

Development of a Capacity and Availability Monitoring System for Asia Pacific College's Cafeteria
"RAMCaf"

CHAPTER 1
Project Overview

Introduction

In light of the COVID-19 virus pandemic, most people are not able to go to work and to school physically. There are some establishments, businesses, and places that do their best to accommodate people to make sure that they would not risk themselves from catching and spreading the virus. With this case, the proponents have come up with the idea to create an application that would help keep the Asia Pacific College (APC) cafeteria a safer and sanitized environment for the welcoming back of students for face-to-face classes. The application would show the status of tables and their seat availability so students would not have to enter the cafeteria with no idea if there would be any available places for them. In line with that, it would also show if the seat is ready to be taken, or if it still needs sanitation to prevent any dirt or virus staying on the seat. This would all be processed through the application with the help of QR codes that students would scan if they are taking the seat and leaving, and for the facilitators when they sanitize the seat and then setting it up for the available status.

Purpose

By observation, one can immediately conclude that APC's cafeteria is not big enough to accommodate the community's population. In a consultation with Mr. Jojo Castillo, an Executive Director and Head of the Technical Services in APC, he estimates that the cafeteria can fit only about 10% of APC's population, hence the different lunch times of the students from different schools.

To monitor the capacity and the available seats in the cafeteria, the proponents have decided to create a mobile application that does just that. The application would help the administrators control the population and capacity of the cafeteria when face-to-face classes resume and would help the users find and locate a vacant seat easily without having to search through the entire cafeteria in the middle of a crowd.

Objective

General objectives:

This application aims to develop a capacity and availability monitoring system for the cafeteria which is designed for APC that will provide students, faculty, and staff an easy way to know the capacity and available seats at the cafeteria ahead of time for them to decide if they will eat in the cafeteria or pick other places to eat.

Specific objectives:

To allow the users to view the availability of seats in the cafeteria, they can:

- View the portal where they can see every table and the status of the seats.
- The interface will show the status of the seats in the cafeteria; green on the interface indicates that its available, red for occupied, and orange for disinfection.

For the administrators to set the cafeteria capacity and availability of the seats, they can:

- Access the interface wherein they can monitor the seats and the cafeteria capacity.
- Set the maximum cafeteria count.
- Set the number of tables in each section of the cafeteria.
- Set the number of seats from the available tables can be occupied.
- Keep records of the users.

For the cleaning personnel to monitor what seat needs to be disinfected, they can:

- Access the interface wherein they can monitor what seat they need to disinfect.
- Disinfect the seat that has an orange indicator lighting up on the admin's application.
- Set the status of the seat for it to become available; after disinfecting, the users can see from the interface that is highlighted by color green.

For the user to assign a status to an available seat, they can:

- Find an available seat from the interface.
- Select a status for each seat.
 - The user can scan the QR code located on the specific seat and set the status of the chosen seat to red so other users to know that is occupied.
 - The user can press the button "For Disinfection" to set the seat status orange/for disinfection.
- Be reminded to change their status from occupied to "for disinfection" when the timer runs out, or they can opt to extend their time in keeping their seat status to occupied until they see it fit for them to leave.

Scope and Limitations

Scope

- The users of the mobile application include the following:
 - App Administrators (Head of the departments in charge of the cafeteria and technical services),

- Cleaning Personnel,
 - Students,
 - Faculty, and
 - APC Staff who has access to their APC Accounts.
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- The administrators of the app can:
 - Log in their APC Accounts which are saved in the database as administrator accounts,
 - Check the cafeteria capacity and seat availability,
 - View the layout of the cafeteria and its sections.
 - Select the number of tables available for each section of the cafeteria by adding or deleting tables, and
 - Set the number of seats available to be occupied for each table.
 - Generate logs and reports.
 - Manage the user accounts.
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- The cleaning personnel can:
 - Log in their APC Accounts which are saved in the database as cleaning personnel accounts,
 - View the layout of the cafeteria and its sections.
 - Check the seat availability of seats inside the cafeteria,
 - Choose a seat or table to disinfect, and
 - Set the seat status (as available).
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- The students, faculty, and staff can:
 - Log in their APC Accounts to access the application,
 - Check the seat availability inside the cafeteria,
 - View the layout of the cafeteria and its sections.
 - Set the seat status (as occupied, for disinfection), and
 - Can choose the specific seat the user wants to occupy.
 - Can opt to extend their stay on the application's timer.
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- There will be a log-in and sign-up module for the users.
 - There will be a module where the users will input their information upon sign-up.
 - There will be an automatic generation of the user's account number upon sign-up.
 - There will be a built-in QR Code scanner in the app which makes use of the device's camera for the scanning of the QR Codes that are located on each seat.

- There will be a clickable text in the log-in page to redirect the administrators and cleaning personnel to their own log-in pages.
- There will be a log-in page for the administrators.
- There will be a log-in page for the cleaning personnel.
- There will be a module where the users can view the layout of the cafeteria and its sections.
- There will be four colors for the indicator – green for “available”, red for “occupied”, orange for “for disinfection”, and grey which means that the seat is unavailable for usage.
- Scanning of the QR Codes and setting the seat status will be done per seat.
- There will be a timer module to remind users to set their seat status to “for disinfection” to avoid forgetting.
- The logs of who occupied each will be recorded in the database.
- A daily report will be generated where in the administrators can see the cafeteria occupancy per hour.

Limitations

- This application is made exclusively for the APC Cafeteria only.
- The application will only accept the APC email to be used upon sign-up.
- The application will only accept the APC email as a digital identity of the user by submitting the names of the user to the active directory of the school and wait for its response (yes or no).
- The application only intends to monitor the cafeteria’s seating capacity and does not include the walk-ins for take-out orders.
- The application’s viewing layout is a block diagram representation of the actual cafeteria.
- The application only allows setting of seat status individually per seat.
- The application does not include a facility to set the seat statuses as a group.
- The application does not include an account for guests.
- The application is focused on the availability of the tables and seats and does not show the profile of each user and its history logs.

Assumptions and Constraints

Assumptions

- The users of the application are responsible to set their seat statuses to green and orange upon using a seat.
- There will be a separate accommodation for the guests only, so the application is to be used by the APC Community only.

- The viewable layout of the cafeteria will be easy to use and understand, and will help avoid confusion when choosing a place to sit.
- QR Codes will be scanned, and information will be read successfully.
- Users will scan the QR Codes and set their seat status whenever they use a seat in the cafeteria.
- Setting of the seat status will be successful.
- Indicators of available, occupied, and for disinfection seats will be showed properly on the application when a user, or cleaning personnel sets a seat status.
- The mobile application, for users, is used for viewing the cafeteria seat capacity count, viewing the seat statuses, and for setting the seat status to occupied or for disinfection.
- The mobile application, for the cleaning personnel, is used for viewing the cafeteria seat capacity count, viewing the seat statuses, and for setting the seat status to available.
- The mobile application, for the administrators, is used for setting and viewing the seat capacity count, viewing the seat statuses, setting which tables and seats are available to be occupied, and for generating reports.

Constraints

- The application solely relies on APC Accounts.
- The application focuses mainly on providing a way for the users to view the cafeteria capacity and available seats only through processing information obtained for setting the seat statuses by the users and cleaning personnel and by determining the number of tables and seats to be available by the administrators.
- The application is intended for monitoring the seat capacity only and does not include the walk-ins.
- The mobile application is internet-dependent for it to be used by the administrators, cleaning personnel, and users.

Project Deliverables

Phase	Deliverables	Date
Brainstorming	<ul style="list-style-type: none"> • Think of a system that may benefit the APC community. • Main idea for the new proposal is a cafeteria capacity monitoring system 	May 3, 2021

Visualize Proposed System	<ul style="list-style-type: none"> Created the problem domain. Discussed and thought of the main features to be included in the system. Created the description of the system. Created sample screenshots of the main parts of the system. 	May 4, 2021 – May 6, 2021
Presentation of the Proposed System for Pre-Approval	<ul style="list-style-type: none"> Presented the proposed system to the project adviser. Had the system pre-approved. 	May 7, 2021
Data Gathering	<ul style="list-style-type: none"> Interview Mr. Jojo Castillo 	May 7, 2021
Workflow Analysis	<ul style="list-style-type: none"> Analyze the results of the interview. Craft the Introduction and Background of the Project Determine the Project Objectives Narrow down Scope and Limitations, and Assumptions and Constraints of the Project 	May 8, 2021 – May 11, 2021
System Design	<ul style="list-style-type: none"> Update the sketch draft of application. Decide the key features of the application. Complete the project documentation needed for the defense. 	May 11, 2021 – May 13, 2021
System Development	<ul style="list-style-type: none"> Finalize choosing programming language and software development application. Approval of the project proposal Coding of the system 	May 15, 2021 – May 26, 2021
Testing Phase	<ul style="list-style-type: none"> Testing of the system Debugging and polishing system codes 	May 26, 2021 – June 2, 2021
Implementation	<ul style="list-style-type: none"> Testing of the system with selected stakeholders and the administrator Asking for feedbacks from the selected stakeholders and the administrator Improve minor changes in the system 	June 5, 2021 – June 17, 2021

Table 1.1: Project Deliverables

The Table 1.1 shows the phases, the deliverables to be done, and the timetable that has been set by the proponents for this project. Assuming that the group has approximately 2 – 3 months for the creation and implementation of the whole project, the table above shows the expected start and finish of each phase.

Schedule and Budget Summary

Phase	Schedule	Cost
Data Gathering	April 23, 2021 – April 28, 2021	Php 5,000.00
Workflow Analysis	April 26, 2021 – April 28, 2021	Php 10,000.00
System Design	April 28, 2021 – May 1, 2021	Php 10,000.00
System Development	May 2, 2021 – May 31, 2021	Php 15,000.00
Functional Test	June 1, 2021 – June 7, 2021	Php 15,000.00
Content Building	June 8, 2021 – June 14, 2021	Php 10,000.00
TOTAL:		Php 65,000.00

Table 1.2: Manpower

Table 1.2 shows the estimated price for manpower per phase. Each phase also has its scheduled date and number of days when they will be working. The prices indicated were based on the answers of engineers and people who have experience in the industry when asked about the estimated price allotted for each phase.

Item	Cost
Electrical Fee	Php 10,000.00
Internet Fee	Php 1,500.00
TOTAL:	Php 11,500.00

Table 1.3: Utility

Table 1.3 shows the estimated price for the utility to be used by the proponents. The prices were based on spending price of the proponents in their own home.

Item	Cost
Laptop	Php 11,500.00
Android Studio	N/A
Emulator/Mobile Device	Php 8,000.00
TOTAL:	Php 19,500.00

Table 1.4: Equipment and Supplies

Table 1.4 shows the equipment to be used by the proponents in creating the proposed project. The price for the laptop was based on its monthly price to be paid multiplied by the number of laptops to be used. The price for the mobile device was based on an android phone with 4gb of RAM.

Budget Allocation	Cost
Manpower	Php 65,000.00
Utility	Php 11,500.00
Equipment and Supplies	Php 19,500.00
TOTAL:	Php 96,000.00

Table 1.5: Budget Summary

Table 1.5 shows the overall estimated budget to be used by the proponents in the whole process of making and implementing the proposed project.

Definition and Acronyms

Term / Acronym	Definition
APC	Asia Pacific College
APC ID Account, APC Account	The school/work account of the students, faculty, and employees that makes use of their APC email address.
Application	A software created to satisfy the needs of the user.
Availability	The state of being available or unoccupied.
Cafeteria	A place inside an institution where people eat and buy their food.
Capacity	The seat count of the cafeteria.
COVID-19	Coronavirus Disease (COVID-19) is an infectious disease that has been spreading fast primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes.
Disinfection	A process used to clean or to remove microorganisms that are not good for the health.
Information	Set of data that came from the user.
Log-in	Act of entering one's username or email and password to enter a certain system.
Monitoring	Process of continuously watching or guarding something.

QR Code	Quick Response Code – used for faster method in obtaining data.
QR Code Scanner	Used to scan QR Codes.
Sign-up	Process of enrolling for a certain system.
Status	Current situation of a certain object.

Table 1.6: Definition and Acronyms

This table shows the different terms that are used in this paper. These terms are mostly used in the explanation of the project since it is explained in a technical matter. This is made so that the reader will be able to understand the project more clearly.

Evolution of the plan

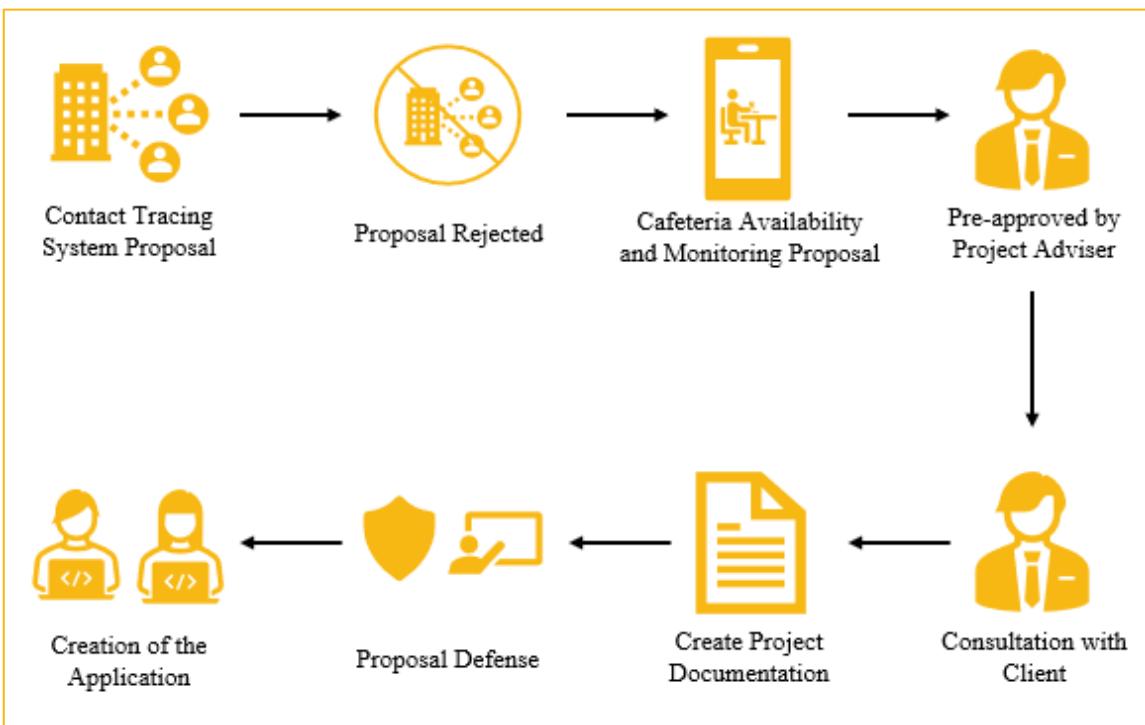


Figure 1.1: Evolution of the Plan

The diagram shows the evolution of how the proponents came up with the proposed system. First, the proponents thought of creating a contact tracing system for APC's cafeteria to be used when face-to-face classes resume. After presenting the proposal to the project adviser which ended up being rejected, the proponents thought of another way to monitor the use of the cafeteria. They then thought of creating an application that can monitor the

cafeteria's capacity and at the same time allow the users to view which tables and seats are available to be occupied. This way, social distancing and health protocols may still be observed by limiting the cafeteria's capacity and finding vacant seats will be easier for the users. With this, the proponents presented their new plan to their project adviser, who pre-approved the proposal. After presenting the proposed system to the client who agreed with it and gave inputs and suggestions, the proponents went on with creating the project documentation. The proponents will then present their proposal at the proposal defense and once approved will move on to creating the application.

CHAPTER 2

Project Organization

External Structure

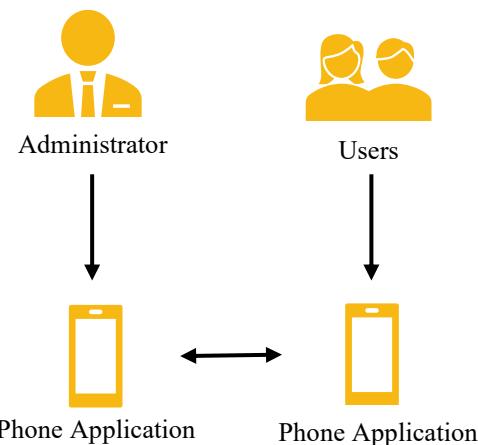


Figure 2.1: External Interfaces

Figure 2.1 shows the connection of the external interfaces – who are directly involved with the project and the devices to be used for the project implementation. Both users and the administrator will be using the phone application to set the status of the seat, and the availability of seats inside the APC Cafeteria.

Internal Structure

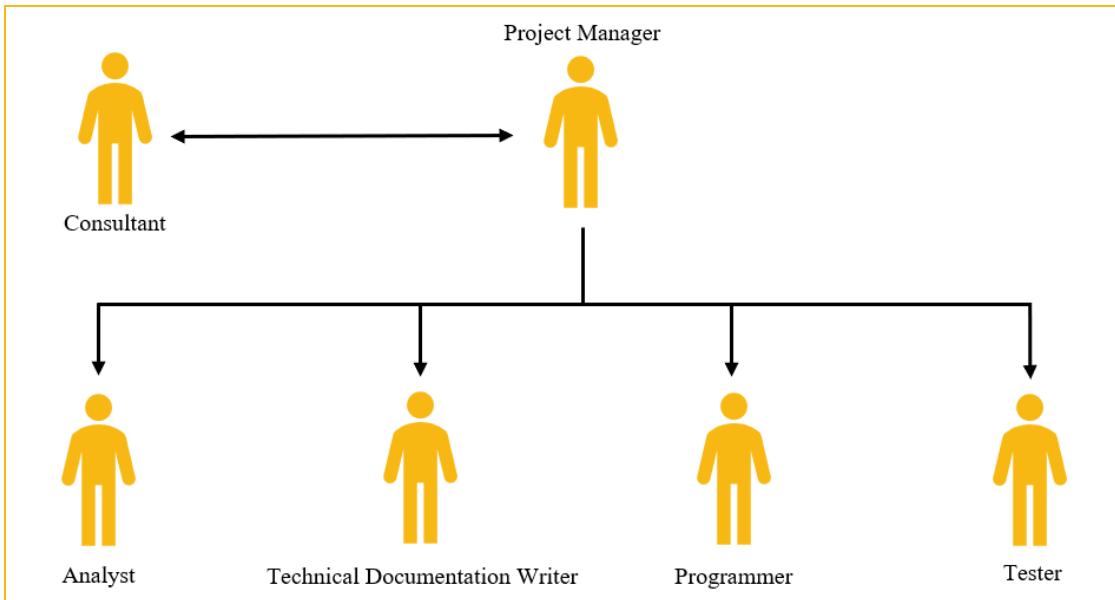


Figure 2.2: Internal Structure

Figure 2.2 shows the internal structure of the project. The project manager will be the one who will be consulting the consultant and the information given will be disseminated to the four members – the analyst, the technical documentation writer, the programmer, and the tester.

Roles and Responsibilities

External Interfaces

Name of Entities	Roles and Responsibilities
Administrator	<ul style="list-style-type: none"> Head of the departments in charge of the cafeteria and technical services <ul style="list-style-type: none"> Has the permission to set the number of tables and seats to be occupied in the cafeteria. Has the permission to set the cafeteria maximum seating capacity. Has the permission to generate and view the logs and reports. Can view the seat statuses.
Cleaning Personnel	<ul style="list-style-type: none"> Only has the permission to set the seat status to available after disinfecting the seats when the users finish using it. Can view the seat statuses. Are the ones who would disinfect the seats and tables
Users	<ul style="list-style-type: none"> User 1 <ul style="list-style-type: none"> Students

	<ul style="list-style-type: none"> ○ Can check the seat status from their phone application ○ Can scan the seat to make it occupied, or for disinfection • User 2 <ul style="list-style-type: none"> ○ Professors and Staff ○ Can check the seat status from their phone application ○ Can scan the seat to make it occupied, or for disinfection
Mobile Application	<ul style="list-style-type: none"> • Shows seat status of each table in the APC Cafeteria <ul style="list-style-type: none"> ○ Available ○ Occupied ○ For Disinfection • Shows the total count of the cafeteria's capacity • Shows the time allotted for a user to stay in <ul style="list-style-type: none"> ○ The user can extend the time he/she has in their occupancy.

Table 2.1: Roles and Responsibilities of External Interfaces

The table 2.1 shows the roles and the responsibilities of each part in the Figure 2.1.

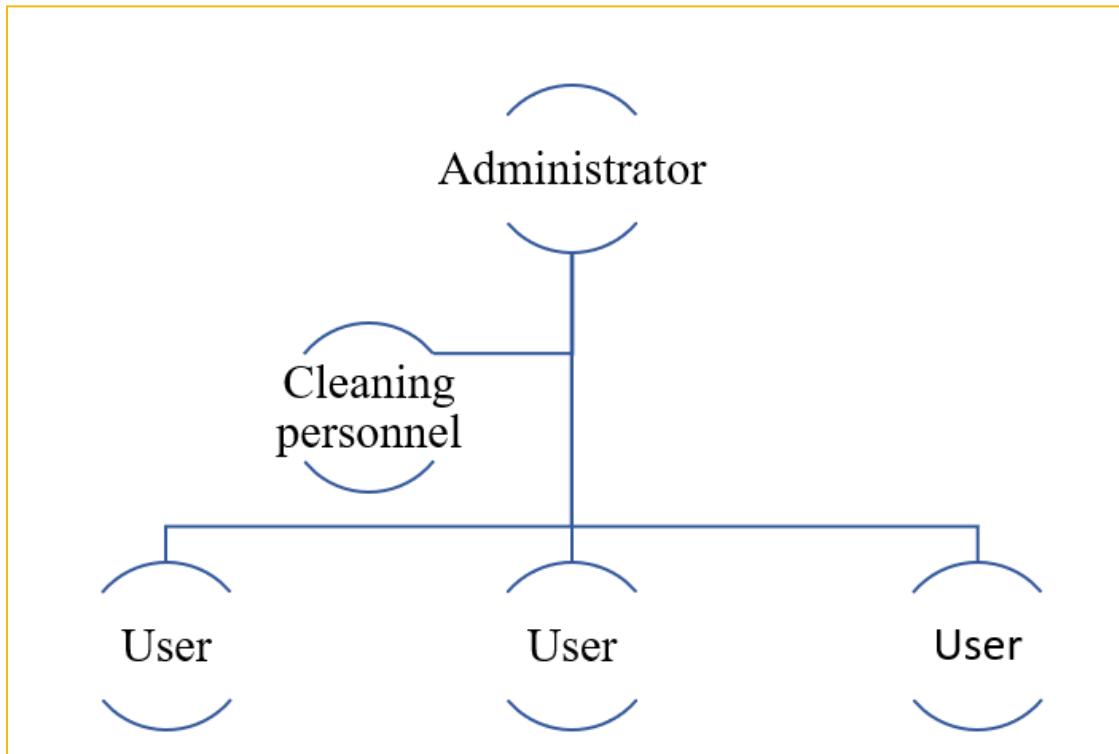


Figure 2.3: Hierarchy of Accounts

Figure 2.3 shows the hierarchy of accounts show the connection of the administrator, cleaning personnel, and users of the project. The administrator holds a higher position in the hierarchy as they are the ones who have certain permissions for the layout of the cafeteria, overriding statuses, and generating and viewing of logs. The cleaning

personnel are one level up above the users as they are the only ones who can set a seat status to available. The users have basic roles such as viewing the seat statuses to check for an available seat and setting the seat status to occupied and for disinfection.

Internal Interfaces

Name of Position	Name	Roles and Responsibilities
Consultant	Sir. Sergio Peruda	The person who has the experience and can provide expert knowledge and advice on how this field of work can be done in a more synchronize and organized manner.
Project Manager	Rissa Mikaela Beduya	The person who supervises and distribute the workload to each of the person involve in the creation of the system
Analyst	Jayson Verzon	The person who scrutinizes and provide the information needed for the creation of the system
Technical Documentation Writer	Guiliane Altaire Reyes	The person who documents all about the system and keep it as a proof of the creation. These documents are needed for future references of other researchers
Programmer	Bea Daphne Baylon	The person involved in the technical creation or the coding part of the system given the information given by the analyst
Tester	Rissa Mikaela Beduya	The person who oversees the testing of the system to provide a report upon detection of any errors

Table 2.2: Roles and Responsibilities of Internal Structures

This table shows the members of the group as well as their project adviser. Each person has their own roles in the team, and it is described in a detailed manner.

CHAPTER 3

Technical Process Plans

Functional Description

Current and Proposed System

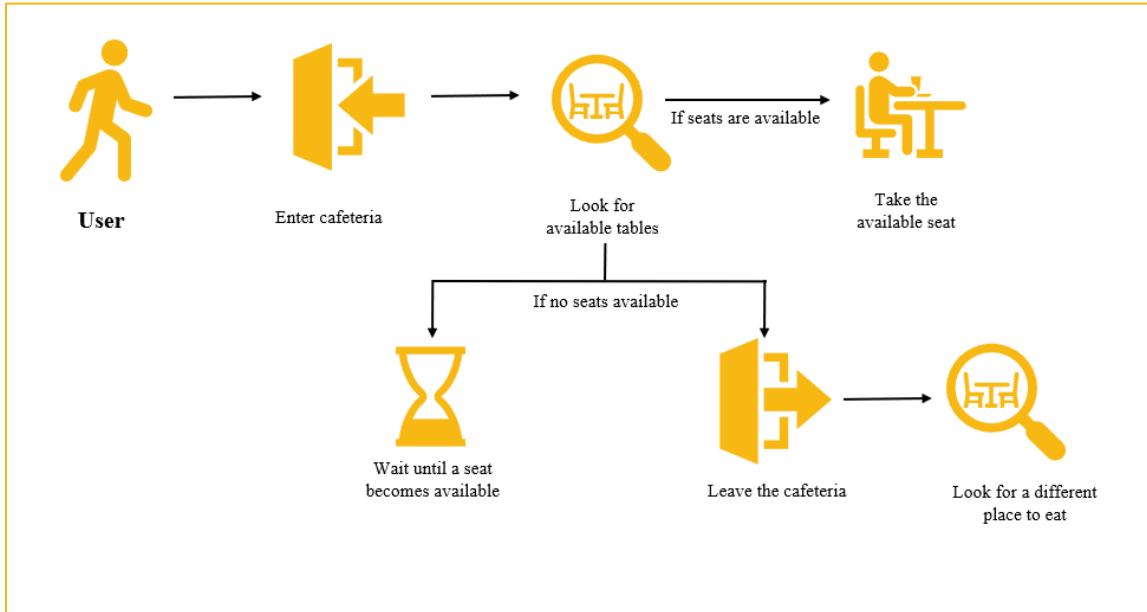


Figure 3.1: Current System

In Figure 3.1, this shows the current system of the use of the APC Cafeteria. The user enters the cafeteria and then look for an available seat. Most students are forced to wait for their turn before they can eat due to the number of students using the cafeteria. Some leaves the cafeteria to look for a different place to eat.

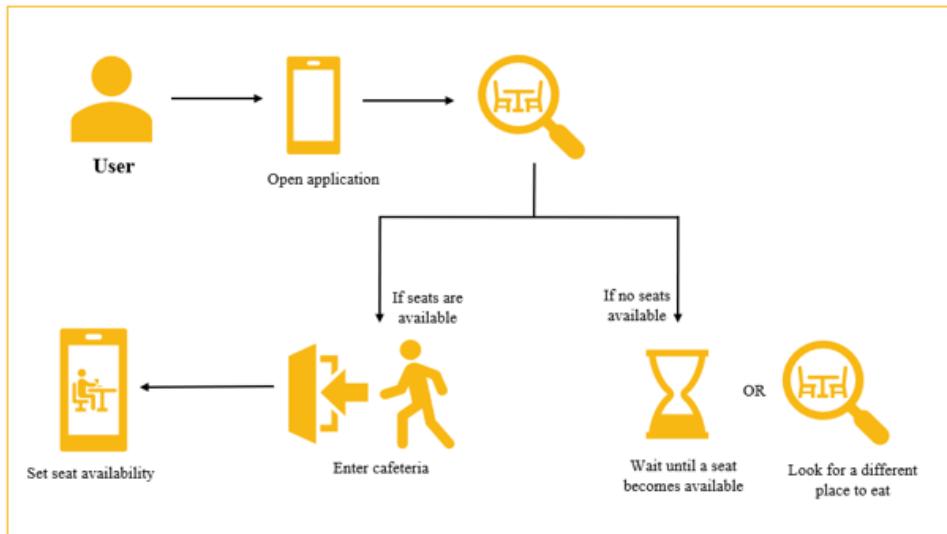


Figure 3.2: Proposed System

Compared to the Figure 3.1, Figure 3.2 shows the proposed system the proponents want to happen. Instead of entering the APC Cafeteria directly, they will now be able to know if there are available seats inside without them entering the facility. This can also limit the number of people who enters the cafeteria and given the circumstances today, physical distancing will also be implemented here.

Screenshots

The following are the screenshots of the mobile application for the proposed project. It shows the interface that the users will be seeing. The proponents decided to design the interface with minimal designs and easy to use buttons and textboxes for the users to easily navigate the application.

For Admin:

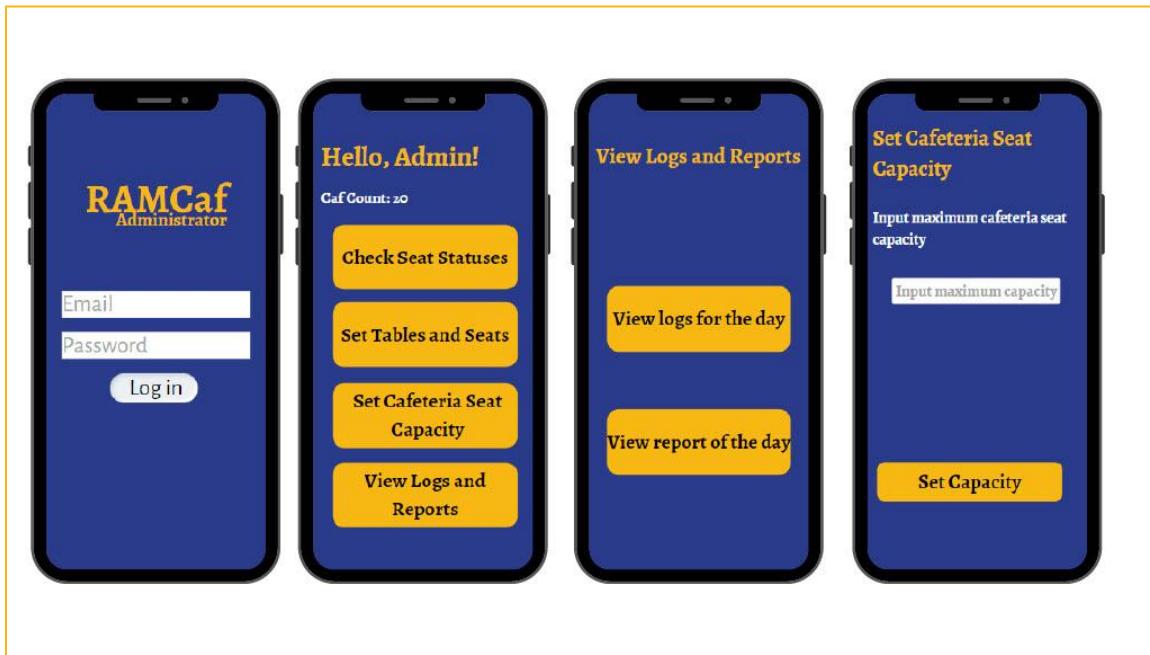


Figure 3.3a: Screenshots of RAMCaff for Admin

Figure 3.3a shows the application's user interface for Administrator Log-in page, home page, view logs and reports page, and set cafeteria capacity page. The log-in page is where the administrator will input their credentials to enter the application. The home page will show the things that the admin can see – cafeteria count, check seat status, set tables and seats, set cafeteria capacity, and view logs and reports. The view logs and reports page, the admin will be able to see the logs and the report of the day. The last screenshot shows the maximum seat capacity of the cafeteria.

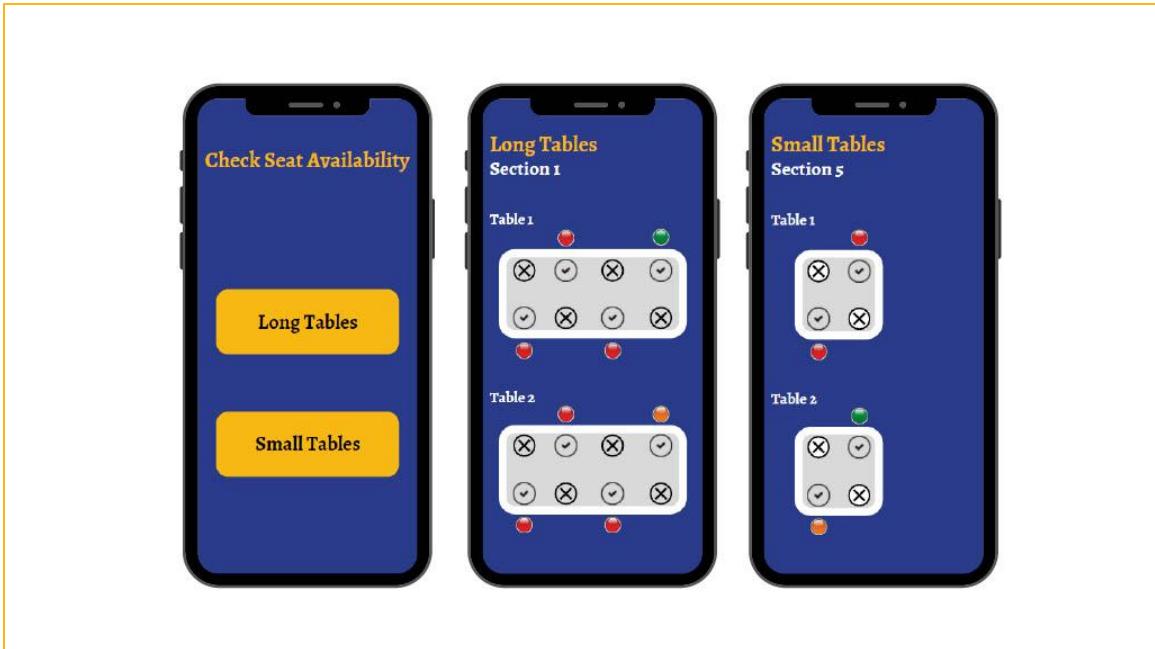


Figure 3.3b: Screenshots of RAMCaff for Admin

Figure 3.3b shows the pages under Check Seat Availability which allows the Administrator to monitor and see which seats in the cafeteria are available, taken, and for disinfection.

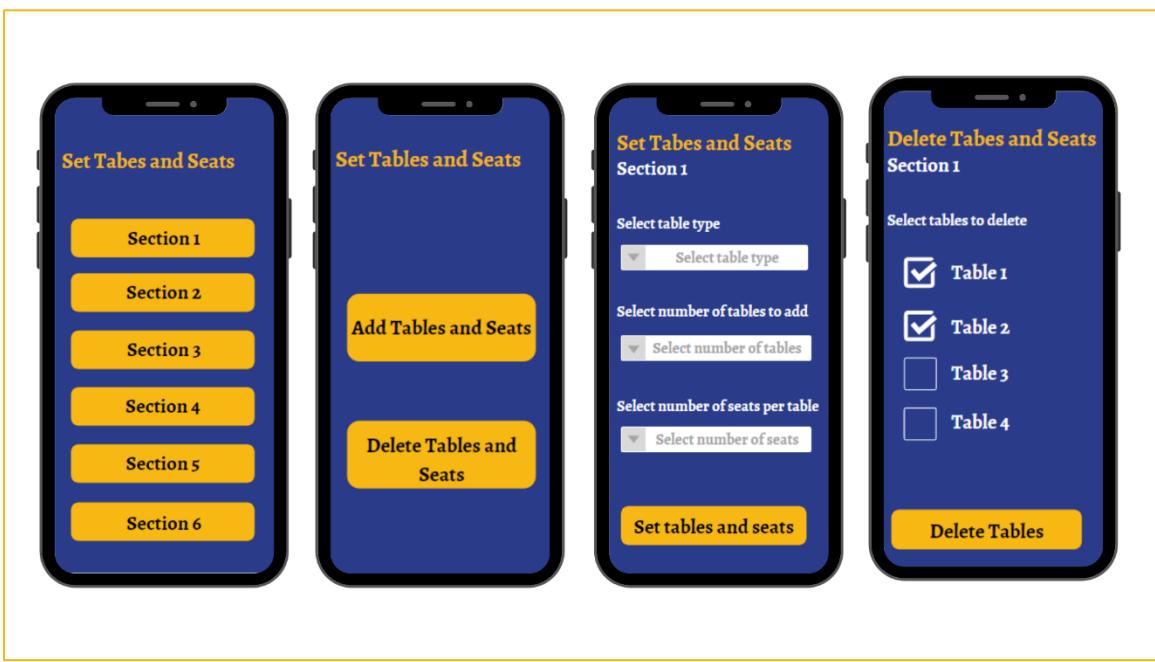


Figure 3.3c: Screenshots of RAMCaff for Admin

Figure 3.3c shows where the Administrator can select different sections of the cafeteria, choose between adding or deleting tables and seats that corresponds to the actual capacity of the cafeteria in APC. In adding tables and seats, the administrator can select whether the table to be added is long or small, select the number of tables to add, and the number of seats per table. The last screenshot shows how to delete tables and seats.

For Users:

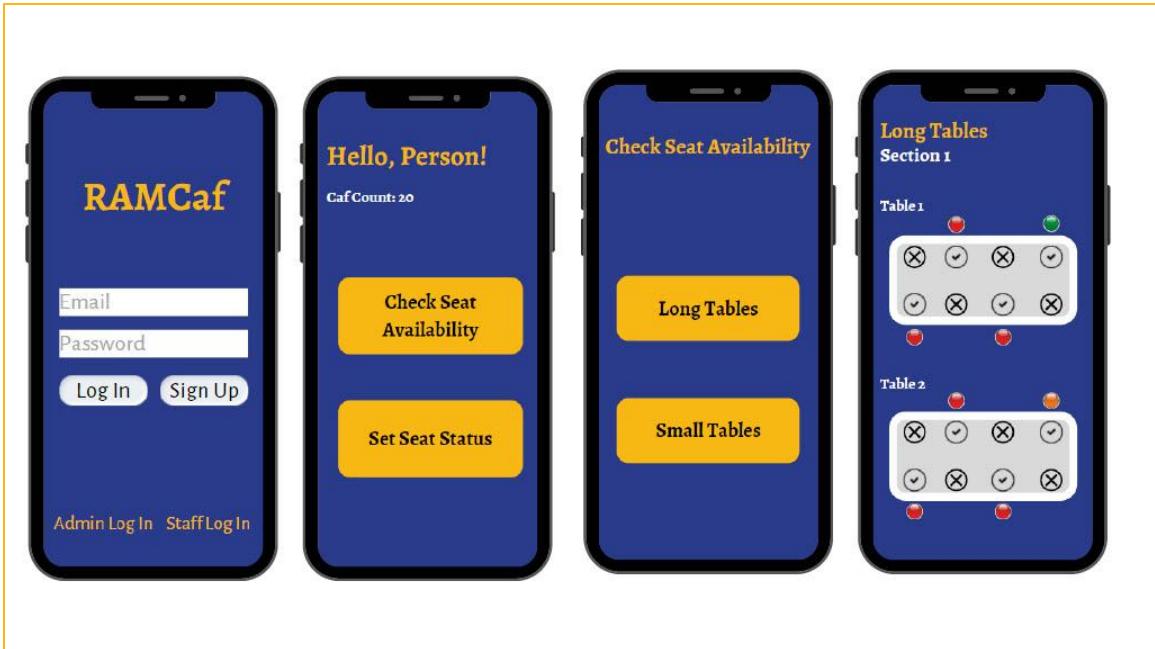


Figure 3.4a: Screenshots of RAMCaffor Users

Figure 3.4a shows the user Log-in page which shows the home page upon log-in, and options for Check Seat Availability Page. The third screenshot shows what kind of table the user will be using and displays the long tables and its corresponding seat status.

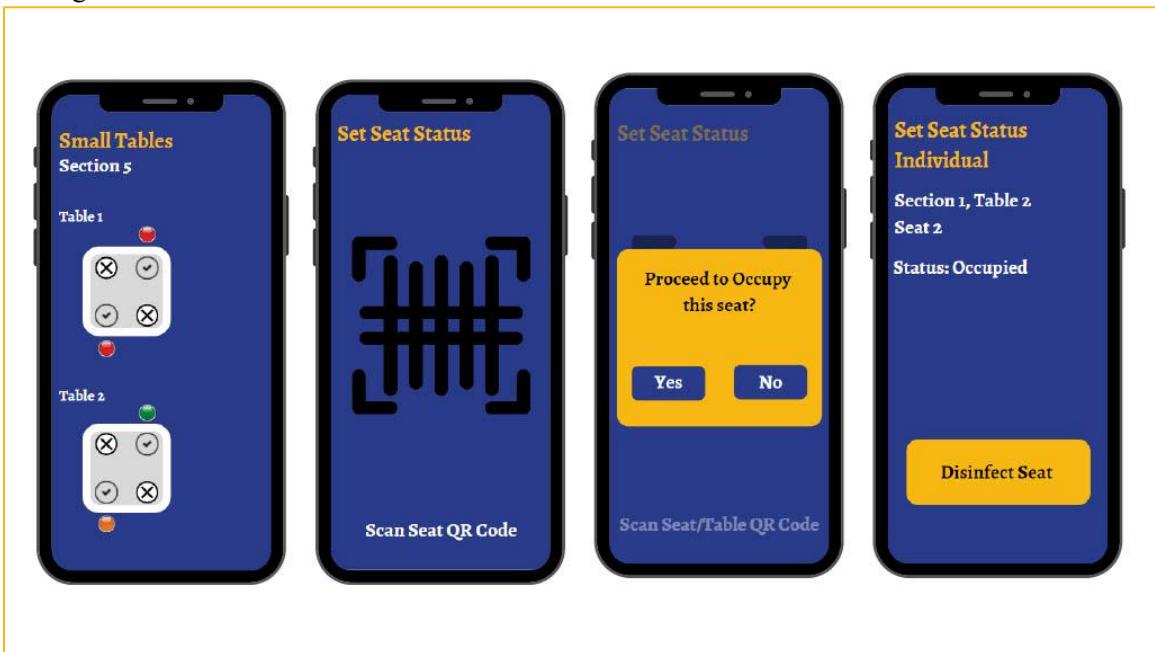


Figure 3.4b: Screenshots of RAMCaffor Users

Figure 3.4b shows the small tables and its seat status. The second screenshot shows the QR Code scanner to be used to scan the QR Codes that are located on each seat that is available. The third shows the pop up, asking if the user is sure that he/she will occupy the seat that was scanned. The last shows the information of the seat the user scanned and there is the button to change the status of the seat from occupied to “for disinfection”.

For Staff:

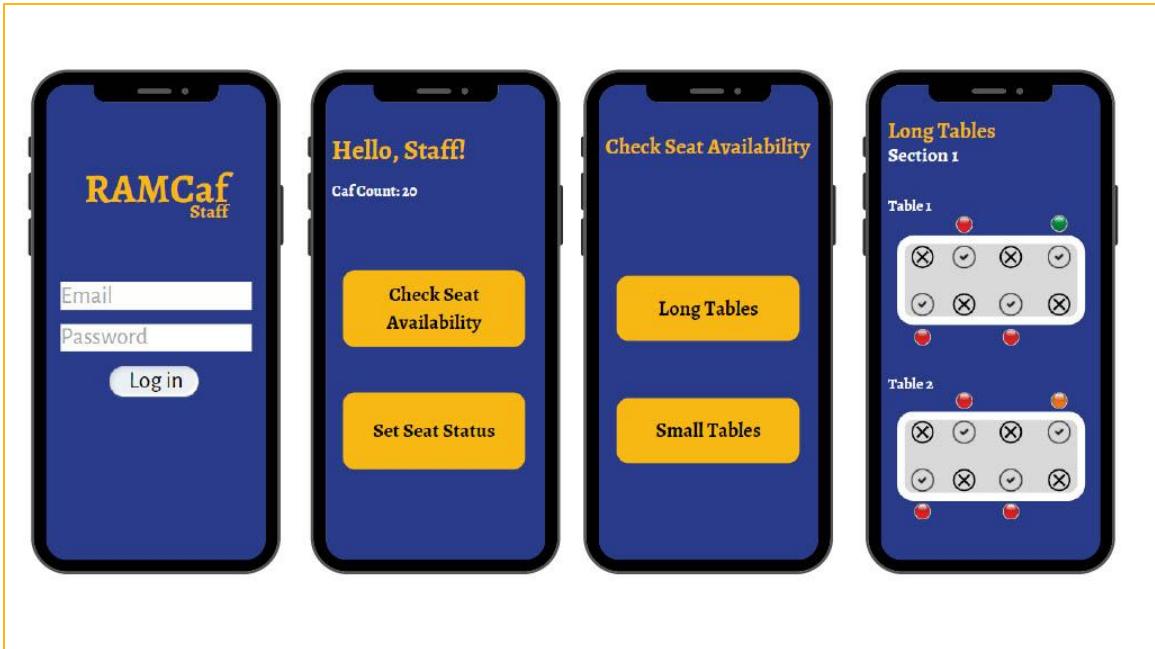


Figure 3.5a: Screenshots of RAMCaf for Staff

Figure 3.5a shows the Log-in page for the staff. After logging in, the staff will see the cafeteria count and will also choose to check the seat availability or to set seat status. The third screenshot shows which type of table is to be selected and the last shows the long tables with its corresponding seat status.

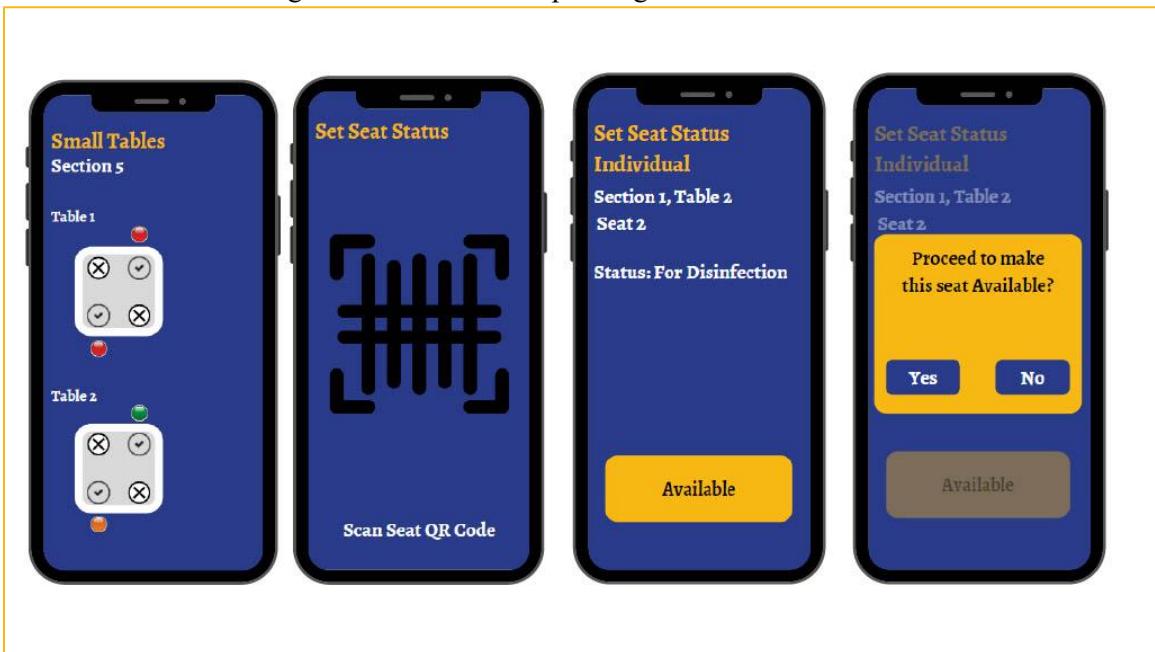


Figure 3.5b: Screenshots of RAMCaf for Staff

Figure 3.5b shows the small tables and its seat status. The second screenshot shows the QR Code scanner to be used to scan the QR Codes that are located on each seat. The third shows the details of the scanned seat. The last screenshot shows a popup, confirming that the status of the scanned seat is to be changed from “*for disinfection*” to available.

CHAPTER 4

Managerial Process Plans

The proponents have prepared a detailed summary of the specifics in terms of the manpower, the tasks, the resources, the hours put in, and the processes that went through to finalize and finish the project.

Start-up Plan

Estimates

Personnel	Rate/Hour	# of Personnel
Project Manager	P300.00	1
System Analysis	P200.00	1
Tester	P100.00	1
Graphic Designer	P130.00	1
Programmer	P150.00	1
Technical Writer	P100.00	1

Table 4.1: Resource Estimates

Table 4.1 are the personnel that are involved in the creation of the application. The proponents have decided that they are going to take at least 1 or more roles to fill in what is needed so that they can support and help each other in various parts on the progress of the project.

Personnel	Start Date	End Date	Total Man Hours
Project Manager	May 5, 2021	June 24, 2021	1200
System Analyst	May 5, 2021	June 24, 2021	1200
Tester	May 5, 2021	June 24, 2021	1200
Graphic Designer	May 5, 2021	June 24, 2021	1200
Programmer	May 5, 2021	June 24, 2021	1200
Technical Writer	May 5, 2021	June 24, 2021	1200
TOTAL			7200

Table 4.2: Time Estimates

Table 4.2 These personnel started on the day the project has been put into motion after consultation with the adviser. They all had a hand in with every process and decision that was made, hence, having all similar hours from start to end.

Technology	Hardware	Software
Server	1TB Memory WIFI/LAN	WIFI/LAN WebHost PHP MyAdmin
Workstation	Intel® Core™ i3 7 th Gen 8GB RAM 64-bit Operating System 1 TB Hard Disk	Windows 10 WebHost PHP MyAdmin Android Studio

Table 4.3: System Requirements

Table 4.3 shows the minimum requirements for each of the proponents' PC to be able to complete and finish the project.

Staffing

Phase	Personnel	Duration(days)
Data gathering	Project Manager, Technical Writer	50
Workflow Analysis	Project Manager, Technical Writer	50
System Design	Project Manager, System Analyst, Technical Writer, Graphic designer	50
System Development	Project Manager, Programmer, Technical Writer	50
Functional Test	Project Manager, Tester, Technical Writer	50
Implementation	Project Manager, Technical Writer	50

Table 4.4: Staffing

Table 4.4 Shows that all of the personnel have worked throughout the whole duration of the project in order to fill in and keep updating until the project is finished.

Resource Acquisition

Phase	Date	Tools and Equipment
Data gathering	May 5, 2021 – May 15, 2021	MS Office Word, Internet Browser, Laptop
Workflow Analysis	May 10, 2021 – May 23, 2021	MS Office Word, Laptop
System Design	May 10, 2021 – May 23, 2021	MS Office Word, Laptop
System Development	May 20, 2021 – June 5, 2021	PHP, MyWebHost, Android Studio, Internet, Laptop
Functional Test	May 20, 2021 – June 5, 2021	PHP, MyWebHost, Android Studio, Internet, Laptop
Implementation	June 3, 2021 – June 5, 2021	PHP, MyWebHost, Android Studio, Internet, Laptop

Table 4.5: Resource Acquisition

Table 4.5 The proponents have used the Internet, laptops, MyWebHost and Android Studio throughout the whole duration since their project is built up on these.

Work Plan

Work Breakdown Structure

Week (3rd Term)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Days
Data Gathering																	
Talk to Adviser								1									1
Formulate Project									3								11
Talk to Client									1								1
Consult Adviser										1							1
Define Objectives										7							7
Define Requirements										7							7
Define Methodologies										7							7
TOTAL																	35

Figure 4.1: Data Gathering WBS

Figure 4.1 Started from May 5 up to May 15, this is where the whole outer image and general thought of the project itself.

Week (3rd Term)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Days
Workflow Analysis																	
Analyzing Specific Objectives										7							7
Reviewing Data Gathered											7						7
Comparing Current and Proposed Process											7						7
Review Objectives											7						7
Review Requirements											7						14
Review Methodologies											7						14
Define Implementation											7						14
Define Users and Administrator											7						14
Total																	84

Figure 4.2: Workflow Analysis WBS

Figure 4.2 Started from May 10, 2021 to May 21, 2021, the proponents had started formulating and deciding what will be needed to be able to complete the application.

Week (3rd Term)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Days
System Design																	
Design User Interfaces										7							14
Design Admin Interfaces											7						14
Design Staff Interfaces											7						14
Total																	42

Figure 4.3:

System Design WBS

Figure 4.3 May 10, 2021 to May 21, 2021. The proponents had created the design and look of the different interfaces that would be seen per level of user of the application.

Week (3rd Term)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Days
System Development																	
Creation of webhost account and database										6							6
Create Log In Interface										3	7	7					17
Create Sign Up Interface										3	7	7					17
Connect Login to Sign Up Interface; Upon Button click, intent to Sign Up Interface										3	7	7					17
Create QR Code Scanner										3	7	7					17
Create PHP code to store user info to database upon Sign Up										2	7	7					16
Creation of Terms and Conditions activity										2	7	7					16
Creation of PHP code to verify user credentials upon login										1	7	7					15
Tweaking database data type and length to accept email inputs										7	7						14
Tweaking signup logic - incorporate radio buttons to select email address (@student.apc.edu.ph or @apc.edu.ph)										7	7						14
Create Log in for Admin and Staff										6	7						13
Creation of PHP code for admin and staff login										6	7						13
Creation of PHP code to get <u>user name</u> from database and pass/store to a variable in android										6	7						13
Creation of <u>UserHome</u> , <u>AdminHome</u> , and <u>StaffHome</u> Page										6	7						13
Creation of PHP code to get admin and staff name from database and pass/store to a variable in android										6	7						13
Storing <u>user name</u> , admin name, and staff name to shared preferences and displaying it through textView upon login										6	7						13
Interface for User Seats																	13
Create Interface for User seats										6	7						13
Create Interface for User Long Table Option										6	7						13
Create Interface for User Short Table Option										6	7						13
Create Interface for User Scanning Seat with QR										6	7						13
Create Interface for User Occupancy and Disinfection										6	7						13
Create In-App Icons										5	7						12
Creation of Swipe Refresh Layout for code to get tables and seats from the "for disinfection status" and displays it in a <u>ListView</u>										4							4
Creation of code to get the seat and table numbers stored in an array from PHP										4							4

Creation of code to pass the data taken from the database to an <u>ArrayList</u>							4			4
Creation of code to display the contents of the <u>ArrayList</u> in a <u>ListView</u> using an <u>ArrayAdapter</u>							4			4
Creation of PHP code to update the seat status from "for disinfection" to "available" upon button click of staff							2			2
Creation of PHP code to get all long seat statuses from the database							2			2
Creation of code to display <u>all of</u> the long seat statuses in the "Check Seat Statuses/Availability" class							2			2
Creation of PHP code to get all short seat statuses from the database							1			1
Creation of code to display <u>all of</u> the short seat statuses in the "Check Seat Statuses/Availability" class							1			1
Creation of PHP code to pass seat information and update seat status upon scanning of a seat QR Code							1			1
Creation of class to set the seat status to "For Disinfection" upon button click of a database							1			1
Creation of PHP code to update the seat status to "for disinfection" in the database							1			1
Create code to get all seat statuses and count all occupied seats. This is the cafeteria capacity count.							1			1
Create PHP to get logs, every time a user changes a status, it is logged in the database									1	1
Create module on Admin's side to view logs and reports									1	1
Changed all auto refresh to swipe refresh									1	1
Create a 30-minute timer that can be extended as per the user's wishes									1	1
Change the "disinfect" button to "For Disinfection"									1	1
Create PHP code to save the added seats to the database									1	1
Create module to add seats on Admin's side									4	3
Update whole application to make seats to be based per section, and not by per table									1	1
Viewing of seating statuses are now based on the added seats by the admin per section									3	3
Total										349

Figure 4.4: System Development WBS

Figure 4.4 Started from May 18, 2021 to June 5, 2021. The whole application was built up from a database, then the application was created in Android Studio, with the layout and icons created in photo and icon editors.

Week (3rd Term)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Days
Functional Test																	
Passing data to store in the database upon signup									2							2	
Passing data to database to verify user credentials upon login									3							3	
Getting user ID from Database										3						3	
Displaying the contents taken from the database to the ListView										2						2	
Displaying of all Long and Short Table Seat Statuses										1						1	
Checking if the "Check Seat Statuses/Availability" class refreshes/updates and shows the updated database contents										1						1	
Checking if the seat statuses is updated in the database upon scanning of a QR Code											1					1	
Checking if the seat status is updated to "for disinfection" upon button click of the user											1					1	
Checking if the new tables added by the admin are successfully saved in the database																7	
Check if the information from the database is right																7	
Check if the codes fit into one another																7	
Total																35	

Figure 4.5: Functional Test WBS

Figure 4.5 Tests were run within the same time that the components were created.

Week (3rd Term)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Days
Implementation																	
Put together XMLs and Logic													2				2
Total																	2

Figure 4.7: Implementation WBS

Figure 4.7 The whole implementation phase is when all the XMLs and logic got put together and finally completed the running application.

Schedule Allocation

Data Gathering	Start Date	End Date	Role	Man Hours
Talk to Adviser	May 5, 2021	May 5, 2021	PM, TW	1
Formulate Project	May 5, 2021	May 7, 2021	PM, TW	2
Talk to Client	May 7, 2021	May 7, 2021	PM, TW	5
Consult Adviser	May 10, 2021	May 10, 2021	PM, TW	1
Define Objectives	May 10, 2021	May 15, 2021	PM, TW	35
Define Requirements	May 10, 2021	May 15, 2021	PM, TW	35
TOTAL				79

Table 4.6: Detailed Schedule Allocation for Data Gathering

Table 4.6 Started from May 5 up to May 15, this is where the whole outer image and general thought of the project itself.

Workflow Analysis	Start Date	End Date	Role	Man Hours
Analyzing Specific Objectives	May 10, 2021	May 16, 2021	PM, TW	15
Reviewing Data Gathered	May 10, 2021	May 16, 2021	PM, TW	15
Comparing Current and Proposed Process	May 10, 2021	May 16, 2021	PM, TW	15
Review Objectives	May 10, 2021	May 16, 2021	PM, TW	15
Review Requirements	May 10, 2021	May 16, 2021	PM, TW	15
Review Methodologies	May 10, 2021	May 16, 2021	PM, TW	15
Define Implementation	May 10, 2021	May 16, 2021	PM, TW	15
Define Users and Administrator	May 10, 2021	May 16, 2021	PM, TW	15
TOTAL				120

Table 4.7: Detailed Schedule Allocation for Workflow Analysis

Table 4.7 Started from May 10, 2021 to May 16, 2021, the proponents had started formulating and deciding what will be needed to be able to complete the application.

System Design	Start Date	End Date	Role	Man Hours
Design User Interfaces	May 10, 2021	May 16, 2021	PM, TW, GD	10
Design Admin Interfaces	May 10, 2021	May 16, 2021	PM, TW, GD	10
Design Staff Interfaces	May 10, 2021	May 16, 2021	PM, TW, GD	10
TOTAL				30

Table 4.8: Detailed Schedule Allocation for System Design

Table 4.8 May 10, 2021 to May 16, 2021. The proponents had created the design and look of the different interfaces that would be seen per level of user of the application.

System Development	Start Date	End Date	Role	Man Hours
Creation of webhost account and database	May 18, 2021	May 23, 2021	PM, TW, PG	75
Create Log In Interface	May 20, 2021	June 5, 2021	PM, TW, PG	75
Create Sign Up Interface	May 20, 2021	June 5, 2021	PM, TW, PG	75
Connect Login to Sign Up Interface; Upon Button click, intent to Sign Up Interface	May 20, 2021	June 5, 2021	PM, TW, PG	75
Create QR Code Scanner	May 20, 2021	June 5, 2021	PM, TW, PG	75
Create PHP code to store user info to database upon Sign Up	May 20, 2021	June 5, 2021	PM, TW, PG	75
Creation of Terms and Conditions activity	May 21, 2021	June 5, 2021	PM, TW, PG	75
Creation of PHP code to verify user credentials upon login	May 21, 2021	June 5, 2021	PM, TW, PG	75

Tweaking database data type and length to accept email inputs	May 22, 2021	June 5, 2021	PM, TW, PG	75
Tweaking signup logic - incorporate radio buttons to select email address (@student.apc.edu.ph or @apc.edu.ph)	May 22, 2021	June 5, 2021	PM, TW, PG	75
Create Log in for Admin and Staff	May 23, 2021	June 5, 2021	PM, TW, PG	75
Creation of PHP code for admin and staff login	May 23, 2021	June 5, 2021	PM, TW, PG	75
Creation of PHP code to get user name from database and pass/store to a variable in android	May 24, 2021	June 5, 2021	PM, TW, PG	75
Creation of UserHome, AdminHome, and StaffHome Page	May 24, 2021	June 5, 2021	PM, TW, PG	75
Create Interface for User seats	May 24, 2021	June 5, 2021	PM, TW, PG	75
Create Interface for User Long Table Option	May 24, 2021	June 5, 2021	PM, TW, PG	75
Create Interface for User Short Table Option	May 24, 2021	June 5, 2021	PM, TW, PG	75
Create Interface for User Scanning Seat with QR	May 24, 2021	June 5, 2021	PM, TW, PG	75
Create Interface for User Occupancy and Disinfection	May 24, 2021	June 5, 2021	PM, TW, PG	75
Create In-App Icons	May 25, 2021	June 5, 2021	PM, TW, PG	75
Creation of Swipe Refresh Layout for code to get tables and seats from the "for disinfection status" and displays it in a ListView	June 2, 2021	June 5, 2021	PM, TW, PG	45
Creation of code to get the seat and table numbers stored in an array from PHP	June 2, 2021	June 5, 2021	PM, TW, PG	45
Creation of code to pass the data taken form the databsae to an ArrayList	June 2, 2021	June 5, 2021	PM, TW, PG	45
Creation of code to display the contents of the ArrayList in a ListView using an ArrayAdapter	June 2, 2021	June 5, 2021	PM, TW, PG	45
Creation of PHP code to update the seat status from "for disinfection" to "available" upon button click of staff	June 3, 2021	June 5, 2021	PM, TW, PG	30
Creation of PHP code to get all long seat statuses from the database	June 3, 2021	June 5, 2021	PM, TW, PG	30
Creation of code to display all of the long seat statuses in the "Check Seat Statuses/Availability" class	June 3, 2021	June 5, 2021	PM, TW, PG	30
Creation of PHP code to get all short seat statuses from the database	June 4, 2021	June 5, 2021	PM, TW, PG	30
Creation of code to display all of the short seat statuses in the "Check Seat Statuses/Availability" class	June 4, 2021	June 5, 2021	PM, TW, PG	30
Creation of PHP code to pass seat information and update seat status upon scanning of a seat QR Code	June 4, 2021	June 5, 2021	PM, TW, PG	30
Creation of class to set the seat status to "For Disinfection" upon button click of a database	June 4, 2021	June 5, 2021	PM, TW, PG	30

Creation of PHP code to update the seat status to "for disinfection" in the database	June 4, 2021	June 5, 2021	PM, TW, PG	30
Create code to get all seat statuses and count all occupied seats. This is the cafeteria capacity count.	June 4, 2021	June 5, 2021	PM, TW, PG	30
Create PHP to get logs, every time a user changes a status, it is logged in the database	June 17, 2021	June 17, 2021	PM, TW, PG	15
Create module on Admin's side to view logs and reports	June 18, 2021	June 18, 2021	PM, TW, PG	15
Changed all auto refresh to swipe refresh	June 18, 2021	June 18, 2021	PM, TW, PG	15
Create a 30-minute timer that can be extended as per the user's wishes	June 18, 2021	June 18, 2021	PM, TW, PG	15
Change the "disinfect" button to "For Disinfection"	June 19, 2021	June 19, 2021	PM, TW, PG	15
Create PHP code to save the added seats to the database	June 19, 2021	June 19, 2021	PM, TW, PG	15
Create module to add seats on Admin's side	June 16, 2021	June 22, 2021	PM, TW, PG	30
Update whole application to make seats to be based per section, and not by per table	June 24, 2021	June 24, 2021	PM, TW, PG	15
Viewing of seating statuses are now based on the added seats by the admin per section	June 24, 2021	June 26, 2021	PM, TW, PG	30
TOTAL				2115

Table 4.9: Detailed Schedule Allocation for System Development

Table 4.9 shows the required man hours for each major phase of system development phase. It also determines the starting and end data per major proponents. It also describes what staff will be present for each major proponents of the workflow analysis phase.

Functional Test	Start Date	End Date	Role	Man Hours
Passing data to store in the database upon signup	May 20, 2021	May 21, 2021	PM, TW, TS1	30
Passing data to database to verify user credentials upon login	May 21, 2021	May 23, 2021	PM, TW, TS1	45
Getting user ID from Database	May 24, 2021	May 26, 2021	PM, TW, TS1	45
Displaying the contents taken from the database to the ListView	June 2, 2021	June 3, 2021	PM, TW, TS1	30
Displaying of all Long and Short Table Seat Statuses	June 3, 2021	June 3, 2021	PM, TW, TS1	15
Checking if the "Check Seat Statuses/Availability" class refreshes/updates and shows the updated database contents	June 4, 2021	June 4, 2021	PM, TW, TS1	15
Checking if the seat statuses is updated in the database upon scanning of a QR Code	June 4, 2021	June 4, 2021	PM, TW, TS1	15
Checking if the seat status is updated to "for disinfection" upon button click of the user	June 4, 2021	June 4, 2021	PM, TW, TS1	15

Checking if the new tables added by the admin are successfully saved in the database	June 20, 2021	June 26, 2021	PM, TW, TS1	60
Check if the information from the database is right	June 20, 2021	June 26, 2021	PM, TW, TS1	60
Check if the codes fit into one another	June 20, 2021	June 26, 2021	PM, TW, TS1	60
TOTAL				390

Table 4.10: Detailed Schedule Allocation for Testing Phase

Table 4.10 shows the required man hours for each major phase of system development phase. It also determines the starting and end date per major proponents. It also describes what staff will be present for each major proponents of the workflow analysis phase.

Implementation	Start Date	End Date	Role	Man Hours
Put together XMLs and Logic	June 3, 2021	June 4, 2021	PM, TW	15
TOTAL				15

Table 4.11: Detailed Schedule Allocation for Implementation Phase

Table 4.11 shows the required man hours for each major phase of Implementation phase. It also determines the starting and end data per major proponents. It also describes what staff will be present for each major proponents of the Implementation phase.

Resource Allocation

Phase	PM	PG	TS	TW	GA
Data gathering	79	79	79	79	79
Workflow Analysis	120	120	120	120	120
System Design	30	30	30	30	30
System Development	1950	1950	1950	1950	1950
Functional Test	210	210	210	210	210
Implementation	15	15	15	15	15
TOTAL	2404	2404	2404	2404	2404

Table 4.12: Detailed Breakdown of Resource Allocation per Phase

Table 4.12 is the general overview that the staff allotted their man hours in completing each required phase. In here the project manager has allotted a lot of man hours, for the PM must supervise how the proposed system's development over the time.

Budget Allocation

Data Gathering	PM	PG	TS	TW	GA	Cost
Talk to Adviser	1	1	1	1	1	P1000.00
Formulate Project	1	1	1	1	1	P1000.00
Talk to Client	1	1	1	1	1	P1000.00
Consult Adviser	1	1	1	1	1	P1000.00
Define Objectives	1	1	1	1	1	P1000.00

Define Requirements	1	1	1	1	1	P1000.00
TOTAL						P6000.00

Table 4.13: Detailed Budget Allocation for Data Gathering

Table 4.13 shows how each major proponents' cost for each staff present for the completion allotted for the given time. The numbers dictate how many days each staff work for that specific proponent. This is the breakdown for the data analysis.

Workflow Analysis	PM	PG	TS	TW	GA	Cost
Analyzing Specific Objectives	1	1	1	1	1	P1000.00
Reviewing Data Gathered	1	1	1	1	1	P1000.00
Comparing Current and Proposed Process	1	1	1	1	1	P1000.00
Review Objectives	1	1	1	1	1	P1000.00
Review Requirements	1	1	1	1	1	P1000.00
Review Methodologies	1	1	1	1	1	P1000.00
Define Implementation	1	1	1	1	1	P1000.00
Define Users and Administrator	1	1	1	1	1	P1000.00
Total						P8000.00

Table 4.14: Detailed Budget Allocation for Workflow Analysis

Table 4.14 shows how each major proponents' cost for each staff present for the completion allotted for the given time. The numbers dictate how many days each staff work for that specific proponent. This is the breakdown for workflow analysis.

System Design	PM	PG	TS	TW	GA	Cost
Design User Interfaces	1	1	1	1	1	P10000.00
Design Admin Interfaces	1	1	1	1	1	P10000.00
Design Staff Interfaces	1	1	1	1	1	P10000.00
TOTAL						P 50000.00

Table 4.15: Detailed Budget Allocation for System Design

Table 4.15 shows how each major proponents' cost for each staff present for the completion allotted for the given time. The numbers dictate how many days each staff work for that specific proponent. This is the breakdown for the system design.

System Development	PM	PG	TS	TW	GA	Cost
Creation of webhost account and database	1	1	1	1	1	P6000.00
Create Log In Interface	1	1	1	1	1	P5000.00

Create Sign Up Interface	1	1	1	1	1	P10000.00
Connect Login to Sign Up Interface; Upon Button click, intent to Sign Up Interface	1	1	1	1	1	P10000.00
Create QR Code Scanner	1	1	1	1	1	P10000.00
Create PHP code to store user info to database upon Sign Up	1	1	1	1	1	P10000.00
Creation of Terms and Conditions activity	1	1	1	1	1	P10000.00
Creation of PHP code to verify user credentials upon login	1	1	1	1	1	P10000.00
Tweaking database data type and length to accept email inputs	1	1	1	1	1	P10000.00
Tweaking signup logic - incorporate radio buttons to select email address (@student.apc.edu.ph or @apc.edu.ph)	1	1	1	1	1	P10000.00
Create Log in for Admin and Staff	1	1	1	1	1	P10000.00
Creation of PHP code for admin and staff login	1	1	1	1	1	P10000.00
Creation of PHP code to get user name from database and pass/store to a variable in android	1	1	1	1	1	P10000.00
Creation of UserHome, AdminHome, and StaffHome Page	1	1	1	1	1	P5000.00
Create Interface for User seats	1	1	1	1	1	P6000.00
Create Interface for User Long Table Option	1	1	1	1	1	P5000.00
Create Interface for User Short Table Option	1	1	1	1	1	P10000.00
Create Interface for User Scanning Seat with QR	1	1	1	1	1	P10000.00
Create Interface for User Occupancy and Disinfection	1	1	1	1	1	P10000.00
Create In-App Icons	1	1	1	1	1	P10000.00
Creation of Swipe Refresh Layout for code to get tables and seats	1	1	1	1	1	P10000.00

from the "for disinfection status" and displays it in a ListView						
Creation of code to get the seat and table numbers stored in an array from PHP	1	1	1	1	1	P10000.00
Creation of code to pass the data taken form the databsae to an ArrayList	1	1	1	1	1	P10000.00
Creation of code to display the contents of the ArrayList in a ListView using an ArrayAdapter	1	1	1	1	1	P10000.00
Creation of UserHome, AdminHome, and StaffHome Page	1	1	1	1	1	P10000.00
Create Interface for User seats	1	1	1	1	1	P10000.00
Create Interface for User Long Table Option	1	1	1	1	1	P10000.00
Create Interface for User Short Table Option	1	1	1	1	1	P10000.00
Create Interface for User Scanning Seat with QR	1	1	1	1	1	P10000.00
Create Interface for User Occupancy and Disinfection	1	1	1	1	1	P10000.00
Create In-App Icons	1	1	1	1	1	P10000.00
Creation of Swipe Refresh Layout for code to get tables and seats from the "for disinfection status" and displays it in a ListView	1	1	1	1	1	P10000.00
Creation of code to get the seat and table numbers stored in an array from PHP	1	1	1	1	1	P10000.00
Creation of code to pass the data taken form the databsae to an ArrayList	1	1	1	1	1	P10000.00
Creation of code to display the contents of the ArrayList in a ListView using an ArrayAdapter	1	1	1	1	1	P10000.00
Create Interface for User Short Table Option	1	1	1	1	1	P10000.00

Create Interface for User Scanning Seat with QR	1	1	1	1	1	P10000.00
Create Interface for User Occupancy and Disinfection	1	1	1	1	1	P10000.00
Create In-App Icons	1	1	1	1	1	P10000.00
Creation of Swipe Refresh Layout for code to get tables and seats from the "for disinfection status" and displays it in a ListView	1	1	1	1	1	P10000.00
Creation of code to get the seat and table numbers stored in an array from PHP	1	1	1	1	1	P10000.00
Creation of code to pass the data taken form the databsae to an ArrayList	1	1	1	1	1	P10000.00
Creation of code to display the contents of the ArrayList in a ListView using an ArrayAdapter	1	1	1	1	1	P10000.00
Creation of PHP code to update the seat status from "for disinfection" to "available" upon button click of staff	1	1	1	1	1	P10000.00
Creation of PHP code to get all long seat statuses from the database	1	1	1	1	1	P10000.00
Creation of code to display all of the long seat statuses in the "Check Seat Statuses/Availability" class	1	1	1	1	1	P10000.00
Creation of PHP code to get all short seat statuses from the database	1	1	1	1	1	P10000.00
Creation of code to display all of the short seat statuses in the "Check Seat Statuses/Availability" class	1	1	1	1	1	P10000.00
Creation of PHP code to pass seat information and update seat status	1	1	1	1	1	P10000.00

upon scanning of a seat QR Code						
Creation of class to set the seat status to "For Disinfection" upon button click of a database	1	1	1	1	1	P10000.00
Creation of PHP code to update the seat status to "for disinfection" in the database	1	1	1	1	1	P10000.00
Create code to get all seat statuses and count all occupied seats. This is the cafeteria capacity count.	1	1	1	1	1	P10000.00
Create PHP to get logs, every time a user changes a status, it is logged in the database	1	1	1	1	1	P10000.00
Create module on Admin's side to view logs and reports	1	1	1	1	1	P10000.00
Changed all auto refresh to swipe refresh	1	1	1	1	1	P10000.00
Create a 30-minute timer that can be extended as per the user's wishes	1	1	1	1	1	P10000.00
Change the "disinfect" button to "For Disinfection"	1	1	1	1	1	P10000.00
Create PHP code to save the added seats to the database	1	1	1	1	1	P10000.00
Create module to add seats on Admin's side	1	1	1	1	1	P10000.00
Update whole application to make seats to be based per section, and not by per table	1	1	1	1	1	P10000.00
Viewing of seating statuses are now based	1	1	1	1	1	P10000.00

on the added seats by the admin per section						
TOTAL						P630,000.00

Table 4.16: Detailed Budget Allocation for System Development

In this table 4.16 shows how each major proponents' cost for each staff present for the completion allotted for the given time. The numbers dictate how many days each staff work for that specific proponent. This is the breakdown for the system development

Functional Test	PM	PG	TS	TW	GA	Cost
Passing data to store in the database upon signup	1	1	1	1	1	P5000.00
Passing data to database to verify user credentials upon login	1	1	1	1	1	P5000.00
Getting user ID from Database	1	1	1	1	1	P5000.00
Displaying the contents taken from the database to the ListView	1	1	1	1	1	P5000.00
Displaying of all Long and Short Table Seat Statuses	1	1	1	1	1	P5000.00
Checking if the "Check Seat Statuses/Availability" class refreshes/updates and shows the updated database contents	1	1	1	1	1	P5000.00
Checking if the seat statuses is updated in the database upon scanning of a QR Code	1	1	1	1	1	P5000.00
Checking if the seat status is updated to "for disinfection" upon button click of the user	1	1	1	1	1	P5000.00
Checking if the new tables added by the admin are successfully saved in the database	1	1	1	1	1	P5000.00
Check if the information from the database is right	1	1	1	1	1	P5000.00
Check if the codes fit into one another	1	1	1	1	1	P5000.00
TOTAL						P55,000.00

Table 4.17: Detailed Budget Allocation for Functional Test

In this table 4.17 shows how each major proponents' cost for each staff present for the completion allotted for the given time. The numbers dictate how many days each staff work for that specific proponent. This is the breakdown for the functional phase.

Implementation phase	PM	PG	TS	TW	GA	Cost
Put together XMLs and Logic	1	1	1	1	1	P6000.00
TOTAL						

Table 4.18: Detailed Budget Allocation for Implementation Phase

Table 4.18 shows how each major proponents' cost for each staff present for the completion allotted for the given time. The numbers dictate how many days each staff work for that specific proponent. This is the implementation phase.

Admin Testing

Admin Login Module	
Case	Script
Email Edit Text	Allows the tester to input his/her email.
Password Edit Text	Allows the tester to input his/her password.
Log In Button	Allows the tester to log in to the application
Case	Script
Caf Capacity TextView	Allows the tester to view the current capacity of the cafeteria
Check Seat Statuses Button	Allows the tester to view the statuses of the seats
Set Tables and Seats Button	Allows the tester to define the number of tables and seats that can be occupied in the cafeteria
View Logs and Reports	Allows the tester to view the logs and reports of the day
Logout Button	Allows the tester to log out of the application

Staff Testing

Staff Login Module	
Case	Script
Email Edit Text	Allows the tester to input his/her email.
Password Edit Text	Allows the tester to input his/her password.
Log In Button	Allows the tester to log in to the application
Case	Script

Caf Capacity TextView	Allows the tester to view the current capacity of the cafeteria
Check Seat Statuses Button	Allows the tester to view the statuses of the seats
Set Seat Status Button	Allows the tester to set the statuses of the seats
Logout Button	Allows the tester to log out of the application
Case	Script
Long Tables Button	Allows the tester to view the seats from long tables with "for disinfection" status
Short Tables Button	Allows the tester to view the seats from short tables with "for disinfection" status
Case	Script
Status ListView	Displays the seats from short tables with "for disinfection" status
Status ListView (row)	Allows the user click the selected table and seat number to set the status
Case	Script
Status ListView	Displays the seats from long tables with "for disinfection" status
Status ListView (row)	Allows the user click the selected table and seat number to set the status
Case	Script
Table Number TextView	Allows the tester view the table number
Seat Number TextView	Allows the tester view the seat number
Status TextView	Allows the tester to view the status of the seat
Available Button	Allows the user to set the seat status to available

User Testing

Sign Up Module	
Case	Script
Name Edit Text	The user will input their name here.
Email Edit Text	The user will input their APC email, but without the @ and the domain name
Student Radio Button	The user will choose this if he/she is a student since the domain is different.

Faculty/Staff Radio Button	The user will choose this if he/she is a faculty or staff member since the domain is different.
Password Edit Text	The user enters their desired password
Re-enter Password Edit Text	The user re-enters their desired password
Terms and Conditions Button	This button leads the user to terms and conditions
Read Terms and Conditions Checkbox	This signifies that the user has read and accepted the terms and conditions
Sign Up Button	This submits all the user information to the database
Done Button	When pressed, the user will be returned to the Sign Up module
Case	Script
Check Seat Availability Button	When pressed, it shows the options for long or short table
Cafeteria Capacity TextView	This gets the number of occupied seats from the database
Set Seat Status Button	This redirects the user to the seat status module
Log Out Button	It clears out all the data in sharedPreferences() and redirects to log in
Case	Script
QR Code Scanner	It scans the QR codes of the seats
Case	Script
Table Number TextView	It calls the table number of the seat from the QR code
Seat Number TextView	It calls the seat number from the QR code
For Disinfection Button	It allows the user to change the seat status to "for disinfection"
Status TextView	It calls the status of the seat from the database

Phone Testing

Sign Up Module

Case	Script
Android API Compatibility	It checks if the application is compatible with a range of Android APIs

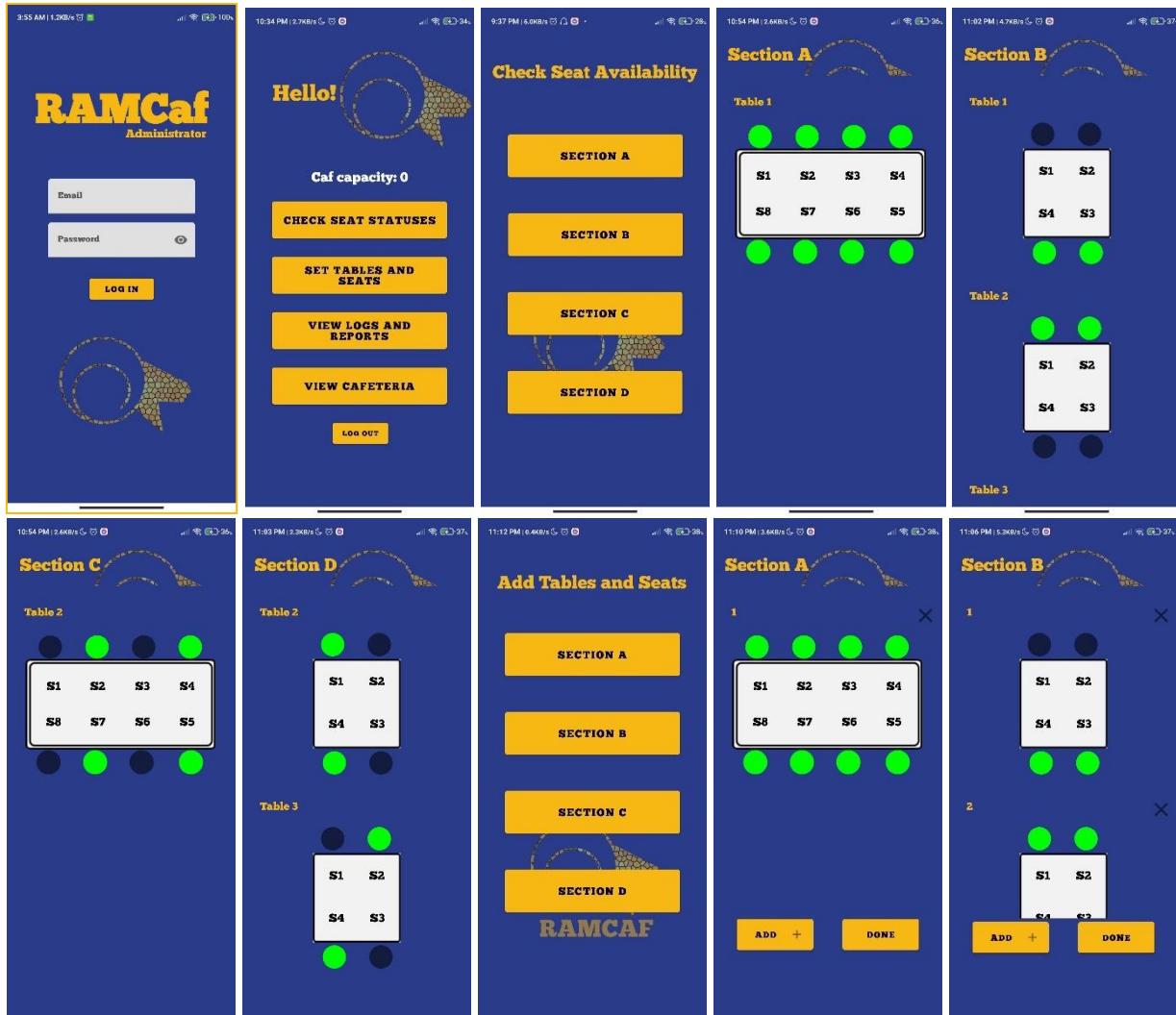
CHAPTER 5

Results and Discussion

Revisions
Admin Interface



Initial RAMCaf Admin Screenshot Design



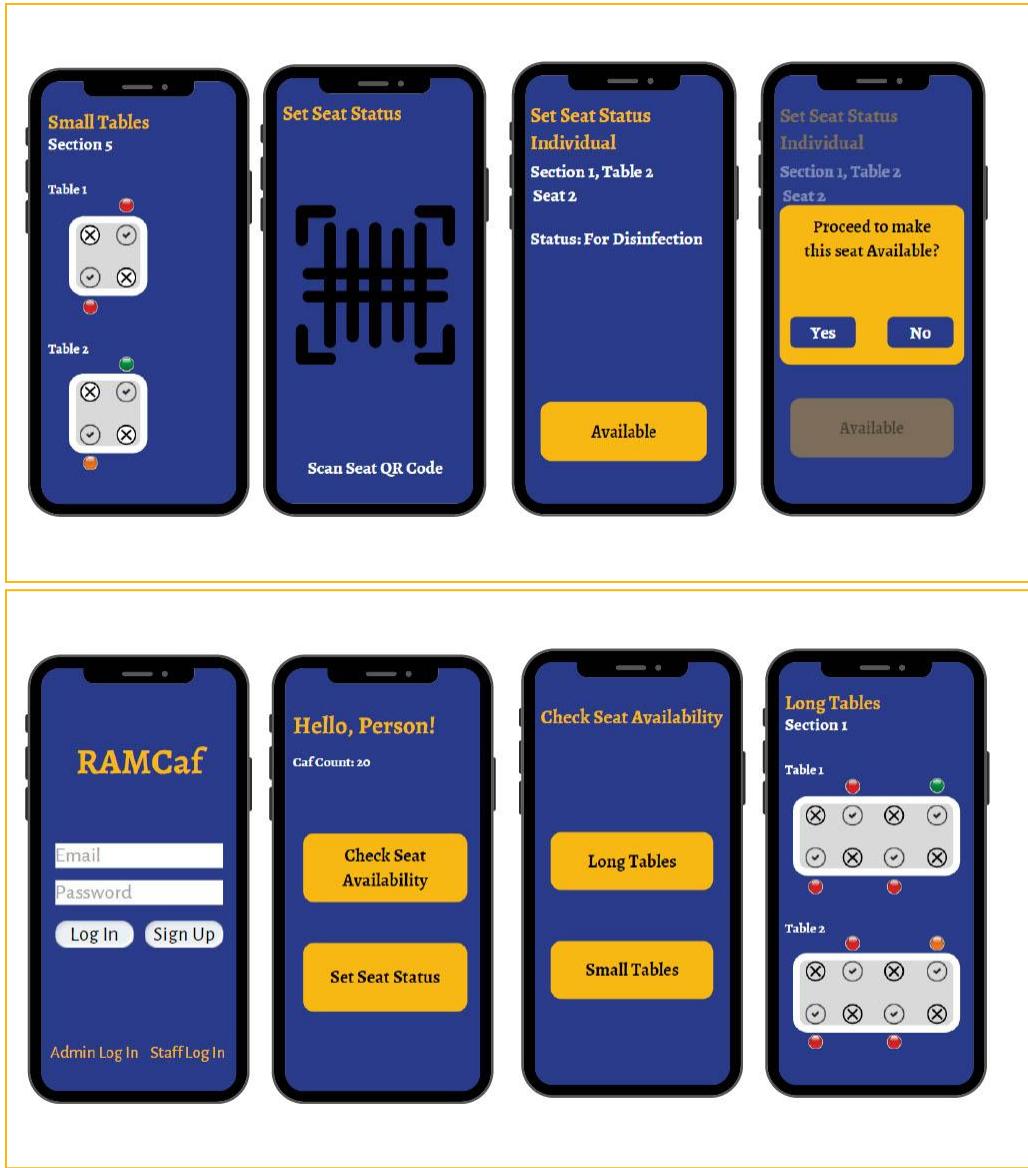


In-App RAMCaf Admin Screenshots

Administrator Screenshots and Application Comparison and Explanation

The actual application is based on the screenshot designs, with the added design of logo in the background. Every component of the admin's side interface is working. There have been changes in the interface for adding the tables and seats to make the process easier. Instead of viewing the long and short tables in general, the users can view the tables of each section. Instead of having a Check and X mark to know the seats that can be used, another color was added for the indicators – color grey means that a seat is unavailable for use. A module to view the cafeteria layout – table and seat layout – was also added as reference for the users to know where the tables and seats of each section are located.

User Interface



Initial RAMCaf User Screenshots Design



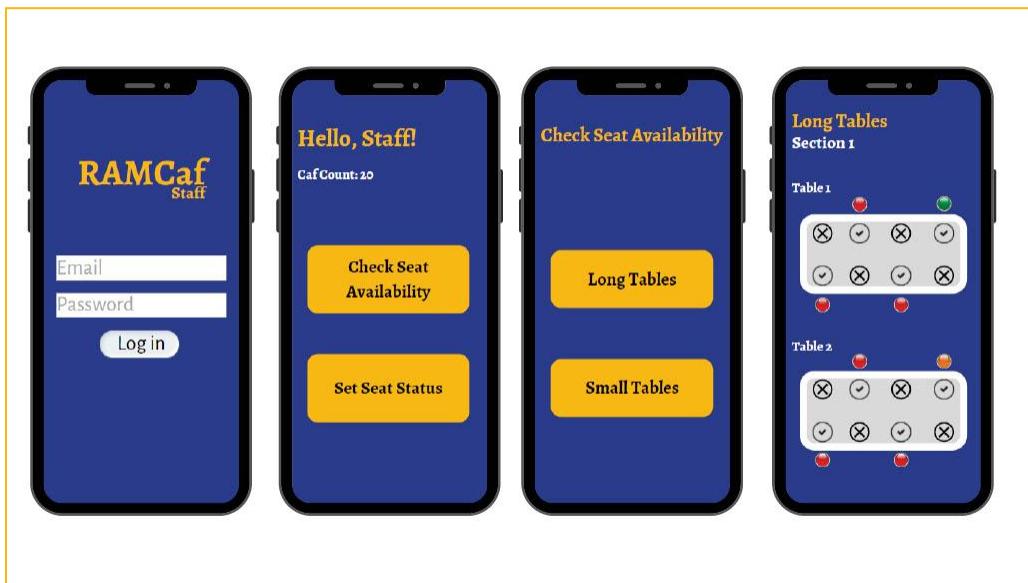


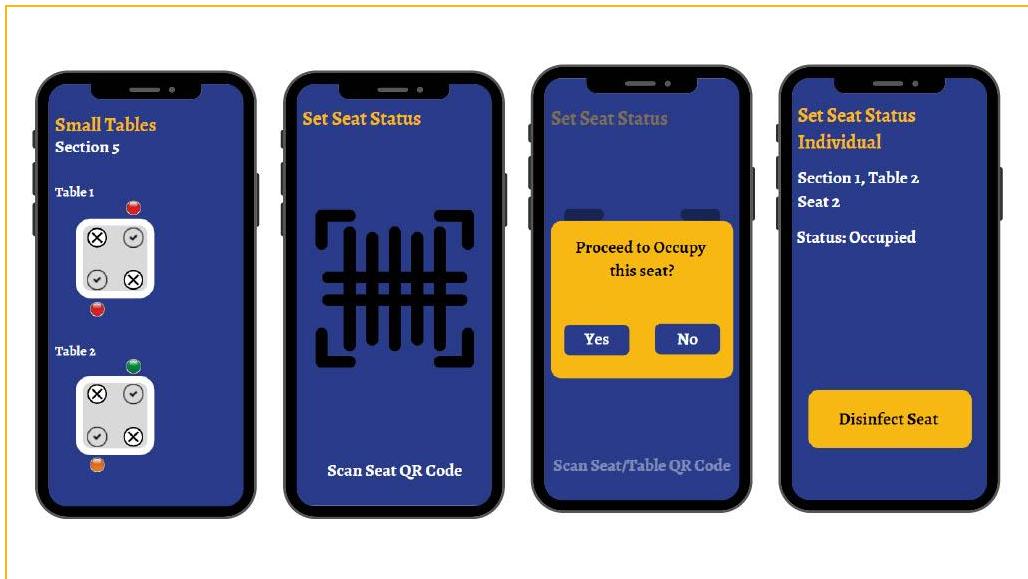
In-App RAMCaf User Screenshots

User Screenshots and Application Comparison and Explanation

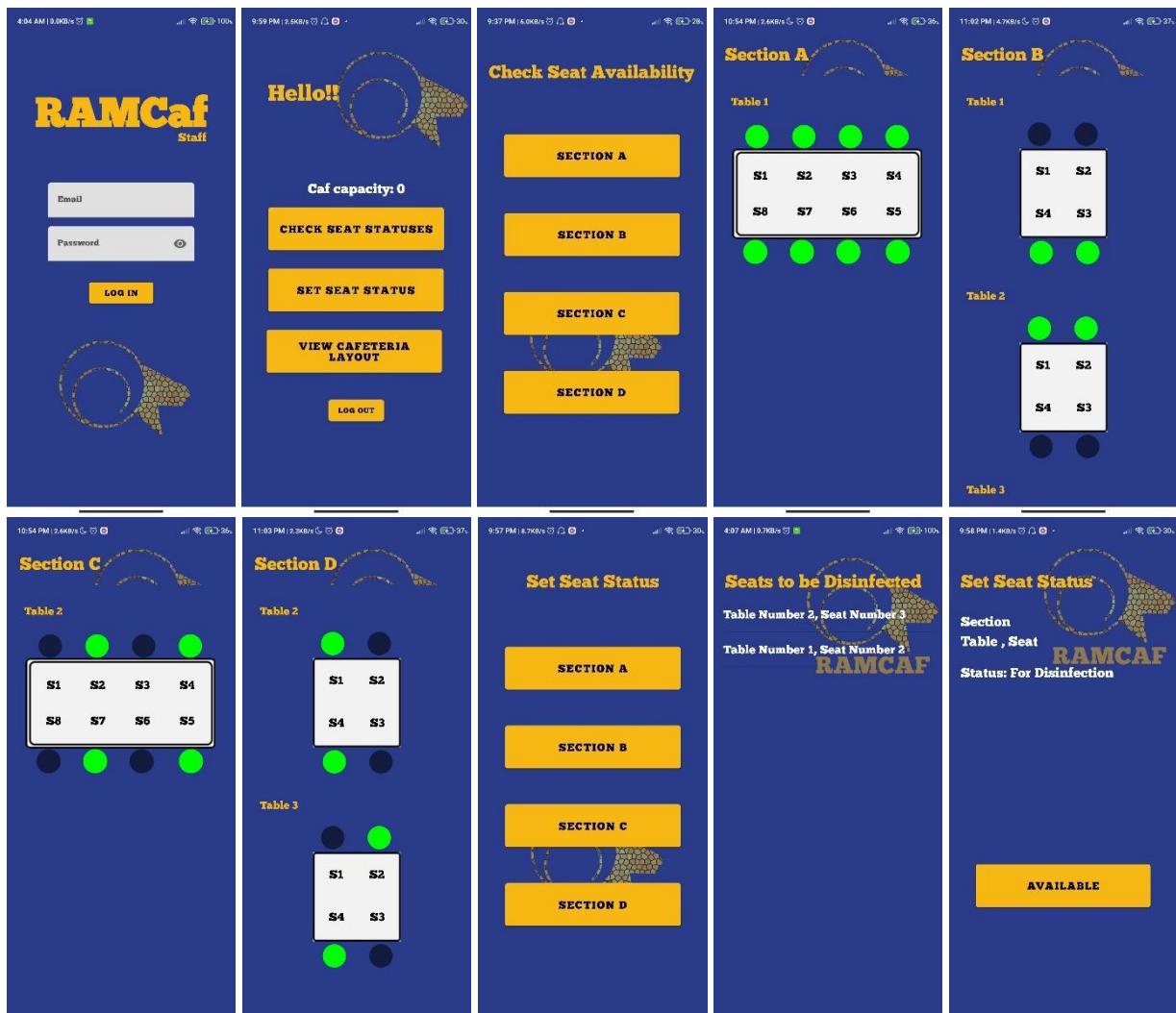
The actual application is based on the screenshot designs, with the added design of logo in the background. Instead of viewing the long and short tables in general, the users can view the tables of each section. Instead of having a Check and X mark to know the seats that can be used, another color was added for the indicators – color grey means that a seat is unavailable for use. A timer has also been added for the users to be reminded to set the seat status to “For Disinfection” after eating. A module to view the cafeteria layout – table and seat layout – was also added as reference for the users to know where the tables and seats of each section are located.

Staff Interface





Initial RAMCaf Staff Screenshot Design





In-App RAMCaf User Screenshots

Staff Screenshots and Application Comparison and Explanation

The actual application is based on the screenshot designs, with the added design of logo in the background. The difference that happened is the text on the first button, which is the “Check Seat Availability” to “Check Seat Statuses”. Instead of having a Check and X mark to know the seats that can be used, another color was added for the indicators – color grey means that a seat is unavailable for use. The scanning of the seat QR Code to set the seat status to “For Disinfection” is no longer needed; instead, the staff can view a list of all the seats with the said status per section and from there select a seat to disinfect. A module to view the cafeteria layout – table and seat layout – was also added as reference for the staff to know where the tables and seats of each section are located.

View Cafeteria Layout Interface



In-App RAMCaf User Screenshots

Cafeteria Layout Interface Screenshots and Application Comparison and Explanation

This is a new interface added to the application that shows the layout of the tables and seats in the cafeteria. Here, the cafeteria is divided into four sections – Section A, B, C, and D.

Admin Testing

Admin Login Module		
Case	Script	Result
Email Edit Text	Allows the tester to input his/her email.	Accepts the admin email input of the tester
Password Edit Text	Allows the tester to input his/her password.	Accepts the admin password input of the tester
Log In Button	Allows the tester to log in to the application	Allows the tester to log in to the system after checking if the input email and password matches the records in the database and redirects the tester to the Admin Home Screen.
Admin Home Module		
Case	Script	Result
Caf Capacity TextView	Allows the tester to view the current capacity of the cafeteria	Counts all the seats with an "occupied" status and displays it as the cafeteria capacity
Check Seat Statuses Button	Allows the tester to view the statuses of the seats	Redirects the tester to a module where he/she can select to view the statuses of either the long or short tables
Set Tables and Seats Button	Allows the tester to define the number of tables and seats that can be occupied in the cafeteria	Button is not clickable. Feature yet to be made.
View Logs and Reports	Allows the tester to view the logs and reports of the day	Button is not clickable. Feature yet to be made.
Logout Button	Allows the tester to log out of the application	The system clears all contents of the Shared Preferences. The tester is logged out and redirected to the Login Module

Staff Testing

Staff Login Module		
Case	Script	Result
Email Edit Text	Allows the tester to input his/her email.	Accepts the staff email input of the tester
Password Edit Text	Allows the tester to input his/her password.	Accepts the staff password input of the tester
Log In Button	Allows the tester to log in to the application	Allows the tester to log in to the system after checking if the input email and password matches the records in the database and redirects the tester to the Staff Home Screen.
Staff Home Module		
Case	Script	Result

Caf Capacity TextView	Allows the tester to view the current capacity of the cafeteria	Counts all the seats with an "occupied" status and displays it as the cafeteria capacity
Check Seat Statuses Button	Allows the tester to view the statuses of the seats	Redirects the tester to a module where he/she can select to view the statuses of either the long or short tables
Set Seat Status Button	Allows the tester to set the statuses of the seats	Redirects the tester to a module where he/she can select to view a list of the seats with a status of "for disinfection"
Logout Button	Allows the tester to log out of the application	The system clears all contents of the Shared Preferences. The tester is logged out and redirected to the Login Module
Set Seat Status Module (Option to choose between Short/Long table)		
Case	Script	Result
Long Tables Button	Allows the tester to view the seats from long tables with "for disinfection" status	Redirects the tester to the Set Seat Status Module for long tables
Short Tables Button	Allows the tester to view the seats from short tables with "for disinfection" status	Redirects the tester to the Set Seat Status Module for short tables
Set Seat Status Module (Short Tables)		
Case	Script	Result
Status ListView	Displays the seats from short tables with "for disinfection" status	The system gets the seats with "for disinfection" status from the database and displays it in the ListView.
Status ListView (row)	Allows the user click the selected table and seat number to set the status	Redirects the tester to a module where he/she can set the seat status of the selected seat.
Set Seat Status Module (Long Tables)		
Case	Script	Result
Status ListView	Displays the seats from long tables with "for disinfection" status	The system gets the seats with "for disinfection" status from the database and displays it in the ListView.
Status ListView (row)	Allows the user click the selected table and seat number to set the status	Redirects the tester to a module where he/she can set the seat status of the selected seat.
Set Seat Status to Available Module		
Case	Script	Result
Table Number TextView	Allows the tester view the table number	The system displays the table number of the selected field from the ListView
Seat Number TextView	Allows the tester view the seat number	The system displays the seat number of the selected field from the ListView
Status TextView	Allows the tester to view the status of the seat	Displays the status of the selected seats

Available Button	Allows the user to set the seat status to available	The system updates the data in the database and sets the seat status to "available"
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User Testing

Sign Up Module		
Case	Script	Result
Name Edit Text	The user will input their name here.	It accepts the name of the user
Email Edit Text	The user will input their APC email, but without the @ and the domain name	It accepts the email of the user
Student Radio Button	The user will choose this if he/she is a student since the domain is different.	It attaches the domain of the student email.
Faculty/Staff Radio Button	The user will choose this if he/she is a faculty or staff member since the domain is different.	It attaches the domain of the faculty and staff email.
Password Edit Text	The user enters their desired password	It accepts the password that the user input
Re-enter Password Edit Text	The user re-enters their desired password	It confirms the password that the user has entered
Terms and Conditions Button	This button leads the user to terms and conditions	The terms and conditions module opens
Read Terms and Conditions Checkbox	This signifies that the user has read and accepted the terms and conditions	It accepts that the user has agreed to the terms and conditions
Sign Up Button	This submits all the user information to the database	It sends and completes the sign up process
Terms and Conditions Module		
Done Button	When pressed, the user will be returned to the Sign Up module	The user is successfully returned to Sign Up module
User Home Module		
Case	Script	Result
Check Seat Availability Button	When pressed, it shows the options for long or short table	This leads the user to the module where he can select a seat at a short or long table
Cafeteria Capacity TextView	This gets the number of occupied seats from the database	It shows the current number of occupied seats
Set Seat Status Button	This redirects the user to the user to the scan seat status module	The user is able to access the user scan seat status module
Log Out Button	It clears out all the data in sharedPreferences() and redirects to log in	The user logs out of his/her account
User Scan Seat Status Module		
Case	Script	Result
QR Code Scanner	It scans the QR codes of the seats	The seat automatically gets occupied and updates the database

User Set Seat Status Module (set to "for disinfection" status)		
Case	Script	Result
Table Number TextView	It calls the table number of the seat from the QR code	It displays the table number of the seat
Seat Number TextView	It calls the seat number from the QR code	It displays the seat number of the seat
Disinfect Seat Button	It allows the user to change the seat status to "for disinfection"	It updates the status of the seat on the database
Status TextView	It calls the status of the seat from the database	It shows the status of the seat if it is available, occupied, or for disinfection

Phone Testing

Case	Script	Result
Android API Compatibility	It checks if the application is compatible with a range of Android APIs	The minimum Android API requirement to make sure that the application would work is the Android Version 11

CHAPTER 6

Summary of findings, Conclusion and Recommendation

6.1. Summary

Development of a capacity and availability monitoring system for Asia Pacific College's (APC) Cafeteria, or RAMCaf, is an application revolving around the ease and accessibility of acquiring seats in the cafeteria without needing to enter the cafeteria and risk yourself getting into close contact with other people, especially now with the COVID-19 restrictions of not having complete capacity in spaces.

The proponents have chosen to create this application on Android Studio, therefore making it Android OS exclusive, and have chosen to write the code in Java language since it is what they are more familiar with among the choices of programming languages. The application is connected to databases that contain administrator, user, and staff accounts, and the seats of the tables of the APC cafeteria.

The application works in a way where the user would be able to check their phone for any available seat in the cafeteria with a layout of seats per short and long table in respective sections of the cafeteria. The users would then

scan a QR code found per seat to be able to access the option for them to occupy the seat, therefore turning that seat status into occupied whenever another user checks the application for an available seat. The staff would then be able to check their interfaces to see if there are any seats that need disinfection when a user is prepared to leave the seat. The staff would then proceed to disinfect the seat and make that seat available for occupancy for the next person. Lastly, the administrator would have the power to change seat statuses, table layouts, number of available seats, and reports and logs regarding the cafeteria occupancy.

6.2. Conclusion

The proponents have created this application in a short span of time within a month. They have experienced struggle with the creation of the application since they do not have a lot of knowledge regarding Android Studio, with the case of them not having formal lessons. They have pushed to complete the main core of the application, and as well as the other important features that affect how the application works. They have finished strong with a few minor features missing, but have managed to get everything in order and make the application run smoothly.

6.3. Recommendations

For the future researchers who will try to further the development of the application, we have the following recommendations that we advise to follow:

- The proponents prescribe, to study the topic very well and analyze each of the component of the system in order to fully achieve the objective given.
- The proponents recommend that the application will not only be compatible to Android, but be compatible to iOS also.

Appendices:

A. Progress Reports

Software Engineering Weekly Progress Report

Design Project Short Title : **RAMCaf**
Design Project Technical Title : **Development of a Capacity and Availability Monitoring System for Asia Pacific College's Cafeteria**
Date of Title Defense :

Proponents (Family Name, Given Name, Middle Initial / Student ID No.):

1. Baylon, Bea Daphne B. / 2019-100017
2. Beduya, Rissa Mikaela G. / 2019-100021
3. Reyes, Guilliane Altaire S. / 2019-100054
4. Verzon, Jayson T. / 2019-100058

Adviser/Client: Mr. Sergio R. Peruda Jr.

Panelists :

- | | |
|--|-----------------|
| 1. <u>Sir. Einstein Yong</u> | (Chair) |
| 2. <u>Sir. Leonardo A. Samaniego Jr.</u> | (Lead Panelist) |
| 3. <u>Sir. Stanley Glenn Brucal</u> | (Member 1) |
| 4. <u>Sir. Sergio R. Peruda Jr.</u> | (Member 2) |

SPECIFIC OBJECTIVES/ FUNCTION/ MEANS/ SCOPE AND DELIMITATION/ CONSTRAINTS	ACTIVITY NUMBER	WEEK NUMBER (inclusive dates)	NOTES
SO: Software Designing - Login interface for user, admin, and cleaning personnel - Terms and Conditions - Sign Up Interface - Qr Code Scanner - Database	1	Wk. 10 5/24/21	
SO: Software Designing Function: - Dynamic Seats and Table Capacity adder - System Reports	2	Wk. 10 5/29/21	
SO: Software Designing - Interface for the user and cleaning personnel to monitor the status of each seat from a table that contains a specific table number.	3	Wk. 11 6/04/21	

SO: Software Designing Function: - Dynamic Seats and Table Capacity adder - System Reports	3	Wk. 13 6/18/21	
SC: Availability of the Proposed System - User (APC Community). - Administrator (Head of Building Administrator of APC). - Cleaning personnel of APC.	4	Wk. 11 6/04/21	
LI: Delimitation of the Proposed System - This application is made exclusively for the APC Cafeteria only. - The application will only accept the APC email to be used upon sign-up. - The application will only accept the APC email as a digital identity of the user by submitting the names of the user to the active directory of the school and wait for its response (yes or no). - The application only intends to monitor the cafeteria's seating capacity and does not include the walk-ins for take-out orders. - The application only allows setting of seat status individually per seat. - The application does not include a facility to set the seat statuses as a group.	5	Wk. 11 6/04/21	

<ul style="list-style-type: none"> - The application does not include an account for guests. - The application is focused on the availability of the tables and seats and does not show the profile of each user and its history logs. <p>Constraints:</p> <ul style="list-style-type: none"> - APC accounts solely relies on APC accounts. - The application focuses mainly on providing a way for the users to view the cafeteria capacity and available seats only through processing information obtained for setting the seat statuses by the users and cleaning personnel and by determining the number of tables and seats to be available by the administrators. - The application is intended for monitoring the seat capacity only and does not include the walk-ins. - The mobile application is internet-dependent for it to be used by the administrators, cleaning personnel, and users. 	6	Wk. 11 6/04/21	
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NO.	ACTIVITY	EXPECTED OUTPUT	SIGNATURE /DATE	WEEK NO. (DESPRO1)													WEEK NO. (DESPRO2)				
				1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5
1	First Consultation	Approved Project Proposal	Adviser <u>Mr. Sergio Peruda</u>																		
			Instructor <u>Mr. Sergio Peruda</u>																		
	PROGRESS REPORT:																				
	<p>The proponents presented two project proposals to the Project Adviser. Afterwards, they presented the Informal Diagram of their priority project among the two projects proposed.</p> <p>The project adviser gave the following comments regarding the proposals:</p> <ul style="list-style-type: none"> For the first proposal (Printing System at APC), the problem statement is valid, however there is a current system similar to the one being proposed. A proposed system should be an upgrade of the current system. For the second proposal (Contact Tracing System at APC Cafeteria), the problem statement is valid, however the project has components in need for hardware systems. The focus of the subject/course is on creating a software system. <p>The proponents presented the informal diagram to give more details on the first proposal and to differentiate it with the current systems available. The feedback of the adviser is as follows:</p> <ul style="list-style-type: none"> Make sure that the proposed project can be fully implemented, and the proponents are sure with the features of the application to be done. Solidify the details of the project, from the largest to the smallest ones. Be more specific with the plans of the proposed project to avoid loopholes. Apply notifications for the application of the personnel-in-charge whenever there is a queued document to be printed. Creation of both an application and a website can be beneficial for both students and personnel-in-charge, but this may not be feasible within the two(2) months' time given. 																				
	NOTES:																				
<p>The first proposal is approved on the condition that the proponents can give a sure</p>																					

NO.	ACTIVITY	EXPECTED OUTPUT	SIGNATURE /DATE	WEEK NO. (DESPRO1)													WEEK NO. (DESPRO2)								
				1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7		
5	Seventh Consultation and checking of revised project documentation	Apply the necessary requirements for revision of the documentation.	Adviser Mr. Sergio Peruda 11-June 2021 Lead Panelist Mr. Leonardo A. Samaniego																						
	PROGRESS REPORT:																								
		The proponents presented their revised project documentation to their project adviser. The project adviser gave his comments and suggestions regarding the revised parts such as arranging the user levels according to importance. He also clarified parts of the process and advised the proponents to include some points in their delimitations. The project adviser also advised the proponents to explain the process flow of the system in the screenshot diagrams.																							
		The proponents also raised their concern about implementing an account for guests in their application. A comment of a panelist mentioned that making the application exclusive to APC through the use of the APC email won't allow guests to use the application. The proponents raised that allowing the users to sign-up using their personal emails would make the email verification process more difficult. Other ways of implementing the system for guests would be difficult as well since they would have to be educated about the new system and its process; this would be fairly difficult as guests just come and go. With this, the project adviser recommended having a separate area to accommodate the guests entering APC which the application will not cover.																							
		The proponents then updated their project adviser saying that they already have a database prepared and are planning on organizing the entities and starting with the code within this week.																							
	NOTES:																								
		The proponents are expected to apply the necessary revisions for the project documentation and send it to the panelists by Friday (May 21, 2021) or Saturday (May 22, 2021).																							
		The proponents are also expected to start coding the user interface within the week.																							

B. Letters of Communication



Bea Daphne Baylon
Wed 5/12/2021 1:10 PM

To: Jojo F. Castillo
Cc: Rissa Mikaela Beduya; Guiliane Altaire Reyes3; Jayson Verzon

↳ ↲ ↴ ↵ ⋮


UGE_RAMCaf_Draft7.docx
✓

Good afternoon, Sir Jojo!

We would like to ask for your help to review our project proposal paper. Attached file is the draft 7 of The RAMCaf project proposal. Thank you so much!

Respectfully yours,
Bea Baylon
UGE Member
CPE 191



Jojo F. Castillo
Wed 5/12/2021 1:11 PM

To: Bea Daphne Baylon
Cc: Rissa Mikaela Beduya; Guiliane Altaire Reyes3; Jayson Verzon



I'll get back to you tonight. I have meetings until 6pm 😊

Jojo F. Castillo
Technical Services
Asia Pacific College
✉ www.apc.edu.ph
☎ 8852-9232

...



Bea Daphne Baylon
Wed 5/12/2021 9:05 PM

To: Jojo F. Castillo
Cc: Rissa Mikaela Beduya; Guiliane Altaire Reyes3; Jayson Verzon



Noted, sir! Thank you so much! 😊

Bea Baylon
UGE Member
CPE 191
Sent from [Mail](#) for Windows 10

...



Bea Daphne Baylon
Thu 5/13/2021 6:39 PM

To: Jojo F. Castillo
Cc: Rissa Mikaela Beduya; Guiliane Altaire Reyes3; Jayson Verzon



Good evening, Mr. Jojo!

We would like to follow up the review of the Project Proposal. Thank you!

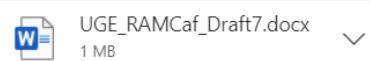
Bea Baylon
UGE Member
CPE 191

...



Jojo F. Castillo
Fri 5/14/2021 10:52 AM

To: Bea Daphne Baylon
Cc: Rissa Mikaela Beduya; Guiliane Altaire Reyes3; Jayson Verzon



Here is the reviewed copy. Good work.

Jojo F. Castillo
Technical Services
Asia Pacific College
✉ www.apc.edu.ph
☎ 8852-9232

...



Guiliane Altaire Reyes

Fri 5/21/2021 4:07 PM

To: Jojo F. Castillo

Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



Good day, sir! I'm Guiliane, from United Growth Engineers (UGE).

I'm here to represent my group in asking you to become our client for our capstone project.

Since you are the first to hear about our application, and the first one to support it, we would like to ask you to be our client.

We are asking you since you are also one of the benefactors of our application if it gets finished and is already getting implemented in APC.

If you would like to meet formally and talk about this proposal to be our client, we are here waiting for your response.

Thank you, and God bless.



Jojo F. Castillo

Fri 5/21/2021 6:09 PM

To: Guiliane Altaire Reyes

Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



Bosch SG Connected Ca...

5 MB



Hi United Growth Engineers (I really don't know how you guys invent these names :)

I'd be honored to be your client for this project, although I think it should be Arch. Manolet Garcia as he is our campus architect. But I think this is OK.

I am attaching the Bosch Connected Campus solution catalog to source out some more details for your project.

Jojo F. Castillo

Technical Services

Asia Pacific College

✉ www.apc.edu.ph

☎ 8852-9232

...



Guiliane Altaire Reyes

Mon 5/24/2021 10:53 AM

To: Jojo F. Castillo

Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



UGE_ InitialandFinalStatu...

66 KB



Hi, sir! Good morning, it's Guiliane again.

I'm here to inform you that sir Serge, our project adviser, has told us that you are the client for our capstone project and sir Garcia would be your spokesperson.

If you are not busy today, we would like to ask you for your signature in the client's space so that we may be able to pass it within the deadline tomorrow by 5 pm. We are sorry for the rush and asking for your understanding patience and cooperation.

Thank you, and God Bless



Jojo F. Castillo
Mon 5/24/2021 10:59 AM
To: Guiliane Altaire Reyes
Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



UGE_ InitialandFinalStatu...
69 KB



Ok. Thanks for clarifying.

Here is your paper with my signature.

I hope you also took the time to look at the Bosch catalog I sent before.

Jojo F. Castillo
Technical Services
Asia Pacific College
✉ www.apc.edu.ph
☎ 8852-9232

...

Final Update on Client for RAMCaf

2 ▾



Guiliane Altaire Reyes
Mon 5/24/2021 11:00 AM
To: Jojo F. Castillo



Thank you, sir!

...

[Reply](#) | [Forward](#)



Guiliane Altaire Reyes
Fri 6/18/2021 10:34 AM
To: Jojo F. Castillo
Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



Good day, sir! I'm here to reach out and ask when you'll be available next week for a consultation regarding our project. We'll be patiently waiting for your answer. Thank you, and stay safe!

Get [Outlook for Android](#)

Consultation on RAMCaf



Guiliane Altaire Reyes
Fri 6/18/2021 10:43 AM

To: Jojo F. Castillo
Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon

Like Share Forward More

Noted, sir. I'll set the meeting po! See you tomorrow, sir. Thank you and stay safe.

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...

[Reply](#) | [Reply all](#) | [Forward](#)



Jojo F. Castillo
Fri 6/18/2021 10:40 AM

To: Guiliane Altaire Reyes
Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon

Like Share Forward More

I'm OK on Saturday afternoon. Around 4pm.

Jojo F. Castillo

Technical Services

Asia Pacific College

✉ www.apc.edu.ph

☎ 8852-9232

...



Guiliane Altaire Reyes
Sat 6/19/2021 5:36 PM

To: Jojo F. Castillo
Cc: Rissa Mikaela Beduya; Bea Daphne Baylon; Jayson Verzon

Like Share Forward More

Hi, sir Jojo. I would like to ask for the APC cafeteria's picture and layout so we may be able to put it into the application for a better viewing experience.

Thank you, have a great day, and stay safe.



Guiliane Altaire Reyes
Sat 6/19/2021 8:10 PM
To: Jojo F. Castillo



Thank you so much, sir! Enjoy the rest of the weekend po

Get [Outlook for Android](#)

...

[Reply](#) | [Forward](#)



Jojo F. Castillo
Sat 6/19/2021 8:06 PM
To: Guiliane Altaire Reyes
Cc: Rissa Mikaela Beduya; Bea Daphne Baylon; Jayson Verzon



Ok. Will have my team do this on Monday.

Jojo F. Castillo
Technical Services
Asia Pacific College
www.apc.edu.ph
[8852-9232](tel:8852-9232)

...



Guiliane Altaire Reyes
Tue 6/22/2021 9:43 PM
To: Jojo F. Castillo
Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



Good evening, sir Jojo!

I would like to ask for a follow-up on the picture of the layout of the APC Cafeteria.

Also, I would like to request a table capacity per section of the cafeteria. I have attached a photo of the sectioning plan that we had come up with. We will be waiting patiently for your response..

Thank you, stay safe, and God Bless!

RAMCaf Resources

1 ▾



Jojo F. Castillo
Tue 6/22/2021 10:13 PM
To: Guiliane Altaire Reyes
Cc: Bea Daphne Baylon; Rissa Mikaela Beduya; Jayson Verzon



Cafeteria pictures.zip
asiapacificcollege-my.shar...



Please see if you can access the pictures from the attached link.

Jojo F. Castillo
Technical Services
Asia Pacific College
www.apc.edu.ph

...

C. Minutes of the Meeting

07 May 2021
Project Consultation with Mr. Jojo Castillo

Baylon, Bea Daphne B.
Beduya, Rissa Mikaela G.
Reyes, Guiliane Altaire S.
Verzon, Jayson T.

4:57 PM

Discussion	Person In Charge
<p>RAMPrint</p> <p>Presentation of Project Proposal</p> <ul style="list-style-type: none"> - The proponents presented their project proposal to Mr. Jojo Castillo. They discussed the steps they did to come up with the project and gave the general idea of the project as well. - The proponents showed the documentation to Mr. Jojo and he gave inputs with regards to the content of the paper. <ul style="list-style-type: none"> o Mr. Jojo gave suggestions on how to present or construct the sentences to give a better idea of the system features and limitations. o Mr. Jojo suggested user email verification by submitting the user emails to APC's active directory which will then reply with a yes or no after checking if the email is indeed an APC email. o Mr. Jojo ad suggested making the proposed queuing system a "smart queue" by integrating the principle of CPU scheduling by using the different CPU Scheduling Algorithms. o Mr. Jojo gave suggestions on how to solve the issue with including the APC payment system in the application. Instead of integrating APC E-Wallet, he suggested to send and include the price due for printing with the clearance dues. - All in all, Mr. Jojo gave suggestions to improve the paper and project documentation whilst discussing the technicalities and features of the system with the proponents. 	Rissa Beduya Bea Baylon Jayson Verzon
<p>Presentation of Backup Proposal RAMCaf</p> <ul style="list-style-type: none"> - The proponents presented the sample screenshots of RAMCaf and discussed the idea behind the project proposal. 	Rissa Beduya Bea Baylon Altaire Reyes Jayson Verzon

<ul style="list-style-type: none"> - Mr. Jojo liked RAMCaf better and suggested that the proponents make it their priority system for their defense. - Mr. Jojo suggested that the administrators (cafeteria facilitators/staff) are the ones who will set a seat status to available. - The proponents asked if the proposed system could be implemented, if needed. Mr. Jojo replied, "why not" and mentioned that the proponents could send him a message/email should they need him and need guidance with the implementation. 	
---	--

The group was able to present the project proposals and gain more information on how to improve the proposed systems.

6:08 PM

19 June 2021

Project Consultation with Mr. Jojo Castillo

**Baylon, Bea Daphne B.
Beduya, Rissa Mikaela G.
Reyes, Guiliane Altaire S.
Verzon, Jayson T.**

3:56 PM

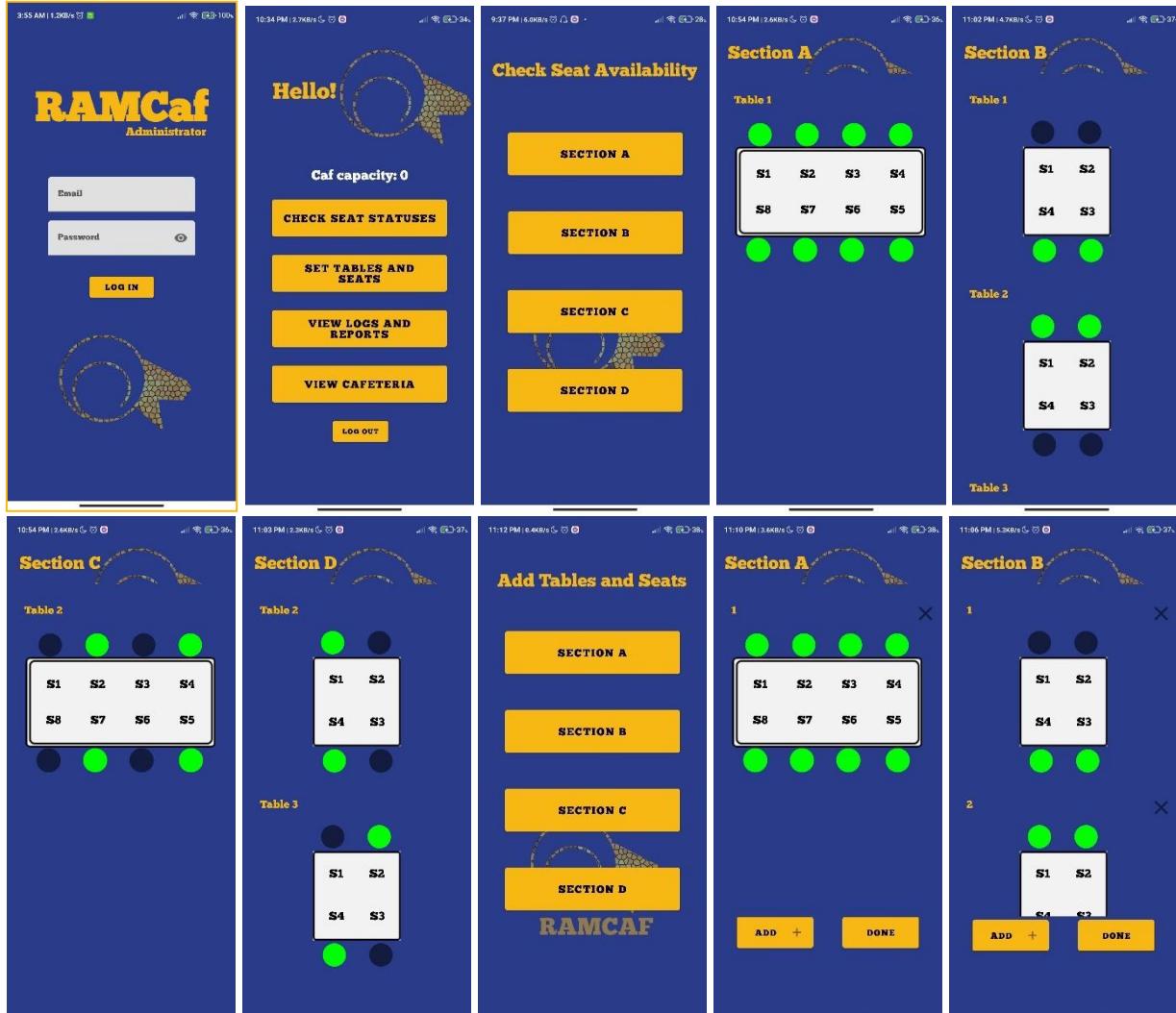
Discussion	Person In Charge
<ul style="list-style-type: none"> - Presentation of RAMCaf Updates - The proponents presented the updates on the application. - The proponents demonstrated the working functions of the application (the 75% version of the application) - The proponents also discussed the added features requested by the panelists that they are working on. 	Rissa Beduya Bea Baylon
<ul style="list-style-type: none"> - Discussion about the application - The proponents asked for advise on how to accomplish the Add Seats function of the application. - The proponents asked for more information about the cafeteria layout. 	Rissa Beduya Bea Baylon Altaire Reyes Jayson Verzon

- The proponents asked Mr. Jojo if he has any more requests for the application regarding its features, functionality, and design.

The group was able to present the updates on the application, demonstrated the working application, and discuss certain details about the application and its function.

4:55 PM

D. Simulation Outputs



Section C

Section D

View Cafeteria

Table Layout

Seat Layout

Welcome to RAMCAF!

RAMCAF

Hello!!

Check Seat Availability

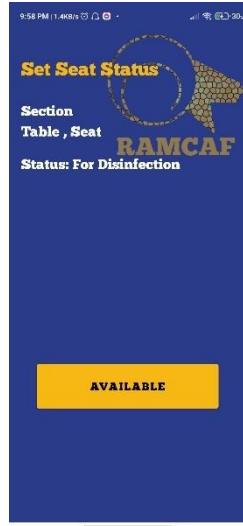
Section A

Section B

Section C

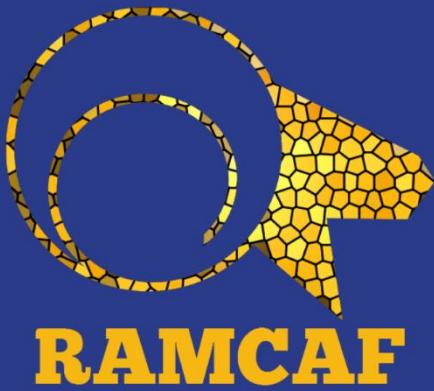
Section D





E. User's Manual





RAMCaf is a mobile application intended for the users to see the available seats and current seat capacity inside APC's cafeteria. It has functions for the users to set the status of their chosen seats which will be reflected in the application's interface.

The application features a user interface that is user-friendly and easy to navigate through the use of indicators, buttons, and other displays.

Log In

THE USER LOG IN PAGE

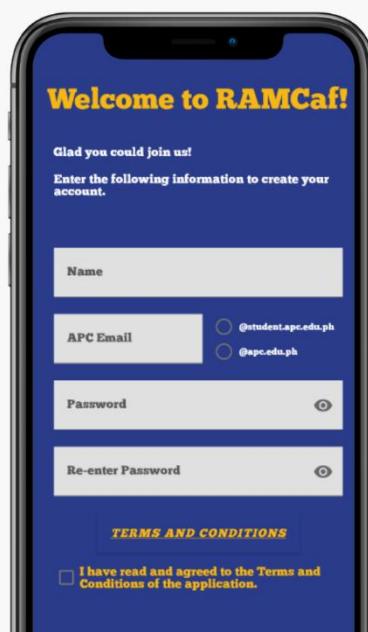
This is the first page to see upon opening the app. Current users can log in to the app here, while new users can click the Sign Up button to create an account.



Sign Up

THE USER SIGN UP PAGE

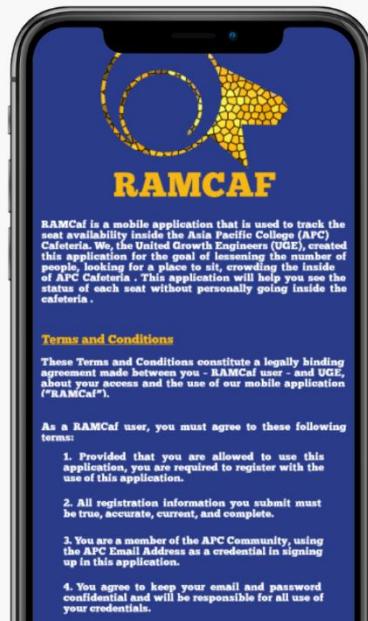
Here, the users are to fill out the fields with their information to create their accounts. They can view the Terms and Conditions of the app by clicking the Terms and Conditions button.

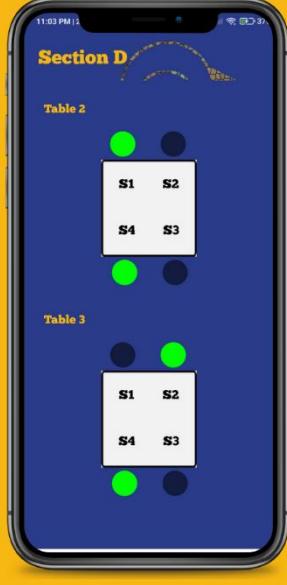
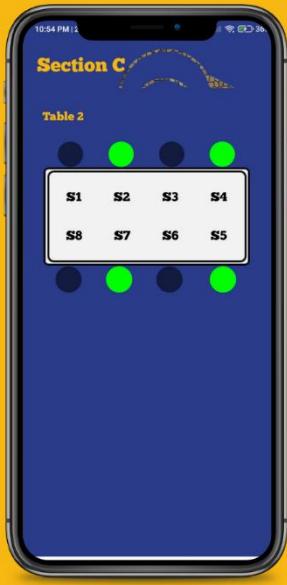
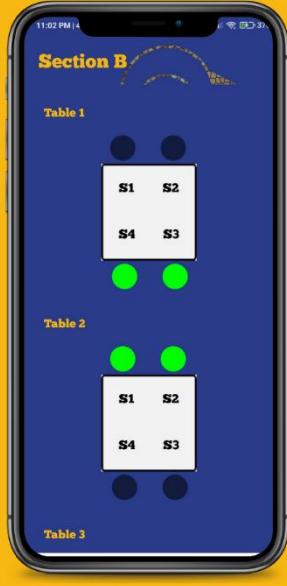
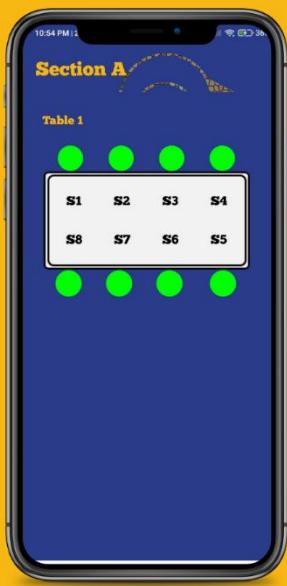


Terms and Conditions

THE TERMS AND CONDITIONS PAGE

All Terms and Conditions for the use of this application are stated in this page.

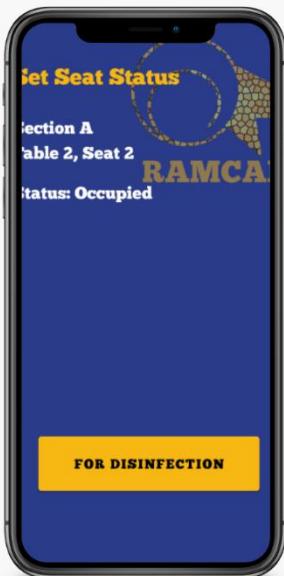






Set Seat Status

Here the users are brought to a page where they can scan the QR Code of a seat. Scanning the QR Code sets the seat's status to occupied.



Set Seat Status

After scanning the seat QR Code, the users are brought to this page where they can see the information of the seat they scanned. After using the seat, the user shall press the "For Disinfection" button to set the seat status to "For Disinfection" and have it disinfected by the cleaning personnel.

User Interface

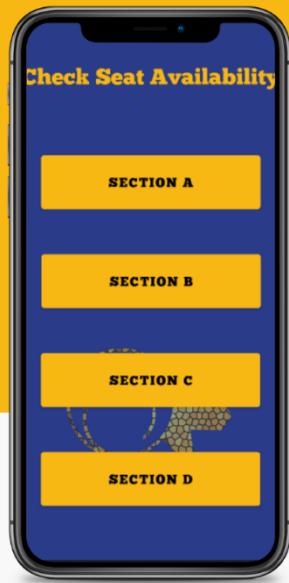


This is the main user interface. Here, the users can view the cafeteria capacity count. They can also press the buttons to view the seat availability or to set a status for a seat.

The users can refresh this main interface to view the latest cafeteria capacity count

Check Seat Availability

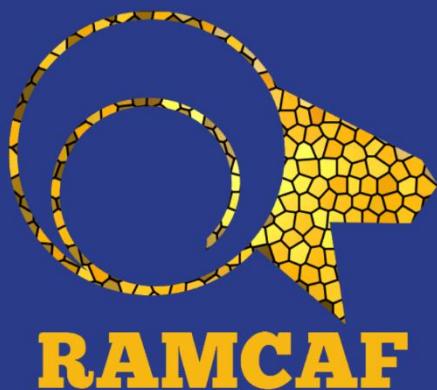
Here the users can select to view the seat availability of a specific section.



RAMCaf

Administrator

by the United Growth Engineers



RAMCaf is a mobile application intended for the users to see the available seats and current seat capacity inside APC's cafeteria. It has functions for the users to set the status of their chosen seats which will be reflected in the application's interface.

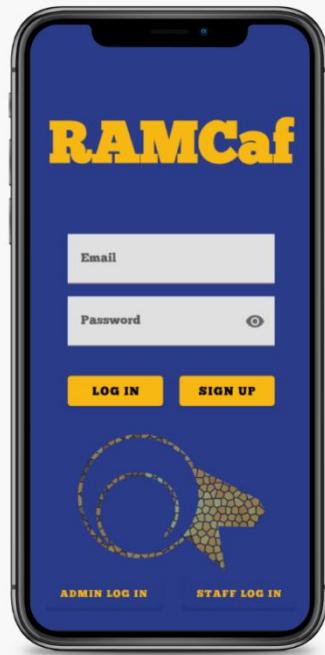
The application features a user interface that is user-friendly and easy to navigate through the use of indicators, buttons, and other displays.



User Log In

THE USER LOG IN PAGE

This is the first page to see upon opening the app. To proceed to the AdminLog In page, click the "Admin Log In" button at the bottom of the screen.



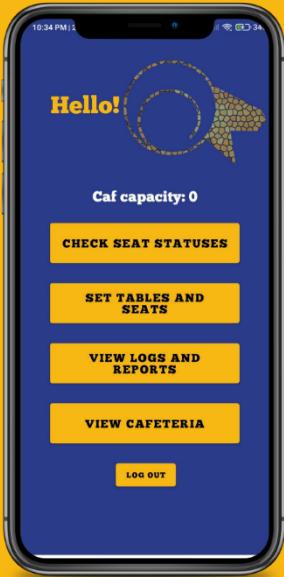
Admin Log In

THE ADMIN LOG IN PAGE

Here, the Admin can log in to their accounts. There is no Sign Up page for the Admin as their accounts are pre-defined in the database.



User Interface

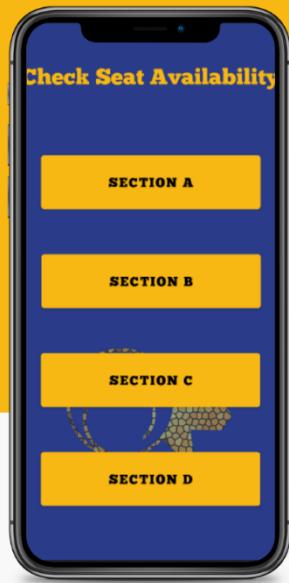


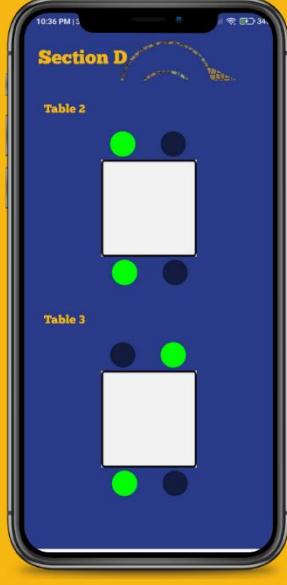
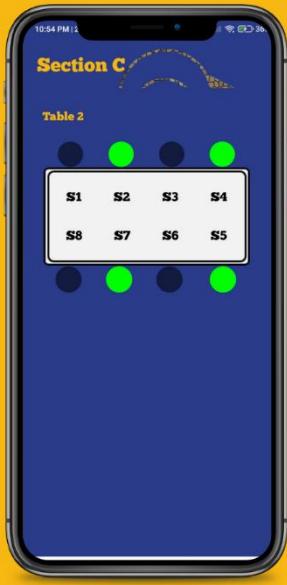
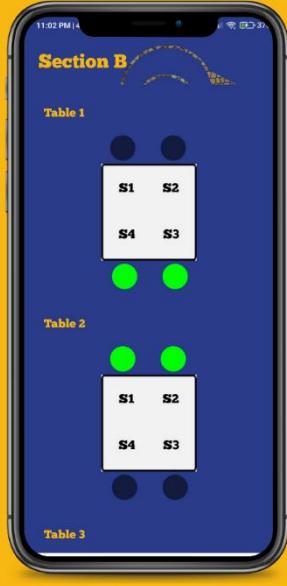
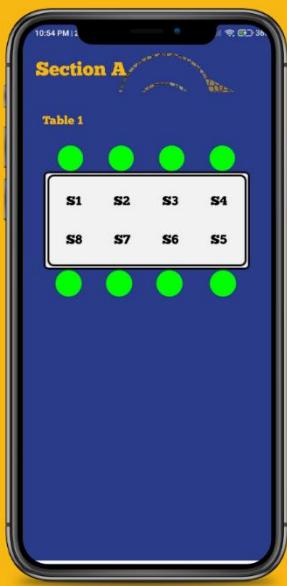
This is the main staff interface. Here, the administrator can view the cafeteria capacity count. They can also press the buttons to view the seat availability, set/edit seats, and view the logs/reports.

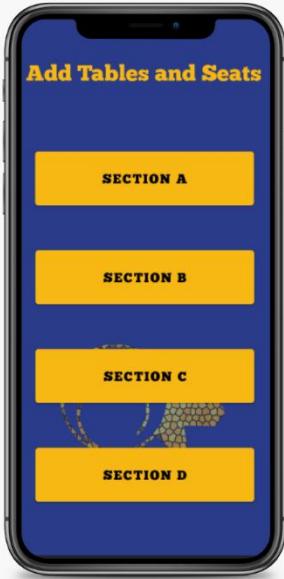
The administrator can refresh this main interface to view the latest cafeteria capacity count

Check Seat Availability

Here the administrator can select to view the seat availability of a specific section.

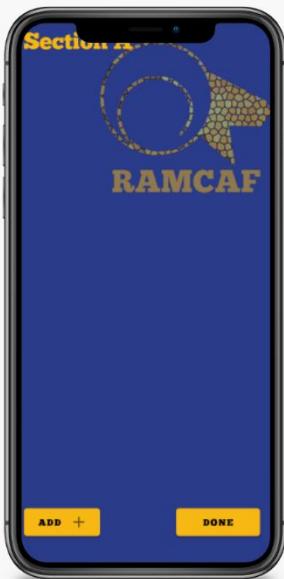






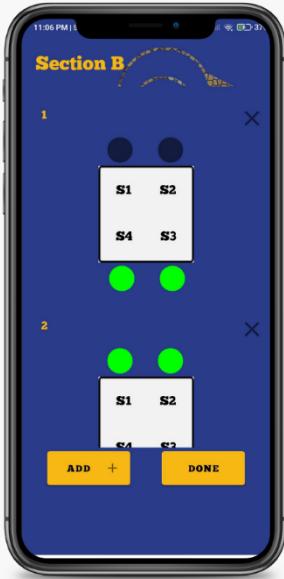
Add Tables and Seats

Here the admin are brought to a page where they can choose which section of to add a seat to.



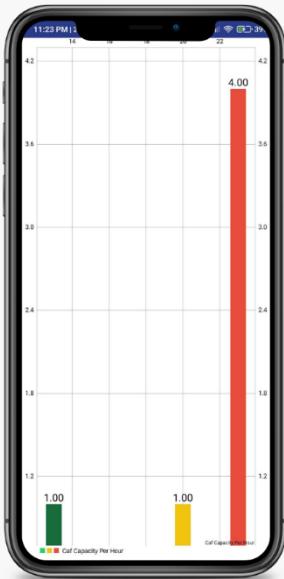
Add Tables and Seats

After selecting a section, the admin can click the add button to add a table.



Add Tables and Seats

As a default, all seats of a newly added table will be set to available for use. To make a seat unavailable for usage, simply click the seat indicator. The seat made unavailable will change its color from green to dark grey. Once satisfied with the changes for the section, click the done button.



View Logs and Reports

Here, the administrator will see a bar graph that shows cafeteria's hourly capacity. From here, the administrator would be able to know the peak hours of the cafeteria.

RAMCaf Staff

by the United Growth Engineers



RAMCAF

RAMCaf is a mobile application intended for the users to see the available seats and current seat capacity inside APC's cafeteria. It has functions for the users to set the status of their chosen seats which will be reflected in the application's interface.

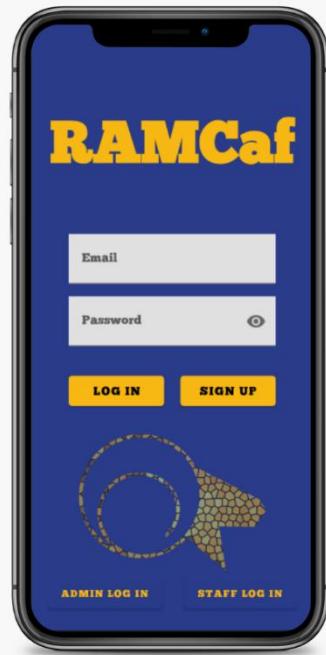
The application features a user interface that is user-friendly and easy to navigate through the use of indicators, buttons, and other displays.



User Log In

THE USER LOG IN PAGE

This is the first page to see upon opening the app. To proceed to the Staff Log In page, click the "Staff Log In" button at the bottom of the screen.



Staff Log In

THE STAFF LOG IN PAGE

Here, the Staff can log in to their accounts. There is no Sign Up page for the Staff as their accounts are pre-defined in the database.



User Interface

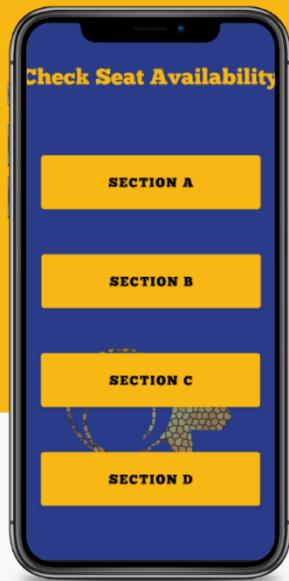


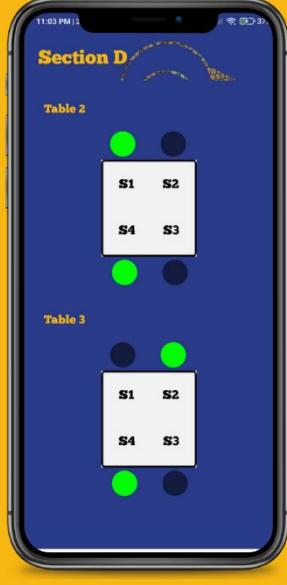
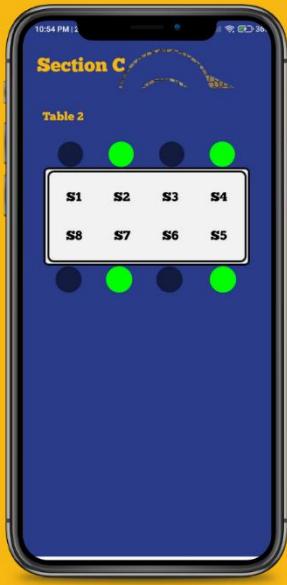
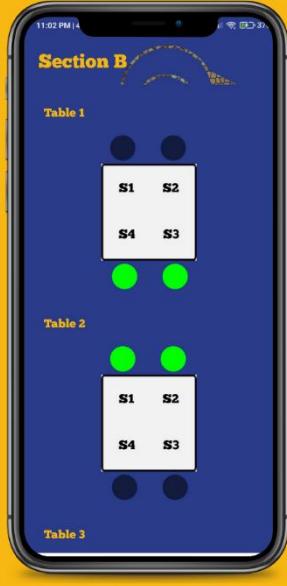
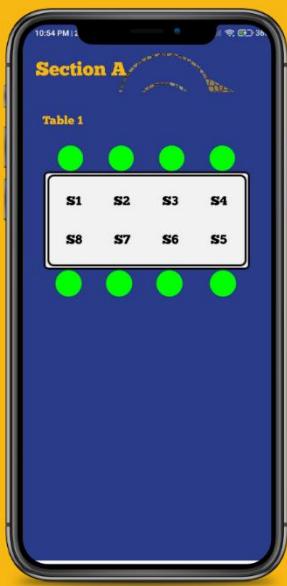
This is the main staff interface. Here, the staff can view the cafeteria capacity count. They can also press the buttons to view the seat availability or to set a status for a seat.

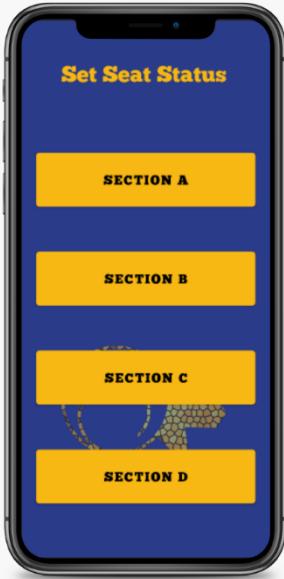
The staff can refresh this main interface to view the latest cafeteria capacity count

Check Seat Availability

Here the staff can select to view the seat availability of a specific section.







Set Seat Status

Here the staff are brought to a page where they can choose which section of seats to set a status for.



Set Seat Status

After selecting a section, the staff will see a list of all the seats of that section with a "For Disinfection" status. From here, the staff will choose a seat from the list to disinfect.



Set Seat Status

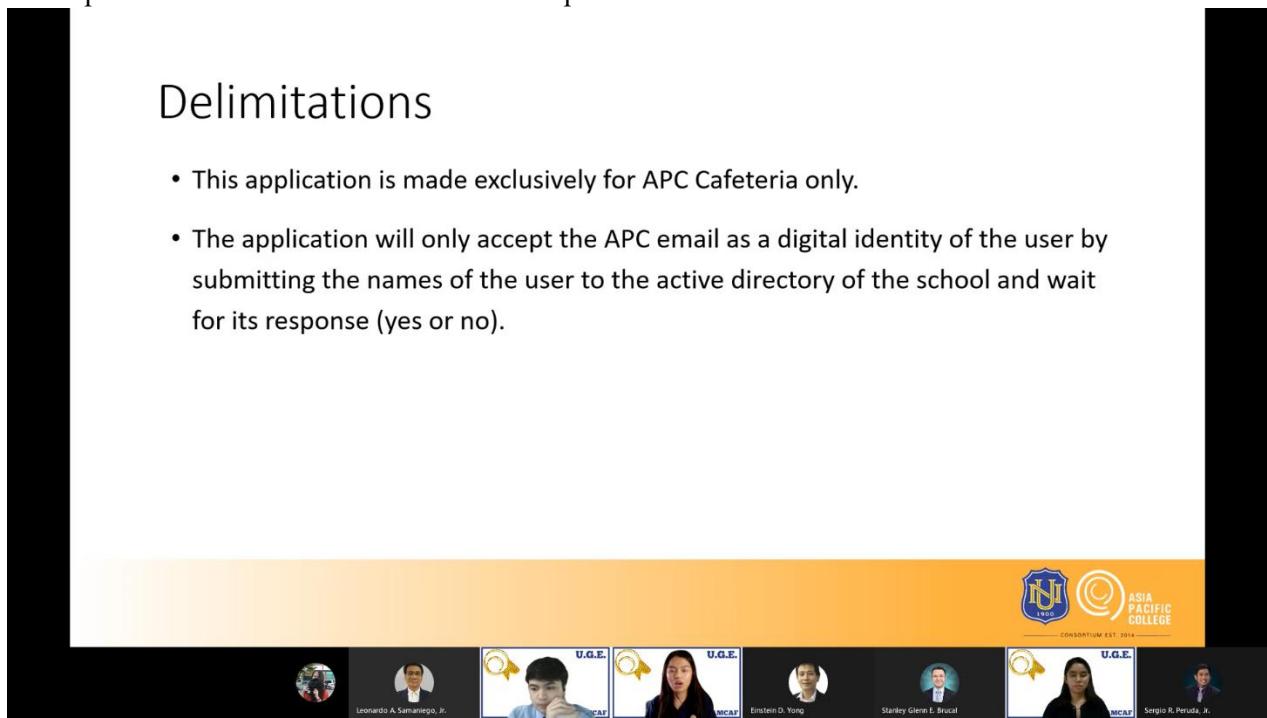
After selecting a seat, the staff are brought to this page where they can see the information of the seat they scanned. After disinfecting the seat, the staff shall press the "Available" button to set the seat status to "Available" and ready for the users to occupy again.

F. Photo Gallery

These pictures are taken from the final defense presentation.

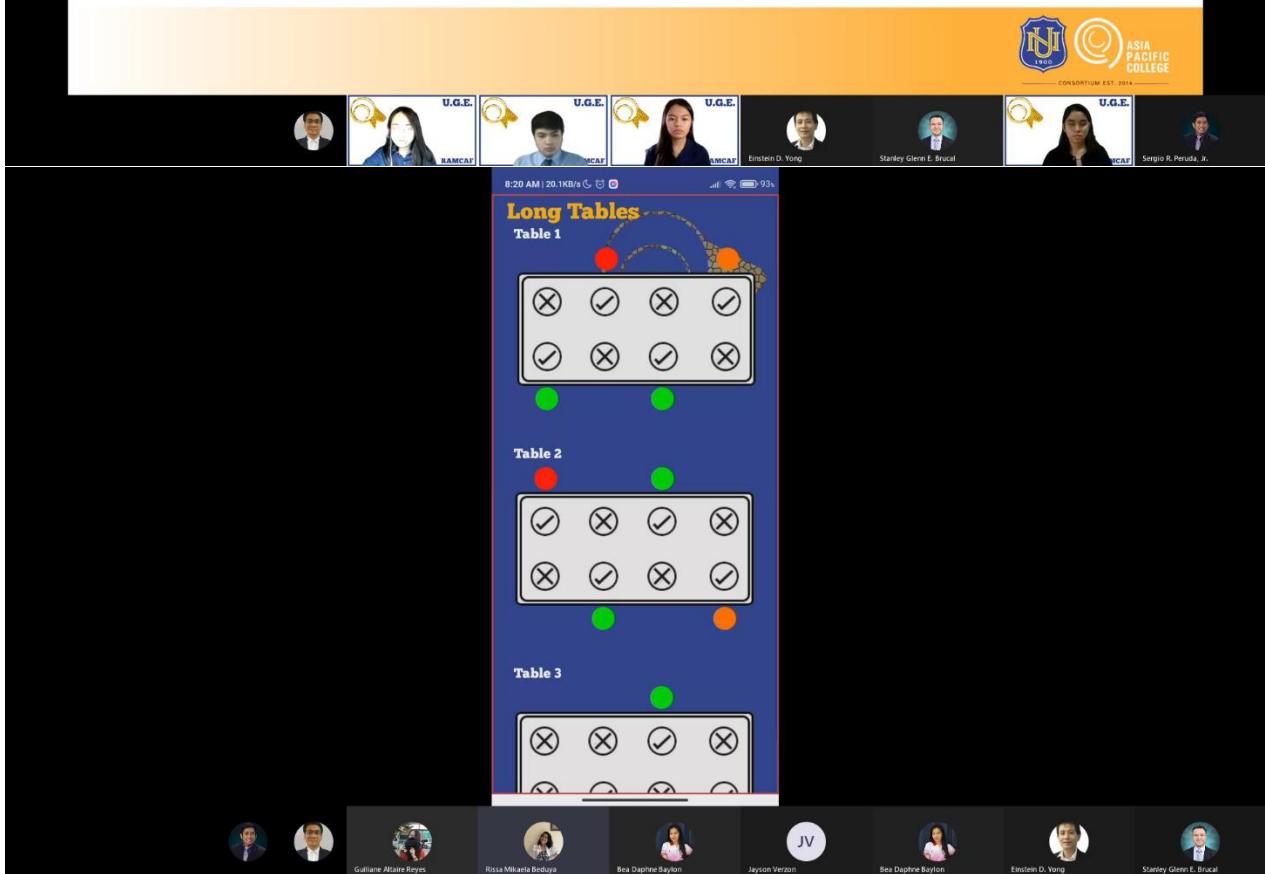
Delimitations

- This application is made exclusively for APC Cafeteria only.
- The application will only accept the APC email as a digital identity of the user by submitting the names of the user to the active directory of the school and wait for its response (yes or no).



Summary of Findings

- Development of a capacity and availability monitoring system for Asia Pacific College's (APC) Cafeteria, or RAMCaf





U.G.E.



**RAMCAF
U.G.E.**



MCAF



U.G.E.



**RAMCAF
U.G.E.**



MCAF



U.G.E.



**RAMCAF
U.G.E.**



MCAF



U.G.E.



**RAMCAF
U.G.E.**



AMCAF



Stanley Glenn E. Brizal



Sergio R. Perada, Jr.



Einstein D. Vong



Leonardo A. Samaniego, Jr.

Development of a Capacity and Availability Monitoring System for Asia Pacific College's Cafeteria

“RAMCaf”

Bea Daphne B. Baylon 2019-100017 Asia Pacific College School of Engineering 3 Humabon Place, Magallanes, Makati City bbbaylon@student.apc.edu.ph	Rissa Mikaela G. Beduya 2019-100021 Asia Pacific College School of Engineering 3 Humabon Place, Magallanes, Makati City rgbeduya@student.apc.edu.ph	Guiliane Altaire S. Reyes 2019-100054 Asia Pacific College School of Engineering 3 Humabon Place, Magallanes, Makati City gsreyes3@student.apc.edu.ph	Jayson T. Verzon 2019-100058 Asia Pacific College School of Engineering 3 Humabon Place, Magallanes, Makati City jtverzon2@student.apc.edu.ph
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Abstract - A development of a capacity and availability monitoring system for Asia Pacific College's (APC) Cafeteria or “RAMCaf” is an application created for the purpose of checking seat availability in the APC cafeteria to avoid risking yourself in a crowded room and avoid the contraction of the COVID-19 virus. When face-to-face classes restart, the application will assist administrators in controlling the cafeteria's population and capacity, as well as assisting users in finding and locating a vacant seat without having to explore the entire cafeteria in the middle of a crowd. This application is created through Android Studio using Java as the language.

Keywords: seat capacity, seat availability, monitoring, seat status, disinfection, COVID-19, cafeteria, cafeteria capacity

I. INTRODUCTION

1.1 Introduction

In plight of the COVID-19 virus pandemic, most people are not able to go to work and to school physically. There are some establishments, businesses, and places that do their best to accommodate people to make sure that they would not risk themselves from catching and spreading the virus. With this case, the proponents have come up with the idea to create an application that would help keep the Asia Pacific College (APC) cafeteria a safer and sanitized environment for the welcoming back of students for face-to-face classes. The application would show the status of tables and their seat availability so students would not have to enter the cafeteria with no idea if there would be any available places for them. In line with that, it would also show if the seat is ready to be taken, or if it still needs sanitation to prevent any dirt or virus staying on the seat. This would all be processed through the application with the help of QR codes that students would scan if they are taking the seat and leaving, and for the facilitators when they sanitize the seat and then setting it up for the available status.

1.1 Scope and Limitations

1.1.1 Scope

- The users of the mobile application include the following:
 - App Administrators (Head of the departments in charge of the cafeteria and technical services),
 - Cleaning Personnel,
 - Students,
 - Faculty, and
 - APC Staff who has access to their APC Accounts.
- The administrators of the app can:
 - Log in their APC Accounts which are saved in the database as administrator accounts,
 - Check the cafeteria capacity and seat availability,
 - View the layout of the cafeteria and its sections.

- Select the number of tables available for each section of the cafeteria by adding or deleting tables, and
 - Set the number of seats available to be occupied for each table.
 - Generate logs and reports.
 - Manage the user accounts.
 - The cleaning personnel can:
 - Log in their APC Accounts which are saved in the database as cleaning personnel accounts,
 - View the layout of the cafeteria and its sections.
 - Check the seat availability of seats inside the cafeteria,
 - Choose a seat or table to disinfect, and
 - Set the seat status (as available).
 - The students, faculty, and staff can:
 - Log in their APC Accounts to access the application,
 - Check the seat availability inside the cafeteria,
 - View the layout of the cafeteria and its sections.
 - Set the seat status (as occupied, for disinfection), and
 - Can choose the specific seat the user wants to occupy.
 - Can opt to extend their stay on the application's timer.
 - There will be a log-in and sign-up module for the users.
 - There will be a module where the users will input their information upon sign-up.
 - There will be an automatic generation of the user's account number upon sign-up.
 - There will be a built-in QR Code scanner in the app which makes use of the device's camera for the scanning of the QR Codes that are located on each seat.
 - There will be a clickable text in the log-in page to redirect the administrators and cleaning personnel to their own log-in pages.
 - There will be a log-in page for the administrators.
 - There will be a log-in page for the cleaning personnel.
 - There will be a module that the users can view the layout of the cafeteria and its sections.
 - Scanning of the QR Codes and setting the seat status will be done per seat.
 - There will be a timer module to remind users to set their seat status to "for disinfection" to avoid forgetting.
 - The logs of who occupied each will be recorded in the database.
 - A daily report will be generated where in the administrators can see the cafeteria occupancy per hour.
- 1.1.2 Limitations**
- This application is made exclusively for the APC Cafeteria only.
 - The application will only accept the APC email to be used upon sign-up.
 - The application will only accept the APC email as a digital identity of the user by submitting the names of the user to the active directory of the school and wait for its response (yes or no).
 - The application only intends to monitor the cafeteria's seating capacity and does not include the walk-ins for take-out orders.
 - The application's viewing layout is a block diagram representation of the actual cafeteria.
 - The application only allows setting of seat status individually per seat.
 - The application does not include a facility to set the seat statuses as a group.
 - The application does not include an account for guests.
 - The application is focused on the availability of the tables and seats and does not show the profile of each user and its history logs.
- 1.2 Objectives**
- 1.2.1 General Objective**
- This application aims to develop a capacity and availability monitoring system for the cafeteria which is designed for APC that will provide students, faculty, and staff an easy way to know the capacity and available seats at the cafeteria ahead of time for them to decide if they will eat in the cafeteria or pick other places to eat.
- 1.2.2 Specific Objectives**
- To allow the users to view the availability of seats in the cafeteria, they can:
- View the portal where they can see every table and the status of the seats.

- The interface will show the status of the seats in the cafeteria; green on the interface indicates that its available, red for occupied, and orange for disinfection.

For the administrators to set the cafeteria capacity and availability of the seats, they can:

- Access the interface wherein they can monitor the seats and the cafeteria capacity.
- Set the maximum cafeteria count.
- Set the number of tables in each section of the cafeteria.
- Set the number of seats from the available tables can be occupied.
- Keep records of the users.

For the cleaning personnel to monitor what seat needs to be disinfected, they can:

- Access the interface wherein they can monitor what seat they need to disinfect.
- Disinfect the seat that has an orange indicator lighting up on the admin's application.
- Set the status of the seat for it to become available; after disinfecting, the users can see from the interface that is highlighted by color green.

For the user to assign a status to an available seat, they can:

- Find an available seat from the interface.
- Select a status for each seat.
 - The user can scan the QR code located on the specific seat and set the status of the chosen seat to red so other users to know that is occupied.
 - The user can press the button “For Disinfection” to set the seat status orange/for disinfection.
- Be reminded to change their status from occupied to “for disinfection” when the timer runs out, or they can opt to extend their time in keeping their seat status to occupied until they see it fit for them to leave.

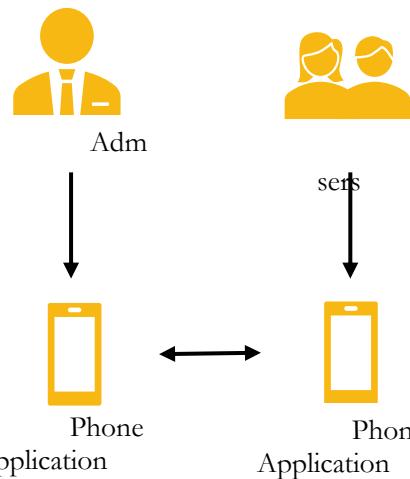


Figure 2.1: External Interfaces

Figure 2.1 shows the connection of the external interfaces – who are directly involved with the project and the devices to be used for the project implementation. Both users and the administrator will be using the phone application to set the status of the seat, and the availability of seats inside the APC Cafeteria.

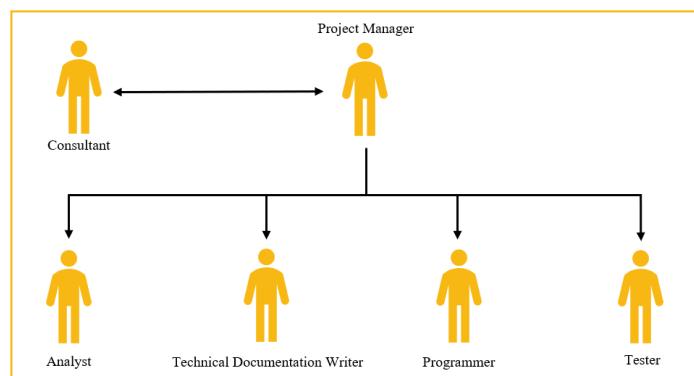


Figure 2.2: Internal Structure

Figure 2.2 shows the internal structure of the project. The project manager will be the one who will be consulting the consultant and the information given will be disseminated to the four members – the analyst, the technical documentation writer, the programmer, and the tester.

II. TECHNICAL PROCESS PLAN

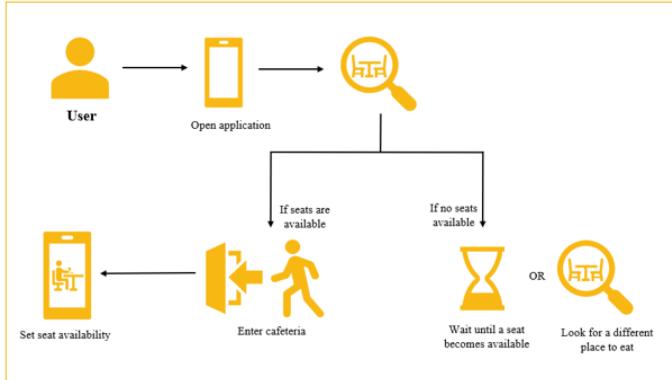


Figure 3.2: Proposed System

Compared to the Figure 3.1, Figure 3.2 shows the proposed system the proponents want to happen. Instead of entering the APC Cafeteria directly, they will now be able to know if there are available seats inside without them entering the facility. This can also limit the number of people who enters the cafeteria and given the circumstances today, physical distancing will also be implemented here.

III. RESULTS AND DISCUSSION

Most parts of the interface were based in the initial proposed layouts. Minor changes such as text styles and button placements were altered. The major changes in the interface include the viewing of seats by section instead of by table type, and a new interface to view the cafeteria table and seat layout was added to the application.

Admin Testing

Admin Login Module		
Case	Script	Result
Email Edit Text	Allows the tester to input his/her email.	Accepts the admin email input of the tester
Password Edit Text	Allows the tester to input his/her password.	Accepts the admin password input of the tester
Log In Button	Allows the tester to log in to the application	Allows the tester to log in to the system after checking if the input email and password matches the records in the database and redirects the tester to

		the Admin Home Screen.
Admin Home Module		
Case	Script	Result
Caf Capacity TextView	Allows the tester to view the current capacity of the cafeteria	Counts all the seats with an "occupied" status and displays it as the cafeteria capacity
Check Seat Statuses Button	Allows the tester to view the statuses of the seats	Redirects the tester to a module where he/she can select to view the statuses of either the long or short tables
Set Tables and Seats Button	Allows the tester to define the number of tables and seats that can be occupied in the cafeteria	Button is not clickable. Feature yet to be made.
View Logs and Reports	Allows the tester to view the logs and reports of the day	Button is not clickable. Feature yet to be made.
Logout Button	Allows the tester to log out of the application	The system clears all contents of the Shared Preferences. The tester is logged out and redirected to the Login Module

Staff Testing

Staff Login Module		
Case	Script	Result
Email Edit Text	Allows the tester to input his/her email.	Accepts the staff email input of the tester
Password Edit Text	Allows the tester to input his/her password.	Accepts the staff password input of the tester
Log In Button	Allows the tester to log in to the application	Allows the tester to log in to the system after checking if the input email and password matches the records in the database and redirects the tester to the Staff Home Screen.

Staff Home Module		
Case	Script	Result
Caf Capacity TextView	Allows the tester to view the current capacity of the cafeteria	Counts all the seats with an "occupied" status and displays it as the cafeteria capacity
Check Seat Statuses Button	Allows the tester to view the statuses of the seats	Redirects the tester to a module where he/she can select to view the statuses of either the long or short tables
Set Seat Status Button	Allows the tester to set the statuses of the seats	Redirects the tester to a module where he/she can select to view a list of the seats with a status of "for disinfection"
Logout Button	Allows the tester to log out of the application	The system clears all contents of the Shared Preferences. The tester is logged out and redirected to the Login Module
Set Seat Status Module (Option to choose between Short/Long table)		
Case	Script	Result
Long Tables Button	Allows the tester to view the seats from long tables with "for disinfection" status	Redirects the tester to the Set Seat Status Module for long tables
Short Tables Button	Allows the tester to view the seats from short tables with "for disinfection" status	Redirects the tester to the Set Seat Status Module for short tables
Set Seat Status Module (Short Tables)		
Case	Script	Result
Status ListView	Displays the seats from short tables with "for disinfection" status	The system gets the seats with "for disinfection" status from the database and displays it in the ListView.
Status ListView (row)	Allows the user click the selected table and seat number to set the status	Redirects the tester to a module where he/she can set the seat status of the selected seat.
Set Seat Status Module (Long Tables)		

Case	Script	Result
Status ListView	Displays the seats from long tables with "for disinfection" status	The system gets the seats with "for disinfection" status from the database and displays it in the ListView.
Status ListView (row)	Allows the user click the selected table and seat number to set the status	Redirects the tester to a module where he/she can set the seat status of the selected seat.
Set Seat Status to Available Module		
Case	Script	Result
Table Number TextView	Allows the tester view the table number	The system displays the table number of the selected field from the ListView
Seat Number TextView	Allows the tester view the seat number	The system displays the seat number of the selected field from the ListView
Status TextView	Allows the tester to view the status of the seat	Displays the status of the selected seats
Available Button	Allows the user to set the seat status to available	The system updates the data in the database and sets the seat status to "available"

User Testing		
Sign Up Module		
Case	Script	Result
Name Edit Text	The user will input their name here.	It accepts the name of the user
Email Edit Text	The user will input their APC email, but without the @ and the domain name	It accepts the email of the user
Student Radio Button	The user will choose this if he/she is a student since the domain is different.	It attaches the domain of the student email.
Faculty/ Staff Radio Button	The user will choose this if he/she is a faculty or staff member since the domain is different.	It attaches the domain of the faculty and staff email.
Password Edit Text	The user enters their desired password	It accepts the password that the user input

Re-enter Password Edit Text	The user re-enters their desired password	It confirms the password that the user has entered
Terms and Conditions Button	This button leads the user to terms and conditions	The terms and conditions module opens
Read Terms and Conditions Checkbx	This signifies that the user has read and accepted the terms and conditions	It accepts that the user has agreed to the terms and conditions
Sign Up Button	This submits all the user information to the database	It sends and completes the sign up process

User Set Seat Status Module (set to "for disinfection" status)		
Case	Script	Result
Table Number TextView	It calls the table number of the seat from the QR code	It displays the table number of the seat
Seat Number TextView	It calls the seat number from the QR code	It displays the seat number of the seat
Disinfect Seat Button	It allows the user to change the seat status to "for disinfection"	It updates the status of the seat on the database
Status TextView	It calls the status of the seat from the database	It shows the status of the seat if it is available, occupied, or for disinfection

Terms and Conditions Module		
Done Button	When pressed, the user will be returned to the Sign Up module	The user is successfully returned to Sign Up module
User Home Module		
Case	Script	Result
Check Seat Availability Button	When pressed, it shows the options for long or short table	This leads the user to the module where he can select a seat at a short or long table
Cafeteria Capacity TextView	This gets the number of occupied seats from the database	It shows the current number of occupied seats
Set Seat Status Button	This redirects the user to the user to the scan seat status module	The user is able to access the user scan seat status module
Log Out Button	It clears out all the data in sharedPreferences() and redirects to log in	The user logs out of his/her account
User Scan Seat Status Module		
Case	Script	Result
QR Code Scanner	It scans the QR codes of the seats	The seat automatically gets occupied and updates the database

Phone Testing		
Case	Script	Result
Android API Compatibility	It checks if the application is compatible with a range of Android APIs	The minimum Android API requirement to make sure that the application would work is the Android Version 11

IV. CONCLUSION AND RECOMMENDATIONS

6.1. Summary

Development of a capacity and availability monitoring system for Asia Pacific College's (APC) Cafeteria, or RAMCaf, is an application revolving around the ease and accessibility of acquiring seats in the cafeteria without needing to enter the cafeteria and risk yourself getting into close contact with other people, especially now with the COVID-19 restrictions of not having complete capacity in spaces.

The proponents have chosen to create this application on Android Studio, therefore making it Android OS exclusive, and have chosen to write the code in Java language since it is what they are more familiar with among the choices of programming languages. The application is connected to databases that contain administrator, user, and staff accounts, and the seats of the tables of the APC cafeteria.

The application works in a way where the user would be able to check their phone for any available seat in the cafeteria with a layout of seats per short and long table in respective sections of the cafeteria. The users would then scan a QR code found per seat to be able to access the option for them to occupy the seat, therefore turning that seat status into occupied whenever another user checks the application for an available seat. The staff would then be able to check their interfaces to see if there

are any seats that need disinfection when a user is prepared to leave the seat. The staff would then proceed to disinfect the seat and make that seat available for occupancy for the next person. Lastly, the administrator would have the power to change seat statuses, table layouts, number of available seats, and reports and logs regarding the cafeteria occupancy.

6.2. Conclusion

The proponents have created this application in a short span of time within a month. They have experienced struggle with the creation of the application since they do not have a lot of knowledge regarding Android Studio, with the case of them not having formal lessons. They have pushed to complete the main core of the application, and as well as the other important features that affect how the application works. They have finished strong with a few minor features missing, but have managed to get everything in order and make the application run smoothly.

6.3. Recommendations

For the future researchers who will try to further the development of the application, we have the following recommendations that we advise to follow:

- The proponents prescribe, to study the topic very well and analyze each of the component of the system in order to fully achieve the objective given.
- The proponents recommend that the application will not only be compatible to Android, but be compatible to iOS also.

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