σ = sum of

X = data points

N = total number of respondents

The responses from the questions in the given variables were scaled using the Likert Scale system and given means as follows:

Table 30

Likert Scale

Scale	Interval	Verbal Interpretation
5	4.50-5.00	Strongly Agree
4	3.50-4.49	Agree
3	2.50-3.49	Either Agree or Disagree
2	1.50-2.49	Disagree
1	1-1.49	Strongly Disagree

Likert Scales have the advantage that they do not expect a simple yes / no answer from the respondent, but rather allow for degrees of opinion, and even no opinion at all (McLeod, 2019).

Table 31

Project Evaluation

Objective	Responsible	Timeline	Evaluation Measure
The system has at least 80% functional level with minimal error	Project Team	September – October 2021	The system will be ready for testing and evaluation.
The system has at least 90% functional level with minimal error	Project Team	December 2021	The system will be ready for testing and evaluation.
The system is ready for final evaluation.	Project Team	October 2021 – Feb 2022	Project Finalization and Closure.

User Acceptance Test Form	
Date:	**Time:**
System Name: Hotel Management System – Procurement of Ancillary Services	
Faculty-in-Charge: Prof. Ria A. Sagum	
Respondent's Profile	
Respondent's Name:	
Email:	
Type: o **Client** o **Faculty** o **Student**	

Direction: Please put a check on the criteria of your choice. **5 – Strongly Agree, 4 – Agree, 3 – Either Agree or Disagree, 2 – Disagree, 1 – Strongly Disagree**

Functional Suitability	**5**	**4**	**3**	**2**	**1**
1. The Procurement of Ancillary Services System provides correct results. (Accuracy)					
2. The Procurement of Ancillary Services System is precise in executing the function (Accuracy)					
3. The Procurement of Ancillary Services System has all the functions it was supposed to have. (Completeness)					

4. The Procurement of Ancillary Services System fulfills its purposes and function. (Appropriateness)					
Performance Efficiency	**5**	**4**	**3**	**2**	**1**
1. The Hotel Management System's response time is reasonable. (Time behavior)					
2. The Hotel Management System's processing time is appropriate. (Time behavior)					
3. The amount and types of resources used by the Hotel Management System are appropriate (Resource utilization)					
4. The system's maximum limits of parameter meet requirements. (Capacity)					
Usability	**5**	**4**	**3**	**2**	**1**

1. The Procurement of Ancillary Services System is appropriate for the needs of the users. (Appropriateness Recognizability)					
2. I learned how to use the Procurement of Ancillary Services System quickly. (Learnability)					
3. I am able to improve my skills with the Procurement of Ancillary Services System. (Learnability)					
4. The Procurement of Ancillary Services System is easy to operate and control. (Operability)					
5. The Procurement of Ancillary Services System protects users against making errors. (User Error Protection)					
6. The Procurement of Ancillary Services System's user interface is pleasing and satisfying interaction for the user. (User Interaction Aesthetics)					

7. The Procurement of Ancillary Services System can be used by people of all characteristics and capabilities? (Accessibility)					
Reliability	**5**	**4**	**3**	**2**	**1**
1. The Procurement of Ancillary Services System is stable for everyday use. (Maturity)					
2. The Procurement of Ancillary Services System is accessible when required for use. (Availability)					
3. The Procurement of Ancillary Services System operates even if there are hardware or software faults. (Fault Tolerance)					
4. The Procurement of Ancillary Services System capable of recovering data in the event of interruption or failure. (Recoverability)					
Security	**5**	**4**	**3**	**2**	**1**

1. The Procurement of Ancillary Services System are accessible only to those who are authorized to use it. (Confidentiality)					
2. The Procurement of Ancillary Services System prevents unauthorized access that could modify data or computer programs. (Integrity)					
3. The Procurement of Ancillary Services System collects information whether specific actions or events have taken place. (Non-Repudiation)					
4. The Procurement of Ancillary Services System can trace actions of an entity. (Accountability)					
Comments and Suggestions					

CHAPTER 4 – RESULTS AND DISCUSSION

This chapter will discuss the results of the test, quality, and evaluation plan of the study. The proponents' targets to build and implement the Hotel Management System-Procurement of Ancillary Services. The developers based the total number of users for the evaluation. The questions on the questionnaire are all based on the ISO 25010 Quality Plan, which are – Functional Suitability, Performance Efficiency, Usability, Reliability, Security as well as its characteristics and sub characteristics. All of these characteristics are included in the user acceptance test that is evaluated by the respective respondents.

The Evaluation of the Respondents on Hotel Management System – Procurement of Ancillary Services Functional Suitability:

Table 32
Functional Suitability

DESCRIPTION	Scale : Frequency	MEAN	VERBAL INTERPRETATION
1. Functional Suitability			
1.1 The Procurement of Ancillary Services System provides correct results. (Accuracy)	5: 22 4: 7 3: 1 2: 0 1: 0	4.70	Strongly Agree
1.2 The Procurement of Ancillary Services System is precise in executing the function (Accuracy)	5: 23 4: 7 3: 0 2: 0 1: 0	4.77	Strongly Agree
1.3 The Procurement of Ancillary Services System has all the functions it was supposed to have. (Completeness)	5: 17 4: 13 3: 0 2: 0 1: 0	4.57	Strongly Agree
1.4 The Procurement of Ancillary Services System fulfills its purposes and function. (Appropriateness)	5: 20 4: 9 3: 1 2: 0 1: 0	4.63	Strongly Agree
Average Mean		**4.67**	**Strongly Agree**

Description:

The complete results of the functional suitability table of the system was shown above with the sub-characteristics: Accuracy, Completeness and Appropriateness. In the first question, 22 respondents strongly agreed that the system provides correct results which is equivalent to a score of 110 points. 7 respondents agreed to the question that gives another 28 points. This means that there is a small possibility for the users to encounter minor errors during the process but these errors would not greatly affect the overall performance of the results. 1 respondent had a neutral decision giving another score of 3 points which means that there is only one student who was not sure whether to agree that the system produces correct results or not. Summing up the responses for the first question gives a total of 141 points and produces a mean of 4.70 with a verbal interpretation of *strongly agree*. This result shows that the system provides correct results.

The second question talks about how accurate the functions of the system are when it comes to its execution. The result of the survey shows that 23 respondents strongly agreed that the functions of the system are executed precisely and this gives an equivalent of 115 points. There are 7 respondents who agree on the second question that corresponds to 28 points and also means that there are functions that do not 100% capture the same execution process of the traditional PMS such as the Micros Opera but still produce the expected outcome. This question generated a total of 143 points and a mean of 4.77 with a verbal interpretation of *strongly agree*. Base from the result of the mean it can be said that the system is precise in executing its function,

When it comes to the completeness of the overall function of the system, 17 respondents strongly agreed that the system has all the required functionalities it is supposed to have which is equivalent to a score of 85 points. On the other hand, a total of 13 respondents gave an agree to the question which results in another 52 points and also shows that even though most of the needed requirements are met for the procurement of ancillary services module, there are still some PMS related functions from other modules that can be

added (such as functions from reservation module and and housekeeping module) to fill in the gaps of the system. The results of the third question under the functional suitability category produced a total of 137 and a mean of 4.57 with a verbal interpretation of *strongly agree*. This result means that the system was able to provide the functions it was supposed to have and could still be improved in consideration to the total score of agree which is given by the 13 respondents .

In the last question, 20 respondents said that they strongly agree that the system fulfills its purposes and function which is equivalent to 100 points. 9 respondents agreed to the question and produced another 36 points which also means that for some of them, the system can still have some additional function to totally complete its purpose yet they are satisfied with what it offers. Only 1 gave a neutral answer which is equivalent to 3 points and means that only 1 has an unsure opinion whether the system fulfilled its purposes or not. The results of the responses for the last question gather a total of 137 points with a mean of 4.63 and a verbal interpretation of *strongly agree*. Base from the mean result, it can be said that the system fulfills its purposes and function.

The average mean for the functional suitability of the system is 4.67 with a verbal interpretation of *strongly agree.* This shows that the system has all the required functions and is able to produce correct results.

The Evaluation of the Respondents on Hotel Management System – Procurement of Ancillary Services Performance Efficiency:

Table 33
Performance Efficiency

DESCRIPTION	Scale : Frequency	MEAN	VERBAL INTERPRETATION
2. Performance Efficiency			
2.1 The Hotel Management System's response time is reasonable. (Time behavior)	5: 21 4: 9 3: 0 2: 0 1: 0	4.70	Strongly Agree
2.2 The Hotel Management System's processing time is appropriate. (Time behavior)	5: 23 4: 6 3: 1 2: 0 1: 0	4.73	Strongly Agree
2.3 The amount and types of resources used by the Hotel Management System are appropriate (Resource utilization)	5: 21 4: 8 3: 1 2: 0 1: 0	4.67	Strongly Agree
2.4 The system's maximum limits of parameters meet requirements. (Capacity)	5: 23 4: 7 3: 0 2: 0 1: 0	4.77	Strongly Agree
Average Mean		**4.72**	**Strongly Agree**

Description:

The complete results of the performance efficiency table of the system was shown above with the sub-characteristics: Time Behavior, Resource Utilization and Capacity. The first question talks about the reasonable response and processing times of the system when performing its task. In this question, 21 respondents strongly agreed that the system's response and processing time is reasonable enough, which is equivalent to a score of 105 points. 9 respondents agreed to the question that gives another 36 points. This means that there is a possibility of encountering unreasonable delay of requests due to the usage of free hosting site, but these errors would not greatly affect the overall performance of the results. Summing up the responses for the first question gives a total of 141 points and produces a mean of 4.70 with a verbal interpretation of *strongly agree*. This result shows that the system's time behavior is reasonable.

The second question talks about the appropriateness of the system's response and processing times when performing its task. The result of the survey shows that 23 respondents strongly agreed that the system's response and processing time is always appropriate, and this gives an equivalent of 115 points. There are 6 respondents who agree on the second question that corresponds to 24 points, and also means that there is a possibility of encountering traffic of requests in inappropriate times due to the usage of free hosting site, but these errors would not greatly affect the overall performance of the results. 1 respondent had a neutral decision giving another score of 3 points which means that there is only one student who was not sure whether to agree that the system's time behavior is appropriate when using the system. This question generated a total of 142 points and a mean of 4.73 with a verbal interpretation of *strongly agree*. This result shows that the system's time behavior is appropriate in times.

The third question talks about the amount and types of resources used by the system while using the system. The result of the survey shows that 21 respondents strongly agreed that the system's resource utilization is efficient and this gives an equivalent of 105 points. There are 8 respondents who agree on the second question that corresponds to 32 points

because they thought that not all records are being utilized, specifically the guest list, since these records are already part of the Room Reservation module. 1 respondent had a neutral decision giving another score of 3 points which means that there is only one student who was neutral whether to agree that the system's resource utilization is efficient or inefficient. This question generated a total of 140 points and a mean of 4.67 with a verbal interpretation of *strongly agree*. This result shows that the system's resource utilization is efficient.

Lastly, the fourth question talks about the system's maximum capacity of processing transactions. The result of the survey shows that 23 respondents strongly agreed that the system's maximum capacity of processing transactions satisfies them, and this gives an equivalent of 115 points. There are 7 respondents who agree on the second question that corresponds to 28 points, meaning they are not strongly satisfied with the maximum capacity of posting transactions at once because the transaction rows are only limited to 8. This question generated a total of 143 points and a mean of 4.77 with a verbal interpretation of *strongly agree*. This result shows that the system's maximum capacity of posting transactions at once satisfies the users.

The average mean for the performance efficiency of the system is 4.72 with a verbal interpretation of *strongly agree.* This shows that the system's performance is efficient as it was able to achieve the goals of the users with effectiveness and satisfaction.

The Evaluation of the Respondents on Hotel Management System – Procurement of Ancillary Services Usability:

Table 34
Usability

DESCRIPTION	Scale : Frequency	MEAN	VERBAL INTERPRETATION
3. Usability			
3.1 The Procurement of Ancillary Services System is appropriate for the needs of the users. (Appropriateness Recognizability)	5: 22 4: 8 3: 0 2: 0 1: 0	4.73	Strongly Agree
3.2 I learned how to use the Procurement of Ancillary Services System quickly. (Learnability)	5: 22 4: 6 3: 2 2: 0 1: 0	4.67	Strongly Agree
3.3 I am able to improve my skills with the Procurement of Ancillary Services System. (Learnability)	5: 23 4: 5 3: 2 2: 0 1: 0	4.70	Strongly Agree
3.4 The Procurement of Ancillary Services System is easy to operate and control. (Operability)	5: 23 4: 6 3: 1 2: 0 1: 0	4.73	Strongly Agree

3.5 The Procurement of Ancillary Services System protects users against making errors. (User Error Protection)	5: 19 4: 10 3: 1 2: 0 1: 0	4.60	Strongly Agree
3.6 The Procurement of Ancillary Services System's user interface is pleasing and satisfying interaction for the user. (User Interaction Aesthetics)	5: 21 4: 7 3: 1 2: 1 1: 0	4.60	Strongly Agree
3.7 The Procurement of Ancillary Services System can be used by people of all characteristics and capabilities? (Accessibility)	5: 20 4: 8 3: 2 2: 0 1: 0	4.60	Strongly Agree
Average Mean		**4.67**	**Strongly Agree**

Description:

The complete results of the usability table of the system was shown above with the sub-characteristics: Appropriateness Recognizability, Learnability, Operability, User Error Protection, User Interaction Aesthetics, and Accessibility. The first question talks about users recognizing whether the system is appropriate for their needs. In this question, 22 respondents strongly agreed that the system is appropriate for the users' needs, which is equivalent to a score of 110 points. 8 respondents agreed to the question that gives another 32 points. This means that there are some parts of other HMS module that are needed to be integrated in the system for it to offer a more complete user experience. Summing up the responses for the first question gives a total of 142 points and produces a mean of 4.73 with a verbal interpretation of *strongly agree*. This result shows that the system's features are appropriate for their needs.

The second question talks about the system's interface that allows the users to quickly familiarize themselves as they go through the system, and fully maximize its features and capabilities. The result of the survey shows that 22 respondents strongly agreed that the system's user interface is easy to use and become familiar with, and this gives an equivalent of 110 points. There are 6 respondents who agree on the second question that corresponds to 24 points, which means that there are some parts of the system that are not that easy to become familiar with. 2 respondents had a neutral decision giving another score of 6 points which means that there is only one student who was not sure whether to agree that the system's user interface is learnable for specific users. This question generated a total of 140 points and a mean of 4.67 with a verbal interpretation of *strongly agree*. This result shows that the system's user interface has been able to allow specific users to become familiar with it, and make good use of all its features and capabilities.

In the third question, the respondents were asked if the system was able to help them improve their skills in managing the procurement of ancillary services. 23 respondents said that they strongly agree that the system helped them to totally improve their skills and this result gives a score of 115 points. Meanwhile, 5 respondents agreed to the question which is equivalent to 20 points. This shows that there are some respondents who were able to improve their skills but feels like there are still some areas where the system lacks to totally learn the skills they need. 2 respondents gave a neutral opinion whether to agree or not that the system is helpful in improving their skills and this still gives another 6 points. There are a total of 141 points under this question and it has a mean of 4.70 which is also verbally interpreted as *strongly agree*. The result shows that the system can help users improve their skills in managing the procurement of ancillary services.

In the fourth question, the respondents were asked if the system was easy to operate and control while using it. 23 respondents said that they strongly agree that the system was easy to operate and control which makes the system understandable and usable, and this result gives a score of 115 points. Meanwhile, 6 respondents agreed to the question, and that gives a total of 24 points. Which means that the system's user interface, like the login part and such,

needs a minor improvement. 1 respondents gave a neutral opinion whether to agree or not that the system is easy to operate and control while in use, and this gives 3 points. There are a total of 142 points under this question and it has a mean of 4.73 which is also verbally interpreted as *strongly agree*. The result shows that the system is operable and controllable while using it.

The fifth question covers user error protection of the system. The user error protection encourages users to perform correctly and protects the system from common errors. The 19 respondents strongly agree that the system protects users against making errors, and that is equivalent to 95 points. 10 respondents agreed which gives another 40 points and the reason is that the system's user interface, like the login part and such, needs a minor improvement to prevent potential common user errors. 1 respondent gave a neutral answer for this question which is equivalent to 3 points. A total of 138 points was received by this question and it has a calculated mean of 4.60 that can be verbally interpreted as *strongly agree*. Based on the mean result, the system is able to protect its users from making a common error.

The sixth question discusses the users' satisfaction with the user interface aesthetics of the system. 21 of the respondents strongly agreed that the user interface aesthetics is pleasing and satisfying to use, and that is equivalent to 105 points. 7 of the respondents answered agreed, and that gives 28 points. This means that some of the aesthetic of the system's user interface needs minor improvements. 1 respondent gave a neutral answer for this question which is equivalent to 3 points. Only 1 respondent disagreed that the system's user interface aesthetic is pleasing and satisfyin, that only gives another 2 points and this also means that there is a respondent who believes that there are several parts that must be improved in the aesthetics of the system. Overall, a total of 138 points was received by this question and it has a calculated mean of 4.60 that can be verbally interpreted as *strongly agree*. Based on the mean result, it can be said that the system's user interface aesthetics is pleasing and satisfying for most of the users.

The last question under this criteria tackles the ability of the system to be used by any person of all characteristics and capabilities. 20 respondents strongly agree that it is usable by

all types of people which is equivalent to 100 points. 8 respondents answered agree which gives another 32 points and the reason behind this is because there are some respondents who are still familiarizing themselves with using this kind of system specially those students in the lower years. 2 respondents gave a neutral answer for this question which is equivalent to 6 points. A total of 138 points was received by this question and it has a calculated mean of 4.60 that can be verbally interpreted as *strongly agree*. Based from the mean result, it can be said that the system can be easily used by any type of person.

The average mean for the usability of the system is 4.67 with a verbal interpretation of *strongly agree.* This shows that the system has a user-friendly interface and can be easily navigated by the users.

The Evaluation of the Respondents on Hotel Management System – Procurement of Ancillary Services Reliability:

Table 35
Reliability

DESCRIPTION	Scale : Frequency	MEAN	VERBAL INTERPRETATION
4. Reliability			
4.1 The Procurement of Ancillary Services System is stable for everyday use. (Maturity)	5: 18 4: 11 3: 1 2: 0 1: 0	4.57	Strongly Agree
4.2 The Procurement of Ancillary Services System is accessible when required for use. (Availability)	5: 22 4: 7 3: 1 2: 0 1: 0	4.70	Strongly Agree
4.3 The Procurement of Ancillary Services System operates even if there are hardware or software faults. (Fault Tolerance)	5: 17 4: 10 3: 3 2: 0 1: 0	4.47	Agree
4.4 The Procurement of Ancillary Services System capable of recovering data in the event of interruption or failure. (Recoverability)	5: 19 4: 10 3: 1 2: 0 1: 0	4.60	Strongly Agree
Average Mean		**4.59**	**Strongly Agree**

Description:

The complete results of the reliability table of the system was shown above with the sub-characteristics: Maturity, Availability, Fault Tolerance, and Recoverability. The first question talks about how stable it is for everyday use which corresponds to the maturity sub-characteristics. 18 respondents strongly agreed that the system is stable for everyday use which is equivalent to 90 points. 11 respondents said that they agree to the question which gives a score of 44 points. This means that there is a possibility for the system to be unstable for a period of time due to the performance of the free hosting site's server. There is also 1 respondent who has a neutral opinion whether the system is stable or not which still gives another 3 points. This question received a total of 137 points and a calculated mean of 4.57 which has a verbal interpretation of *strongly agree.* Based from the average score of the result, it can be said that the system is capable of being stable for everyday use.

For the second question which tackles the availability of the system, 22 respondents said that they strongly agree that the system is always accessible when required for use and this corresponds to a score of 110 points. 7 respondents gave an agree mark which is equivalent to 28 points and also means that there is a small chance for the system to be inaccessible from time to time when the hosting site's server is down. 1 respondent has a neutral opinion whether to agree or not that the system is available when required for use and this gives another 3 points. The total points received under this question is 141 and it has a computed mean of 4.7 with a verbal interpretation of *strongly agree.* The result shows that the system is always accessible when it is needed to be used.

The third question asks the users if the system can still operate if there are hardware or software faults experienced. Among the 30 respondents, 17 strongly agreed that the system could still operate after a hardware or software fault which has an equivalent score of 85 points. 10 respondents agreed to the given question which gives another 40 points. This result also shows that there may be some times that the system would not operate specially due to server faults that can be experienced on a free hosting site but still operates back after a short

period of time. There are 3 respondents who have a neutral stand on the question whether to agree or not that the system has the ability to operate after a software fault which still gives 9 points. This question received a total of 134 points and has a calculated mean of 4.47 that corresponds to a verbal interpretation of *agree*. The findings under this question state that the system may not operate if there are some hardware or software faults but could still go back in operation after a short period of time.

The last question under the criteria of reliability talks about the ability of the system to recover data when there are any interruptions during the process. The result of the survey shows that 19 respondents strongly agreed that the system is capable of recovering data in an event of interruption which gives an initial score of 95 points. 10 respondents said that they agree to the question and give an equivalent score of 40. This means that there are some rare instances when the system was not able to recover data inputs specially when there are network interruptions. Only 1 respondent has a neutral decision whether to agree or not that the system can recover data when there are failures in the operation which gives a score of 3. There are a total of 138 points for this question and a computed mean of 4.60 that has a verbal interpretation of *strongly agree.* Derived from the mean result, it can be said that the system is capable of recovering data in an event of interruption.

The average mean for the reliability criteria of the is 4.59 with a verbal interpretation of *Strongly Agree*. This result suggests that the system is reliable and capable to function even under certain conditions.

The Evaluation of the Respondents on Hotel Management System – Procurement of Ancillary Services Security:

Table 36
Security

DESCRIPTION	Scale : Frequency	MEAN	VERBAL INTERPRETATION
5. Security			
5.1 The Procurement of Ancillary Services System are accessible only to those who are authorized to use it. (Confidentiality)	5: 23 4: 5 3: 2 2: 0 1: 0	4.70	Strongly Agree
5.2 The Procurement of Ancillary Services System prevents unauthorized access that could modify data or computer programs. (Integrity)	5: 22 4: 6 3: 2 2: 0 1: 0	4.67	Strongly Agree
5.3 The Procurement of Ancillary Services System collects information whether specific actions or events have taken place. (Non-Repudiation)	5: 19 4: 10 3: 1 2: 0 1: 0	4.60	Strongly Agree
5.4 The Procurement of Ancillary Services System can trace actions of an entity. (Accountability)	5: 21 4: 8 3: 1 2: 0 1: 0	4.67	Strongly Agree
Average Mean		**4.66**	**Strongly Agree**

Description:

The complete results of the security table of the system was shown above with the sub-characteristics: Confidentiality, Integrity, Non- Repudiation, and Accountability. The first question asked the respondents if the system could maintain data confidentiality by only allowing authorized users to access their only assigned interface. Majority of the respondents strongly agreed to the question which came from 23 students giving an equivalent score of 115 points. There are 5 respondents who gave an agree answer giving another 20 points due to the fact that the cashiers and front desks share the same posting interface in this module. The remaining 2 respondents gave a neutral answer whether to agree or not that the system only allows authorized users to access a specific part of the system which still gives a score of 6. This question received a total of 141 points with a calculated mean of 4.70 that has a verbal interpretation of *strongly agree.* The mean result shows that the system was able to provide data confidentiality.

The second question talks about the integrity of the data used in the system. 22 respondents said that they strongly agree that the system prevents unauthorized access modification of data which is equivalent to a score of 110. A total of 6 respondents agreed, which corresponds to 24 points due to the reason that the records of the guest list can only be modified by the database manager since these records are only assumed to be coming from the reservation module which is supposed to be the responsible module for managing guest lists. Only 2 respondents gave a neutral opinion whether the system prevents unauthorized modification or not which is equivalent to 6 points. This question received a total of 140 points and has a computed mean of 4.67 which can be verbally interpreted as *strongly agree*. Based from the mean result of this question, it can be said that the system was able to keep the integrity of the data stored in the database.

The third question tackles the ability of the system to prove that an action has taken place which is also known as non-repudiation. Based from the results of the survey, 19 respondents strongly agreed that the system collects information when a specific system event

has taken place.which corresponds to a score of 95 points. 10 respondents agreed to the question that gives another 40 points and also means that even though the system records the user's activity log, there are still some system actions that are not recorded. Only 1 respondent gave a neutral answer on this question whether the system was able or not to collect information about system events which corresponds to a score of 3.This question received a total of 138 points and has a calculated mean of 4.60 which has a verbal interpretation of *strongly agree.* Based from the outcome of the mean result, it can be said that the system was able to show the non-repudiation characteristic for the system events.

The last question talks about the ability of the system to track the user who made actions in it. 21 respondents said that they strongly agree that the system was able to fully track the record of the user who made some actions in the system which is equivalent to 105 points. 8 respondents said that they agree to the given question that gives another 32 points. This result shows that even though the records on the activity log shows every user's system action, it still needs to give more specific details for some of the respondents specially on the records of who posted a specific transaction and whose account it was posted to. There is also 1 respondent who gave a neutral opinion for this question adding another 3 points. A total of 140 points was given to this question and its calculated mean is equal to 4.67 that has a verbal interpretation of *strongly agree*. Based from this result, it can be deduced that the system was able to track the user's system actions and make them accountable for it.

The average mean for the security criteria is 4.66 with a verbal interpretation of *Strongly Agree*. This result suggests that the system exhibits a characteristic of being secure over its data.

The table below shows the total result of the respondents' evaluation on Hotel Management System – Procurement of Ancillary Services:

Table 37
Overall Result

DESCRIPTION	MEAN	VERBAL INTERPRETATION
ISO 25010		
Functional Suitability	4.67	Strongly Agree
Performance Efficiency	4.72	Strongly Agree
Usability	4.67	Strongly Agree
Reliability	4.59	Strongly Agree
Security	4.66	Strongly Agree
Average Mean	**4.66**	**Strongly Agree**

Description:

Overall, the user evaluated system passed the ISO 25010 with a mark of *Strongly Agree* . This came from the results in the survey questions of the 5 main software characteristics that are categorized by its sub- characteristics.

CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes and analyzes the obtained results of the system evaluation that was conducted by the researchers. Recommendations will also be discussed for the purpose of the system's improvement.

Based on the results and information given by the respondents, the researchers concluded that:

- The Hotel Management System- Procurement of Ancillary Services **Functional Suitability** got a result of **4.67 mean** with a verbal interpretation of ***Strongly Agree***. The result indicates that the system has been able to provide functions that meet the specific needs for the management of the procurement of ancillary services.

- The Hotel Management System- Procurement of Ancillary Services **Performance Efficiency** got a result of **4.72 mean** with a verbal interpretation of ***Strongly Agree***. The result indicates the system's performance is efficient as it was also able to provide features that could help the users achieve productivity with less effort needed.

- The Hotel Management System- Procurement of Ancillary Services **Usability** got a result of **4.67 mean** with a verbal interpretation of ***Strongly Agree***. The result indicates that the system has the capacity to provide a condition for its users to perform the tasks safely, effectively and allow them to easily learn how to use it.

- The Hotel Management System- Procurement of Ancillary Services **Reliability** got a result of **4.59 mean** with a verbal interpretation of ***Strongly Agree***. The result

indicates that the system is reliable to be used in a daily operation and can be trusted to serve its purpose for most of the time.

- The Hotel Management System- Procurement of Ancillary Services **Security** got a result of **4.66 mean** with a verbal interpretation of ***Strongly Agree***. The result indicates that the system has the ability to protect information and data, and to trace user activities which are both present on the system's user access control policy and activity log.

Overall, the Hotel Management System – Procurement of Ancillary Services has been able to meet the specific users' needs and satisfaction based on the measurement of the obtained data.

RECOMMENDATIONS

Based from the results of the survey, the proponents would like to recommend the following things to further improve the performance of the system:

1. Start the development phase of the system as early as possible to finish the system on a sooner date and in order to give more time for the other phases or requirements of the study.
2. Due to time constraints, the proponents were not able to gather responses from experts who can give their comments and suggestions to improve the system so it is also suggested to look for experts from both the IT and Hospitality fields and ask them to be a respondent to test the system for further user acceptance scope.
3. Choose to conduct a face-to-face implementation of the system when possible in order to guide the respondents in navigating the system in a hands-on way.
4. To improve the completeness sub-characteristic which got the lowest mean score under functional suitability and also to maximize resource utilization of all related data to the system, it is recommended to integrate the system with the other Hotel

Management System modules (Reservation Module and Housekeeping Module) to provide a more complete user experience. .

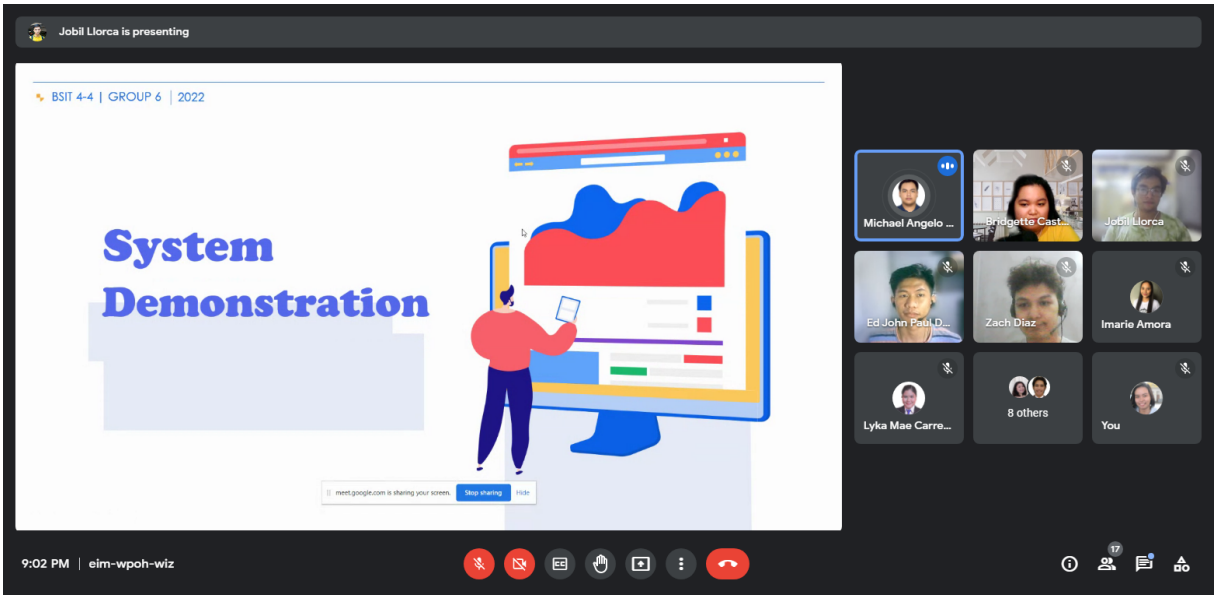
5. Provide additional funds for a premium subscription to a hosting site to lessen the possible software faults caused by unexpected server issues that are most likely to be experienced by websites that are hosted for free.
6. For the improvement of the system's non-repudiation sub-characteristic of security, it is recommended to be more specific on displaying the user's system activities in the activity log.

With these recommendations, it can be expected that the system will be better in the future for larger-scale operations of the hotel.

APPENDICES

APPENDIX A

Data Gathering



System Video Demonstration

Hotel Management System - Procurement of Ancillary Services

Greetings!

We are the proponents from BSIT 4-4 conducting the implementation of our system as a requirement for our Capstone II Project. Please help us achieve our goal by voluntarily participating as one of our research participants. Rest assured that the information you will give will remain confidential and will be used for no other purposes except for this research.

Kindly be aware that your participation in this activity is voluntary. Should there be a hindrance to your participation, please let us know.

We sincerely express our thanks for your commitment, time and effort which we consider as your unique contribution to this study

michaelmarzan0424@gmail.com Switch account Draft restored

APPENDIX B

BUG REPORTS

Table 38

Bug Report 1

Bug Report ID: BR-01					
Module: Manage Accounts					
Date Found	Description	Steps to produce	Status	Date Fixed	Fixed by:
11/14/21	The save settings button under profile contact settings is not working	1. Fill up the contact settings form 2. Click save settings	Fixed	11/17/21	Michael Marzan
11/14/21	Employee type on the edit employee button is not retrieving records from database	1. On the employee management page select an record of an employee to edit 2. Click the edit button 3. Click the employee type dropdown list	Fixed	11/18/211	Michael Marzan
01/10/22	The password reset link is not redirecting the user towards the correct website link	1. Click forgot password on the login page 2. Enter account email then click reset password 3. On the user email click the password reset link	Fixed	01/14/22	Michael Marzan

Table 39

Bug Report 2

Bug Report ID: BR-02					
Module: Manage Ancillary Services					
Date Found	Description	Steps to produce	Status	Date Fixed	Fixed by:
11/15/21	Some of the products and services won't trigger the edit modal	1. On the ancillary services page select an ancillary category and click manage product/service button 2. Select an existing product/service then click the edit button	Fixed	11/19/21	Michael Marzan
11/18/21	The system is saving product/service names that are already existing	1. On the ancillary services page select an ancillary category and click manage product/service button 2. Click Add Product/Service button 3. Fill up the required details on the form 4. Click Save	Fixed	11/20/211	Michael Marzan
11/21/21	The search bar under the product/service page is not filtering the table results	1. On the ancillary services page select an ancillary category and click manage product/service button 2. Enter details on the search bar that is present on the table	Fixed	11/23/21	Michael Marzan

Table 40

Bug Report 3

Bug Report ID: BR-03					
Module: Manage Transaction Posting					
Date Found	Description	Steps to produce	Status	Date Fixed	Fixed by:
11/25/21	The "+" button on the posting screen is not working	1. From the posted billing page, click the name of the guest. 2. Click the post additional transactions button 3. Fill up the first row of transaction then click the "+" button	Fixed	11/28/21	Michael Marzan
11/28/21	System error occurs when the user post an incomplete transaction details on the first row of the posting screen	1. From the posted billing page, click the name of the guest. 2. Click the post additional transactions button 3. Click the "+" button 4. Complete only the details on the second row of the transaction	Fixed	12/1/21	Michael Marzan
12/2/21	The search bar of the billing screen is not filtering the table results	1. From the posted billing page, click the name of the guest. 2. Enter details on the search bar that is present on the table	Fixed	12/3/21	Michael Marzan

12/5/21	The manager's account authentication on the delete posted transaction is not working properly	1. From the posted billing page, click the name of the guest. 2. Select a posted transaction then click the delete button 3. Enter ancillary services manager's account credentials then click confirm	Fixed	12/7/21	Michael Marzan

Table 41

Bug Report 4

Bug Report ID: BR-04					
Module: Generate Reports					
Date Found	Description	Steps to produce	Status	Date Fixed	Fixed by:
12/13/21	The order of the months in the revenue graph is incorrect	1. Login as revenue manager 2. Click the reports option from the left side navigation bar	Fixed	12/18/21	Michael Marzan
12/27/21	The system is not generating a pdf copy of the graphs	1. Login as revenue manager 2. Click the reports option from the left side navigation bar 3. Click the print graph button	Fixed	12/30/21	Michael Marzan
01/03/22	The forecasting graph is not producing any results	1. Login as revenue manager 2. Click the forecasting option from the left side navigation bar 3. Select an ancillary category to forecast revenue 4. Click forecast button	Fixed	01/08/22	Michael Marzan
01/16/22	The javascript of the graphs both dashboards and	1. Login in as ancillary services manager or as revenue manager	Fixed	01/23/22	Michael Marzan

	the reports are not working properly on the hosting site				

APPENDIX C

EVALUATION TOOL, TEST DOCUMENTS AND TEST RESULTS

Table 42

Test Case 1 - Manage Accounts (Log In)

Test Case ID: LOG-TC01					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Login Module					
Test Description: Testing the Login function with valid data.					
Test Case Pre-Requisite: User has valid Email Address and Password.					
Test Purpose: To test if the user could login using valid account credentials					
Test Case Type: Positive Testing					
Post Requisite: User should be logged in.					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Navigate to website login page	https://tryarugahms.000webhostapp.com/	User should be directed to login page	User is directed to login page	Pass
2	Provide valid email	arugahms02@gmail.com	System should accept input	System accepted the email	Pass
3	Provide valid password	Aruga123	System should accept input	System accepted the password	Pass
4	Click the login button	N/A	User should be able to login	User is logged in	Pass

Table 43

Test Case 2 - Manage Accounts (Log In)

Test Case ID: LOG-TC02					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Login Module					
Test Description: Testing the Login function with invalid data.					
Test Case Pre-Requisite: User has invalid Email Address and Password.					
Test Purpose: To test if user cannot login with invalid account credentials.					
Test Case Type: Negative Testing					
Post Requisite: User should not be logged in and will be prevented from logging in after 3 attempts					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Navigate to website login page	https://tryarugahms.000webhostapp.com/	User should be directed to login page	User is directed to login page	Pass
2	Provide invalid email	test1@gmail.com	System should accept input	System accepted the email	Pass
3	Provide invalid password	abcd123	System should accept input	System accepted the password	Pass
4	Click the login button	N/A	System should reject login	System rejected the user from logging in	Pass
5	Reached maximum login attempts	N/A	System should not allow login attempt for 5 minutes	System prevented login attempts for 5 minutes	Pass

Table 44

Test Case 3 - Manage Accounts (Log In)

Test Case ID: LOG-TC03					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Login Module					
Test Description: Testing the forgot password function					
Test Case Pre-Requisite: User has valid Email Address					
Test Purpose: To test if user would receive a password reset link					
Test Case Type: Positive Testing					
Post Requisite: User should receive an email containing password reset link					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Navigate to website login page	https://tryarugahms.000webhostapp.com/	User should be directed to login page	User is directed to login page	Pass
2	Click forgot password link	N/A	User should be directed to forgot password page	User is directed to forgot password page	Pass
3	Provide valid email	arugahms02@gmail.com	System should accept input	System accepted the email	Pass
4	Click the reset password button	N/A	System should send an email containing password reset link	System sent an email containing password reset link	Pass

Table 45

Test Case 4 - Manage Accounts (Log In)

Test Case ID: LOG-TC04					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Login Module					
Test Description: Testing the forgot password function					
Test Case Pre-Requisite: User has invalid Email Address					
Test Purpose: To test if user will not receive a password reset link					
Test Case Type: Negative Testing					
Post Requisite: User should not receive an email containing password reset link					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Navigate to website login page	https://tryarugahms.000webhostapp.com/	User should be directed to login page	User is directed to login page	Pass
2	Click forgot password link	N/A	User should be directed to forgot password page	User is directed to forgot password page	Pass
3	Provide invalid email	test1@gmail.com	System should accept input	System accepted the email	Pass
4	Click the reset password button	N/A	System should not send an email containing password reset link	System did not sent an email containing password reset link	Pass

Table 46

Test Case 5 - Manage Accounts (Log In)

Test Case ID: LOG-TC05					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Login Module					
Test Description: Testing the reset password function					
Test Case Pre-Requisite: A password reset link has been emailed to the user					
Test Purpose: To test if user would be able to change his/her account password					
Test Case Type: Positive Testing					
Post Requisite: User should be able to have a new password					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the password reset link from the email	N/A	User should be directed to the change password page	User is directed to the change password page	Pass
2	Provide new password	Newpass123	System should accept input	System accepted the password	Pass
3	Confirm the new password	Newpass123	System should accept input	System accepted the password	Pass
4	Click the save password button	N/A	System should update the user's password	System updated the user's password	Pass

Table 47

Test Case 6 - Manage Accounts (Log In)

Test Case ID: LOG-TC06					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Login Module					
Test Description: Testing the reset password function					
Test Case Pre-Requisite: A password reset link has been emailed to the user					
Test Purpose: To test if password would be updated if password confirmation did not match					
Test Case Type: Negative Testing					
Post Requisite: System should not update the user's password					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the password reset link from the email	N/A	User should be directed to the change password page	User is directed to the change password page	Pass
2	Provide new password	Newpass123	System should accept input	System accepted the password	Pass
3	Confirm the new password with a wrong input	abc123	System should accept input	System accepted the input	Pass
4	Click the save password button	N/A	System should not update the user's password	System did not update the user's password	Pass

Table 48

Test Case 7 - Manage Accounts (User Profile)

Test Case ID: AMG-TC01					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the save settings function under profile user settings					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if user could update his/her own user settings including the email					
Test Case Type: Positive Testing					
Post Requisite: System should update the user settings including the email					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select profile	N/A	User should be directed to the profile page	User is directed to the profile page	Pass
2	Provide a new email that is not linked to any account	michaelmarzan2422@yahoo.com	System should accept input	System accepted the email	Pass
3	Provide a new first name	Angelo	System should accept input	System accepted the first name	Pass
4	Provide a new last name	Marzan	System should accept input	System accepted the last name	Pass

5	Click Save Settings button	N/A	System should update user settings data including the email	System updated the user settings data including the email	Pass

Table 49

Test Case 8 - Manage Accounts (User Profile)

Test Case ID: AMG-TC02					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the save settings function under profile user settings					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if user could update his/her own user settings excluding the email if he/she used an email linked to any accounts in the system					
Test Case Type: Negative Testing					
Post Requisite: System should update the user settings except the email					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select profile	N/A	User should be directed to the profile page	User is directed to the profile page	Pass
2	Provide an email that is already linked to an account	arugahms02@gmail.com	System should accept input	System accepted the email	Pass
3	Provide a new first name	Andrew	System should accept input	System accepted the first name	Pass
4	Provide a new last name	Reyes	System should accept input	System accepted the last name	Pass

5	Click Save Settings button	N/A	System should update user settings data except the email	System updated the user settings data except the email	Pass

Table 50

Test Case 9 - Manage Accounts (User Profile)

Test Case ID: AMG-TC03					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the change password function under profile user settings					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if user would be able to change his/her account password					
Test Case Type: Positive Testing					
Post Requisite: System should update the user's password					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select profile	N/A	User should be directed to the profile page	User is directed to the profile page	Pass
2	Click on the change password button	N/A	System should show the change password modal	System showed the change password modal	Pass
3	Provide a new password	Aruga456	System should accept input	System accepted the password	Pass
4	Confirm new password	Aruga456	System should accept input	System accepted the password	Pass

5	Click Save button	N/A	System should update user's password	System updated the user's password	Pass

Table 51

Test Case 10 - Manage Accounts (User Profile)

Test Case ID: AMG-TC04					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the change password function under profile user settings					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if password would be updated if password confirmation did not match					
Test Case Type: Negative Testing					
Post Requisite: System should not update the user's password					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select profile	N/A	User should be directed to the profile page	User is directed to the profile page	Pass
2	Click on the change password button	N/A	System should show the change password modal	System showed the change password modal	Pass
3	Provide a new password	Aruga456	System should accept input	System accepted the password	Pass
4	Confirm new password with a wrong input	abc123	System should accept input	System accepted the password	Pass

5	Click Save button	N/A	System should not update the user's password	System did not update the user's password	Pass

Table 52

Test Case 11 - Manage Accounts (User Profile)

Test Case ID: AMG-TC05					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the save settings function under the contact settings					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if user could update his/her own contact settings including the contact number					
Test Case Type: Positive Testing					
Post Requisite: System should update the user's contact settings including contact number					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select profile	N/A	User should be directed to the profile page	User is directed to the profile page	Pass
2	Provide a contact number that is not linked to any account	09189876543	System should accept input	System accepted the contact number	Pass
3	Provide an address	301 Padre Faura St.	System should accept input	System accepted the address	Pass
4	Enter City	Manila	System should accept input	System accepted the city	Pass

5	Enter Barangay	Ermita	System should accept input	System accepted the barangay	Pass
6	Click Save Settings button under the contact settings form	N/A	System should update user's contact setting	System updated user's contact setting	Pass

Table 53

Test Case 12 - Manage Accounts (User Profile)

Test Case ID: AMG-TC06					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the save settings function under the contact settings					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if user could update his/her own contact settings excluding the contact number if he/she used a number linked to any accounts in the system					
Test Case Type: Negative Testing					
Post Requisite: System should update the user's contact settings except the contact number					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select profile	N/A	User should be directed to the profile page	User is directed to the profile page	Pass
2	Provide a contact number that is linked to an account	09089028862	System should accept input	System accepted the contact number	Pass
3	Provide an address	302 Padre Faura St.	System should accept input	System accepted the address	Pass
4	Enter City	Manila	System should accept input	System accepted the city	Pass

5	Enter Barangay	Ermita	System should accept input	System accepted the barangay	Pass
6	Click Save Settings button under the contact settings form	N/A	System should update user's contact setting except the contact number	System updated user's contact setting except the contact number	Pass

Table 54

Test Case 13 - Manage Accounts (User Profile)

Test Case ID: AMG-TC07					
Test Priority (Low/Medium/High): Medium					
Test Scenario: Managing profile settings using user's own account					
Test Description: Testing the activity log					
Test Case Pre-Requisite: User should be logged in					
Test Purpose: To test if the activity log shows the recent user activities in the system					
Test Case Type: Positive Testing					
Post Requisite: User should be able to see his/her own recent system activities					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the profile icon and select activity log	N/A	User should be directed to the activity log page	User is directed to the activity log page	Pass
2	User views activity log	N/A	System should shows a table with records of the user's recent system activities	System showed a table with records of the user's recent system activities	Pass

Table 55

Test Case 14 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC08					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the add employee functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if user could add employee account					
Test Case Type: Positive Testing					
Post Requisite: Employee account should be saved. Account details should be sent to employee's email					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Fill up the required fields	First Name: Charlene Last Name: Carbonel Date of Birth: 04/24/1999 Email Address: arugahms.cashier@gmail.com Employee Type: Cashier	System should accept input and provide a random generated password	System accepted the inputs and was able to provide a random generated password	Pass

		Password: (This is a system generated field)			
3	Click the Add Employee button	N/A	System should save employee account details and send an email to the employee.	System saved the employee account details and was able to send an email to the employee.	Pass

Table 56

Test Case 15 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC09					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the add employee functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if user could not add an employee account using an email linked to an existing account					
Test Case Type: Negative Testing					
Post Requisite: Employee account should not be saved					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Fill up the required fields. Use an email that is already linked to an account	First Name: Charlene Last Name: Carbonel Date of Birth: 04/24/1999 Email Address: arugahms02@gmail.com Employee Type: Cashier	System should accept input and provide a random generated password	System accepted the inputs and was able to provide a random generated password	Pass

		Password: (This is a system generated field)			
3	Click the Add Employee button	N/A	System should not add the employee account	System did not add employee account	Pass

Table 57

Test Case 16 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC10					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the view employee details functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if user could view details about the employee					
Test Case Type: Positive Testing					
Post Requisite: User should be able to view employee details					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Choose an employee to view and click the view button (eye icon)	N/A	System should display a modal containing employee details	System displayed a modal with employee details	Pass

Table 58

Test Case 17 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC11					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the edit employee details functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if user could edit details about the employee					
Test Case Type: Positive Testing					
Post Requisite: User should be able to edit employee details					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Choose an employee to edit records and click the edit button	N/A	System should display a modal containing employee details	System displayed a modal with employee details	Pass
3	Change details accordingly to what you need to update	First Name: Arlene Last Name: Carbonel Date of Birth: 04/25/1999	System should accept input	System accepted the employee details	Pass

		Email Address: charlenecarbonel@gmail.com Employee type: Revenue Manager			
4	Click the Save button	N/A	System should update employee details	System updated employee details	Pass

Table 59

Test Case 18 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC12					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the edit employee details functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if employee details would be updated except the email when the user used an email that is already linked to an account in the system					
Test Case Type: Negative Testing					
Post Requisite: System should update employee details except the email address					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Choose an employee to edit records and click the edit button	N/A	System should display a modal containing employee details	System displayed a modal with employee details	Pass
3	Change details accordingly to what you need to update. Use	First Name: Charlene Last Name: Carbonel Date of Birth: 04/24/1999	System should accept input	System accepted the employee details	Pass

	an email that is already linked to an account in the system	Email Address: arugahms02@gmail.com Employee type: Cashier			
4	Click the Save button	N/A	System should update employee details except the email address	System updated employee details except the email address	Pass

Table 60

Test Case 19 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC13					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the delete employee details functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if a user could delete an employee record.					
Test Case Type: Positive Testing					
Post Requisite: System should update employee details except the email address					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Choose an employee to delete record and click the delete button (trash icon)	N/A	System should display a confirmation message	System displayed a confirmation message	Pass
3	Click the Delete button	N/A	System should delete the record of the employee	System deleted employee record	Pass

Table 61

Test Case 20 - Manage Accounts (Employee Accounts)

Test Case ID: AMG-TC14					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing employee accounts					
Test Description: Testing the search bar of manage employee accounts					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager					
Test Purpose: To test if a user could search for an employee record using the search bar					
Test Case Type: Positive Testing					
Post Requisite: System should filter records according to the search result					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the manage employee accounts at the left side navigation bar	N/A	User should be directed to the employee management page	User was directed to the employee management page	Pass
2	Using the search bar, type an information that is present in the table and look for an employee record	Ryan Enriquez	System should accept input and display search result	System accepted the input and displayed a result	Pass

Table 62

Test Case 21 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC01					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the add ancillary category functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could add ancillary categories offered by the hotel					
Test Case Type: Positive Testing					
Post Requisite: System should add ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Click the add ancillary category button	N/A	System should display a modal containing the add ancillary category form	System displayed a modal containing the add ancillary category form	Pass
3	Provide an ancillary category name	Bar	System should accept input	System accepted the ancillary category name	Pass

4	Click the Save button	N/A	System should add ancillary category	System added the new ancillary category	Pass

Table 63

Test Case 22 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC02					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the add ancillary category functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could not add ancillary categories using a category name that is already existing					
Test Case Type: Negative Testing					
Post Requisite: System should not add ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Click the add ancillary category button	N/A	System should display a modal containing the add ancillary category form	System displayed a modal containing the add ancillary category form	Pass
3	Provide an ancillary category name that is the same	Restaurant	System should accept input	System accepted the ancillary category name	Pass

	with an existing record				
4	Click the Save button	N/A	System should not add ancillary category	System did not add the ancillary category	Pass

Table 64

Test Case 23 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC03					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the edit ancillary category functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could edit ancillary category names					
Test Case Type: Positive Testing					
Post Requisite: System should update ancillary category name					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category to edit then click edit button	N/A	System should display a modal containing the edit ancillary category form	System displayed a modal containing the edit ancillary category form	Pass
3	Provide a new ancillary category name	Bar 2	System should accept input	System accepted the ancillary category name	Pass

4	Click the Save button	N/A	System should update ancillary category name	System updated ancillary category name	Pass

Table 65

Test Case 24 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC04					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the edit ancillary category functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could edit ancillary category using a category name that is already existing					
Test Case Type: Negative Testing					
Post Requisite: System should not update ancillary category name					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category to edit then click edit button	N/A	System should display a modal containing the edit ancillary category form	System displayed a modal containing the edit ancillary category form	Pass
3	Provide an ancillary category name that is the same	Restaurant	System should accept input	System accepted the ancillary category name	Pass

	with the existing records				
4	Click the Save button	N/A	System should not update ancillary category name	System did not update ancillary category name	Pass

Table 66

Test Case 25 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC05					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the delete ancillary category functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could delete ancillary category that has no existing products/services offered					
Test Case Type: Positive Testing					
Post Requisite: System should delete ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category to delete then click delete button (trash icon)	Pool	System should display a confirmation message	System displayed a confirmation message	Pass
3	Click the Yes button	N/A	System should delete ancillary category	System deleted ancillary category	Pass

Table 67
Test Case 26 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC06					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the delete ancillary category functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could not delete ancillary category that has existing products/services offered					
Test Case Type: Negative Testing					
Post Requisite: System should note delete ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category to delete then click delete button (trash icon)	Restaurant	System should display a confirmation message	System displayed a confirmation message	Pass
3	Click the Yes button	N/A	System should not delete ancillary category	System did not delete the ancillary category	Pass

Table 68

Test Case 27 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC07					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the ancillary category status button functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could make the ancillary category status available or unavailable					
Test Case Type: Positive Testing					
Post Requisite: System should update the status of the ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category that is unavailable. Click the “Click to mark as available button”	N/A	System should update the status of the ancillary category to available then change the status button to “Click to mark as unavailable”	System updated the status of the ancillary category and change the status button to “Click to mark as unavailable”	Pass

3	Choose an ancillary category that is available. Click the “Click to mark as unavailable button”	N/A	System should update the status of the ancillary category to unavailable then change the status button to “Click to mark as available”	System updated the status of the ancillary category and change the status button to “Click to mark as available”	Pass

Table 69

Test Case 28 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC08					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing hotel ancillary services					
Test Description: Testing the search bar of the ancillary category page					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: Testing the search bar of manage employee ancillary category					
Test Case Type: Positive Testing					
Post Requisite: User should be able to search for an ancillary category using the search bar					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Using the search bar, type an information that is present in the table and look for an ancillary category	Restaurant	System should accept input and display search result	System accepted the input and display search result	Pass

Table 70

Test Case 29 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC09					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the add products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could add offered products/services of an ancillary category					
Test Case Type: Positive Testing					
Post Requisite: Product/service is added under the ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Click the Add Product/Service button	N/A	System should display a modal	System displayed a modal containing	Pass

			containing the form to add product/service	the form to add product service	
4	Fill up the required fields	Product/Service Code: BAR0003 Product/Service Name: Wine Price:1200 Notes: (optional)	System should accept input	System accepted the product/service details	Pass
5	Click the Save button	N/A	System should add the new product/service	System added the new product/service	Pass

Table 71

Test Case 30 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC10					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the add products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could not add a product/service using an existing product/service code					
Test Case Type: Negative Testing					
Post Requisite: Product/service is not added under the ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Click the Add Product/Service button	N/A	System should display a modal containing the	System displayed a modal containing the form to add product service	Pass

			form to add product/service		
4	Fill up the required fields. Use a same code of an existing product/service	Product/Service Code: RES0001 Product/Service Name: Wine Price:1200 Notes: (optional)	System should accept input	System accepted the product/service details	Pass
5	Click the Save button	N/A	System should not add the product/service	System did not add the product/service	Pass

Table 72

Test Case 31 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC11					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the add products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could not add a product/service using an existing product/service name					
Test Case Type: Negative Testing					
Post Requisite: Product/service is not added under the ancillary category					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Click the Add Product/Service button	N/A	System should display a modal containing the	System displayed a modal containing the form to add product service	Pass

			form to add product/service		
4	Fill up the required fields. Use a same name of an existing product/service	Product/Service Code: RES0005 Product/Service Name: Breakfast Price:1200 Notes: (optional)	System should accept input	System accepted the product/service details	Pass
5	Click the Save button	N/A	System should not add the product/service	System did not add the product/service	Pass

Table 73

Test Case 32 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC12					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the view products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could view a product/service details					
Test Case Type: Positive Testing					
Post Requisite: System shows the details about the ancillary product/service					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service to view then click the view	N/A	System should display a modal containing the details about	System displayed a modal containing the details about the ancillary product/service	Pass

	button (eye icon)		the ancillary product/service		

Table 74

Test Case 33 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC13					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the edit products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could edit a product/service details					
Test Case Type: Positive Testing					
Post Requisite: Product/service information updated					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service to view then	N/A	System should display a modal containing the	System displayed a modal containing the edit ancillary	Pass

	click the edit button		edit product/service form	product/service form	
4	Change the information according to what is needed	Product/Service Code: RES0003 Product/Service Name: Dinner 2 Price: 1000	System should accept input	System accepted user inputs	Pass
5	Click the Save button	N/A	System should update product/service information	System updated the product/service information	Pass

Table 75

Test Case 34 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC14					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the edit products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could not edit a product/service details if he/she used a product/service code that is already existing					
Test Case Type: Negative Testing					
Post Requisite: Product/service information is not updated					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service to view then	N/A	System should display a modal	System displayed a modal containing the edit ancillary	Pass

	click the edit button		containing the edit product/service form	product/service form	
4	Change the information and use a code that is existing	Product/Service Code: RES0001 Product/Service Name: Snack Price: 500	System should accept input	System accepted user inputs	Pass
5	Click the Save button	N/A	System should not update the product/service information	System did not update the product/service information	Pass

Table 76

Test Case 35 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC15					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the edit products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could not edit a product/service details if he/she used a product/service name that is already existing					
Test Case Type: Negative Testing					
Post Requisite: Product/service information is not updated					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service to view then	N/A	System should display a modal	System displayed a modal containing the edit ancillary	Pass

	click the edit button		containing the edit product/service form	product/service form	
4	Change the information and use a name that is existing	Product/Service Code: RES0005 Product/Service Name: Breakfast Price: 800	System should accept input	System accepted user inputs	Pass
5	Click the Save button	N/A	System should not update the product/service information	System did not update the product/service information	Pass

Table 77

Test Case 36 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC16					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the delete product/service functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could delete a product/service that does not have any related procured transaction					
Test Case Type: Positive Testing					
Post Requisite: Product/service is deleted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service to delete then	N/A	System should display a	System displayed a confirmation message	Pass

	click the delete button (trash icon)		confirmation message		
4	Click yes	N/A	System should delete the product/service	System deleted the product/service	Pass

Table 78

Test Case 37 - Manage Hotel Ancillary Services (Ancillary Products/Services)

Test Case ID: ANC-TC17					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the delete products/services functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if user could not delete a product/service has a procured transaction					
Test Case Type: Negative Testing					
Post Requisite: Product/service is not deleted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service to delete then click the delete	N/A	System should display a confirmation message	System displayed a confirmation message	Pass

	button (trash icon)				
4	Click yes	N/A	System should not delete the product/service	System did not delete the product/service	Pass

Table 79

Test Case 38 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC18					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the product/service status button functionality					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could make the ancillary product/service status available or unavailable					
Test Case Type: Positive Testing					
Post Requisite: System should update the status of the ancillary product/service					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Choose a product/service that is	N/A	System should update the status of the	System updated the status of the product/service and	Pass

	unavailable. Click the “Click to mark as available button”		product/service to available then change the status button to “Click to mark as unavailable”	change the status button to “Click to mark as unavailable”	
3	Choose a product service that is available. Click the “Click to mark as unavailable button”	N/A	System should update the status of the product/service to unavailable then change the status button to “Click to mark as available”	System updated the status of the product/service and change the status button to “Click to mark as available”	Pass

Table 80

Test Case 39 - Manage Hotel Ancillary Services (Ancillary Categories)

Test Case ID: ANC-TC19					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing products/services offered by each ancillary category					
Test Description: Testing the search bar of the product/service page					
Test Case Pre-Requisite: User should be logged in as Ancillary Services Manager or Revenue Manager					
Test Purpose: To test if a user could search for a product/service offered using the search bar					
Test Case Type: Positive Testing					
Post Requisite: System show search results					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the ancillary services at the left side navigation bar	N/A	User should be directed to the ancillary services page	User was directed to the ancillary services page	Pass
2	Choose an ancillary category then click the Manage Products/Services button	N/A	User should be directed to products/services page	User was directed to products/services page	Pass
3	Using the search bar, type an information that is present	Breakfast	System should accept input and display search result	System accepted the input and displayed search result	Pass

	in the table and look for an offered product/service				

Table 81

Test Case 40 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC01					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the search bar of the posted billing page					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if a user could search for the record of a currently checked-in guest					
Test Case Type: Positive Testing					
Post Requisite: System show search results					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Using the search bar, type an information that is present in the table and look for a guest	Juan Dela Cruz	System should accept input and display search result	System accepted the input and displayed search result	Pass

Table 82

Test Case 41 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC02					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the post additional transactions functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if user could post ancillary services transaction to the accounts of the guest					
Test Case Type: Positive Testing					
Post Requisite: Procured ancillary service transactions are posted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Click the Post Additional Transactions Button	N/A	User should be directed to the posting screen	User is directed to the posting screen	Pass
3	Fill up the required fields	Code: RES0001 Qty: 1	System should accept input	System accepted the inputs	Pass
4	Click the “+” button to add more transactions	N/A	System should add a new row for another transaction	System added a new row for another transaction	Pass

5	Click the "-" button to remove a transaction	N/A	System should remove a row from the transactions	System removed a row of the transaction	Pass
6	Click the Post button	N/A	System should post the transactions to the guest's account	System posted the transaction on the guest's account	Pass

Table 83

Test Case 42 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC03					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the post additional transactions functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if incomplete transaction details would not be posted to the account of the guest					
Test Case Type: Negative Testing					
Post Requisite: Incomplete transaction details are not posted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Click the Post Additional Transactions Button	N/A	User should be directed to the posting screen	User is directed to the posting screen	Pass
3	Fill up the required fields	Code: RES0001 Qty: 1	System should accept input	System accepted the inputs	Pass
4	Click on the “+” button to add more transactions	N/A	System should add a new row for another transaction	System added a new row for another transaction	Pass

5	Choose only a product code on the new row	Code: RES0001 Qty:	System should accept input	System accepted the inputs	Pass
6	Click the Post button	N/A	System should only post transactions with complete details	System posted only transactions with complete details	Pass

Table 84

Test Case 43 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC04					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the edit posted transactions functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if user could edit posted transactions while giving valid ancillary services manager account credentials					
Test Case Type: Positive Testing					
Post Requisite: Posted transaction details are updated					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Choose a posted transaction and click the edit button	N/A	System should display a modal asking for the new item quantity and for the validation of the ancillary services manager	System displayed a modal asking for the new item quantity and for the validation of the ancillary services manager	Pass

3	Fill up the required fields	New Quantity: 2 Email: arugahms02@gmail.com Password: Aruga123	System should accept input	System accepted the inputs	Pass
4	Click the confirm button	N/A	System should update the posted transaction details	System updated the posted transaction details	Pass

Table 85

Test Case 44 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC05					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the edit posted transactions functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if user could not edit posted transactions while giving invalid ancillary services manager account credentials					
Test Case Type: Negative Testing					
Post Requisite: Posted transaction details are not updated					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Choose a posted transaction and click the edit button	N/A	System should display a modal asking for the new item quantity and for the validation of the ancillary services manager	System displayed a modal asking for the new item quantity and for the validation of the ancillary services manager	Pass

3	Fill up the required fields. Use invalid credentials	New Quantity: 2 Email: arugahms02@gmail.com Password: Test123	System should accept input	System accepted the inputs	Pass
4	Click the confirm button	N/A	System should not update the posted transaction details	System did not update the posted transaction details	Pass

Table 86

Test Case 45 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC06					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the delete transactions functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if user could delete posted transactions while giving valid ancillary services manager account credentials					
Test Case Type: Positive Testing					
Post Requisite: Posted transaction is deleted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Choose a posted transaction and click the delete button	N/A	System should display a modal asking for the ancillary services manager account authentication	System displayed a modal asking for the ancillary services manager account authentication	Pass
3	Fill up the required fields	Email: arugahms02@gmail.c	System should accept input	System accepted the inputs	Pass

		om Password: Aruga123			
4	Click the confirm button	N/A	System should delete the posted transaction	System deleted the posted transaction	Pass

Table 87

Test Case 46 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC07					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the delete transactions functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if user could not delete posted transactions while giving invalid ancillary services manager account credentials					
Test Case Type: Negative Testing					
Post Requisite: Posted transaction is not deleted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Choose a posted transaction and click the delete button	N/A	System should display a modal asking for the ancillary services manager account authentication	System displayed a modal asking for the ancillary services manager account authentication	Pass
3	Fill up the required fields.	Email: arugahms02@gmail.c	System should accept input	System accepted the inputs	Pass

	Use an invalid credentials	om Password: Test123			
4	Click the confirm button	N/A	System should not delete the posted transaction	System did not delete the posted transaction	Pass

Table 88

Test Case 47 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC08					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the search bar of the billing screen					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if a user could search for a posted transaction in the billing screen					
Test Case Type: Positive Testing					
Post Requisite: System show search results					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the name of the guest with posted transactions	N/A	User should be directed to the billing screen	User is directed to the billing screen	Pass
2	Using the search bar, type an information that is present in the table and look for a posted transaction	breakfast	System should accept input and display search result	System accepted the input and displayed search result	Pass

Table 89

Test Case 48 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC09					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the fast posting functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if user could post different transactions of multiple guest using the fast posting function					
Test Case Type: Positive Testing					
Post Requisite: Procured ancillary service transactions are posted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the fast posting option at the left side navigation bar	N/A	User should be directed to the fast posting screen	User is directed to the fast posting screen	Pass
2	Fill up the required fields	Customer ID/Name:1001 Code:RES0001 Qty: 1	System should accept input	System accepted the inputs	Pass
3	Click the “+” button to add more transactions as needed	N/A	System should add a new row for another transaction	System added a new row for another transaction	Pass

4	Fill up the required fields using another guest transaction	Customer ID/Name:1005 Code:RES0003 Qty: 1	System should accept input	System accepted the inputs	Pass
5	Click the "-" button to remove a transaction	N/A	System should removed a row of transaction	System removed a row of transaction	Pass
6	Click the Post button	N/A	System should post the transactions to the guest's account	System posted the transactions on the guest's account	Pass

Table 90

Test Case 49 - Manage Ancillary Services Transaction Posting

Test Case ID: ATP-TC10					
Test Priority (Low/Medium/High): High					
Test Scenario: Managing Ancillary Services Transaction Posting					
Test Description: Testing the fast posting functionality					
Test Case Pre-Requisite: User should be logged in as Cashier or Front Desk Attendant					
Test Purpose: To test if incomplete transaction details would not be posted on the guest's account in the fast posting function					
Test Case Type: Negative Testing					
Post Requisite: Incomplete transaction details are not posted					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the fast posting option at the left side navigation bar	N/A	User should be directed to the fast posting screen	User is directed to the fast posting screen	Pass
2	Fill up the required fields	Customer ID/Name:1001 Code:RES0001 Qty: 1	System should accept input	System accepted the inputs	Pass
3	Click the "+" button to add more transactions as needed	N/A	System should add a new row for another transaction	System added a new row for another transaction	Pass

4	Fill up only the fields of customer id/name and code	Customer ID/Name:1005 Code:RES0003 Qty:	System should accept input	System accepted the inputs	Pass
5	Click the "-" button to remove a transaction	N/A	System should removed a row of transaction	System removed a row of transaction	Pass
6	Click the Post button	N/A	System should only post transactions with complete details	System posted only transactions with complete details	Pass

Table 91

Test Case 50 - Generate Report

Test Case ID: GRT-TC01					
Test Priority (Low/Medium/High): High					
Test Scenario: Generate Report					
Test Description: Testing the generate pdf of revenue report functionality					
Test Case Pre-Requisite: User should be logged in as Revenue Manager					
Test Purpose: To test if system could generate a pdf revenue report					
Test Case Type: Positive Testing					
Post Requisite: System generates a pdf report which user can download or print					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the reports option on the left side navigation bar	N/A	User should be directed to reports page	User is directed to the reports page	Pass
2	Click the Generate PDF Report button	N/A	System should open a new tab then generate a PDF containing the monthly revenue report	System opened a new tab and generated a PDF containing the monthly revenue report	Pass
3	From the browser, click the download	N/A	User must be able to download the PDF report	User could successfully download the PDF report	Pass

	button (Optional)				
4	From the browser click the print button (optional)	N/A	A print setting option should be displayed	Print setting option displayed	Pass
5	Click print (optional)	N/A	Printing of document should begin	Printing of document began	Pass

Table 92

Test Case 51 - Generate Report

Test Case ID: GRT-TC02					
Test Priority (Low/Medium/High): High					
Test Scenario: Generate Report					
Test Description: Testing the print graph functionality					
Test Case Pre-Requisite: User should be logged in as Revenue Manager					
Test Purpose: To test if system could generate a pdf copy of the revenue graph					
Test Case Type: Positive Testing					
Post Requisite: System generates a pdf copy of the revenue graph which user can download or print					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the reports option on the left side navigation bar	N/A	User should be directed to reports page	User is directed to the reports page	Pass
2	Click the Print Graph button	N/A	System should open a new tab then generate a PDF containing the revenue graph	System opened a new tab and generated a PDF containing the revenue graph	Pass
3	From the browser, click the download button (Optional)	N/A	User must be able to download the PDF copy of the graph	User could successfully download the PDF copy of the graph	Pass

4	From the browser click the print button (optional)	N/A	A print setting option should be displayed	Print setting option displayed	Pass
5	Click print (optional)	N/A	Printing of document should begin	Printing of document began	Pass

Table 93

Test Case 52 - Generate Report

Test Case ID: GRT-TC03					
Test Priority (Low/Medium/High): High					
Test Scenario: Generate Report					
Test Description: Testing the forecasting functionality					
Test Case Pre-Requisite: User should be logged in as Revenue Manager					
Test Purpose: To test if system could forecast an ancillary category revenue in the next months					
Test Case Type: Positive Testing					
Post Requisite: System generates forecasted revenue graph					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click on the forecasting option	N/A	User should be directed to forecasting page	User is directed to the forecasting page	Pass
2	Choose an ancillary category to forecast revenue	N/A	System should provide a list of ancillary categories which have revenue records for the past 3 months which includes the current month	System provided a list of ancillary categories which are available for forecasting based on the given condition	Pass

3	Click the Forecast button	N/A	System must generate a forecasted revenue graph	System generated a forecasted revenue graph	Pass

Table 94

Test Case 53 - Generate Report

Test Case ID: GRT-TC04					
Test Priority (Low/Medium/High): High					
Test Scenario: Generate Report					
Test Description: Testing the generate pdf report of the forecasting page					
Test Case Pre-Requisite: User should be logged in as Revenue Manager. User must be done with forecasting					
Test Purpose: To test if system could generate a PDF report of the forecasting					
Test Case Type: Positive Testing					
Post Requisite: System generates a pdf of the forecasted report which user can download or print					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the Generate PDF Report button	N/A	System should open a new tab then generate a PDF containing the forecasted revenue values	System opened a new tab and generated a PDF containing the forecasted revenue values	Pass
2	From the browser, click the download button (Optional)	N/A	User must be able to download the forecasted PDF report	User could successfully download the forecasted PDF report	Pass

3	From the browser click the print button (optional)	N/A	A print setting option should be displayed	Print setting option displayed	Pass
4	Click print (optional)	N/A	Printing of document should begin	Printing of document began	Pass

Table 95

Test Case 54 - Generate Report

Test Case ID: GRT-TC05					
Test Priority (Low/Medium/High): High					
Test Scenario: Generate Report					
Test Description: Testing the print graph functionality of the forecasting page					
Test Case Pre-Requisite: User should be logged in as Revenue Manager. User must be done with forecasting					
Test Purpose: To test if system could generate a PDF copy of the forecasted graph					
Test Case Type: Positive Testing					
Post Requisite: System generates a pdf copy of the forecasted graph which user can download or print					
No.	Test Steps/ Scripts	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Click the Print Graph button	N/A	System should open a new tab then generate a PDF containing the forecasted revenue graph	System opened a new tab and generated a PDF containing the forecasted revenue graph	Pass
2	From the browser, click the download button (Optional)	N/A	User must be able to download the PDF copy of the graph	User could successfully download the PDF copy of the graph	Pass

3	From the browser click the print button (optional)	N/A	A print setting option should be displayed	Print setting option displayed	Pass
4	Click print (optional)	N/A	Printing of document should begin	Printing of document began	Pass

APPENDIX D

USER MANUAL

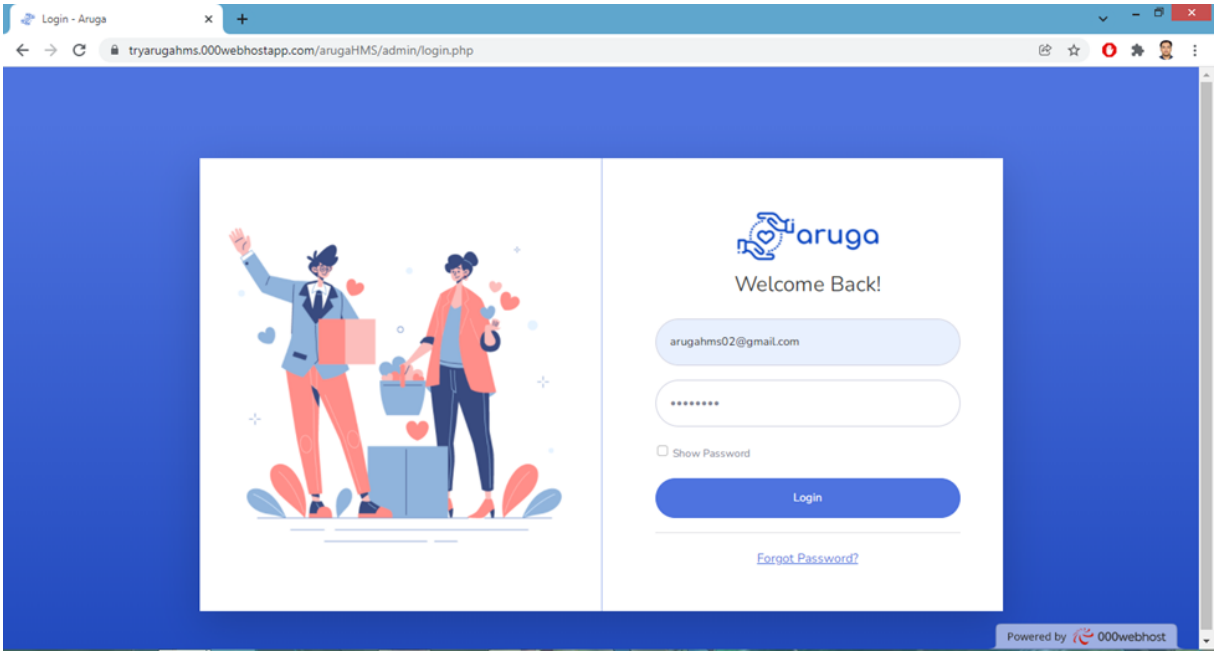
Employee/User Account Management

A1. Login to the system using the **account of the ancillary services manager.**

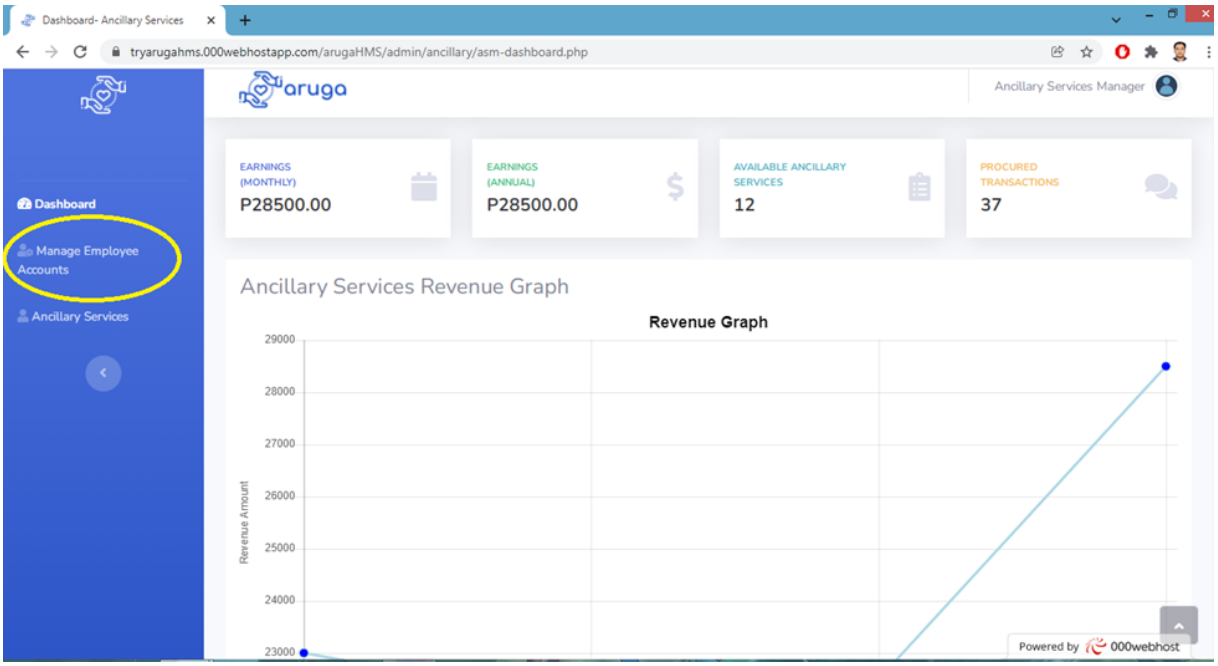
Ancillary Services Manager Account Details

Email: arugahms02@gmail.com

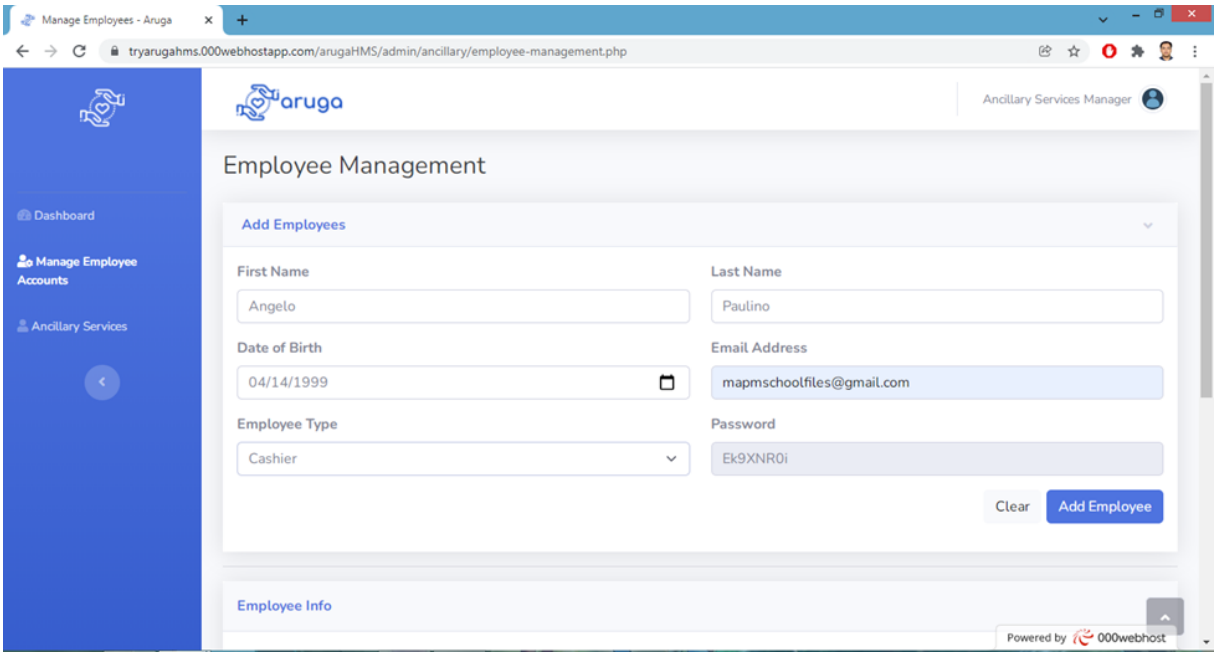
Password: Aruga123



A2. Upon login, click on the manage employee accounts at the left side navigation tab.

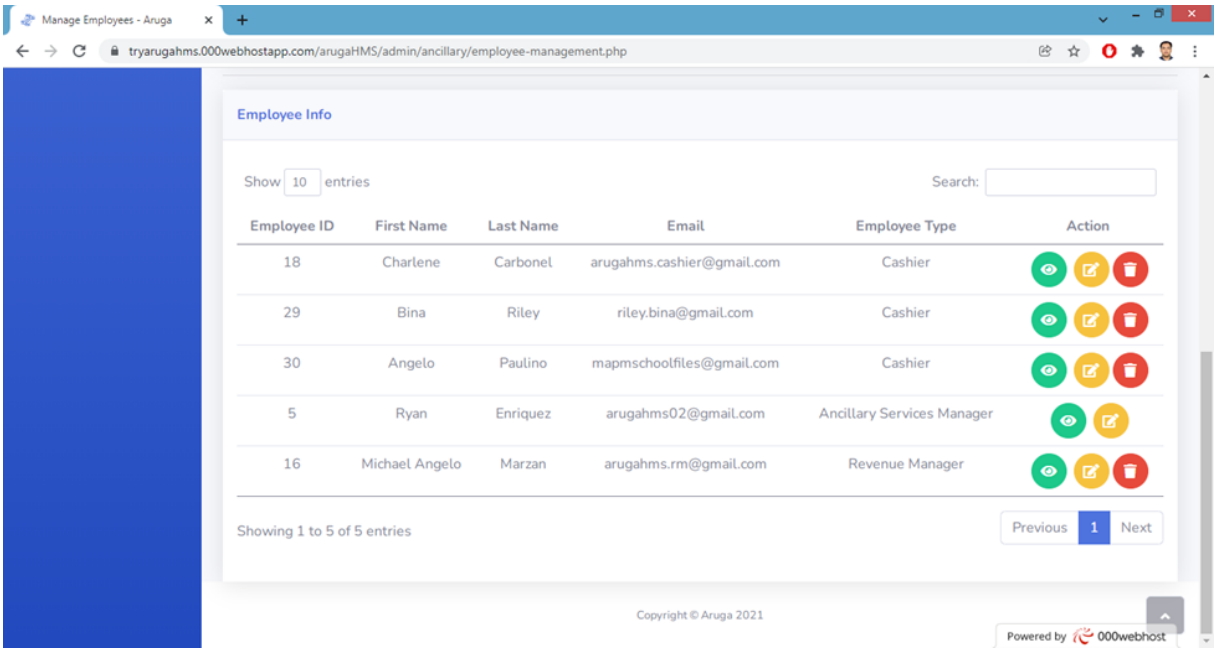


A3. To add employee accounts, just simply fill out the add employee form and click the add employee button.

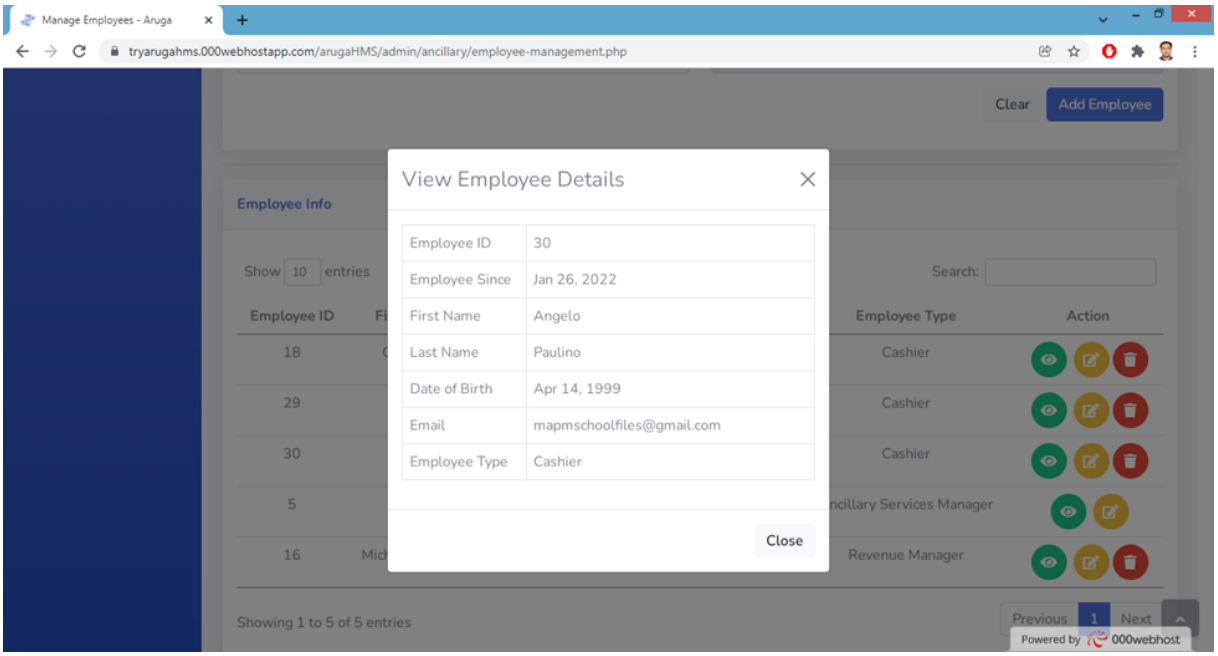


An email containing the password of the account would be sent to the email address of the registered employee. He/she could then use that password and his/her email to login to the system.

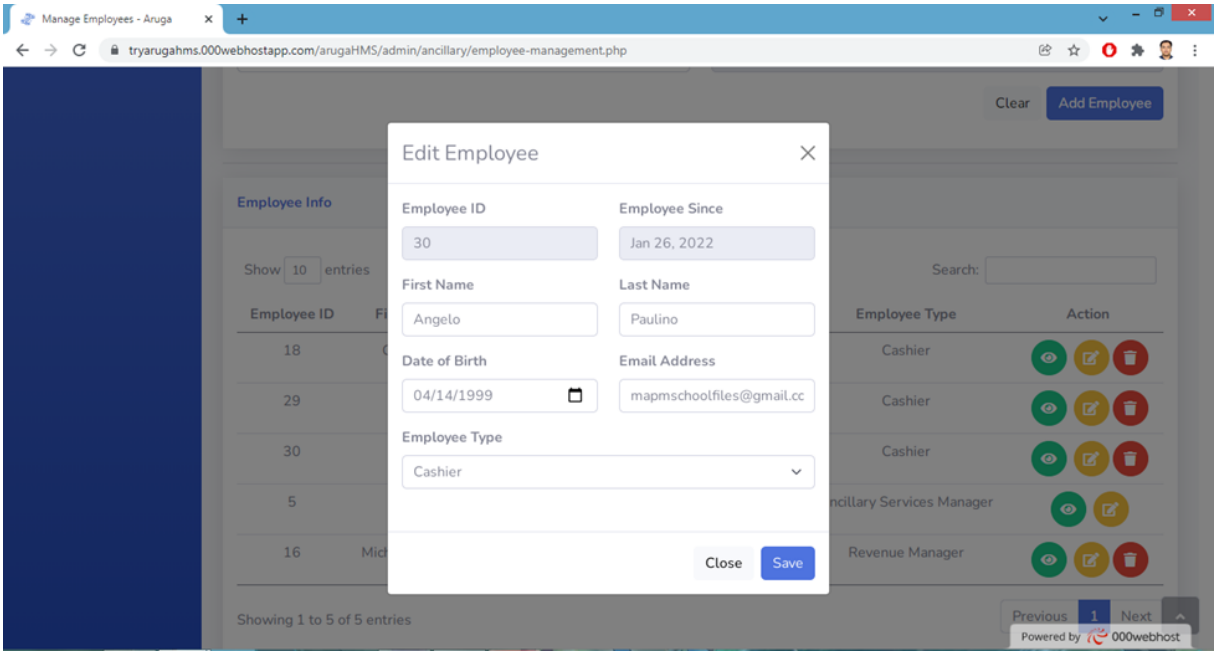
A4. At the bottom part of the manage employee accounts screen, you can see a table where the list of employees is shown. You can view, edit or delete their account information on this interface.



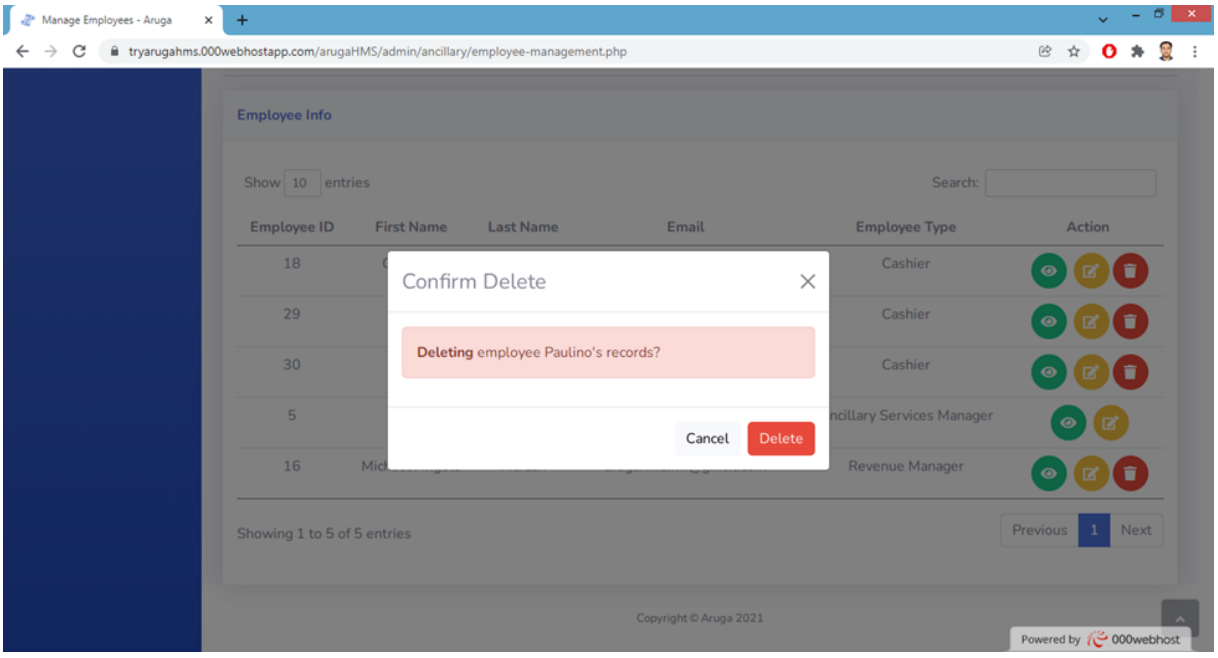
A5. To view employee records, you can simply click the view button or eye icon.



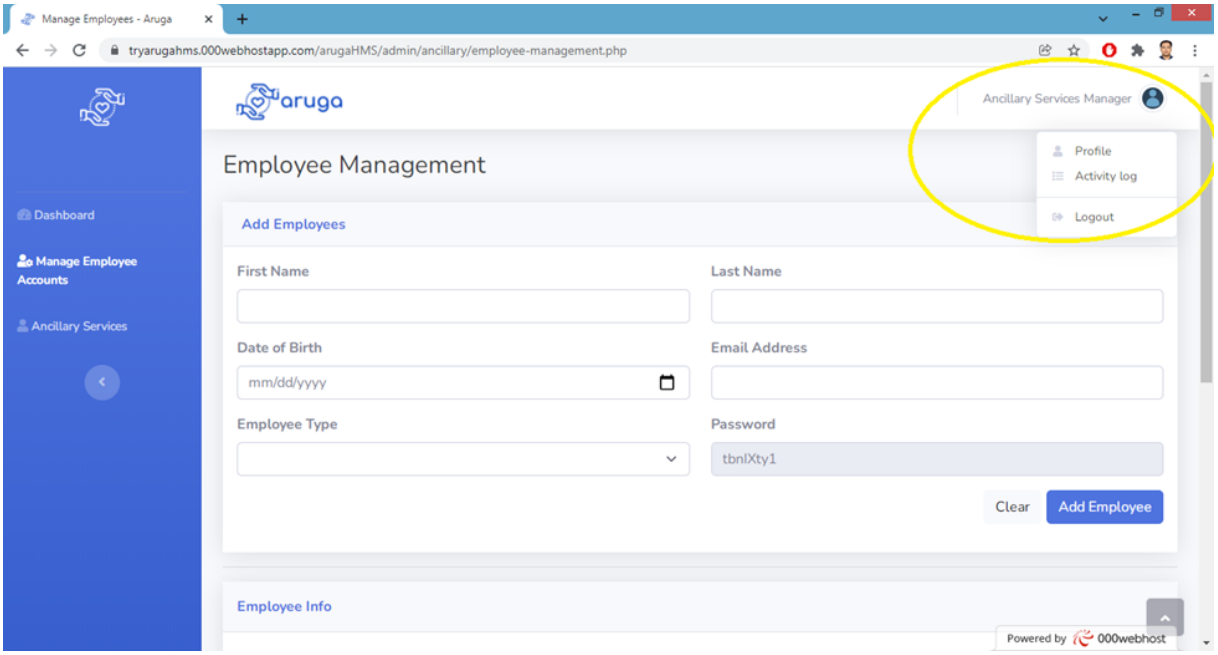
A6. If you need to edit information about the employee, click on the edit button and the edit form will be displayed. Click the save button to save any changes that were made.



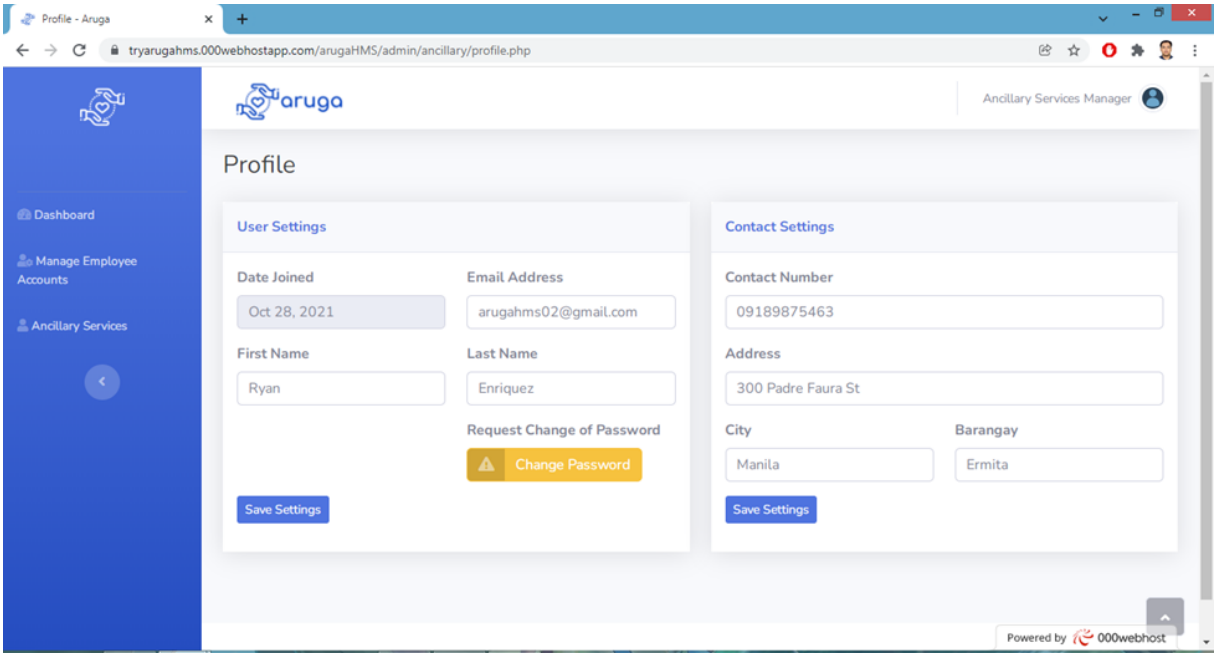
A7. You can also delete records of the employee that is not anymore needed. Click on the delete button or the trash icon. To confirm deletion of record, click delete on the confirmation form.



B1. Each user is capable of editing his or her own account information. This can be done by navigating through the profile tab. Click on the human icon then click profile.

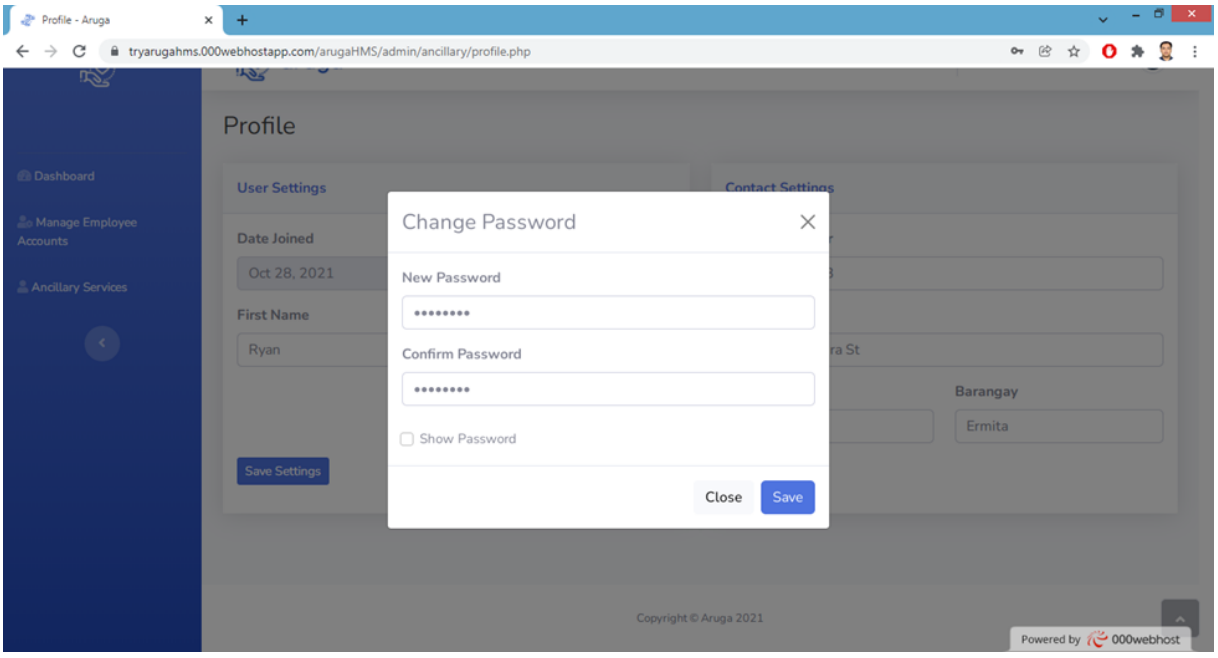


B2. You can edit your own account information as well as your contact details. Click on the save settings button on the respective form where you made changes.

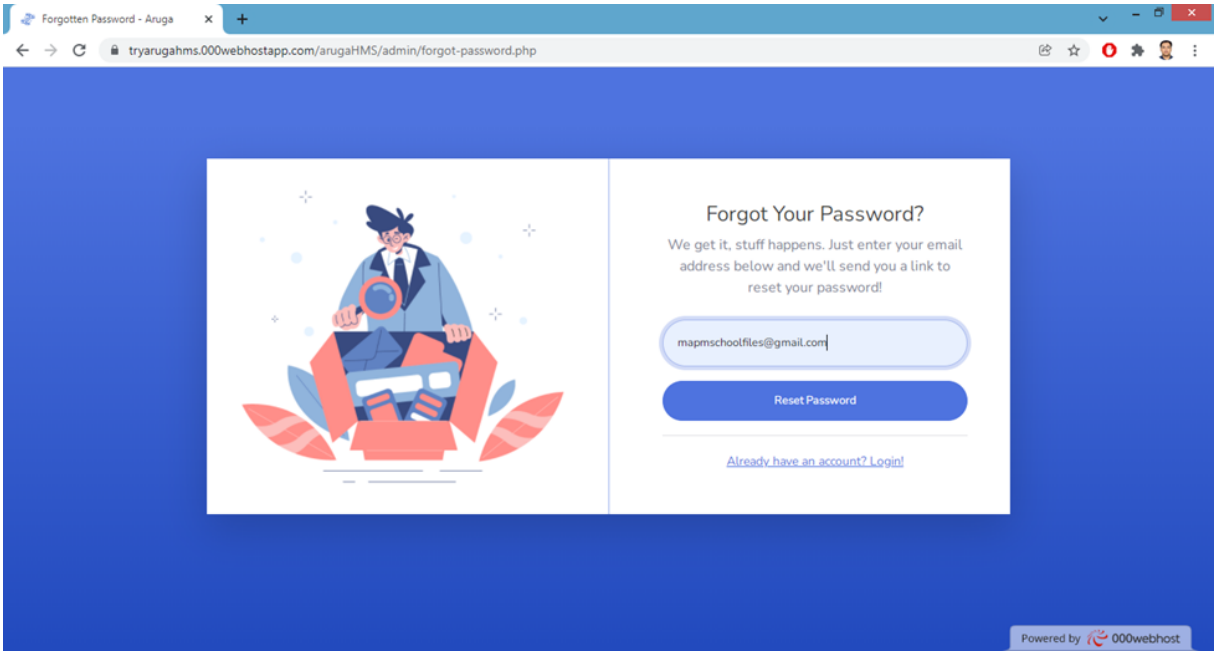


B3. You can change your own account password using the following methods:

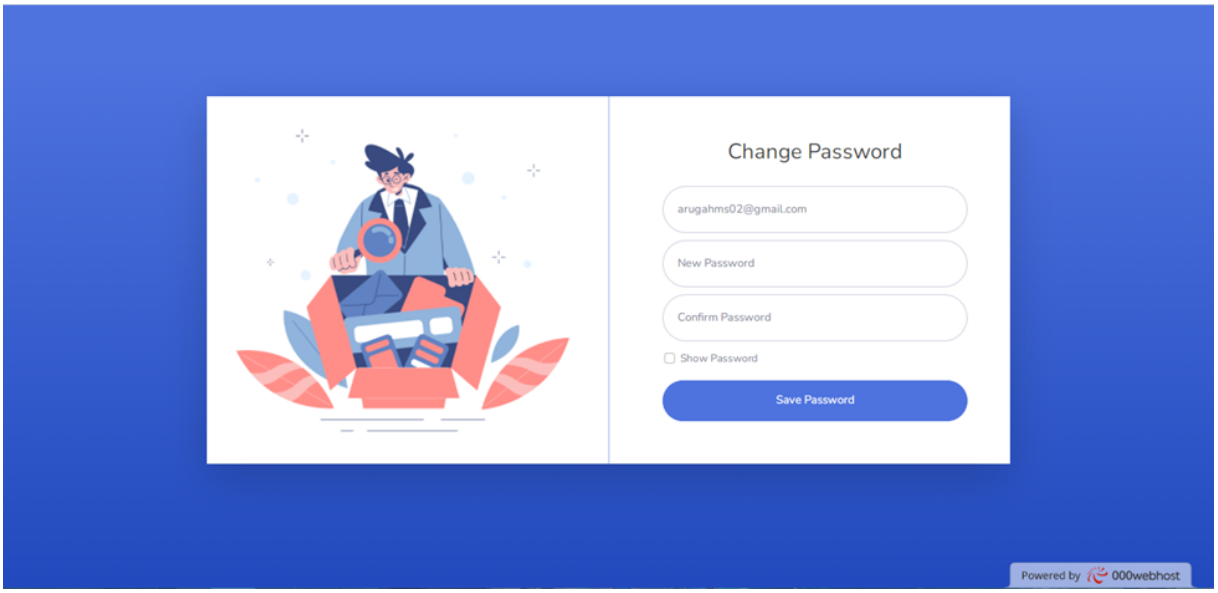
· Go to profile. Click Change Password button. Create a new password then click save. An email will be sent to your email address containing your new password.



On the login screen, click Forgot Password. Enter your email address and click reset password. An email will be sent to your email address containing a password reset link



Click the password reset link sent to your email. Create a new password then click Save Password Button.



Additional Feature for the user accounts

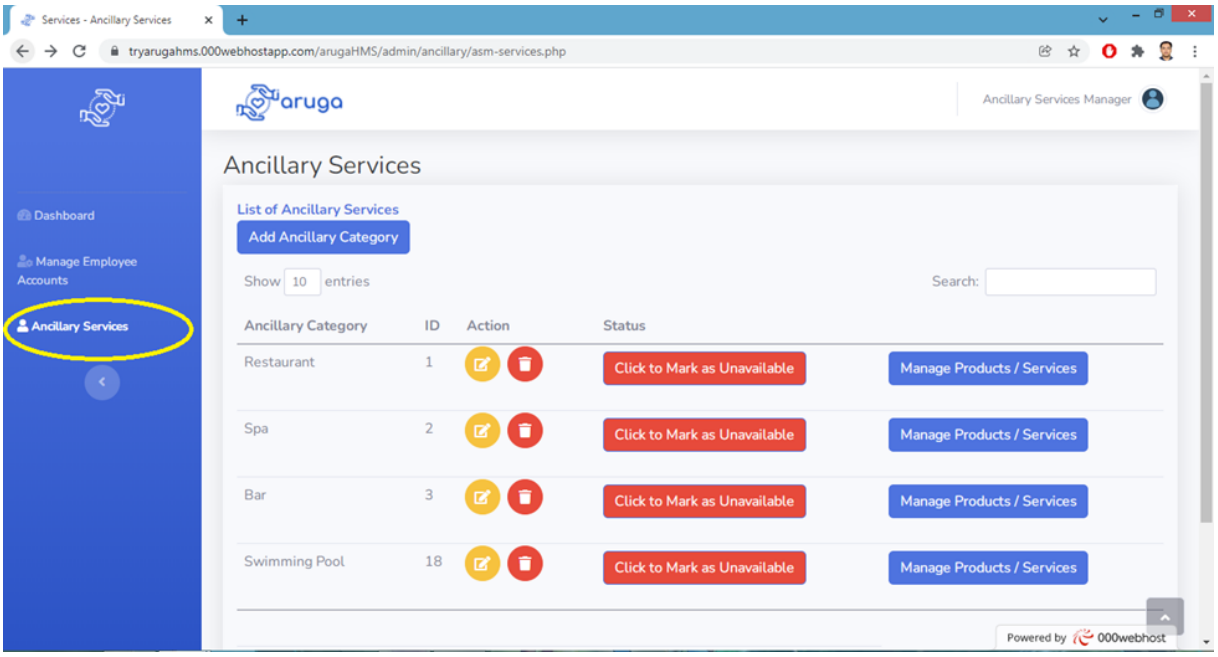
Activity Log

The system records the activities of the user and can be viewed by clicking the human icon then click activity log.

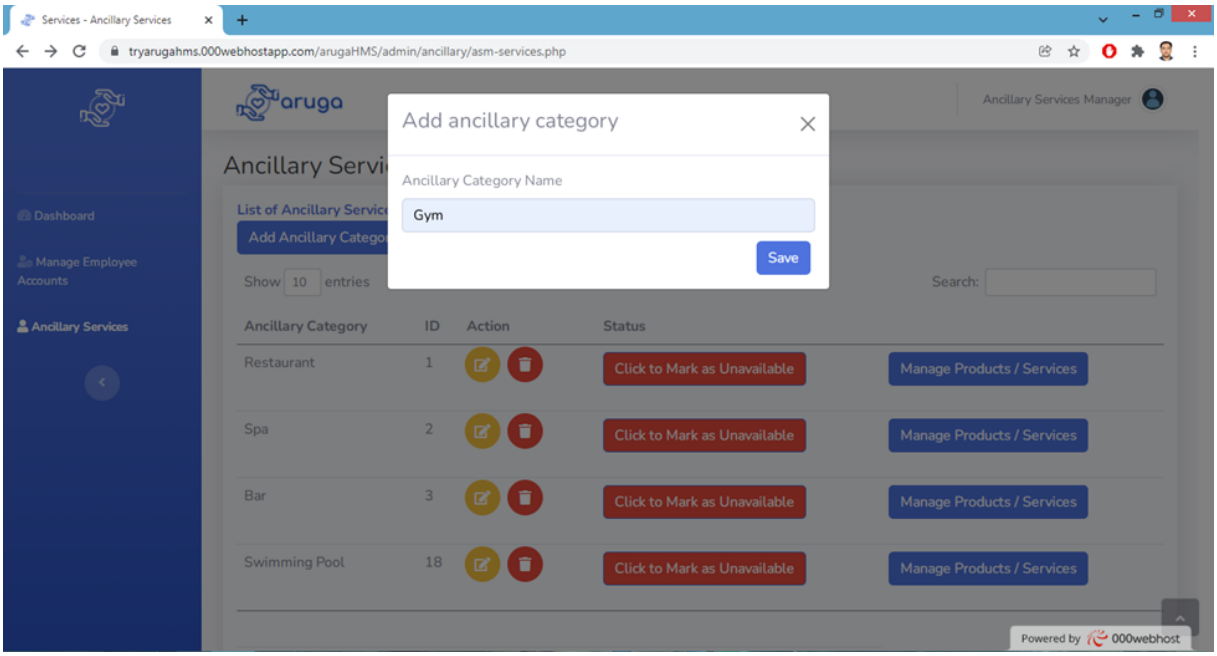
Manage Hotel Ancillary Services

* Both the ancillary services manager and revenue manager have the authority to manage ancillary services

1. Click on the Ancillary Services option at the side navigation bar. You will then be redirected to the Manage Ancillary Services interface.

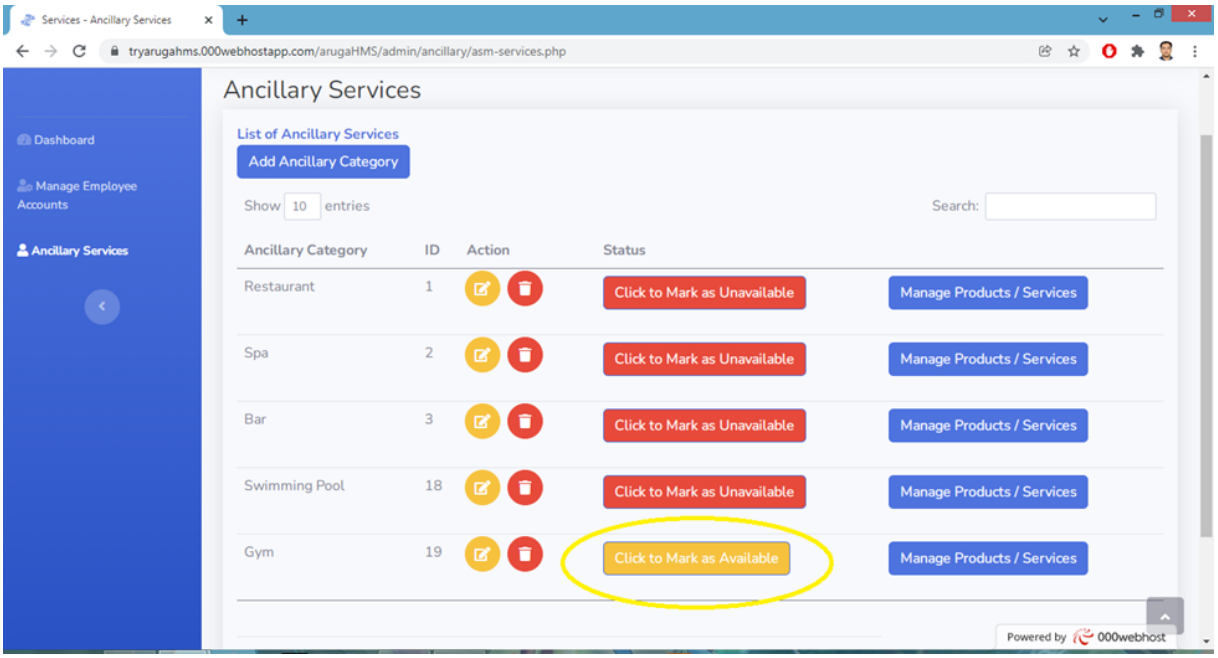


2. To create a new ancillary category, click the Add Ancillary Category Button. Enter the name of the ancillary category then click save.

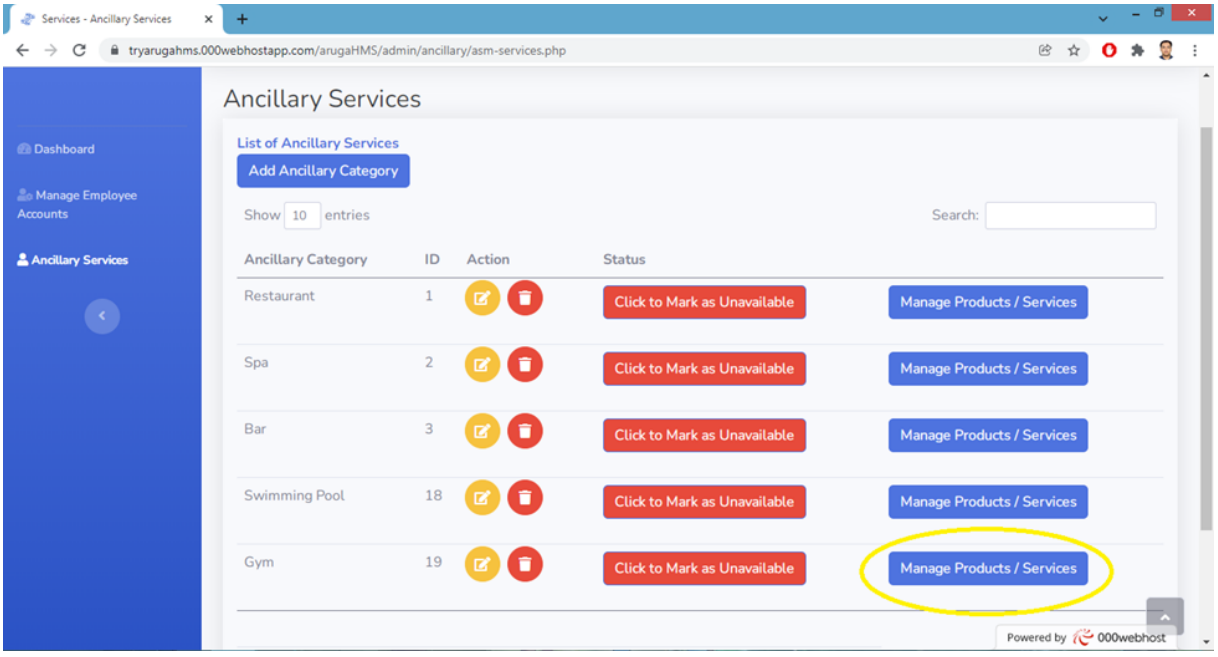


3. The status of the newly created ancillary category is unavailable by default. By clicking the “Click to Mark as Available” button, you are now allowing the selected ancillary category and its available products or services to be referenced in the posting screen on the cashier side interface.

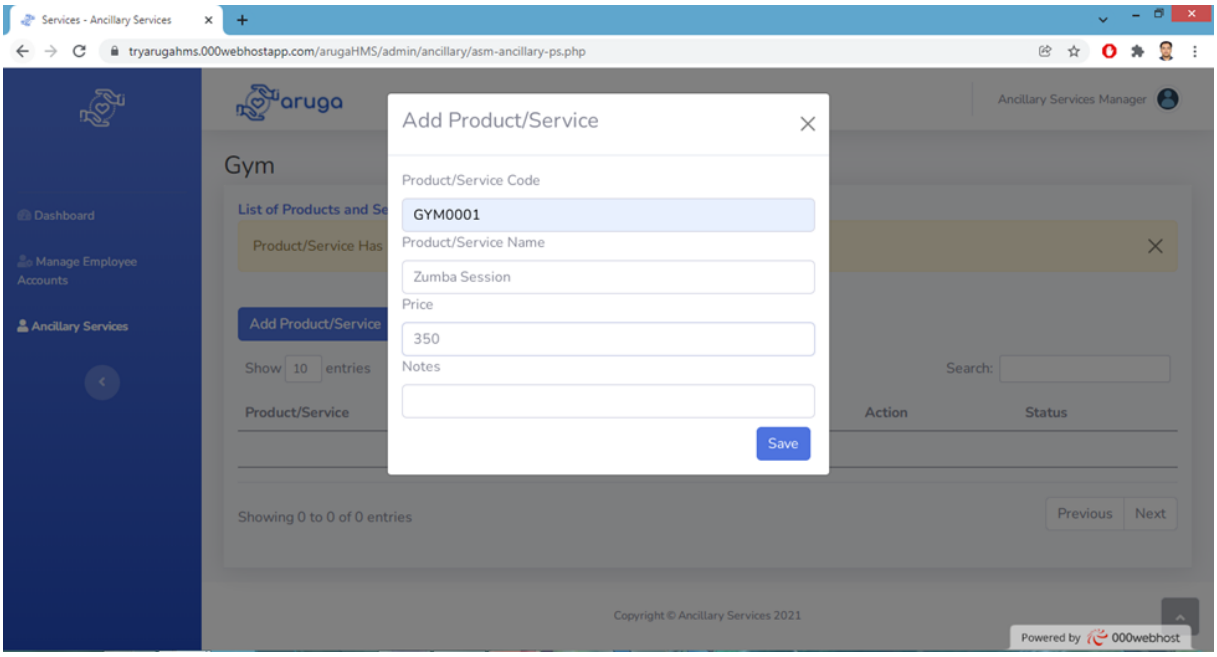
Clicking the “Click to Mark as Unavailable” button would disable the ancillary category and all its product and services for referencing on the cashier side.



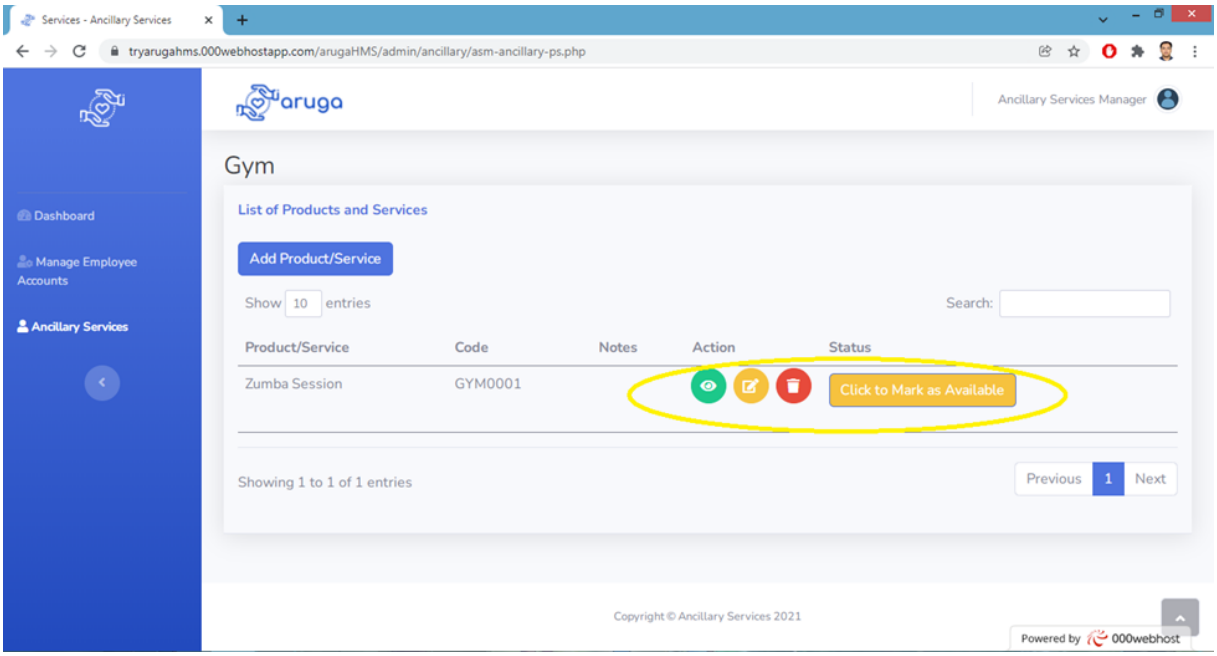
4. To manage the offered products or services of an ancillary category, click the Manage Products/Services button.



5. Create offered products/services by clicking the Add Product/Service button. Fill up all required fields then click save.



6. You can also perform the view, edit or delete actions just like what is previously stated on A4-A7. In order to make the product/service available for referencing, you can click the “Click to Mark as Available button”. To disable it, click the “Click to Mark as Unavailable” button.



Manage Ancillary Services Transaction Posting

*This module will only focus on the posting of ancillary transaction charges. Check-out is not included as there are still some charges to consider from the reservation module and the housekeeping module.

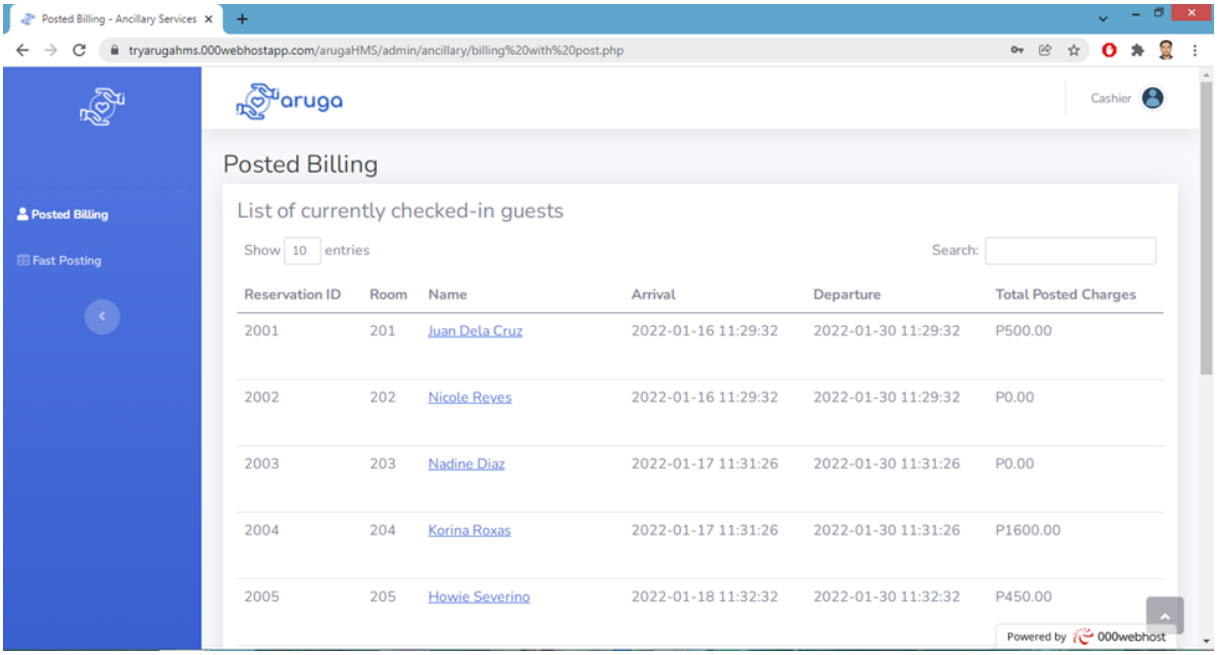
1. Login to the system using the **account of the front desk attendant or cashier.**

Cashier Account Details

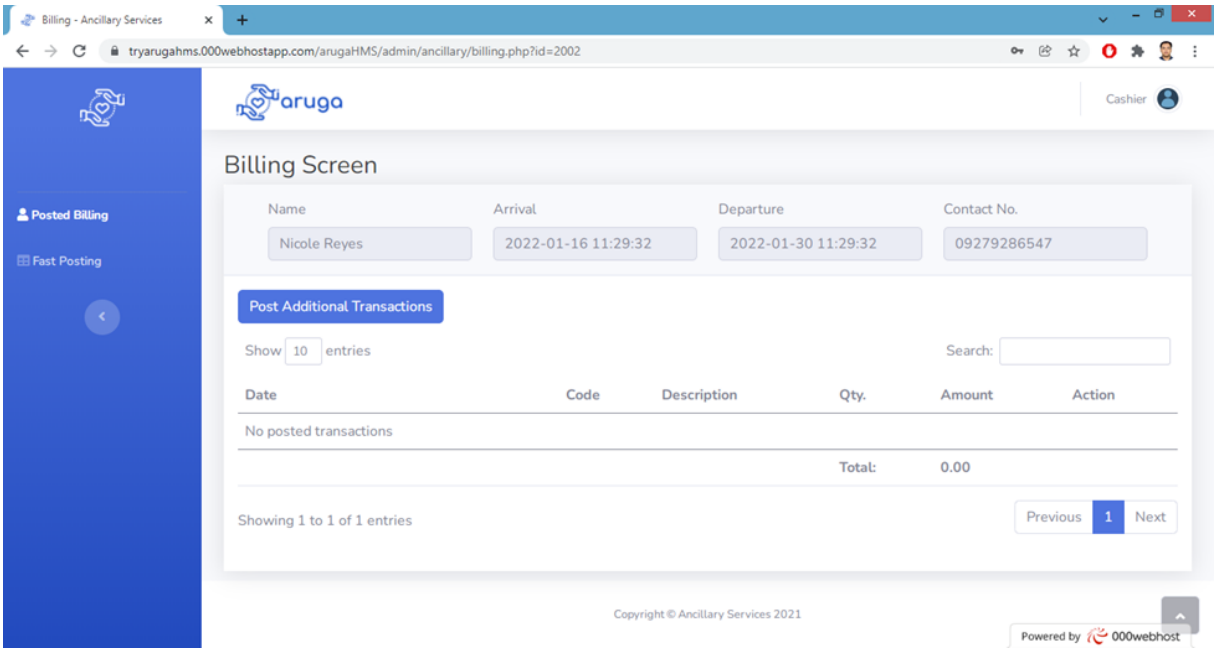
Email: arugahms.cashier@gmail.com

Password: Aruga123

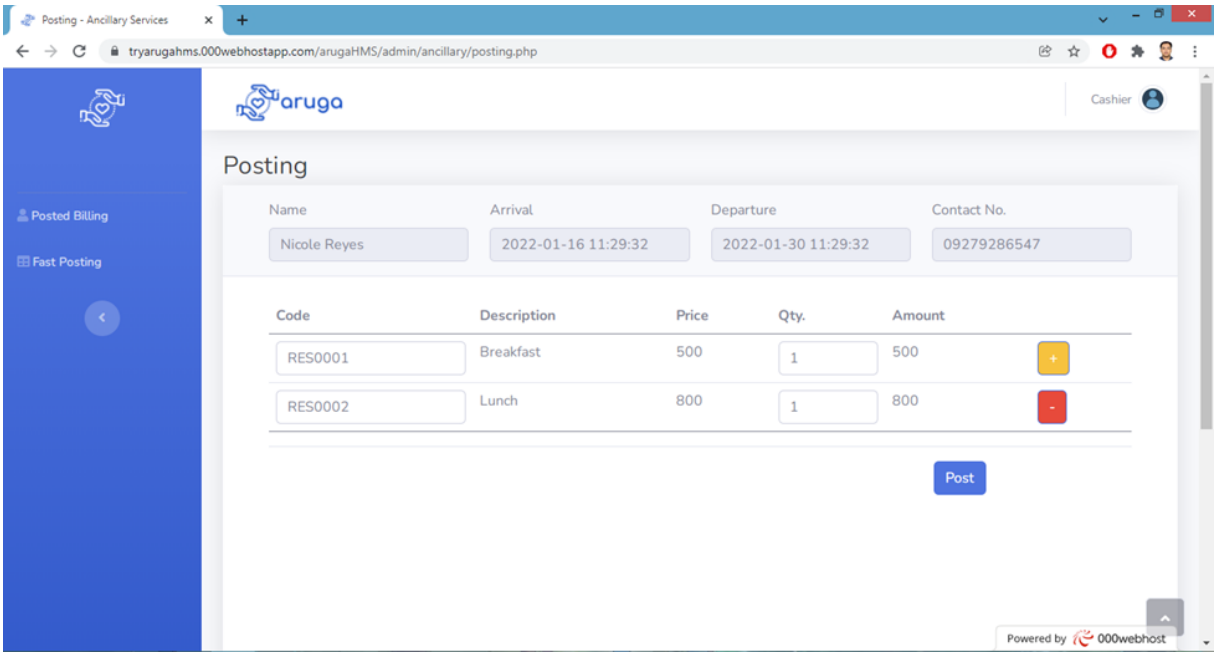
Upon login, you will be able to see the list of currently checked in guest. It includes information such as their reservation id, room no., name, arrival date, departure date and the total posted charges on their folio.



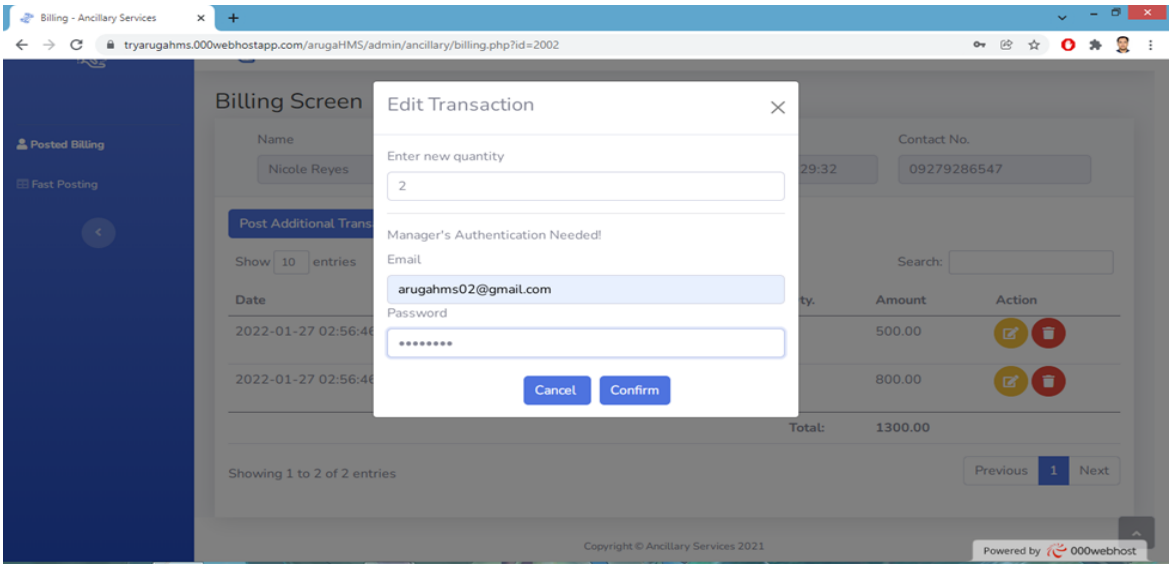
2. Click on the name of the guest. You will then be directed to the billing screen where all Posted Ancillary Transactions charges would be displayed.



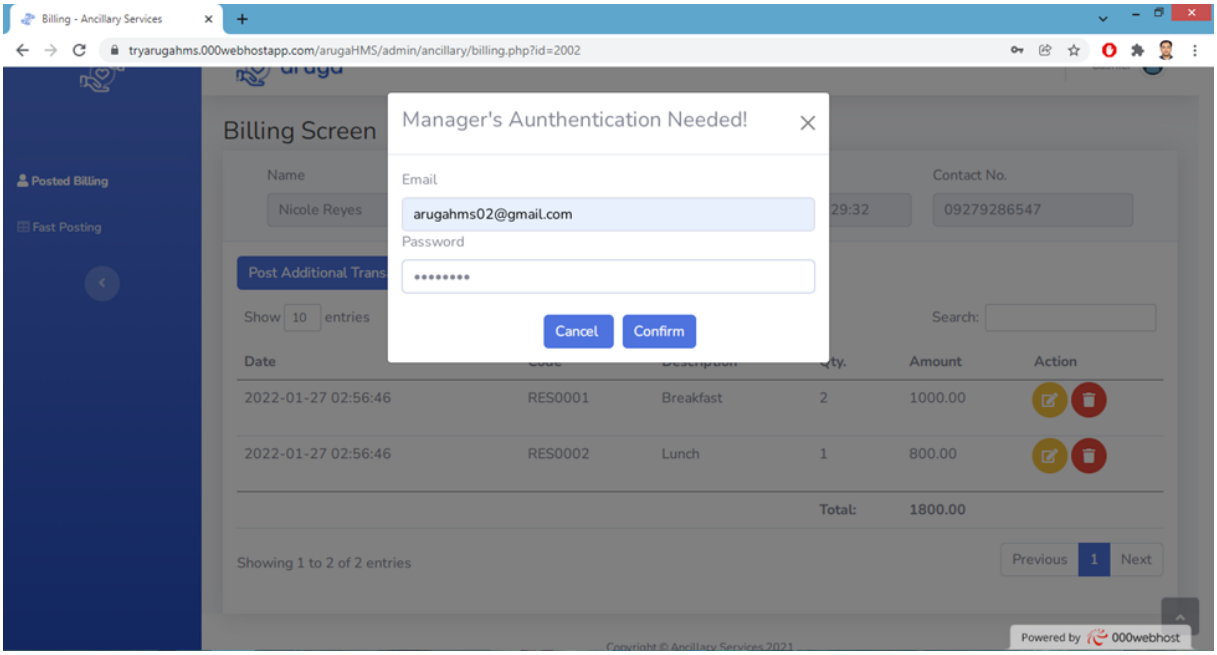
3. To post a transaction, click on the “Post Additional Transaction Button”. On the posting screen, select the product or service code of the transaction and enter the quantity. If you want to post more transaction, click on the “+” button and a new row would appear. Once done, click on the “Post” button.



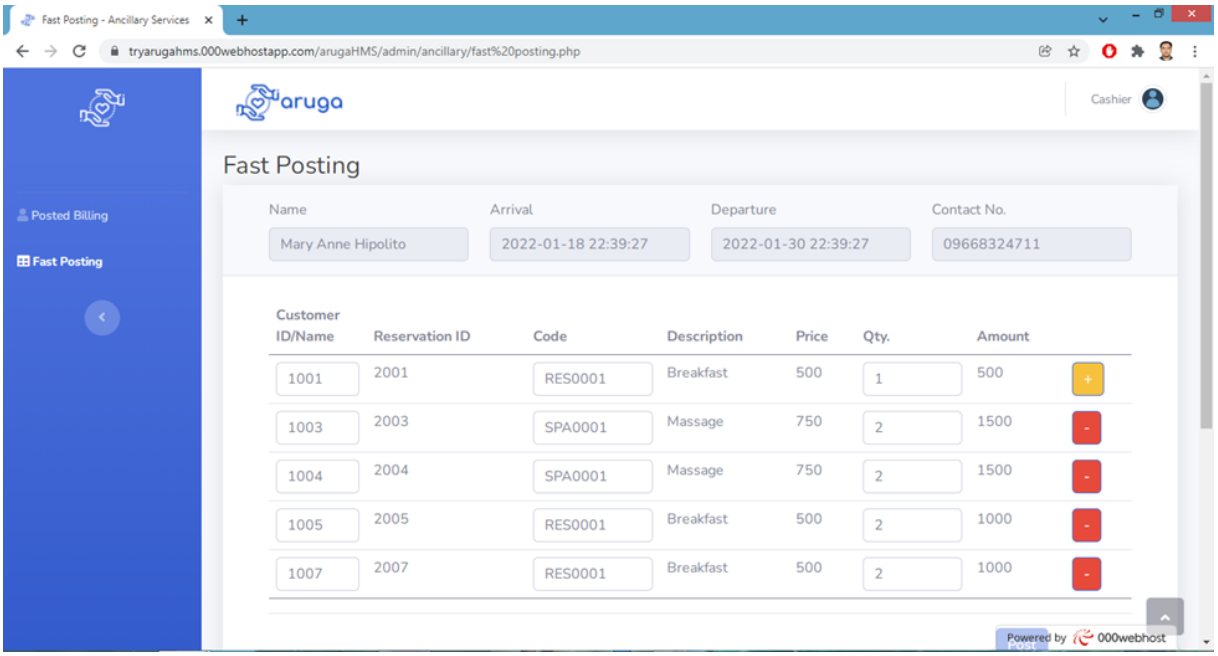
4. To edit the quantity of a posted transaction, from the billing screen, click the edit button of the transaction. For security purposes, the user will be asked to enter the account details of the ancillary services manager to confirm the edit of transaction.



5. To delete a posted transaction, from the billing screen, click the delete button (trash icon). For security purposes, the user will be asked to enter the account details of the ancillary services manager to delete the posted transaction in the guest's account.



6. The system also has a fast posting feature and can be navigated by clicking the fast posting option at the left side navigation bar. This feature allows the user to post multiple transactions to different guests without having the need to go through their individual folio. Just select the customer id/name and follow the same steps in posting to complete the process.



Generate Reports

1. Login to the system using the **account of the revenue manager.**

Cashier Account Details

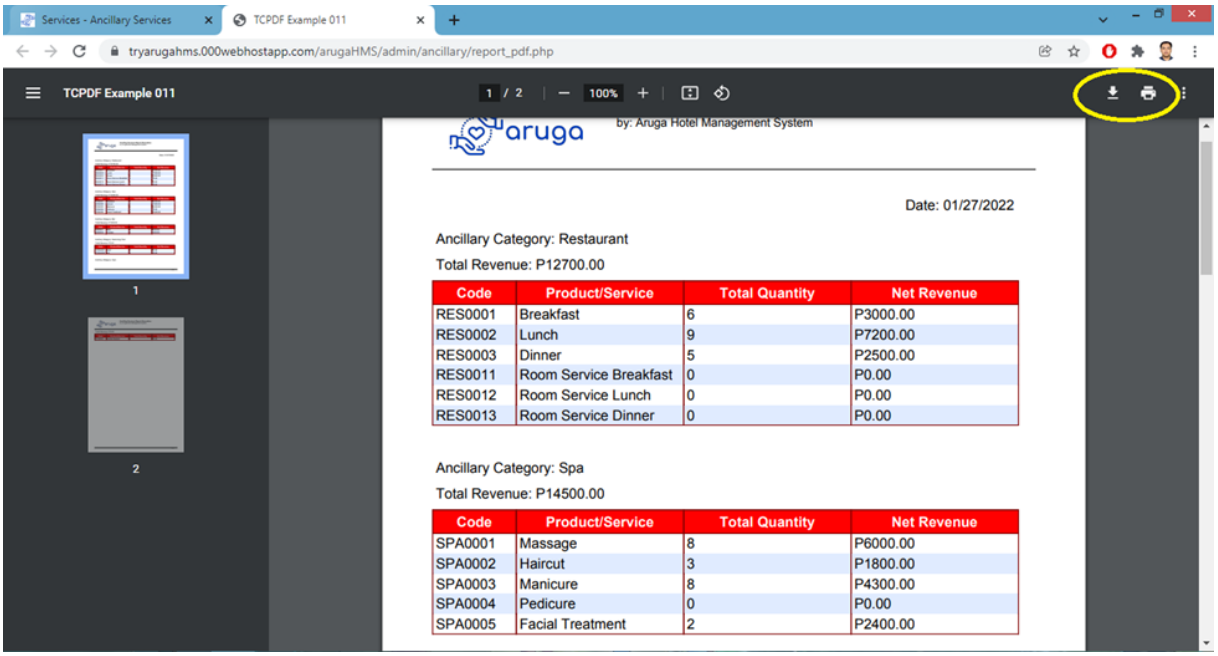
Email: arugahms.rm@gmail.com

Password: Aruga123

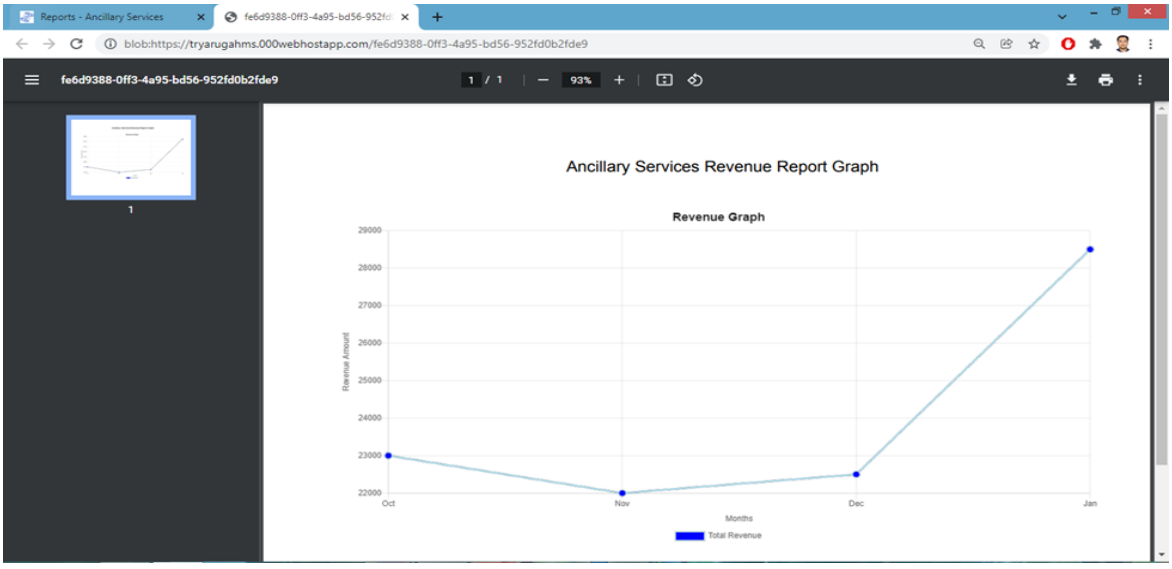
Upon login, click on the reports option at the left side navigation bar. You will be able to see a graph that shows the ancillary services revenue.

At the bottom part, you will be able to see a summary of the current year revenue of the ancillary services.

2. To generate a PDF monthly revenue report, click on the “Generate PDF Report” button. A new tab will open where the PDf file is generated. You can also now download or print the generated report.



3. You can also generate a PDF file for the graph by clicking the “Print Graph” Button.



Forecasting

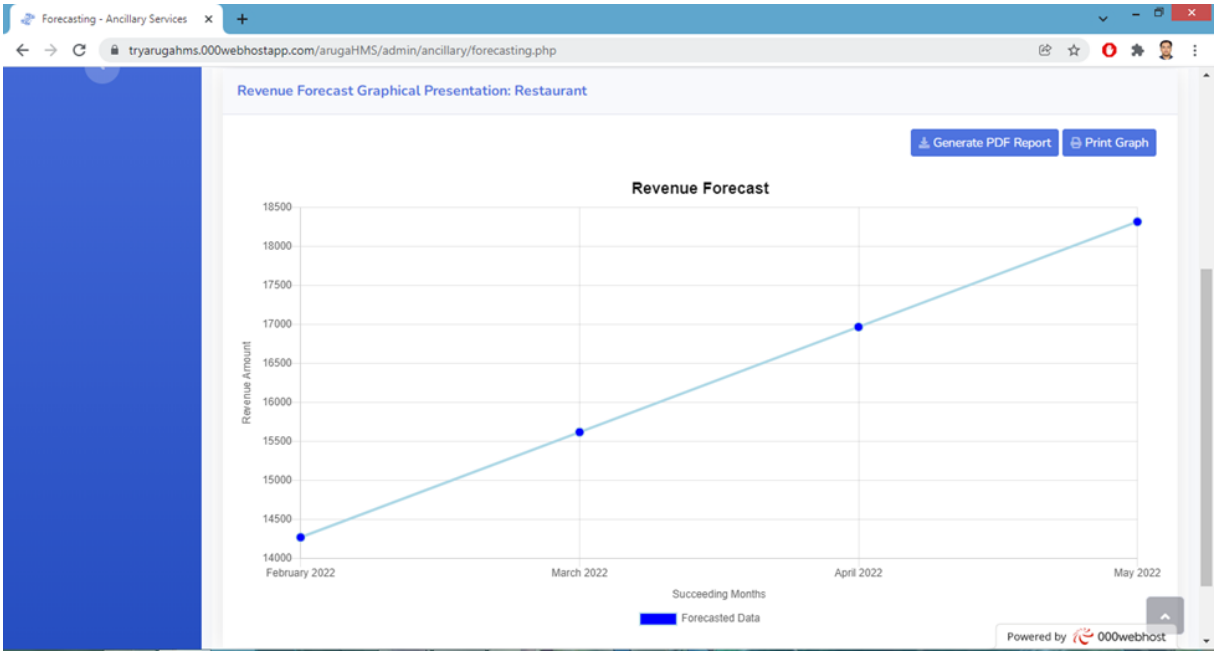
This feature of the system allows the user to determine the forecasted monthly revenue of an ancillary category for the next 4 months.

It is important to remember that only those ancillary categories with recorded transactions for the past 3 months which includes the current month will be available for forecasting

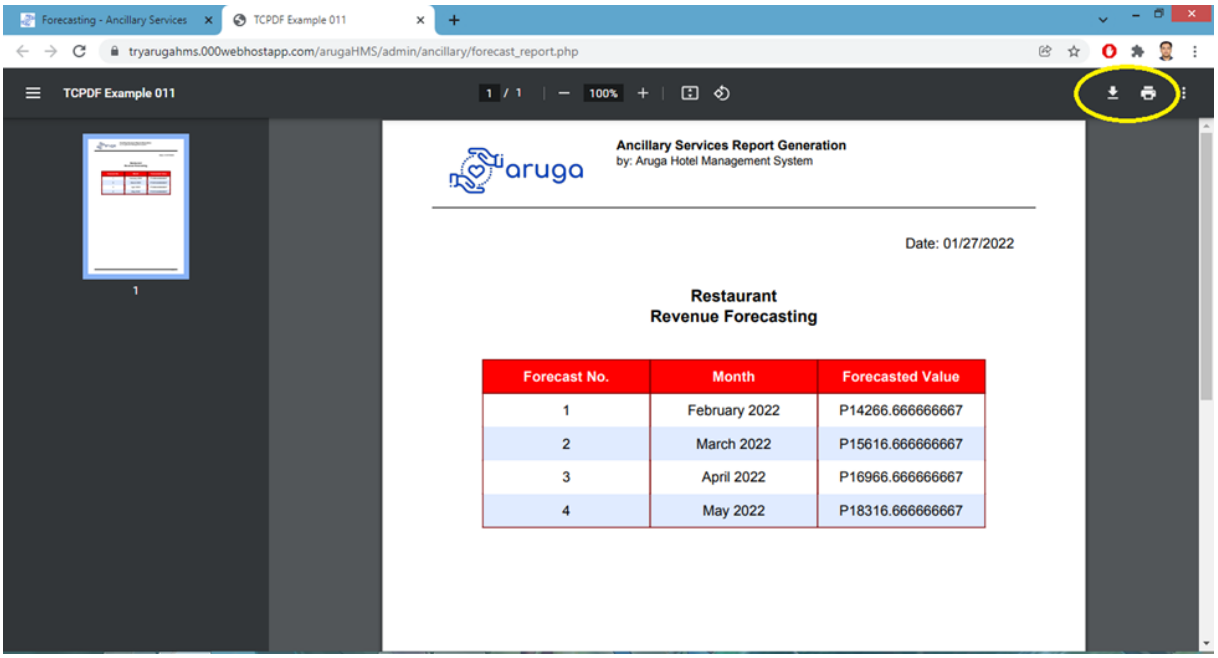
1. Click on the Forecasting option at the left side navigation bar.

2. Choose an ancillary category to forecast then click the “Forecast” button.

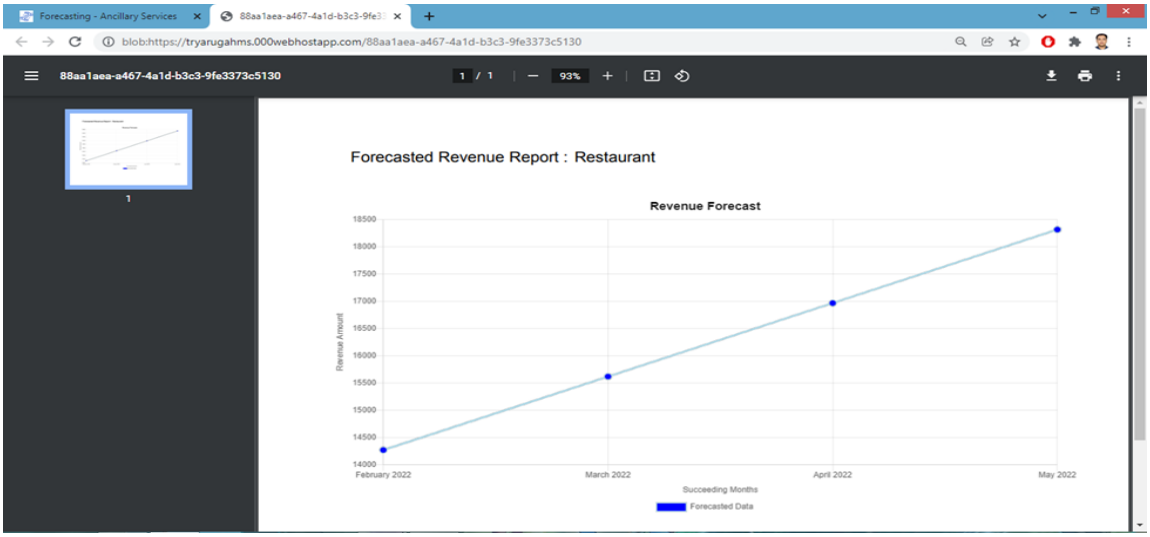
As you can see, a forecasted revenue graph has been generated.



3. Click on the “Generate PDF Report” button to create a PDF report file that will show a table with the forecasted value of the revenue in the coming months. You can then download or print this PDF file.

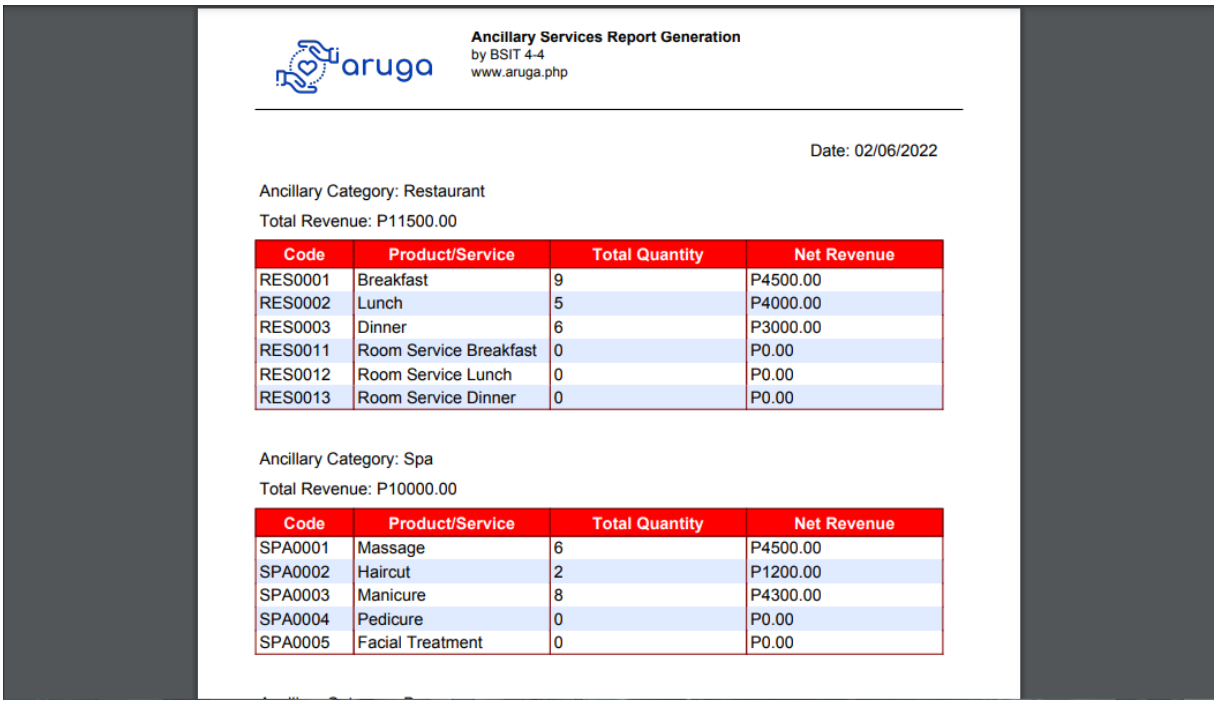


4. You can also generate a PDF file for the forecasted graph by clicking the “Print Graph” Button.



APPENDIX E

SAMPLE SYSTEM GENERATED OUTPUT



aruga

Ancillary Services Report Generation
by BSIT 4-4
www.aruga.php

Date: 02/06/2022

Ancillary Category: Restaurant

Total Revenue: P11500.00

Code	Product/Service	Total Quantity	Net Revenue
RES0001	Breakfast	9	P4500.00
RES0002	Lunch	5	P4000.00
RES0003	Dinner	6	P3000.00
RES0011	Room Service Breakfast	0	P0.00
RES0012	Room Service Lunch	0	P0.00
RES0013	Room Service Dinner	0	P0.00

Ancillary Category: Spa

Total Revenue: P10000.00

Code	Product/Service	Total Quantity	Net Revenue
SPA0001	Massage	6	P4500.00
SPA0002	Haircut	2	P1200.00
SPA0003	Manicure	8	P4300.00
SPA0004	Pedicure	0	P0.00
SPA0005	Facial Treatment	0	P0.00

Ancillary Services Revenue Report Graph

Ancillary Services Report Generation
by BSIT 4-4
www.aruga.php

Date: 02/06/2022

Restaurant
Revenue Forecasting

Forecast No.	Month	Forecasted Value
1	March 2022	P12666.666666667
2	April 2022	P13416.666666667
3	May 2022	P14166.666666667
4	June 2022	P14916.666666667

Forecasted Revenue Report : Restaurant

CHARLENE G. CARBONEL

CONTACT ME AT

Blk 116 Lot 9 K-60 street Karangalan village Cainta, Rizal

charlene.carbonel@gmail.com

09283569115

PERSONAL DATA

Charlene Guimba Carbonel

Female

March 27, 2000

Single

OBJECTIVES

To work in a company that will open up better opportunities and give me the chance to increase my knowledge and develop my skills and abilities.

SKILLS

Technical Skills

- MS Office : Word, Powerpoint, Excel, Publisher, Outlook
- Programming Language (Basic) : HTML, CSS, C, PHP
- Video and Photo editing

Personal Skills

- Able to draw and design
- Able to work under pressure

EDUCATIONAL BACKGROUND

Polytechnic University of the Philippines

Bachelor of Science in Information Technology | School Year 2018 - 2022

- Hotel Management System - Procurement of Ancillary Services, 2022

Technological Institute of the Philippines

Science, Technology, Engineering, and Mathematics | School Year 2016 - 2018

- The Importance of Gadgets in Information Technology Subject for the Senior Highschool Students in Technological Institute of the Philippines - Quezon City, 2017
- Possible Impact of Playing Rubik's Cube to Student's Academic Performance, 2017
- Veracity of Results between Electronic and Manual Checking, 2018

RYAN ANDREW T. ENRIQUEZ

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

Full name	Ryan Andrew T. Enriquez	Address	0521 San Roque St., San Roque, Angat, Bulacan
Email	enriquezra17@gmail.com	Phone	(+63) 977-434-5654

PERSONAL SUMMARY

I am a 4th year College student who can work well in a team but also on my own as I like to set myself goals which I aim to achieve. I am also keen and very willing to learn and develop new skills. I am reliable and dependable and often seek new responsibilities within a wide range of employment areas.

EDUCATION

2004 - 2018, CLASS OF 2018 — **Colegio de Sta. Monica de Angat**
- Consistent Cluster of 89
- Blessed Pedro Calungsod Award
- Active member of Knights of Fr. Marie Eugene of the Child Jesus
- Active member of Sports Club

2014 — **Pres. Diosdado Macapagal Memorial High School**
- Most Active Student

2018-2022 — **Polytechnic University of the Philippines**
- College of Computer and Information Science

SKILLS

- Can adapt to circumstances
- Has good leadership skills
- Acknowledging and appreciating team member.
- Being cooperative, collaborative, and flexible with work colleagues.
- Good Interpersonal skills
- Trustworthy and able to work in highly confidential environments
- Attentive to details
- Has good written and verbal communication skills.

Michael Angelo P. Marzan

08 Rosal St. Tomasa Subdivision Ususan Taguig, 1632

09277148205

michaelmarzan0424@gmail.com

Personal

Date of Birth: April 24 1999
Age: 22
Place of Birth: Taguig City, Philippines
Citizenship: Filipino
Status: Single

Objectives

To acquire a position that will let me show and improve my skills in the field of Information Technology.

Skills

- Programming- C/C++, COBOL, Python, Java, C#
- Database Management – MySQL, phpMyAdmin
- Web Development – HTML, CSS, PHP
- Microsoft Office – Word, Power Point, Excel, Access
- Communication Skills – English, Filipino

Education

Tertiary Education

Institution:	**Polytechnic University of the Philippines**
Date:	June 2018 - Current
Course:	Bachelor of Science in Information Technology
Achievements:	Dean's Lister, President's Lister

Secondary Education

Institution:	**Pateros Catholic School**
Date:	2016-2018
Strand:	Science Technology Engineering and Mathematics
Achievements:	With honors (2017), Best in ICT (2017)

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