Chapter I. Introduction

Background of the study

In today's technologically driven world, mobile applications have become an essential part of daily life. Universities have adopted mobile applications to enhance the student experience, providing students with convenient and efficient ways to access information and services, helping them stay organized and on top of their academic responsibilities while replacing the need for physical resources and face-to-face interactions. A survey conducted among university students found that over 80% use their university's mobile application regularly, highlighting these apps' convenience and significant impact on academic and campus life ("Benefits of university mobile apps", n.d.). The development of MapuaMate addresses the absence of a dedicated university mobile application at Mapua Malayan Colleges Mindanao (MMCM). By consolidating various useful functionalities into a single, cohesive platform, MapuaMate aims to streamline access to essential resources and significantly enhancing the overall student experience.

Statement of the problem

1. **There is no unified application that combines all campus resources into one cohesive platform.**

   Information on class schedules, announcements, and more is scattered across various platforms, making it inefficient and inconvenient for students who must navigate multiple applications for different purposes. Consequently, there is a significant risk that students may overlook important announcements and resources simply because they are unaware of their existence or have difficulty accessing them. This disjointed approach not only complicates the user experience but also undermines the potential for seamless academic administration and student engagement.

2. **The is a lack of useful resources and tools.**

   MMCM does not provide a page where students can access all campus maps. There is also no lost and found item page for students to easily browse and find their lost belongings. Additionally, the absence of canteen menus and professor ratings makes it difficult for students to plan meals or choose courses effectively. All these additional resources would significantly improve the student experience by providing essential information and enhancing connectivity and engagement on campus.

3. **There is currently no official platform dedicated to facilitating social interactions and community engagement among students.**

   This absence of a social platform limits opportunities for students to connect, share experiences, and engage in campus life beyond classroom activities. Developing a dedicated platform for social interactions would foster a stronger sense of community, encourage

participation in campus events, and enhance overall student satisfaction and belongingness at MMCM.

Assumption of the study

1. **Unified Application for Campus Resources**

   Problem: There is no unified application that combines all campus resources into one cohesive platform.

   MapuaMate consolidates various campus resources into a single application. This includes class schedules, announcements, event calendars, discussion room reservations, and more. By centralizing these features, the application ensures that students can easily access all necessary information efficiently without having to navigate multiple platforms and risk missing important announcements.

2. **Additional Useful Resources and Tools**

   Problem: The is a lack of useful resources and tools.

   MapuaMate includes a campus map for easy navigation, a lost and found section for managing lost belongings, canteen menus for meal planning, and a professor rating system to help students make informed decisions about their courses. These additional resources are designed to enhance the overall student experience.

3. **Facilitating Social Interactions and Community Engagement**

   Problem: There is currently no official platform dedicated to facilitating social interactions and community engagement among students.

   MapuaMate incorporates a social board that encourages students to connect, share experiences, and engage in campus life. This dedicated social platform is intended to foster a stronger sense of community, promote participation in events, and enhance overall student satisfaction and belongingness.

Features of the Proposed System

To ensure that the application addresses the problems effectively, MapuaMate includes the following features:

- **Social Board:** A platform for students to post messages, engage in discussions, and share experiences.
- **Announcements:** A centralized page for university and course-specific announcements, ensuring students stay informed about important updates.

- **Class Schedules:** Easy access to daily class schedules, helping students manage their time efficiently.
- **Calendar:** An interactive calendar featuring upcoming campus events and course activities.
- **Discussion Room Availability and Reservations:** A feature to check the availability of meeting rooms and reserve them as needed.
- **Instructor Ratings:** A system for students to rate and review professors, aiding in course selection.
- **Grade Tracker:** A tool for students to track their academic progress and grades.
- **Campus Map:** An interactive map of the campus, including building locations, key facilities, and emergency exits.
- **Canteen Menus:** Menu from campus canteens to help students plan their meals.
- **Lost and Found:** A page to display lost items, making it easier for students to recover their belongings.
- **Settings:** A page where users can edit their account details.
- **Contact Us:** A page where users can send messages or questions to the different offices within the school.
- **Help:** A help page to assist users in navigating the app, guide users on using different features, and resolve issues.
- **Feedback**: A page where users can provide feedback regarding MapuaMate.
- **Accessibility Features:** Including text-to-speech and colorblind-friendly designs to ensure the app is usable by all students.

Significance of the study

- **College President and Administrators**

They will have a centralized platform to disseminate important announcements and updates, ensuring that all students and staff are promptly informed. The application will facilitate better communication and engagement within the campus community, reflecting positively on the institution's commitment to student welfare.

- **Quality Assurance Team**

The application will provide valuable data on student engagement and the usage of campus resources, aiding in the continuous improvement of university services.

- **Deans and Program Heads**

By streamlining class schedules and course announcements, they can better manage academic programs and respond to student needs more effectively.

- **Faculty**

Professors will benefit from a more organized system for posting course announcements and interacting with students, enhancing the teaching and learning process.

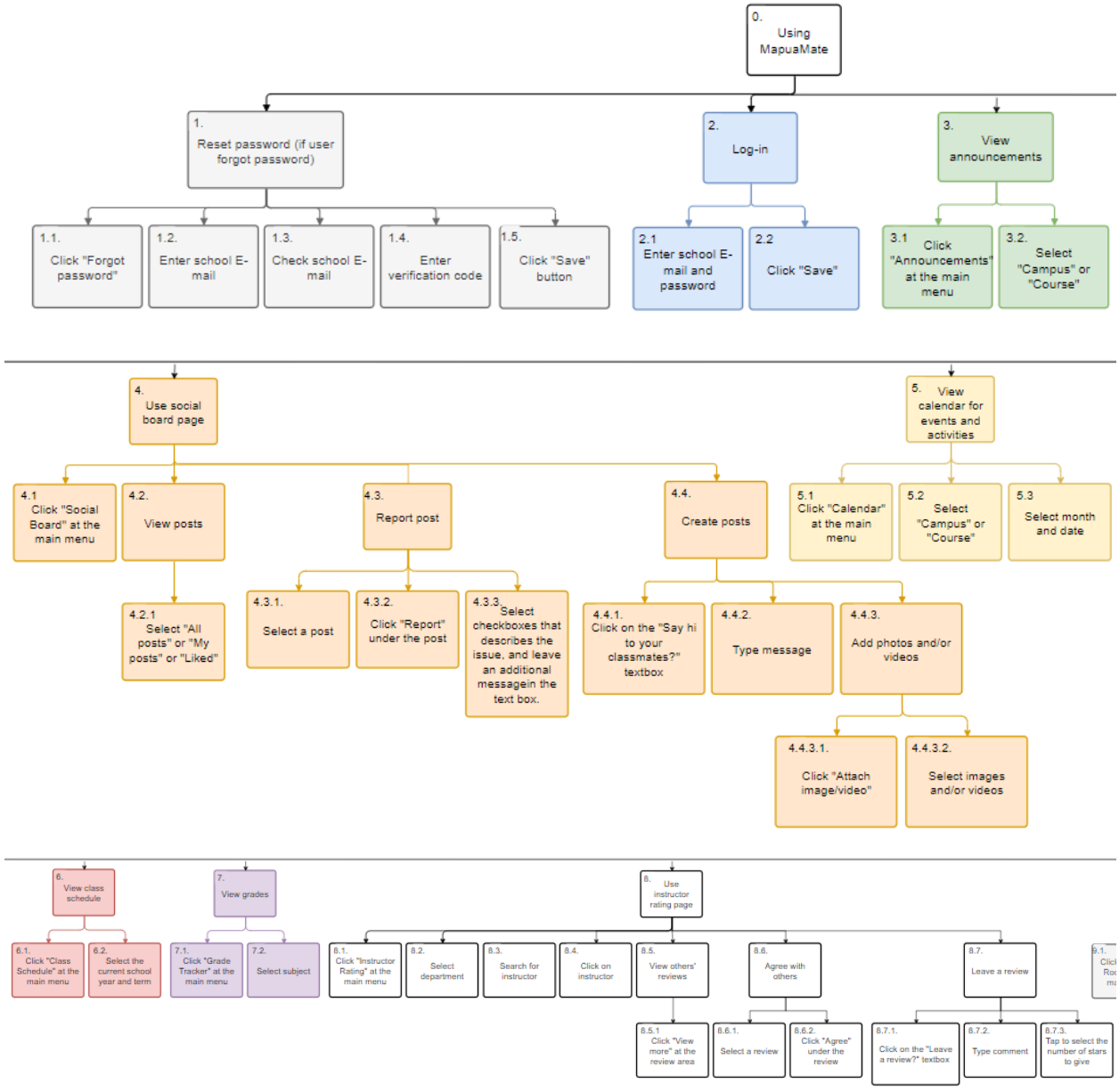
- **Students**

The primary beneficiaries, students, will experience a more organized and efficient campus life, with easy access to schedules, announcements, room reservations, and other resources. Improved communication channels will foster a stronger sense of community and support among students.

Chapter II. Research Design

A. Task Analysis

Provide the hierarchical task analysis of the proposed design based on chosen scope both textual and figure.



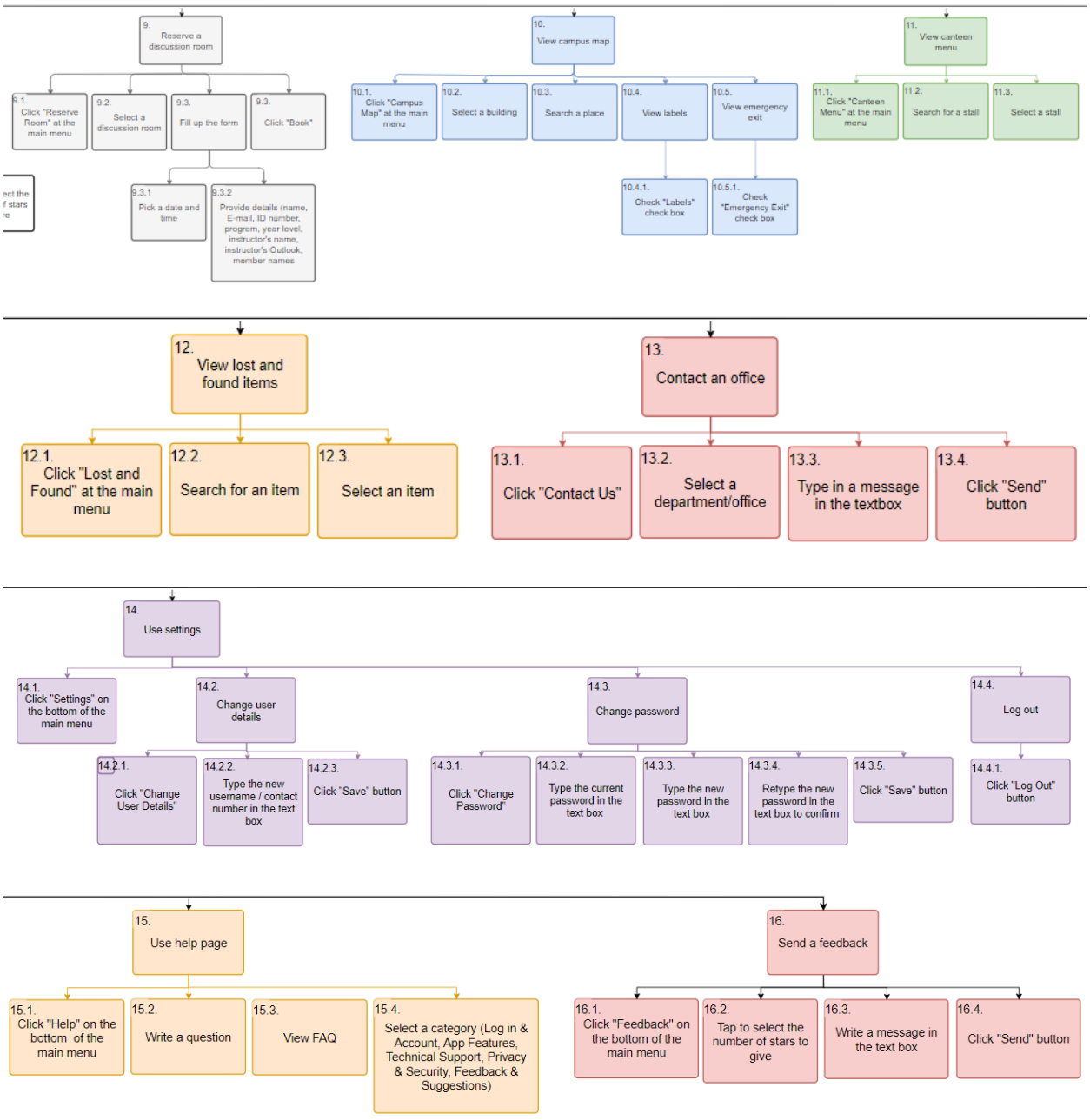


Figure 1. MapuaMate Hierarchal Task Analysis

As seen in Figure 1, the proposed design shows the tasks the prototype can do. It has 16 main tasks namely resetting the password, login, viewing announcements, social board, calendar, class schedule, grades, accessing the instructor rating page, reserving a room, viewing campus map, canteen menu, lost and found, contacting offices, settings, help desk and provide feedback to the developers. Under these tasks are subtasks that the user can do.

Under reset password, the user must click the button "Forgot Password", enter school e-mail, check school email, and enter the verification code received.

Under log in, the user must enter their school e-mail and password.

To view announcements, the user must first click the button "Announcements" in the main menu. They may select between campus or course announcements.

To view the social board, the user must click on the "Social Board" button in the main menu. Users may view, report, and create posts. Under view posts, they may select "All Posts", "My Posts" or "Liked". Under report post, the user must first select a post, click the "Report" button, select the checkbox that describes the issue then leave an additional message in the text box. Under Create posts, they must click on the "Say hi to your classmates?" textbox and type what they want to say. They may attach photos/videos in their posts.

To view the calendar, the user must click on the "Calendar" button in the main menu. They may select between "Campus" or "Course" to see events and activities. They may select a month and date to see the activity in detail.

To view the class schedule, the user must click on the "Class Schedule" button in the main menu. They must select the current school year and term to see the schedule given for that term.

To view grades, the user must click on the "Grade Tracker" button in the main menu. They may select the subject they want to view to check their grades in detail.

To use the instructor rating page, they must click on the "Instructor Rating" button in the main menu. They can select a department, search for the instructor, click on the instructor to see details, view other reviews by clicking on click view more in the review area, agree with other comments by selecting a review and clicking agree, and leave a review by clicking on the "Leave a review" textbox, typing a comment, and tapping to select the number of stars you want to give the professor.

To reserve a room, the user must first click on the "Reserve Room" button in the main menu, and then select a discussion room. They must fill up the form where they must pick the date and time they want to book the room and provide details (name, email, ID number, year level, instructor's name, instructor's outlook, and member names) Lastly, they click on the "Book" button to book the room.

To view the campus map, the user must click on the "Campus Map" button in the main menu, select a building, or search the room that they are looking for using the search bar. They may use the respective buttons to view room labels and emergency exits per floor.

To view the canteen menu, the user must click on the "Canteen Menu" button in the main menu. They may explore stalls on the campus. Upon selecting a stall, the menu options available at that stall will be displayed.

To view lost and found items, the user must click on the "Lost and Found" button in the main menu. They can search for the item that they are looking for and click on the item to see its details.

To contact an office, the user must click on the "Contact Us" button in the main menu. They must select the department/office they wish to message. They must type their message in the textbox and click on the "Send" button.

To use settings, the user must click on the "Settings" button at the bottom of the main menu. They may choose to change user details, change passwords, or log out.
If they wish to change user details, they must click on the "Change User Details" button, type the new username/contact number in the text box then click on the "Save button". If they wish to change their password, they must click on the "Change Password" button, type their current password, type the new password, retype the new password then click on the save button. If they wish to log out, they can simply click on the "Log Out" button.

To use the help page, the user must click on the "Help" button at the bottom of the main menu. They may write a question, view FAQ and select a category to choose from (Login & Account, App Features, Technical Support, Privacy & Security, Feedback & Suggestions).

To send feedback to the developers, the user must click on the "Feedback" button at the bottom of the main menu. They must select the number of stars they want to give, write their feedback in the text box then click on the "Send" button.

B. **Requirements Gathering**

The team used a survey/questionnaire, incorporating the 10 Usability Heuristics by Jakob Nielsen to ensure that the app accommodates the user's usability problems in a 5-point Likert Scale. Moreover, the team also included personalized questions as well as open ended questions in the survey questionnaire that is in-line with their goals.

Functional Requirements

In tackling the functional requirements, the team has prioritized easy navigation and responsive design. The proposed system should be intuitive, clear and consistent menu structure across all screens. This also includes a single button that will take the user back to the menu from any screen. Additionally for responsive design, the system must adapt its layout to be user-friendly on both smartphones and tablets, ensuring all elements are touch-friendly and easily readable.

Features

1. **Social Board**

i. The system must allow users to create new posts and reply to existing posts in the message board section.
ii. Users should be able to edit or delete their own posts and replies.

2. **Announcements**
    i. **Campus**
        a. The system must have a dedicated section for official campus announcements, which should be accessible from the home screen.
        b. Announcements must be displayed with a timestamp.
    ii. **Course Announcements**
        a. The system must allow professors to post course-specific announcements that are visible only to students enrolled in those courses.
        b. Users should receive notifications for new announcements related to their courses.
3. **Class Schedule**
    i. **Schedule Display**
        a. The system must provide a visual class schedule, showing daily and weekly views with course names, times, room numbers, and the mode of class.
4. **Meeting Room Availability and Reservations**
    i. **Availability Display:**
        a. The system must show real-time availability of meeting rooms in the library and other study spaces.
        b. Users should be able to view room availability for a specific date and time.
    ii. **Room Booking:**
        a. The system must allow users to book available meeting rooms, specifying date, time, and duration.
5. **Professor Ratings**
    i. **Rating and Review**
        a. Users should be able to view average ratings and read reviews left by other students.
        b. Users must have the option to submit ratings and reviews anonymously.
6. **Event Calendar**
    i. **Event Listing**
        a. The system must feature an interactive calendar that displays university events, deadlines, and activities.
7. **Grade Tracker**
    i. The system must provide a grade tracker that allows users to view their grades for each course.
    ii. The grade tracker should calculate average grades and display visual progress.

8. **Campus Map**

i. The system must feature an interactive campus map showing building locations and key facilities.
ii. Users should be able to search for specific buildings and get directions from their current location.

9. **Canteen Menus**
    i. The system must display daily menus and prices for campus canteens, accessible from the home screen.
    ii. Canteen staff must have the ability to update menus daily, ensuring that users receive accurate information.
10. **Lost and Found**
    i. Users must be able to input information such as date and the location where the lost item was found.
    ii. A detailed description of the item when the user clicks the item from the list of items.
11. **Accessibility Features**
    i. **Text-to-Speech**
        a. The system must support text-to-speech for users with visual impairments, enabling them to listen to content on the app.
    ii. **Screen Reader Compatibility**
        a. The app must be compatible with screen readers to ensure that visually impaired users can navigate and use the app effectively.
12. **Helpful Features**
    i. **Settings**
        a. Users should be able to change their username, password, contact number, and customize their profile picture.
    ii. **Contact Page**
        a. Users should be able to select a department who they wish to contact and input a message.
    iii. **Feedback Page**
        a. A rating for the app and a message box for receiving opinions about the app.
    iv. **Help Page**
        a. A section to show frequently asked questions
        b. Users should be able to input questions and automatically let the app answer their concerns.
        c. A categorization such as the app features, how to log in and account details, technical support, security, and feedback.

Data Requirements

The team should ensure that MapuaMate can handle user inputs and generate meaningful outputs to support functionalities required by MMCM students.

Features Data Requirements

1. **User Account and Authorization**

i. **Login**
    a. **Input:** Users must enter their university email address and its password to log in
    b. **Output:** The system should output a message whether the inputs were correct or incorrect to indicate whether the login credentials were correct.
ii. **Password Recovery**
    a. **Input:** Users must input their email address to receive password recovery instructions.
    b. **Output:** The system should output a recovery email with instructions on how to reset the password.

2. **Social Board**
    i. **Posting**
        a. **Input:** Users must input text for their posts and optionally add images or attachments.
        b. **Output:** The system should display posts in chronological order, with options to filter by category or search by keyword.
    ii. **Replies**
        a. **Input:** Users must input text for replies to existing posts.
        b. **Output:** The system should display replies nested under the original posts.
3. **Meeting Room**
    i. **Input:** Users must input the desired date and time for reservations. Users are also required to input their information such as name, email, ID number, Year Level, Program, etc.
    ii. **Output:** The system should display available rooms and their reservation status(eg. available time). The system should also output a reservation confirmation message.
4. **Professor Ratings**
    i. **Rating Inputs**
        a. **Input:** Users must input a rating (e.g., 1-5 stars) and optional text reviews for professors.
        b. **Output:** The system should display aggregated ratings and text reviews for each professor.
    ii. **Rating Filters**
        a. **Input:** Users can input professor names as well as choose departments.
        b. **Output:** The system should output filtered results based on the selected criteria.
5. **Grade Tracker**
    i. **Input:** Users can input course names, and filter in alphabetical order.
    ii. **Output:** The system should output a summary of grades and calculate averages. The system should also output a summary of student progress in the course

6. **Campus Map**

i. **Input:** Users can input building names or room numbers to search the map. They can also tick checkboxes whether to include labels and see directions for emergency exits
ii. **Output:** The system should output a highlighted route or location on the map.

7. **Lost and Found**
   i. **Lost Item Reports**
      a. **Input:** Users must input item descriptions, the date lost, and location where it was found.
      b. **Outputs:** The system should display lost item reports.

Environmental Requirements

In gathering the environmental requirements, the team ensured that every requirement gathered must enable the app to be robust, secure, adaptable in every context in which MMCM students operate. The requirements focus on compatibility with various devices and operating systems, efficient operation in different network conditions, adherence to security standards, and support for a diverse student population in varying physical and cultural environments.

In technical environments, first, the application must support platforms such as Android and IOS operating systems, ensuring broad accessibility for students with different devices. Additionally, the app should be optimized for different screen sizes and resolutions to provide a consistent user experience across smartphones and tablets. Secondly, as the system revolves around real-time information, it must be designed to work efficiently over both Wi-Fi and cellular data connections, considering the varying network conditions on and off-campus. Moreover, there might be situations where students might urgently check schedules or view the maps in which they might not have access to any internet connection. Therefore, the application must support offline functionality for core features such as viewing class schedules and campus maps, with data synchronization occurring once the device reconnects to the internet. To ensure compatibility and adaptability across devices, the application must rely on up-to-date software libraries and frameworks that are maintained and supported by their respective communities or organizations. The system should require minimal dependencies to reduce potential conflicts and ensure compatibility with various device configurations.

In non-technical environments, incorporating user-friendliness in the application is a must, especially if we plan on having a diverse student population as our target users including those with varying degrees of technical proficiency. The application must also support accessibility features for people with visual impairments. In a physical environment, the team ensures that the system functions effectively in various physical environments such as classrooms, libraries, and outdoor campus areas. And lastly, energy efficiency is critically crucial especially in environments like schools in which the team must consider while encouraging sustainable practices, such as digital distribution of materials and reducing the need for physical paper use in developing the application.

Usability Requirements

When defining usability requirements for the MapuaMate application, the team needs to ensure that the application is intuitive, accessible, and effective for all users, including those with varying levels of experience and different needs. These requirements should address aspects such as ease of use, accessibility, learnability, flexibility, and consistency to provide a positive user experience:

Ease of Use

The application must be easy to navigate, allowing users to find and access different features with minimal effort. The navigation button must also be easily identifiable and consistently located throughout the app to reduce user confusion. The team must also ensure that the user interface features a clean and uncluttered design by using ample white spaces and clear headings to guide users through tasks. Icons and labels should be self-explanatory, reducing the need for extensive user training or documentation. Doing common tasks should take as minimal steps as possible as long processes discourage users from using the app.

Accessibility

Accessibility is a must when making an application to assist users, people who suffer from visual impairments should also be able to use the application. Features such as text-to-speech and screen reader compatibility must be integrated to accommodate these types of users.

Learnability

Sometimes, new users might be confused with how the application works, therefore a help and FAQ page was created to solve this problem. Regarding the user interface, consistency is important in designing; elements such as buttons, icons and colors should be consistent to help users learn and predict the app behavior.

Flexibility

It is also important to make the application responsive as everyone does not have the same device, especially screen sizes. This also includes dynamically changing elements that is appropriate to the screen size.

Consistency

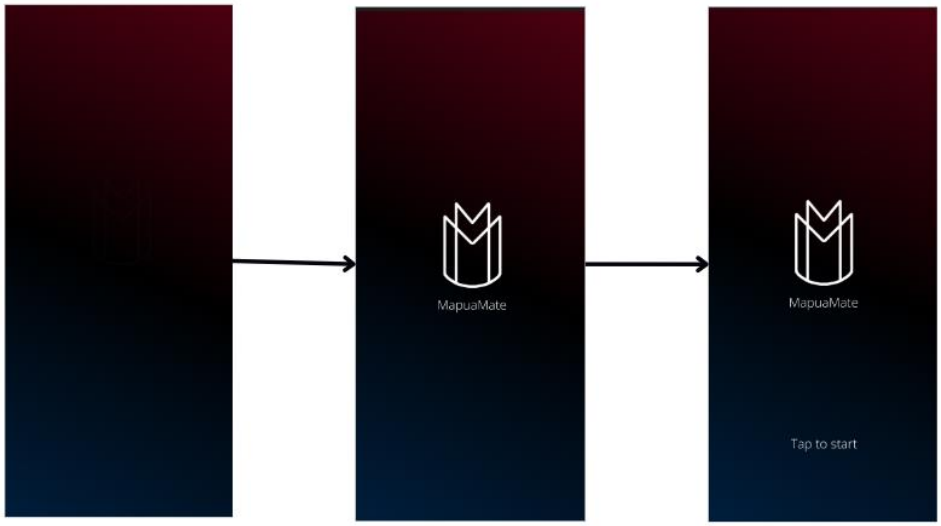
Interaction patterns should also be consistent in every part of the application, such as swiping, tapping, and long presses to perform actions, ensuring predictability in user operations. Additionally, error messages and feedback from actions should also be consistent in format and location, clearly informing users of issues and how to resolve them. Lastly, since the team added a feedback feature, every update should consistently integrate the user feedback received to address usability issues and improve the overall user experience.

Designers Requirements

In gathering designer's requirements, the team's goal is to ensure that the app is aesthetically pleasing, user-friendly, and accessible while effectively communicating its functionalities. One of the first requirements the team gathered is to have a clean and minimalist design, this enables the users to focus more on the content and functionality of the application. The color scheme was also made consistent across the application as one of the team's goals is to align the application with MMCM's branding and identity. A simple font was also aimed to be used in designing the app. The team also maintained a style throughout the application and reused many elements to reduce workload while also preventing users from being confused. Furthermore, the team also ensured that every element is aligned and spaced properly for a balanced look. The team also wanted the UI to be more scalable to allow for future enhancements and the addition of new features without disrupting the overall user experience. The last requirement is to create a modular design elements that can be easily updated or replaced to keep the app current and aligned with evolving design trends.

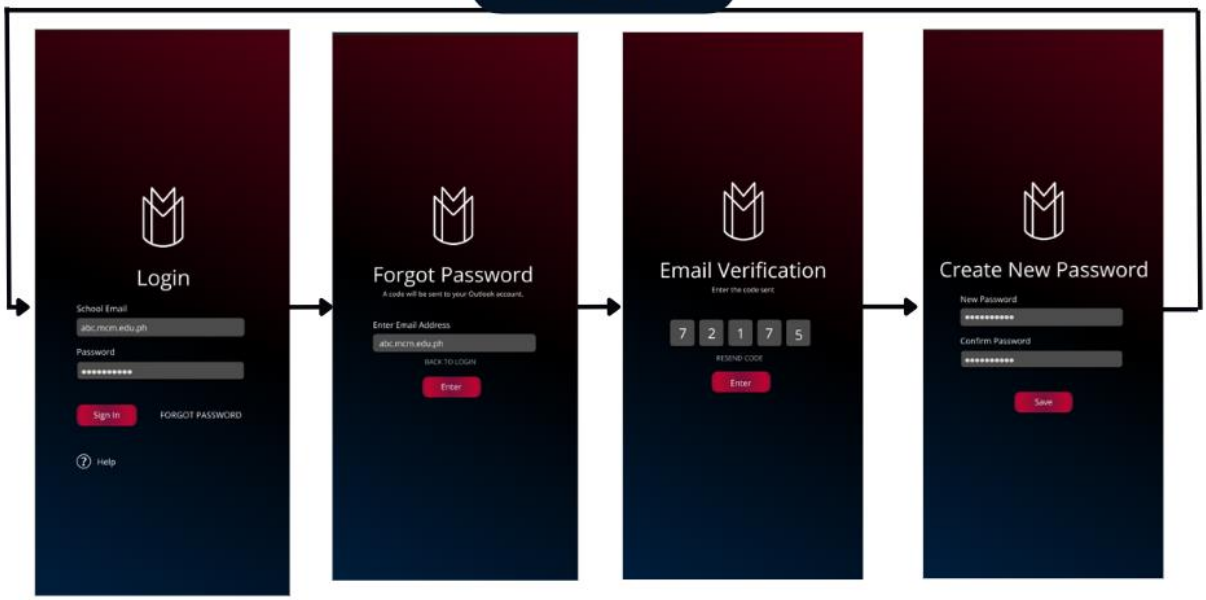
C. **Storyboarding and Prototyping**

Splash Screen



A short animation will appear, highlighting MapuaMate's logo. After, it will prompt the user to touch the screen which will bring them to the log in page.

Logging In



Login In

Prompts user to input their school email and password. Features 3 buttons, sign in, forgot password, and help.

Forgot Password

If user clicks on forgot password, they are asked to input their Outlook email address.

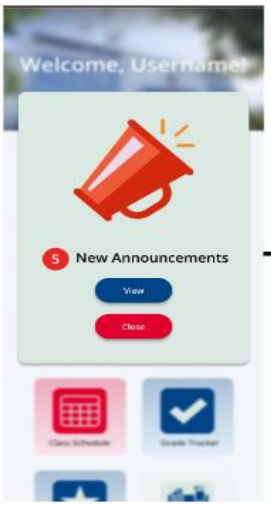
Email Verification

Received code that is sent to their Outlook account must be placed in the respective edit text.

Create New Password

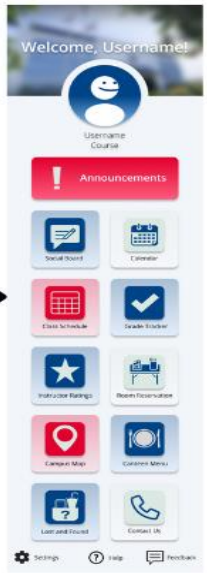
Prompts user to input their new password and to confirm it below.

Home Page



Pop up screen (Announcements)

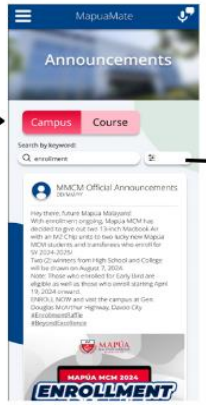
Pop up screen will tell how many announcements have been made since the last time the app was opened.



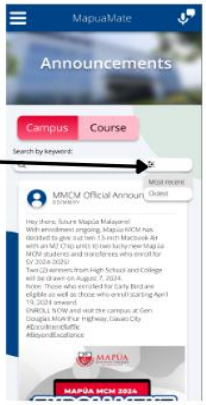
Home Page

Home page shows buttons that will take you to different features it offers.

Announcements(Campus)



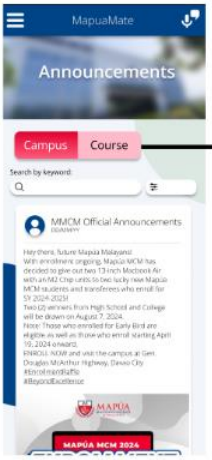
Campus announcements will be posted in this section.



If filter button is clicked, a drop down menu will appear which can filter the posts by most recent, and oldest.

*Note: Campus announcements section is shown in default.

Announcements(Course)

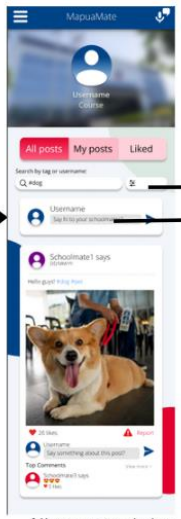


Course button can be seen beside the campus button if user wants to view announcements made by their professors.

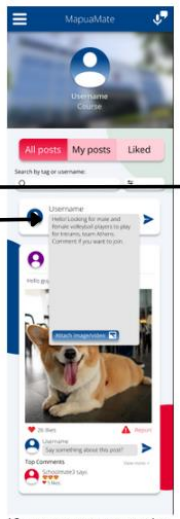
Course announcements will be posted in this page.

If filter button is clicked, a drop down menu will appear which can filter the posts by most recent, and oldest.

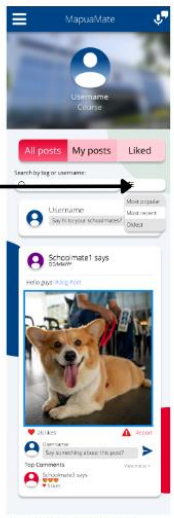
Social Board (All posts)



All posts made by schoolmates will be shown in the social board.



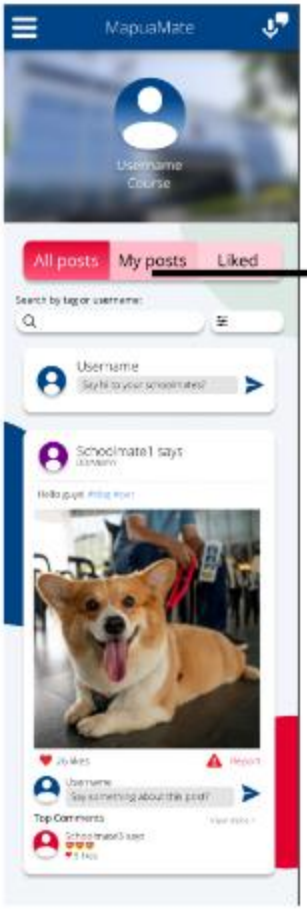
If user want to make a post, they can attach images or videos.



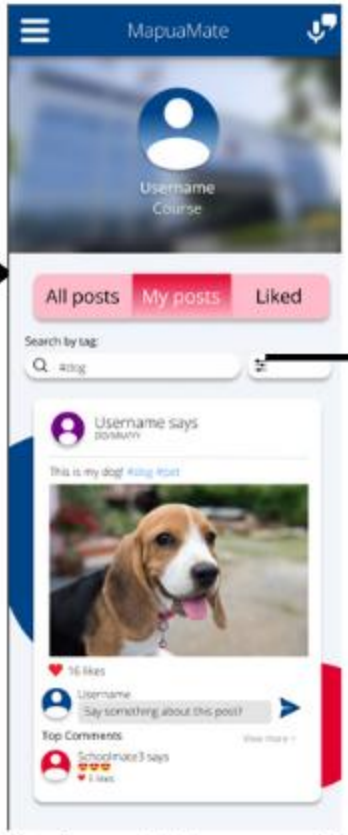
If filter button is clicked, a drop down menu will appear which can filter the posts by most popular, most recent, and oldest.

*Note: All posts section is shown in default.

Social Board (My posts)



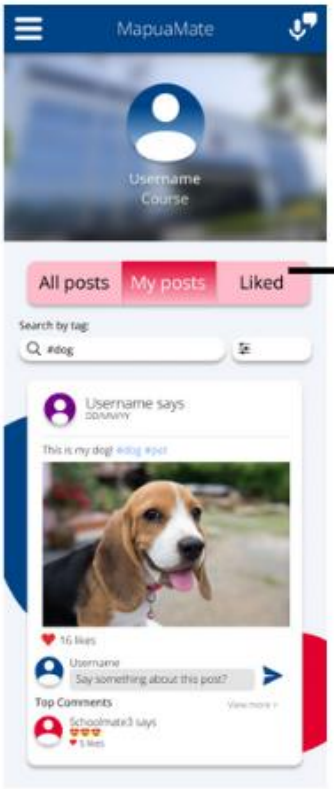
My posts button can be seen beside the All posts button if user wants to view posts they have made.



Posts made by user will be shown here. Use search bar to filter posts.

If filter button is clicked, a drop down menu will appear which can filter the posts by most popular, most recent, and oldest.

Social Board (Liked)

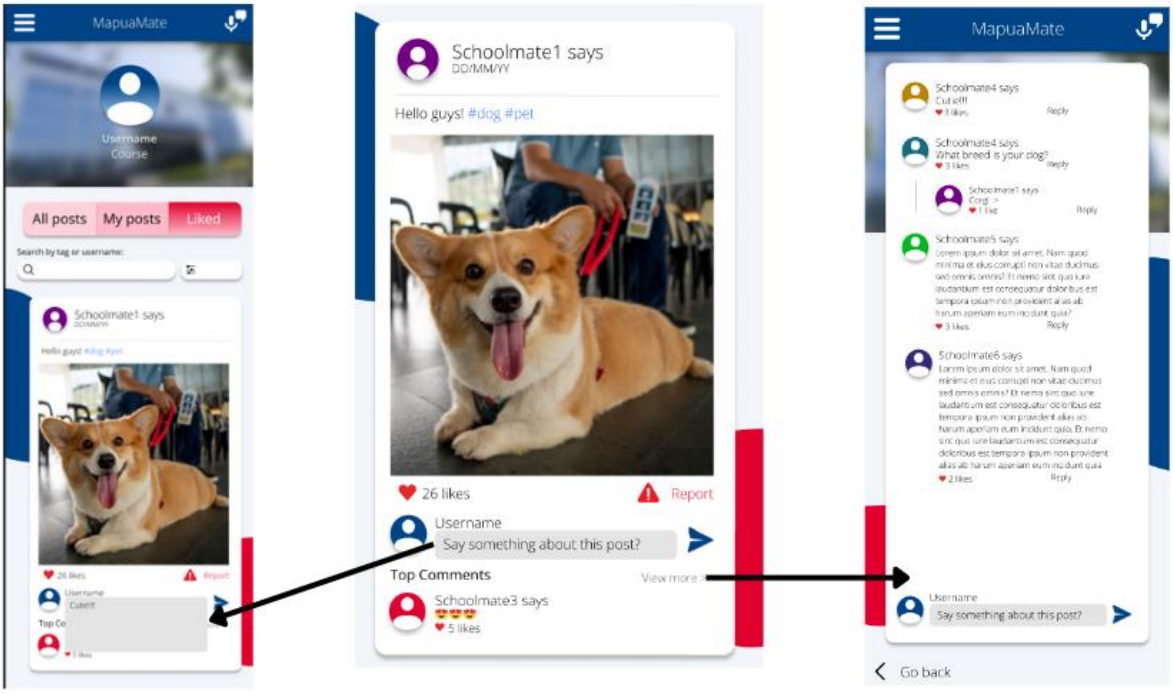


Liked button can be seen beside the My posts button if user wants to view posts they have liked.

Posts liked by user will be shown here.

If filter button is clicked, a drop down menu will appear which can filter the posts by most popular, most recent, and oldest.

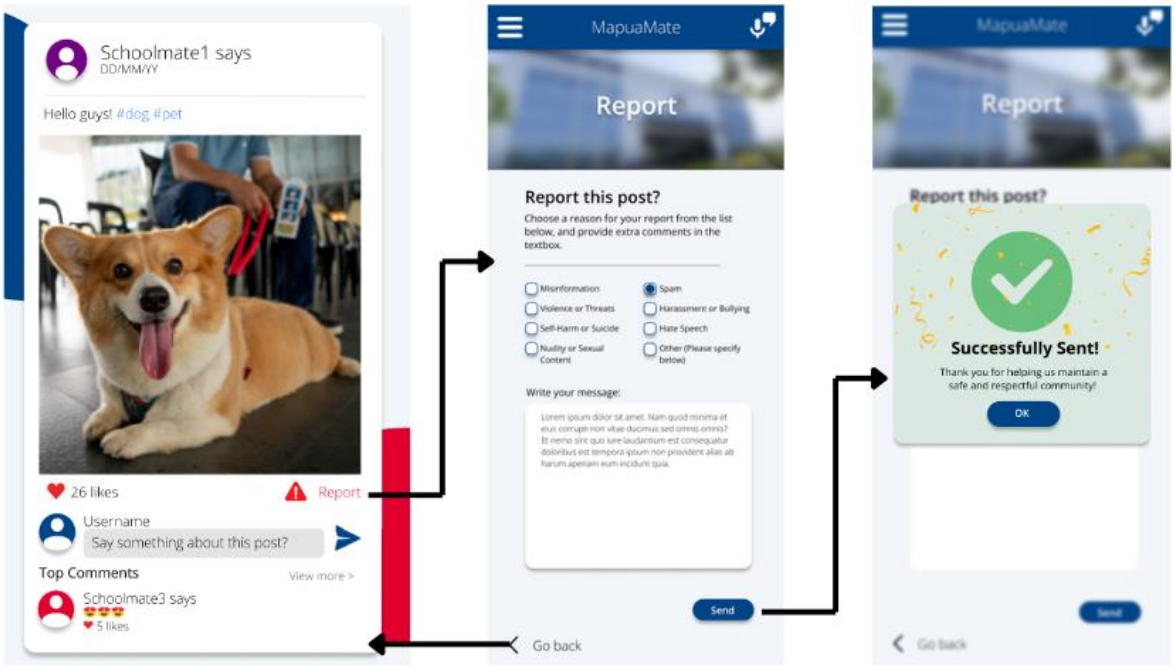
Social Board (Comments)



User may like and reply to other comments made by other schoolmates.

Click view more to see other comments made by schoolmates

Social Board (Report a Post)



Click report to report a post.

User must provide a reason why they are reporting a post.

Calendar

Depending on the day that was clicked, campus events for that day will be displayed on Campus Calendar.

If there is a day that has an event, a small circle will appear on the date of the calendar.

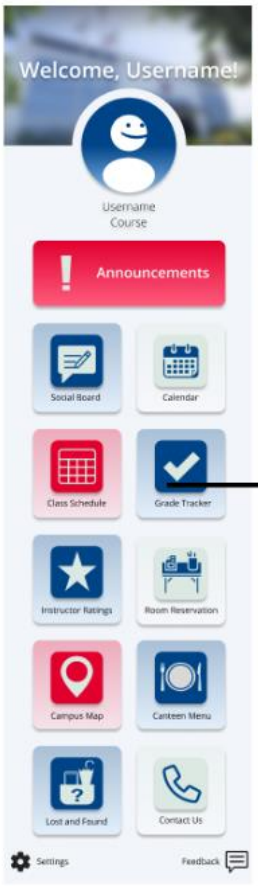
Classes/ Activities will be displayed on Course Calendar.

*Note: Campus announcements page is shown in default.

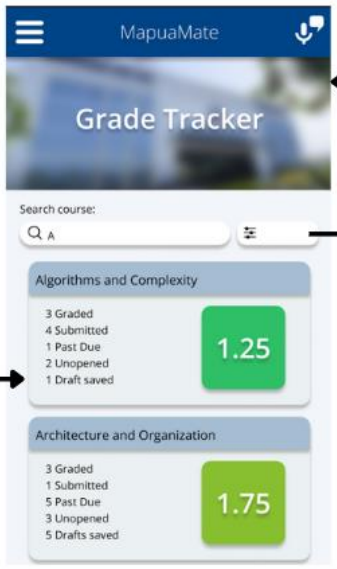
Class Schedule

Class schedule for current semester is displayed, including the room assignment.

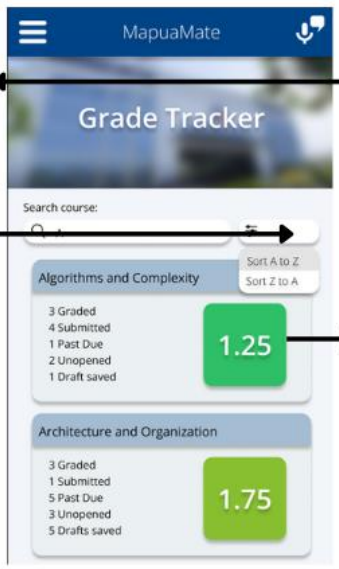
If button is clicked, a drop down menu will appear which will display all the terms you have enrolled at MMCM to see past schedule.



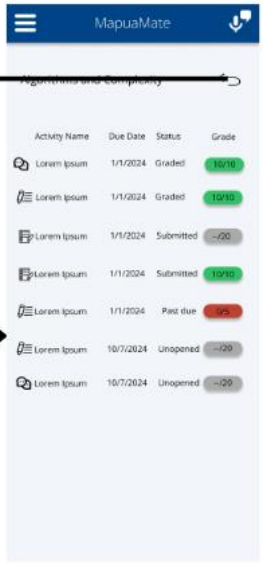
Grade Tracker



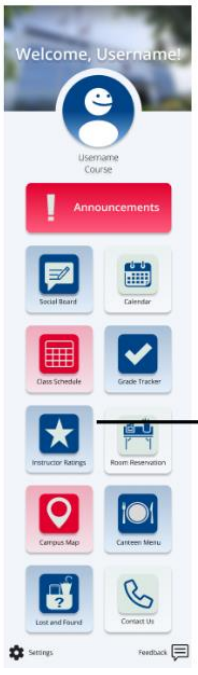
All courses and their corresponding grades will be displayed.



If filter button is clicked, a drop down menu will appear which will can filter courses alphabetically



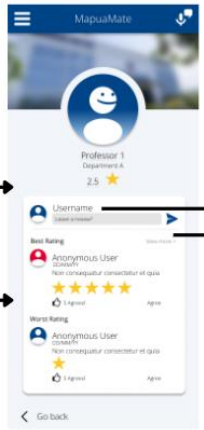
Activities and breakdown of scores are displayed.



Instructor Ratings

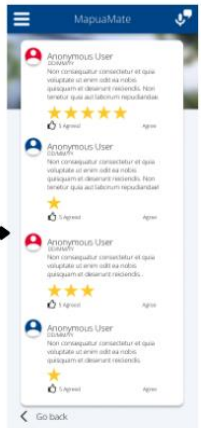
View all the professors in the campus, and ratings made by students.

If button is clicked, a drop down menu will appear which will filter professors by the department that they belong to.



View chosen professor's ratings and some comments left by the students.

Leave a review about the professor.

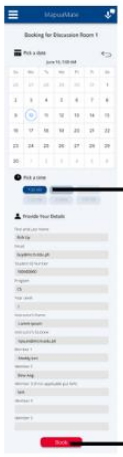


View all comments made by the students.

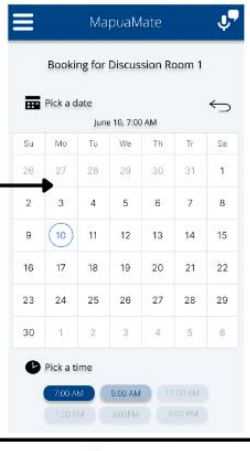
Room Reservation

View rooms that can be used by students.

Application prompts user to fill up necessary information to book the room,

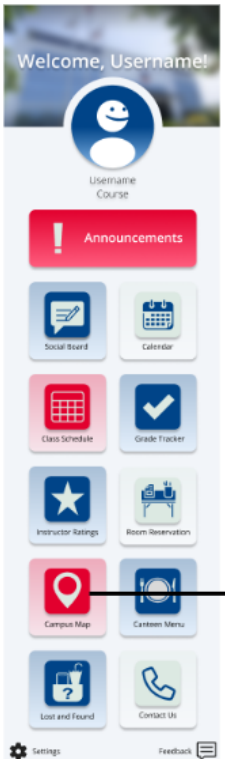


Sample input of form



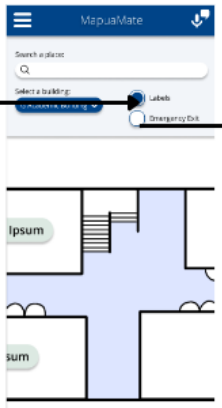
If date and time of day is clicked, it will be displayed above the calendar.

After filling up all information, a pop-up screen will show displaying that user has successfully booked the room.

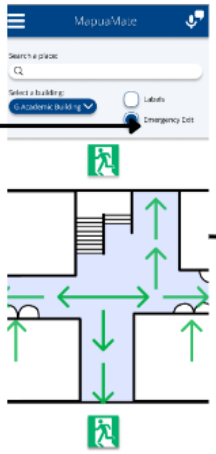


Campus Map

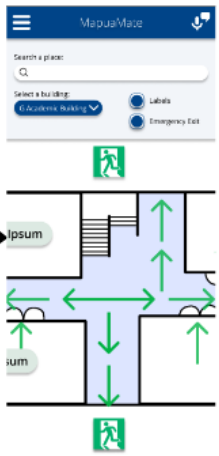
The map of the campus can be viewed in the Campus Map. User can search for the place in the search bar.



Button can be clicked to check the room labels.

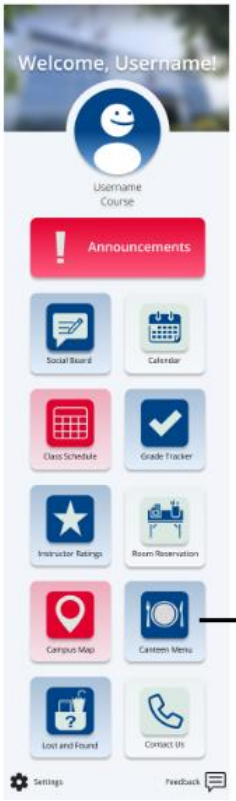


Button can be clicked to see the emergency exit.



Both buttons can be clicked to enable both.

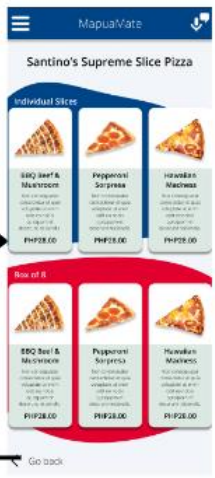
Canteen Menu



The stalls in the canteen can be viewed in Canteen Menu.

If filter button is clicked, a drop down menu will appear which will filter stalls by ascending, descending, highest and lowest price.

User can search for the stall they want to check out in the search bar.



When a stall is clicked, their menu can be viewed which includes a short description and price.

Lost and Found

All lost and found items will be posted in the Lost and Found page.

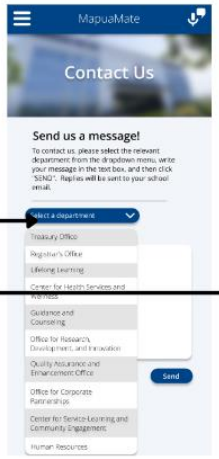
If filter button is clicked, a drop down menu will appear which will filter items by most recent and oldest post.

User can search for the item they are looking for in the search bar.

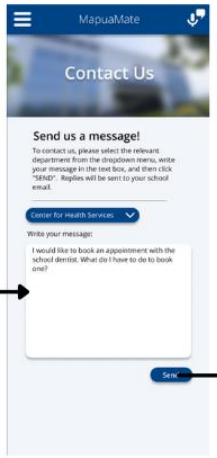
Details about the chosen item can be viewed.

Contact Us

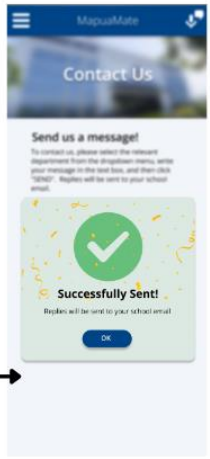
The Contact Us page enables user to contact any department they wish to message to, especially if they have concerns.



If button is clicked, a drop down menu will appear which contains the offices the user may contact.



Sample input when sending a message.



Once send button is clicked, the message will be sent to the chosen department.

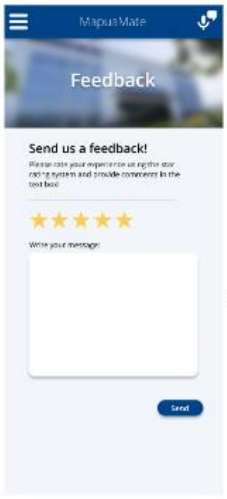
Settings

The Settings page shows user details. They may choose to change their details and their password.

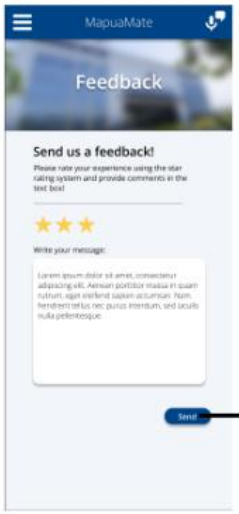
The Edit Profile page asks the user for their new username and/or new contact number.

The Change Password page asks user for their old and new password and to retype their new password.

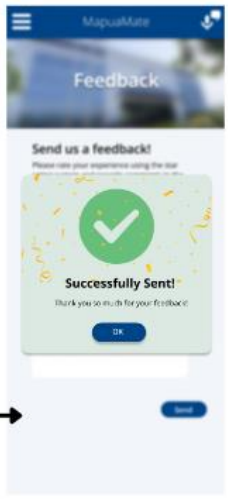
Feedback



The Feedback page asks user to provide feedback about the application to help the developers improve the system.



Sample input for feedback.



Feedback will be sent to the developers once send button is clicked.

D. Evaluation of prototype

Use heuristic evaluation with format given below. This is the criteria of how the design will be graded. **(Select the best design among 3 to 5 alternative designs within your team and evaluate)**

Evaluation Criteria (Based on the 10 heuristics of design evaluation)

Area of Evaluation	5	4	3	2	1

A. Visibility of System Status - The system design provides appropriate feedback like message prompts in response to user actions. - The message prompts are clear, visible and understandable.					
B. Match between the system and the real world - Used words, phrases and concepts according to users' language rather than system oriented words and computer jargons.					
C. User control and freedom - The system design provides ways of allowing users to easily "get in" and "get out" if they find themselves in unfamiliar parts of the system.					
D. Consistency and Standards - The colors, text, labels, buttons and other elements in the design are uniform from start to finish**.** - Text and icons are not too small or too big. **-** Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages.					
E. **Error Prevention** - The system design provides an automatic detection of errors and preventing them to occur in the first place. - Idiot proofing mechanisms are applied					
F. Help users recognize, diagnose and recover from errors **-** Error messages and the terms used are recognizable, familiar and understandable for the users.					
G. Recognition rather than recall **-** Objects, icons, actions and options are visible for the user. - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do.					
H. Flexibility and efficiency of use - The system design provides easy to navigate menus. - the system does not make wasteful time of system resources.					
I. Aesthetic and minimalist design **-**Graphics and animations used are not difficult to look at and does not clutter (mess) up the screen. - Information provided is relevant and needed for the system design.					
J. Help and Documentation **-**the system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed.					

Chapter III. Conclusion and Recommendation

The development of MapuaMate addresses several critical issues currently faced by the Mapua Malayan Colleges Mindanao (MMCM) student community. This project has effectively identified and tackled the fragmented nature of existing digital resources, the lack of essential tools, and the limited opportunities for social interaction and community engagement. By consolidating different functionalities into a single cohesive platform, MapuaMate aims to significantly enhance the overall student experience. The unified application offers features that cater to various needs, such as accessing class schedules, announcements, and much more. Additionally, useful resources such as campus maps, canteen menus, and a lost and found section have been added. Furthermore, the inclusion of a social board fosters a sense of community, allowing students to engage more actively in campus life.

The development of MapuaMate has provided the team with valuable insights into the importance of user-centered design in creating effective applications. The process emphasized the need for understanding user needs and preferences, prioritizing usability and accessibility. Overall, the creation of MapuaMate represents a significant step towards improving the digital infrastructure at MMCM, making campus life more efficient, connected, and enjoyable for students.

References

Benefits of university mobile apps. (n.d.). https://hivo.co/blog/exploring-the-benefits-of-university-mobile-applications#:~:text=University%20mobile%20applications%20make%20this,never%20miss%20an%20important%20deadline.