



PRIMS: Patient Record Interactive Management System

Project Documentation Submitted to the Faculty of the
School of Computing and Information Technologies

Asia Pacific College

In Partial Fulfillment of the Requirements for
Systems Analysis and Detailed Design

MSYADD1

By

Byron Louis A. Rabajante
Erika Alessandra D. Daduya

Shannelien Mae M. Catingub
Clart Kent K. Nailgas

2024

Table of Contents

Introduction	1
Project Context	1
Statement of the Problem	1
Objectives	1
Significance of the Project	2
Scope and Limitations	3
Data Flow Diagrams	4
Use Case Diagram	10
Fully Dressed Use Cases	11
Test Cases for Fully Dressed Use Cases	25
Activity Diagrams with Swimlane	34
Database Design	42
Entity Relationship Diagram	42
Data Dictionary	46
Updated Product Backlog/User Stories	50
Partially Working Cloud-hosted Prototype	52
Prototype	53
Technology Stack	53
Github Project Repository	53
Conclusion	54
Appendices	55
Appendix A: Project Vision	55
Appendix B: Schedule	55
Appendix C: Release Plan	56
Appendix D: Product Roadmap	56
Appendix E: Minutes of the Meetings	57

Executive Summary

A web-based system is being developed for Asia Pacific College's (APC) clinic to address several operational challenges. Currently, the clinic struggles with managing and storing physical medical records, preparing monthly summary reports, scheduling appointments effectively, and communicating schedule updates promptly. These inefficiencies lead to time consumption and potential schedule conflicts.

The primary objective of this project is to create and deploy a comprehensive system that facilitates student check-ins, manages medical records electronically, tracks medication inventory, and enables online appointment scheduling. By implementing these features, the clinic aims to streamline its processes and enhance the experience for both staff and patients.

The project is scheduled to span the academic year from the third term of A.Y. 2023-2024 in March 2024 to the third term of A.Y. 2024-2025 in June 2025. The target audience includes APC students, staff, faculty members, and guests. The expected outcomes include the successful development and deployment of the clinic system, ensuring it meets the needs and garners satisfaction from the entire APC community.

List of Figures

Figure 1 Level 0 Data Flow Diagram	4
Figure 2 Level 1 Data Flow Diagram	5
Figure 3 Level 2 DFD - 1.0 Log in Using APC Account.....	6
Figure 4 Level 2 DFD - 2.0 Manage Medical Records	6
Figure 5 Level 2 DFD - 3.0 Manage Medical Inventory	7
Figure 6 Level 2 DFD - 4.0 Manage Appointment Schedules.....	7
Figure 7 Level 2 DFD - 5.0 Generate Summary Report	8
Figure 8 Level 2 DFD - 6.0 Schedule an Appointment for Consultation	8
Figure 9 Level 2 DFD - 7.0 Fill Out Information for Medical History	9
Figure 10 PRIMS Use Case Diagram.....	10
Figure 11 Activity Diagram for UC-001	34
Figure 12 Activity Diagram for UC-002	35
Figure 13 Activity Diagram for UC-003	36
Figure 14 Activity Diagram for UC-004	37
Figure 15 Activity Diagram for UC-005	38
Figure 16 Activity Diagram for UC-006	39
Figure 17 Activity Diagram for UC-007	40
Figure 18 Activity Diagram for UC-008	41
Figure 19 PRIMS Entity Relationship Diagram	42
Figure 20 Healthcare tab	52
Figure 21 Patient Appointment Calendar tab	52

List of Tables

Table 1 User Classes and Characteristics	11
Table 2 Use Case: Log in Using APC Account	11
Table 3 Use Case: Manage Medical Record	12
Table 4 Use Case: Manage Medical Inventory	13
Table 5 Use Case: Manage Appointment Schedules	16
Table 6 Use Case: Cancel Appointment Schedules	17
Table 7 Use Case: Generate Summary Reports	19
Table 8 Use Case: Schedule an Appointment	20
Table 9 Use Case: Fill Out Information for Medical History	23
Table 10 Test Case TC-001-01	25
Table 11 Test Case TC-001-02	26
Table 12 Test Case TC-003-01	27
Table 13 Test Case TC-004-01	28
Table 14 Test Case TC-004-02	29
Table 15 Test Case TC-004-03	30
Table 16 Test Case TC-005-01	31
Table 17 Test Case TC-006-01	32
Table 18 Data Dictionary Table for CREDENTIALS	46
Table 19 Data Dictionary Table for PATIENTS	46
Table 20 Data Dictionary Table for CLINIC_STAFF	47
Table 21 Data Dictionary Table for CATEGORY	47
Table 22 Data Dictionary Table for APPOINTMENT	47
Table 23 Data Dictionary Table for MEDICAL_RECORDS	48
Table 24 Data Dictionary Table for PRESCRIPTION	48
Table 25 Data Dictionary Table for DIAGNOSIS	48
Table 26 Data Dictionary Table for TREATMENT	49
Table 27 Data Dictionary Table for INVENTORY	49
Table 28 Data Dictionary Table for EMERGENCY_CONTACT	50
Table 29 User Stories	50

Introduction

Project Context

The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.

Statement of the Problem

The APC Clinic is currently facing several challenges:

5. **Slow retrieval of medical records:** Retrieving a specific medical record or document is cumbersome because all records are stored in a file cabinet and some cabinets are overloaded, leading to difficulties like said, finding a specific record.
6. **Difficulty in managing appointments:** Teams is the current channel for nurse Ana to communicate with patients and is not the most efficient platform for managing appointments. It is difficult to track appointment history, reschedule appointments, or receive appointment confirmations due to the limited features of teams.
7. **Time-Consuming Report Writing:** Writing monthly summary reports is labor-intensive as it involves gathering data from previous months, which are recorded on paper and often hard to locate.
8. **Absence of Inventory System:** Due to an absence of inventory system, our nurse always experiences stockouts. This also leads to potential harm for unchecked expired medications and increased costs due to overstocking

The team had an interview with the clinic, and these are the questions that we discussed:

1. Which processes in the APC Clinic need automation?
2. What would be the impact of automating these processes on the quality of patient care at the APC Clinic?
1. How can the clinic streamline the management and storage of medical records?
4. What solutions can improve the organization of the appointment scheduling system for physical check-ups and dental exams?
9. How can the process of writing monthly summary reports be made more efficient?
10. What methods can be implemented to ensure timely updates for users when their schedules or appointments are cancelled?

Objectives

This project's main aim is to develop an automated clinic system for the Asia-Pacific College (APC) Clinic. This system will streamline and digitalize the clinic's processes to improve efficiency, accuracy, and patient care. The key features and objectives of the system include the following:

1. Retrieve medical records faster.
2. Allow patients to schedule appointments online and receive timely notifications.
3. Generate summary of reports faster.
4. Track and manage the clinic's medication and supply inventory.

Specific Goals:

2. **Locate Medical Records in 2 Minutes:** By implementing an electronic health records (EHR) system, the project aims to reduce the time taken to locate a specific medical record to within 2 minutes. This will enhance the clinic's efficiency in handling patient information and providing timely care.
3. **Zero Conflicts in Schedule:** The online appointment scheduling system will ensure there are no conflicts in schedules by providing real-time updates and notifications to patients and healthcare providers. This system will help avoid double-booking and ensure smooth appointment management.
4. **Generate Monthly Summary Reports in About 2 Minutes:** The automated reporting tools will compile data from the clinic's operations and generate comprehensive monthly summary reports in approximately 2 minutes. This will significantly reduce the time and effort required for manual report generation, allowing staff to focus more on patient care.

Significance of the Project

This project is significant in its potential to revolutionize healthcare delivery at the Asia Pacific College (APC) Clinic, enhancing patient care and streamlining administrative processes. By achieving the outlined objectives, the project aims to improve the efficiency and accuracy of data management while maintaining order within the clinic. The benefits of this project extend to several key stakeholders:

APC Community. Students and faculty members will benefit from a more convenient and efficient appointment scheduling system. They can easily check the availability of the nurse and doctor and book appointments online without the need to visit the clinic in person. The system will also provide real-time updates on appointment statuses and available time slots, making healthcare services more accessible.

APC Clinic. The school nurse and doctor will have quick and easy access to medical records and patient data, allowing for more efficient management of patient care. The automated medication inventory system will ensure accurate tracking of medication supplies, reducing the risk of stockouts and overstocking. A digital database will facilitate the easy updating and retrieval of patient information, improving the overall organization and effectiveness of clinic operations.

Parents and APC Alumni. Guests, specifically parents and APC alumni, will also have access to this project. Much like the students and faculty members, they will be able to access the system and its features as well.

Future Researchers. This project will serve as a valuable foundation for future research efforts, providing a robust framework that can be modified and expanded. Future researchers can build on this system, incorporating additional features and systems to further enhance healthcare services at the APC Clinic.

Scope and Limitations

The project will focus on creating a system encompassing several key features including appointment scheduling, allowing the patients to book appointments online. Medical record management is also integrated, digitizing and securely storing patient health records for quick access by clinic staff. Inventory tracking is automated, updating stock levels in real-time and allowing the clinic staff to be aware of when medical supplies are low to prevent shortages or when the supplies are already near expiration. The system can also generate monthly summary reports on clinic activities, such as patient visits, common health issues, and services/supplies utilization, which can aid in decision-making and planning of the clinic. Automated notification alerts are also included in the system to update and remind patients about their appointments. Lastly, to ensure the security and confidentiality of the information of the patients, our system will comply with HIPAA regulations and the Data Privacy Act of 2012. We will include strict access controls and data encryption to protect sensitive health information from unauthorized access and breaches.

Our clinic system will only be limited to individuals associated with Asia Pacific College. Only the students, parents, alumni, faculty, and staff of APC can access the system. Also, since our clinic system is web-based, the users will need an internet connection to access the system which can only be accessed through desktops, laptops, and mobile phones. Lastly, due to strict HIPAA regulations, the clinic system cannot provide medical records digitally. Patients who need a physical or digital copy of their records must visit the clinic and discuss the request in person with the staff. This process ensures that privacy and security standards are maintained. The PRIMS project will undergo meticulous documentation and development spanning 12 months, equivalent to one academic year, commencing from the third term of the 2023-2024 school year and extending through the first to third terms of the 2024-2025 school year.

Data Flow Diagrams

Level 0

LEVEL 0/2

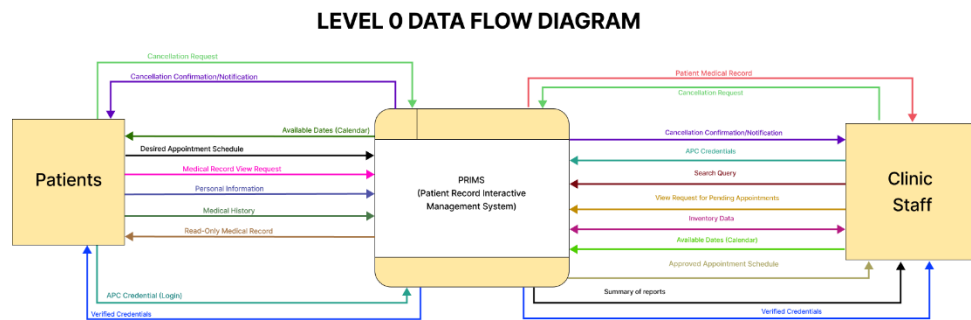


Figure 1 Level 0 Data Flow Diagram

Level 1

MS-101

LEVEL 1 DATA FLOW DIAGRAM

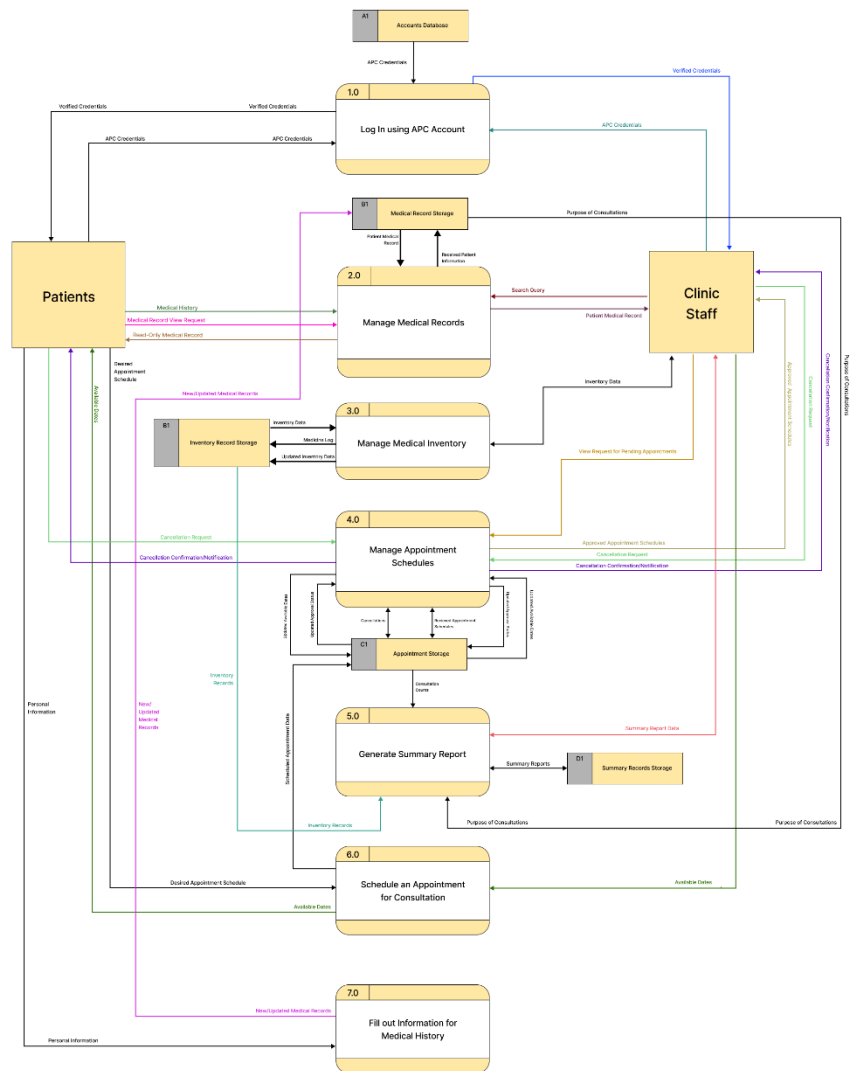


Figure 2 Level 1 Data Flow Diagram

Level 2

1.0 Log in Using APC Account



Figure 3 Level 2 DFD - 1.0 Log in Using APC Account

2.0 Manage Medical Records

2.0 Manage Medical Record

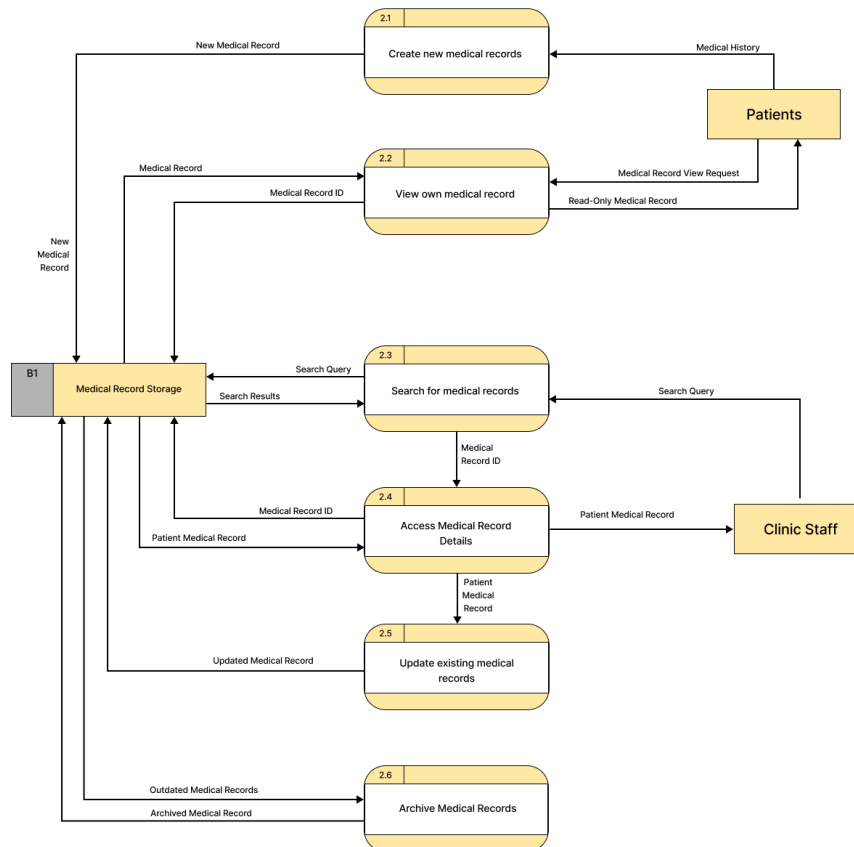


Figure 4 Level 2 DFD - 2.0 Manage Medical Records

3.0 Manage Medical Inventory

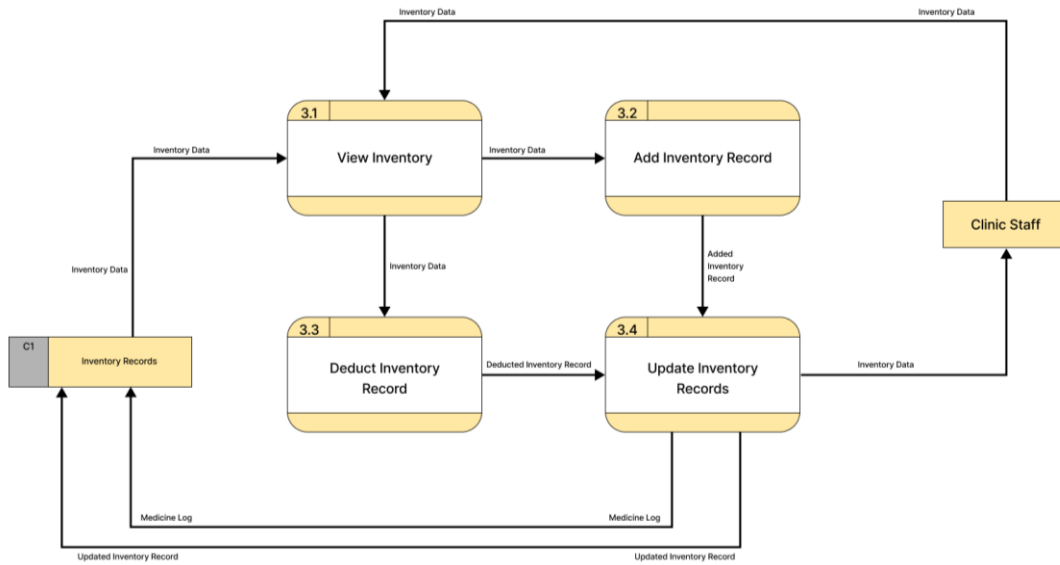


Figure 5 Level 2 DFD - 3.0 Manage Medical Inventory

4.0 Manage Appointment Schedules

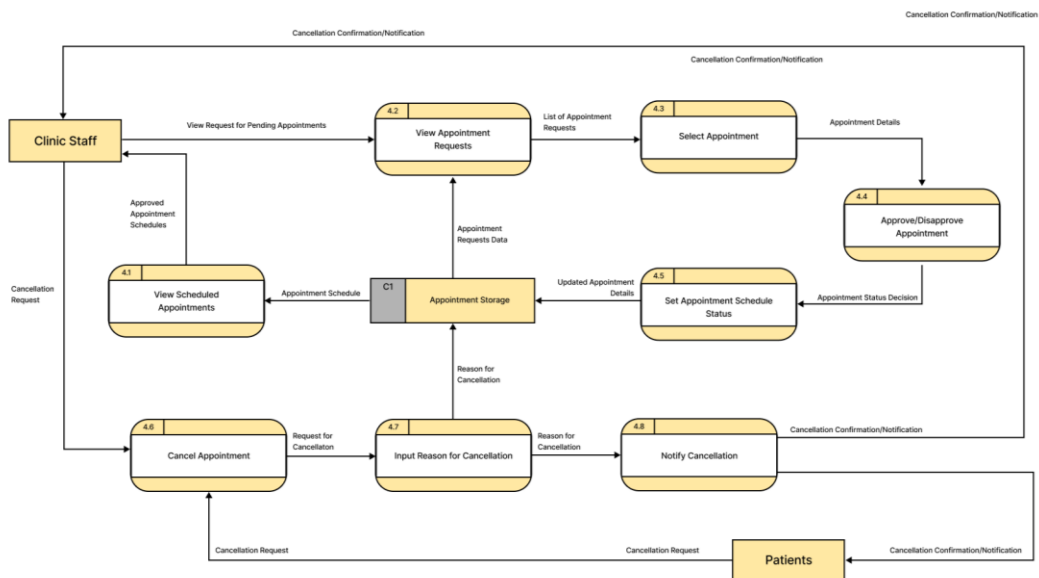


Figure 6 Level 2 DFD - 4.0 Manage Appointment Schedules

5.0 Generate Summary Report

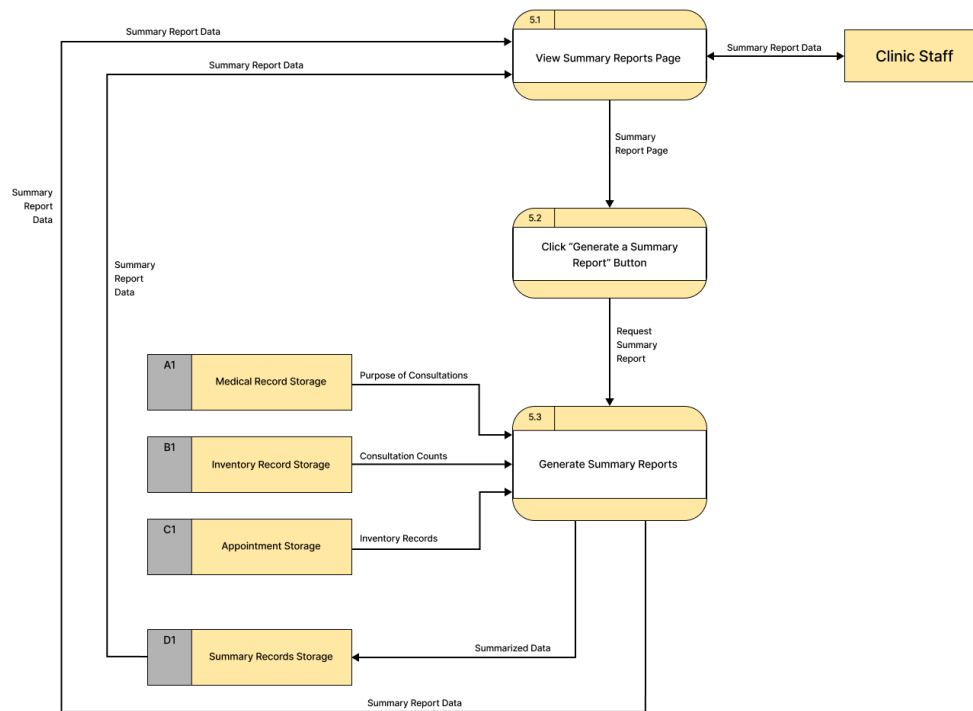


Figure 7 Level 2 DFD - 5.0 Generate Summary Report

6.0 Schedule an Appointment for Consultation

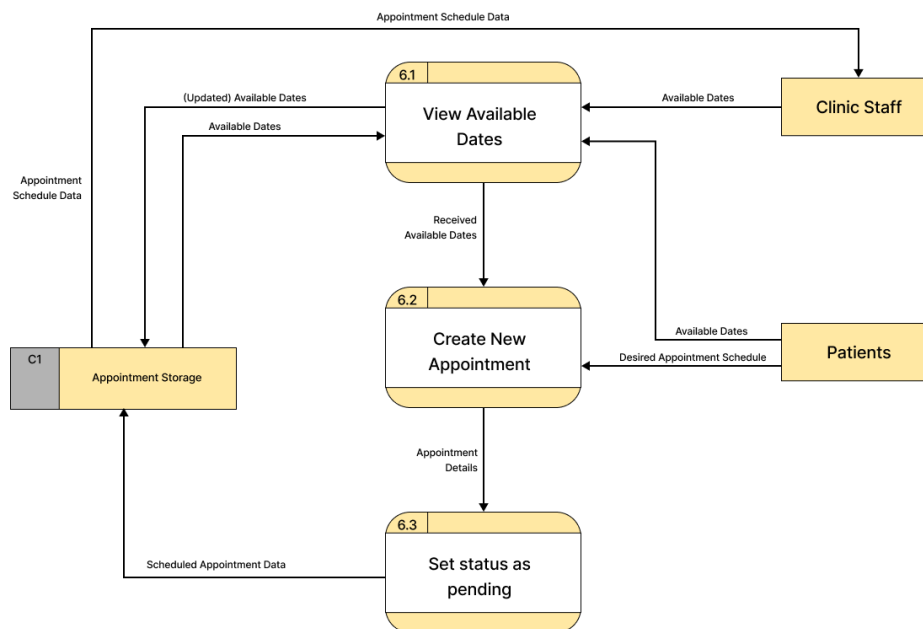


Figure 8 Level 2 DFD - 6.0 Schedule an Appointment for Consultation

7.0 Fill Out Information for Medical History

7.0 Fillout

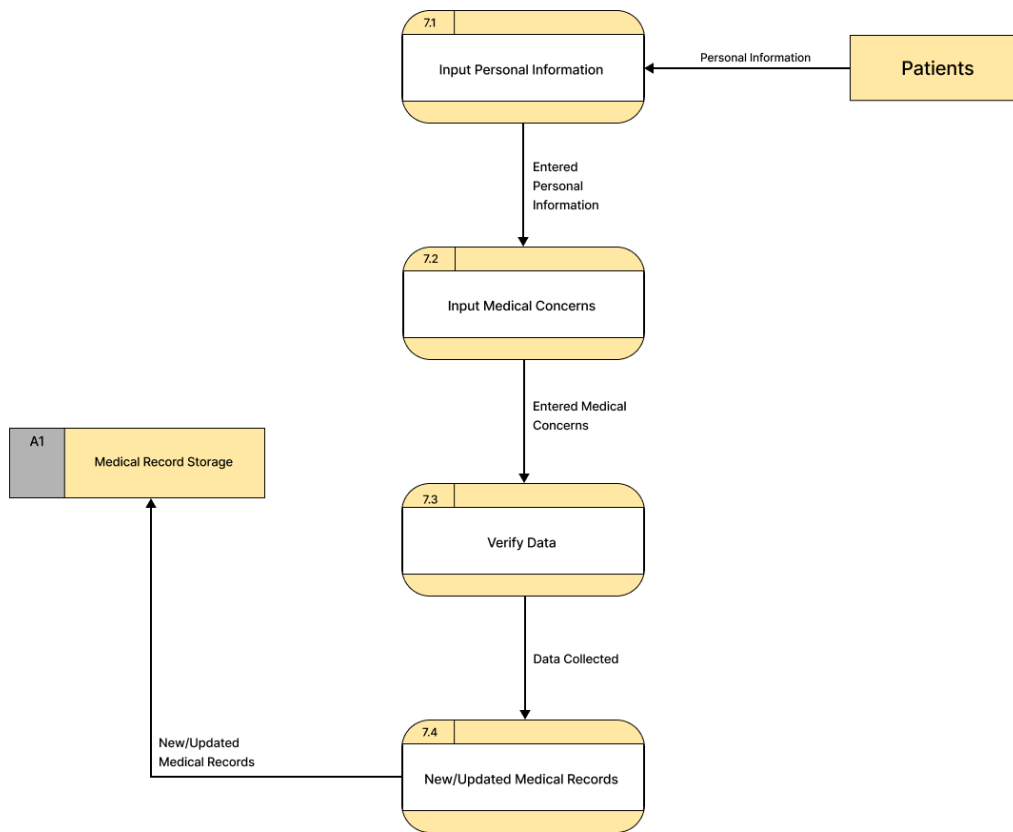


Figure 9 Level 2 DFD - 7.0 Fill Out Information for Medical History

Use Case Diagram

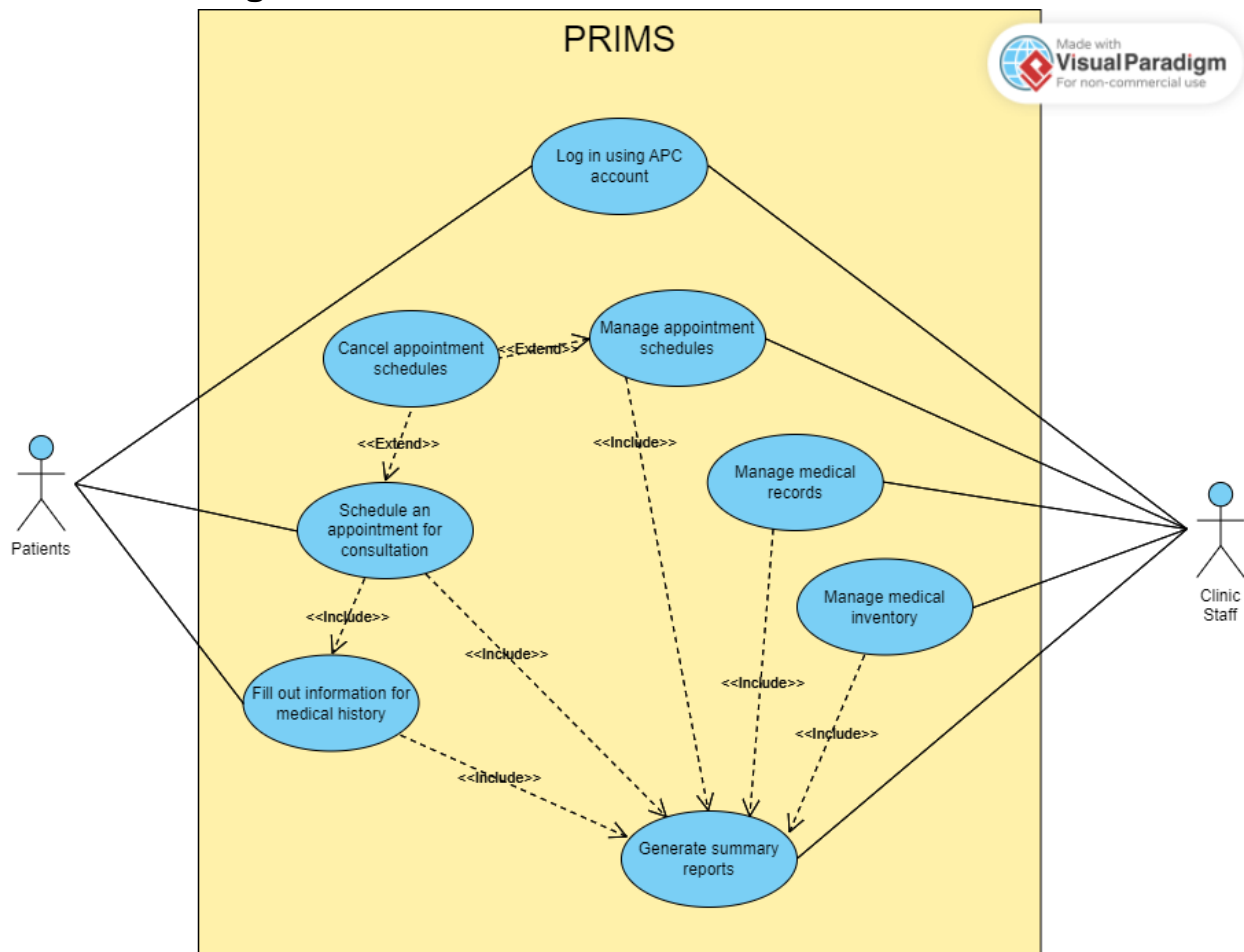


Figure 10 PRIMS Use Case Diagram

Fully Dressed Use Cases

Table 1 User Classes and Characteristics

Roles	Description
Clinic Staff	Assesses every check-up appointment and manages medical records and medical inventory at the APC clinic. Conducts the consultation for the scheduled appointments and provides the correct prescription to the patients at the APC clinic.
Patients	Patients, also known as students, faculty members, and staff of APC, are the ones who set the appointments for consultation.

Table 2 Use Case: Log in Using APC Account

Use Case Name	Log in using APC account
Use Case Number	UC-001
Created by	Erika Daduya & Shannelien Catingub
Date Created	June 22, 2024
Description	The clinic staff and patient log in to their respective log in systems.
Primary Actors	Clinic Staff & Patient
Triggers	- When the clinic staff/patient proceeds to the log-in page.
Pre-conditions	- The device must be connected to the internet. - The clinic staff/patient must have their APC email and password.
Post-conditions	- The clinic staff/patient are logged in to the system.
Main Scenario	1. The clinic staff navigates to the login page as admin view; the patient navigates to the login page as patient view. 2. The clinic staff/patient input their APC email and password.

	<p>3. The system checks the credentials entered against the stored user data in the database.</p> <p>4. If the credentials are correct, the clinic staff/patient can access the system in admin view and its features.</p>
Extensions or Alternate Scenarios	<p>a. When the clinic staff/patient enters the incorrect credentials.</p> <ol style="list-style-type: none"> 1. The system displays an error message and prompts them to try again. 2. The clinic staff/patient can attempt to log in again by reentering credentials.

Table 3 Use Case: Manage Medical Record

Use Case Name	Manage medical record
Use Case Number	UC-002
Created by	Erika Daduya
Date Created	June 22, 2024
Description	The clinic staff updates the medical history of each patient when necessary.
Primary Actor	Clinic Staff
Triggers	- When the clinic staff performs a regular audit and checks the medical records.
Pre-conditions	<p>- The clinic staff must be logged in to the admin view of the system.</p> <p>- The clinic staff must click on the Medical Records tab.</p>
Post-conditions	<p>- The clinic staff is directed to the Medical Records page.</p> <p>- The clinic staff manages the record and updates necessary changes.</p>
Main Scenario	<p>1. The clinic staff clicks on the Medical Records tab on the left menu.</p> <p>2. The system directs the clinic staff to the Medical Records page.</p>

	<p>3. The Medical Records page shows a list of patients.</p> <p>4. The clinic staff clicks on a patient to view their record.</p> <p>5. The clinic staff clicks on the “Edit” button if there are any necessary changes.</p> <p>6. The clinic staff updates necessary changes.</p> <p>7. The clinic staff saves the record.</p>
Extensions or Alternate Scenarios	<p>a. When correcting an error medical record.</p> <ol style="list-style-type: none"> 1. The clinic staff click on the Medical Records tab on the left menu. 2. The system directs the clinic staff to the Medical Records page. 3. The Medical Records page shows a list of patients. 4. The clinic staff click on a patient to show their record. 5. The clinic staff clicks on the “Edit” button. 6. The clinic staff edits the error in the record. <p>b. When archiving outdated medical records.</p> <ol style="list-style-type: none"> 1. The system detects that a medical record is past the retention date of 5 years. 2. The system automatically archives the medical record.

Table 4 Use Case: Manage Medical Inventory

Use Case Name	Manage medical inventory
Use Case Number	UC-003
Created by	Erika Daduya

Date Created	June 22, 2024
Description	The clinic staff manages the medicine inventory and medical supplies.
Primary Actor	Clinic staff
Triggers	- When the clinic staff manages the medical supplies in the inventory.
Pre-conditions	<ul style="list-style-type: none"> - The clinic staff must be logged in to the admin view of the system. - The clinic staff must click on the Inventory/Supplies tab.
Post-conditions	- The clinic staff is directed to the Inventory page.
Main Scenario	<ol style="list-style-type: none"> 1. The clinic staff clicks on the Inventory/Supplies tab on the left menu. 2. The system directs the clinic staff to the Inventory/Supplies page. 3. The Inventory/Supplies page shows a list of medicines/supplies. 4. The clinic staff clicks on a specific medicine/supply to show its details. 5. The clinic staff edits the file for necessary updates. 6. The clinic staff saves the file.
Extensions or Alternate Scenarios	<p>a. When the stock for a specific medicine/supply drops below the set threshold.</p> <ol style="list-style-type: none"> 1. The clinic staff presses the Inventory/Supplies tab. 2. The system shows a list of medicines on the Inventory/Supplies page. 3. The system detects low stock for a particular medicine/supply. 4. The system automatically flags the supply with a warning low stock sign.

	<p>5. The clinic staff can click on the flagged item to view details.</p> <p>6. The warning sign will remain visible until the supply quantity is updated above the threshold.</p> <p>b. When there are one or more medicines/supplies past their expiration date.</p> <ol style="list-style-type: none"> 1. The clinic staff presses the Inventory/Supplies tab. 2. The system shows a list of medicines/supplies on the Inventory/Supplies page. 3. The system detects expired medicines and flags them with an "Expired" label. 3. The clinic staff clicks on a specific medicine with the label. 4. The clinic staff edits the file. 5. The clinic staff removes one or more counts under the count tab. <p>c. When adding a new medicine/supply to the inventory.</p> <ol style="list-style-type: none"> 1. The clinic staff presses the Inventory/Supplies tab. 2. The system shows a list of medicines on the Inventory/Supplies page. 3. The clinic staff clicks on the add button. 4. The clinic staff adds the details of the new medicine. 5. The clinic staff saves the record.
--	--

	<p>d. When deleting an existing medicine/supply from the inventory.</p> <ol style="list-style-type: none"> 1. The clinic staff clicks the ellipsis button for the specific supply. 2. The system shows a pop-up for more options. 3. The clinic staff deletes the said medicine/supply.
--	--

Table 5 Use Case: Manage Appointment Schedules

Use Case Name	Manage Appointment Schedules
Use Case Number	UC-004
Created by	Clart Nailgas
Date Created	June 22, 2024
Description	The clinic staff approves or disapproves the schedules of appointments.
Primary Actor	Clinic staff
Triggers	- When the clinic staff checks the calendar for pending approval of appointed schedule.
Pre-conditions	<p>- The clinic staff must be logged in to the admin view of the system.</p> <p>- The clinic staff must click on the Calendar tab on the left bar or on the right side.</p>
Post-conditions	- The system shows the calendar of the month containing scheduled appointments.
Main Scenario	<ol style="list-style-type: none"> 1. The clinic staff logs in on the admin view of the clinic system. 2. The clinic staff is directed to the dashboard. 3. The clinic staff clicks on the Calendar tab on the left menu or on the right section. 4. The system directs the clinic staff to the Calendar page.

	<p>5. The Calendar page shows the scheduled appointments for the month.</p> <p>6. The clinic staff clicks a specific date that shows the pending appointment schedules for approval</p> <p>7. The clinic staff can click the “Approve” or “Disapprove” button depending on the reason of booking an appointment.</p> <p>8. When the clinic staff clicks the approve button, they can view the approved scheduled appointments on the Calendar page</p>
Extensions (or Alternate Scenarios)	<p>a. When the system has no appointments scheduled.</p> <ol style="list-style-type: none"> 1. The clinic staff logs in to the admin view of the clinic system. 2. The system shows the dashboard. 3. The clinic staff clicks on the Calendar tab. 4. The system directs the clinic staff to the Calendar page. 5. The system shows an empty calendar with no appointments for the selected period. 6. A message will appear that no appointments are currently scheduled for approval. <p>b. if the scheduled appointment is disapproved</p> <ol style="list-style-type: none"> 1. The clinic staff disapproves the pending appointment schedule 2. The Appointment request no longer appears in the pending appointment schedules

Table 6 Use Case: Cancel Appointment Schedules

Use Case Name	Cancel Appointment Schedules
----------------------	------------------------------

Use Case Number	UC-005
Created by	Clart Nailgas
Date Created	June 22, 2024
Description	The clinic staff/patients cancel the appointed schedule.
Primary Actors	Clinic Staff & Patients
Triggers	<ul style="list-style-type: none"> - When the clinic staff wants to notify the patient about cancelling the appointed schedule when they are not available due to conflicting schedule or due to emergency. - When the patients wants to notify the clinic staff about cancelling the appointed schedule when one of them is not available due to conflicting schedule or due to emergency.
Pre-conditions	<ul style="list-style-type: none"> - The clinic staff/patients must be logged in on the admin view of the system. - The clinic staff/patients must click on the Calendar tab on the left bar or on the right side. - The patients must have a scheduled appointment.
Post-conditions	<ul style="list-style-type: none"> - The system shows the cancelled scheduled appointments.
Main Scenario	<ol style="list-style-type: none"> 1. The clinic staff/patients logs in on the admin view of the clinic system. 2. The clinic staff/patients is directed to the home page. 3. The clinic staff/patients clicks on the Calendar tab on the left menu. 4. The system directs the clinic staff/patients to the Calendar page. 5. The Calendar page shows the scheduled appointments for the month. 6. The clinic staff/patients must find the existing scheduled appointment.

	<p>7. The clinic staff/patients clicks on the button “cancel.”</p> <p>8. The clinic staff/patients states the reason for the cancellation.</p> <p>9. The system prompts a reminder to book another appointment.</p> <p>10. The clinic staff/patients clicks the “yes” button on the “Send Cancellation” prompt.</p> <p>11. The system will direct the clinic staff/patients to the calendar page</p>
--	--

Table 7 Use Case: Generate Summary Reports

Use Case Name	Generate Summary Reports
Use Case Number	UC-006
Created by	Byron Louis A. Rabajante
Date Created	September 12, 2024
Description	The system generates summary reports regarding consultation counts, medical inventory, purpose of consultations, etc.
Primary Actor	Clinic staff
Triggers	- When the clinic staff needs to generate monthly/annually summary reports.
Pre-conditions	- The clinic staff must log into PRIMS as an admin.
Post-conditions	- The generation of summary reports will be visible in the dashboard section of the admin
Main Scenario	<p>1. The clinic staff navigates through the home/dashboard page of the system.</p> <p>2. The clinic staff clicks on the “Summary Reports” on the left menu.</p> <p>3. The clinic staff clicks on the “Generate a summary report.”</p>

	<p>4. The system generates the summary reports of consultation counts, primary reasons for consultations, most prescribed medications, and event logs of medical history and medical inventory.</p> <p>5. The system displays the monthly and yearly summary reports on the Summary Reports page.</p>
Extensions or Alternate Scenarios	<p>a. When the system encounters a technical issue during data retrieval or report generation.</p> <ol style="list-style-type: none"> 1. The system attempts to retrieve data and generate the report but encounters an error. 2. The system displays an error message to the user, explaining that report generation failed. 3. The clinic staff can try to regenerate the report later, or the system may automatically retry the process after resolving the issue. 4. The error is logged, and if necessary, the technical team is alerted to fix the issue.

Table 8 Use Case: Schedule an Appointment

Use Case Name	Schedule an Appointment
Use Case Number	UC-007
Created by	Clart Nailgas
Date Created	June 22, 2024
Description	The patients book an appointment schedule.
Actors	Patients
Triggers	- When the patients feel unwell, and they need medical advice from the clinic staff

	<ul style="list-style-type: none"> - After check-up appointment, the clinic staff advises the patients to schedule a follow-up examination. - When the patients are prompted to book a consultation after receiving diagnostic results that require discussion with the clinic staff.
Pre-conditions	<ul style="list-style-type: none"> - The patients must be logged in to the patients' view of the system. - The patients must click on the Appointment button located on the home page.
Post-conditions	<ul style="list-style-type: none"> - The system shows the Appointment page consisting of date and time.
Main Scenario	<ol style="list-style-type: none"> 1. The system shows the home page. 2. The patients click on the Set an appointment button. 3. The system directs the patients to the Appointment page. 4. The patients choose a date and time for the appointment. 5. The patients state their reason for appointment. 6. The patients click the yes button. 7. The system pops up a prompt confirming the chosen date and time. 8. The system pops up another prompt thanking the patients. 9. The system directs the patients to another page with a pop-up asking to take a medical form.
Extensions or Alternate Scenarios	<ol style="list-style-type: none"> a. The patients select a date and time that is no longer available. <ol style="list-style-type: none"> 1. The patients choose a date and time for the appointment.

	<ol style="list-style-type: none"> 2. The system checks availability and finds that the selected slot is already booked. 3. The system displays an error message and suggests alternative available slots. 4. The patients select a new date and time from the available options. 5. The patients continue with the appointment scheduling process. <p>b. The patients' needs to cancel or reschedule the appointment after it has been booked.</p> <ol style="list-style-type: none"> 1. The patients log in and navigate to their scheduled appointments. 2. The patients select the option to cancel or reschedule the appointment. 3. If rescheduling, the system directs the patients to the Appointment page to choose a new date and time. 4. The patients select a new date and time or confirm the cancellation. 5. The system updates the appointment details and sends a confirmation message to the patients. <p>c. The patient has not selected a date and time.</p> <ol style="list-style-type: none"> 1. The patients click only on the Yes button without selecting any date and time. 2. The system shows a prompt message that the patients have not selected a date and/or time.
--	--

Table 9 Use Case: Fill Out Information for Medical History

Use Case Name	Fill out information for medical history
Use Case Number	UC-008
Created by	Clart Nailgas
Date Created	June 22, 2024
Description	A patient fills out information for medical history.
Actors	Patient
Triggers	<ul style="list-style-type: none"> - When the patient scheduled an appointment. - When the patient needs to fill out a medical form for medical history.
Pre-conditions	- A patient must be logged in to the patient view of the system.
Post-conditions	- The system records the medical form for the clinic staff.
Main Scenario	<ol style="list-style-type: none"> 1. A patient logs in on the patient's view of the clinic system. 2. The system shows the home page. 3. The patient clicks on the Appointment button. 4. The patient books an appointed schedule. 5. The system directs the patient to another page with a pop-up asking to take a medical form. 6. The patient selects the Now button. 7. The patient fills out the medical form. If the patient has a record already, the system can auto-fill their basic information. 8. The patient submits the form. 9. The system records the data of the medical record for the clinic staff.
Extensions or Alternate Scenarios	a. The patients chooses not to fill out the medical form immediately.

	<ol style="list-style-type: none"> 1. After booking an appointment, the system prompts the patients to fill out the medical form. 2. The patients selects the "Later" button instead of "Now." 3. The system saves the appointment and redirects the patients to the home page. 4. The system pops up a prompt message to fill out the form before the appointment. <p>b. The patient submits the medical form with missing or incomplete information.</p> <ol style="list-style-type: none"> 1. The patient starts filling out the medical form. 2. The patient leaves the required fields blank or submits the form with incomplete information. 3. The system validates the form and highlights the incomplete fields. 4. The system prompts the patient to complete the required fields before submitting the form again. <p>c. When the faculty and APC staff do not need to book an appointment.</p> <ol style="list-style-type: none"> 1. The faculty and APC staff click on the Medical Form tab on the left menu. 2. The system directs them to the Medical Form page. 3. The faculty and APC staff input their information into the medical form. 4. The faculty and APC staff submit the form.
--	---

	5. The system records the medical form for medical records.
--	---

Test Cases for Fully Dressed Use Cases

Table 10 Test Case TC-001-01

Project Name	PRIMS
Module Name	Medical Records Management
Test Case ID	TC-001-01
Test Case Description	Verify that the clinic staff can successfully check the medical history of a patient through the Medical Records tab.
Reference Document	Use Case UC-002
Pre-Conditions	<ul style="list-style-type: none"> • The clinic staff must be logged into the system using admin credentials. • The clinic staff must navigate to the Medical Records tab from the dashboard.
Test Steps	<ol style="list-style-type: none"> 1. Log in to the admin view of the clinic system using valid clinic staff credentials. 2. Verify that the system directs the clinic staff to the dashboard. 3. Click on the "Medical Records" tab in the menu. 4. Verify that the system navigates to the Medical Records page. 5. Ensure that the Medical Records page displays a list of patients. 6. Click on a patient from the list to view their medical history.
Test Data	<ul style="list-style-type: none"> • Clinic staff login credentials: <ul style="list-style-type: none"> ○ Username: nurse_apc ○ Password: apcclinic123 • Example patient name: Clart Nailgas

Expected Result	<ul style="list-style-type: none"> The clinic staff should be successfully directed to the Medical Records page after logging in and clicking the Medical Records tab. The Medical Records page should display a list of patients. Upon clicking on a patient, their medical history should be displayed.
Post Condition	<ul style="list-style-type: none"> The clinic staff is on the Medical Records page, with the selected patient's medical history visible.
Actual Result:	[To be filled in after test execution]
Status:	[To be set as Pass or Fail based on the actual result]
Comments	<ul style="list-style-type: none"> Ensure the system's response time is adequate when displaying the medical history. Also, check if valid fields shown are correct.
Created By	Clart Nailgas
Date of Creation	09/01/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 11 Test Case TC-001-02

Project Name	PRIMS
Module Name	Medical Record Management
Test Case ID	TC-001-02
Test Case Description	Verify that the clinic staff can update patient medical records.
Reference Document	Use Case UC-003
Pre-Conditions	<ul style="list-style-type: none"> The clinic staff must be logged in on the admin view of the system. The clinic staff must have access to the Medical Records tab.
Test Steps	<ol style="list-style-type: none"> Log in on the admin view of the clinic system. Click on the Medical Records tab. Verify that the system directs to the Medical Records page.

	<ol style="list-style-type: none"> 4. Select a patient from the list. 5. Click on the "Edit" button. 6. Update necessary changes in the patient's record. 7. Save the updated record.
Test Data	Patient details for update.
Expected Result	The clinic staff successfully updates and saves the patient's medical record.
Post Condition	The patient's medical record is updated in the system.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	<ul style="list-style-type: none"> • State all data that can be edited and make sure all changes are logged.
Created By	Clart Nailgas
Date of Creation	09/01/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 12 Test Case TC-003-01

Project Name	PRIMS
Module Name	Inventory Management
Test Case ID	TC-003-01
Test Case Description	Verify that the clinic staff can manage the medicine inventory and supplies.
Reference Document	Use Case UC-004
Pre-Conditions	<ul style="list-style-type: none"> • The clinic staff must be logged in on the admin view of the system. • The clinic staff must have access to the Inventory/Supplies tab.
Test Steps	<ol style="list-style-type: none"> 1. Log in on the admin view of the clinic system. 2. Click on the Inventory/Supplies tab. 3. Verify that the system directs to the Inventory/Supplies page. 4. Select a specific medicine from the list. 5. Edit the file for necessary updates.

Test Data	Medicine details for update.
Expected Result	The clinic staff successfully updates and saves the medicine inventory details.
Post Condition	The medicine inventory is updated in the system.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	<ul style="list-style-type: none"> Check for margin of errors when updating the inventory to avoid wrong data insertions or updates.
Created By	Clart Nailgas
Date of Creation	09/01/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 13 Test Case TC-004-01

Project Name	PRIMS
Module Name	Appointment System
Test Case ID	TC-004-01
Test Case Description	Verify that the clinic staff can approve or disapprove appointment schedules.
Reference Document	Use Case UC-005
Pre-Conditions	<ul style="list-style-type: none"> The clinic staff must be logged in on the admin view of the system. The clinic staff must have access to the Calendar tab.
Test Steps	<ol style="list-style-type: none"> Log in on the admin view of the clinic system. Click on the Calendar tab on the left menu or on the right section. Verify that the system directs to the Calendar page. Review the scheduled appointments displayed for the month. Select an appointment to approve or disapprove. Click the “Approve” or “Disapprove” button.
Test Data	Appointment details for approval/disapproval.

Expected Result	The clinic staff can successfully approve or disapprove the appointment schedules.
Post Condition	The status of the appointment is updated in the system.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	<ul style="list-style-type: none"> Verify important details that may affect the decision of the clinic staff. Also, consult again to the clinic staff about the fields required for the appointment to be set.
Created By	Clart Nailgas
Date of Creation	09/01/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 14 Test Case TC-004-02

Project Name	PRIMS
Module Name	Appointment System
Test Case ID	TC-004-02
Test Case Description	Verify that a patient can successfully schedule an appointment.
Reference Document	Use Case UC-005
Pre-Conditions	<ul style="list-style-type: none"> The patient must be logged in on the patient view of the system. The patient must have access to the Appointment button on the home page.
Test Steps	<ol style="list-style-type: none"> Log in on the patient view of the clinic system. Click on the Appointment button on the home page. Verify that the system directs to the Appointment page. Choose a date and time for the appointment. Click the "Yes" button to confirm. Verify that the system displays a prompt confirming the chosen date and time. Verify that the system displays a prompt thanking the patient.

	8. Check if the system directs the patient to a page with a pop-up asking to take a medical form.
Test Data	Appointment date and time options.
Expected Result	The patient successfully schedules an appointment, receives confirmation and thank you message, and is directed to the medical form page.
Post Condition	The appointment is recorded in the system and the patient is prompted to fill out a medical form.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	
Created By	Clart Nailgas
Date of Creation	09/01/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 15 Test Case TC-004-03

Project Name	PRIMS
Module Name	Appointment System
Test Case ID	TC-004-03
Test Case Description	Verify that the clinic staff can cancel an appointment schedule.
Reference Document	Use Case UC-006
Pre-Conditions	<ul style="list-style-type: none"> The clinic staff must be logged in on the admin view of the system. The clinic staff must have access to the Calendar tab.
Test Steps	<ol style="list-style-type: none"> Log in on the admin view of the clinic system. Click on the Calendar tab on the left menu or right section. Verify that the system directs to the Calendar page. Review the scheduled appointments displayed for the month. Identify the appointment to be canceled.

	6. Click the “Cancel” button for the selected appointment. 7. State the reason for the cancellation in the field provided. 8. Confirm the cancellation. 9. Remind the patient to book another appointment.
Test Data	Appointment details and cancellation reason.
Expected Result	The clinic staff successfully cancels the appointment, provides a reason, and the patient is notified to book another appointment.
Post Condition	The appointment is removed from the calendar, and the patient is prompted to reschedule.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	
Created By	Clart Nailgas
Date of Creation	09/02/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 16 Test Case TC-005-01

Project Name	PRIMS
Module Name	TC-005-01
Test Case ID	Medical Forms
Test Case Description	Verify that a patient can fill out and submit a medical form successfully.
Reference Document	Use Case UC-008
Pre-Conditions	<ul style="list-style-type: none"> The patient must be logged in on the patient view of the system. The patient must have booked an appointment and be directed to the medical form page if no previous record exists or if updating is necessary.
Test Steps	<ol style="list-style-type: none"> Log in on the patient view of the clinic system. Click on the Appointment button and book a schedule.

	3. Verify that the system directs to a page with a pop-up asking to take a medical form. 4. Click the “Now” button to access the medical form. 5. If the patient has a previous medical record, verify that the system auto-fills the basic information in the form. 6. Fill out the remaining fields in the medical form. 7. Submit the completed form. 8. Verify that the system records the data in the medical records for the clinic staff to review.
Test Data	Medical form details (e.g., patient history, medications, allergies).
Expected Result	The patient successfully fills out and submits the medical form, and the system records the data for the clinic staff to access.
Post Condition	The medical form data is recorded in the system and made available to the clinic staff for the upcoming appointment.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	
Created By	Clart Nailgas
Date of Creation	09/02/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Table 17 Test Case TC-006-01

Project Name	PRIMS
Module Name	Login TEST
Test Case ID	TC-006-01
Test Case Description	Verify that a patient and clinic staff can login to the system.
Reference Document	Use Case UC-008

Pre-Conditions	<ul style="list-style-type: none"> • The patient and clinic staffs must have the proper credentials given by the registrar • The patient/clinic staff must be on the login page.
Test Steps	<ol style="list-style-type: none"> 1. Go to the APC Clinic (PRIMS) Web login page. 2. Enter needed credentials (Email and password)
Test Data	APC Credentials (Auth)
Expected Result	<p>The patient and clinic staff successfully log on to the system.</p> <p>The patient and clinic staff receives a warning for wrong credentials entered.</p>
Post Condition	The system will then show the dashboard and services to the patient and management tools for the clinic staff.
Actual Result	[To be filled after execution]
Status	[To be set as Pass or Fail based on the actual result]
Comments	
Created By	Clart Nailgas
Date of Creation	09/02/2024
Reviewed By	Erika Daduya
Date of Review	TBA
Executed By	TBA
Date of Execution	TBA

Activity Diagrams with Swimlane

UC-001: Log In Using APC Account

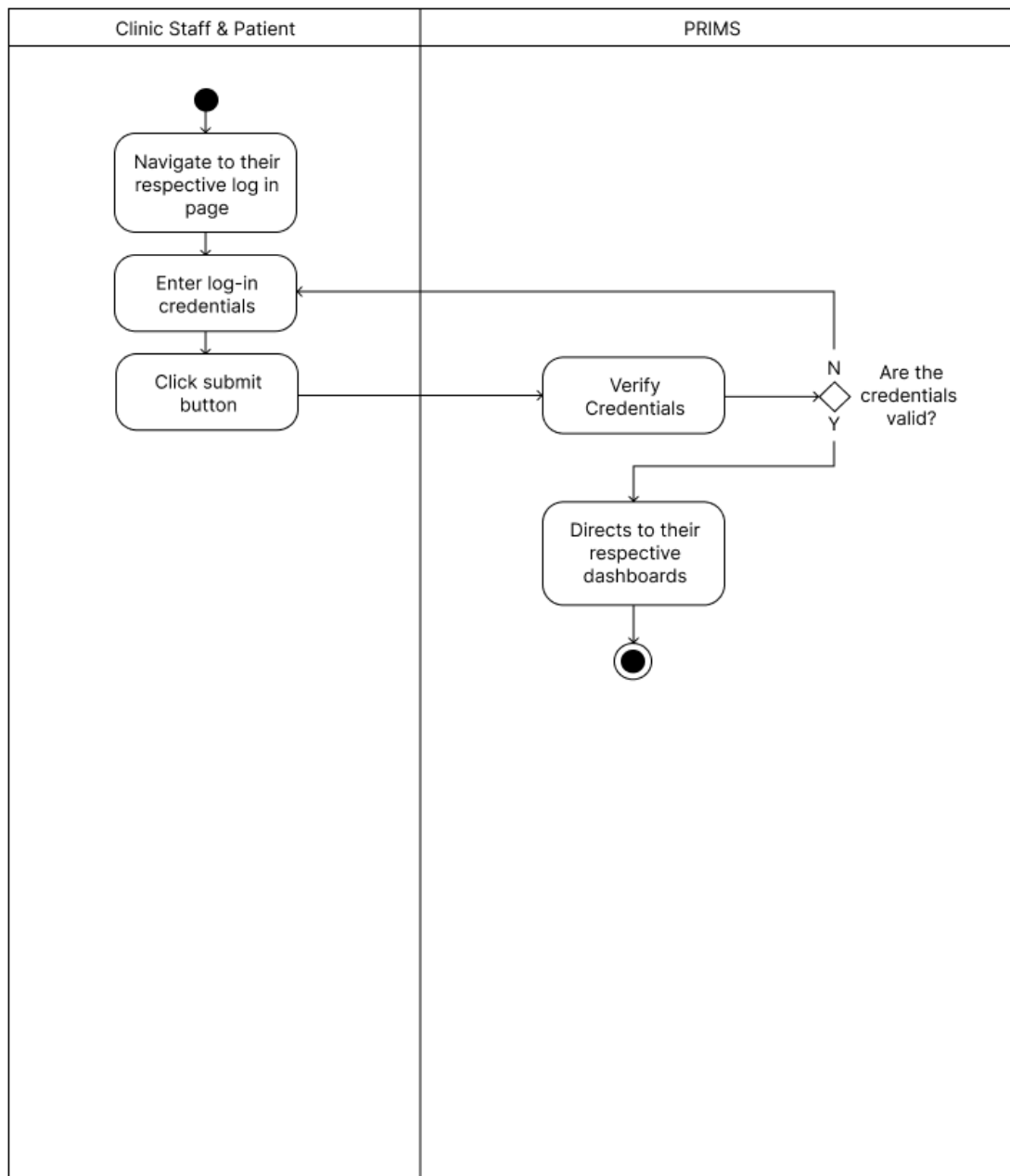


Figure 11 Activity Diagram for UC-001

UC-002: Manage Medical Record

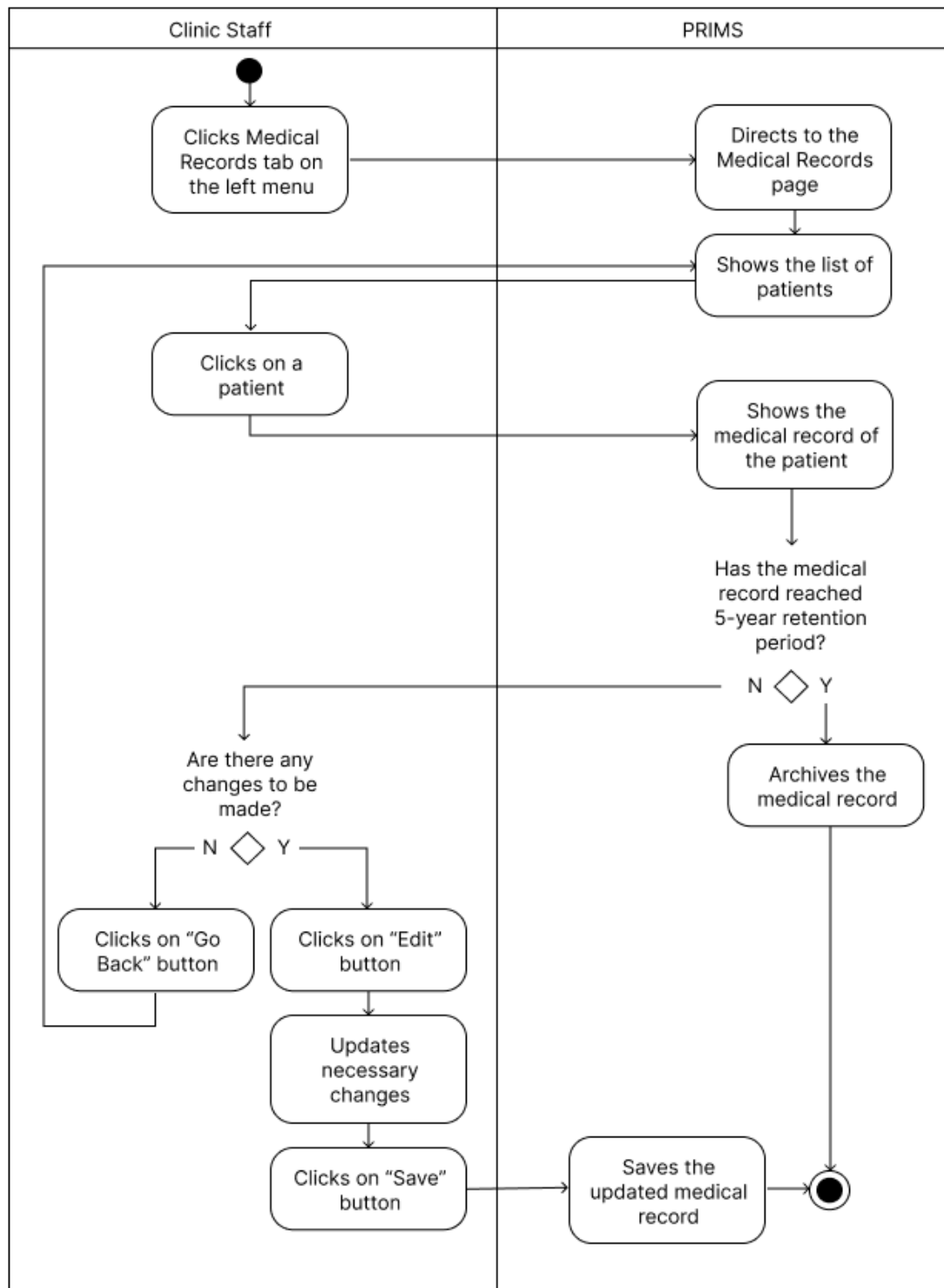


Figure 12 Activity Diagram for UC-002

UC-003: Manage Medical Inventory

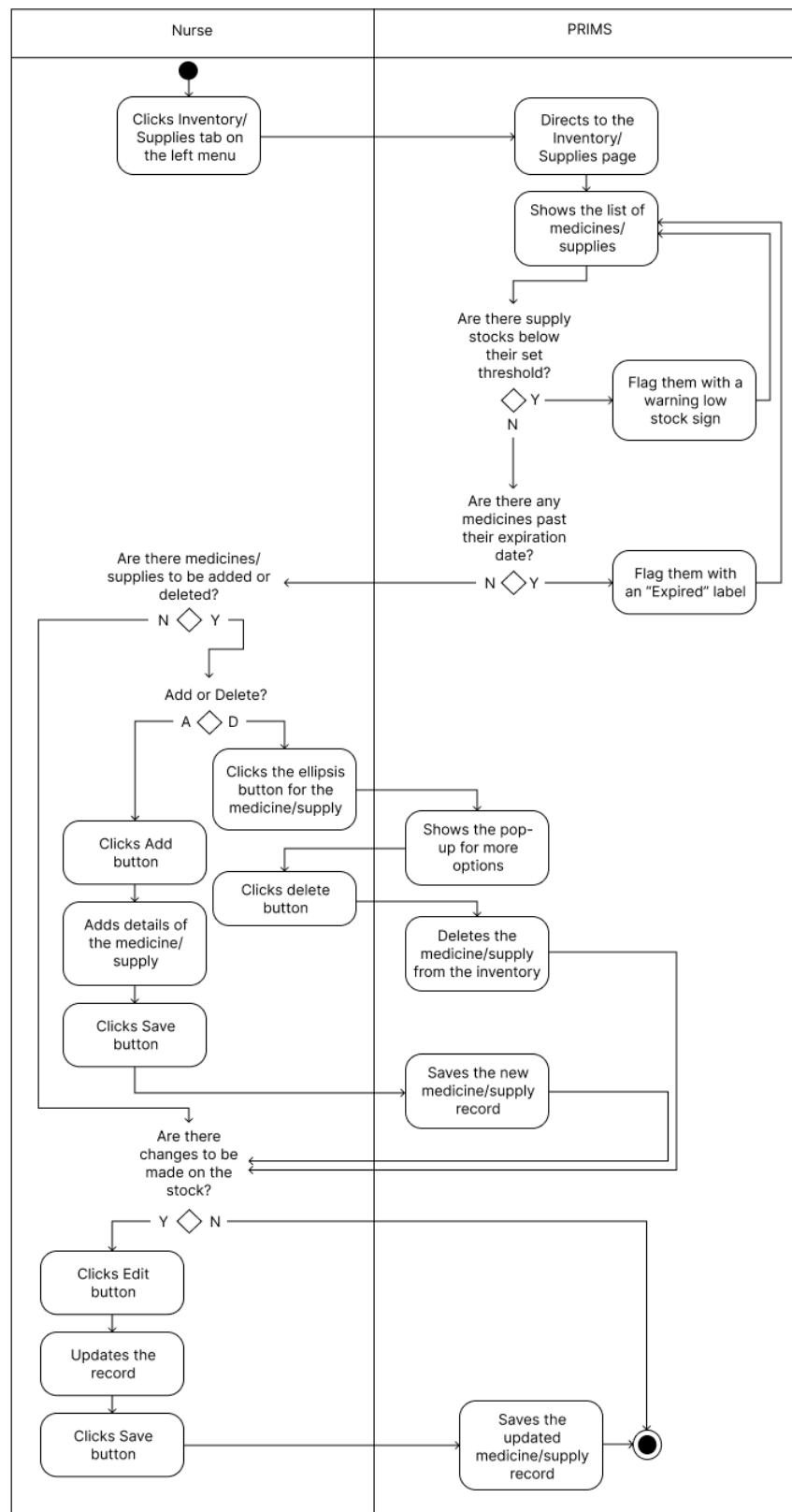


Figure 13 Activity Diagram for UC-003

UC-004: Manage Appointment Schedules

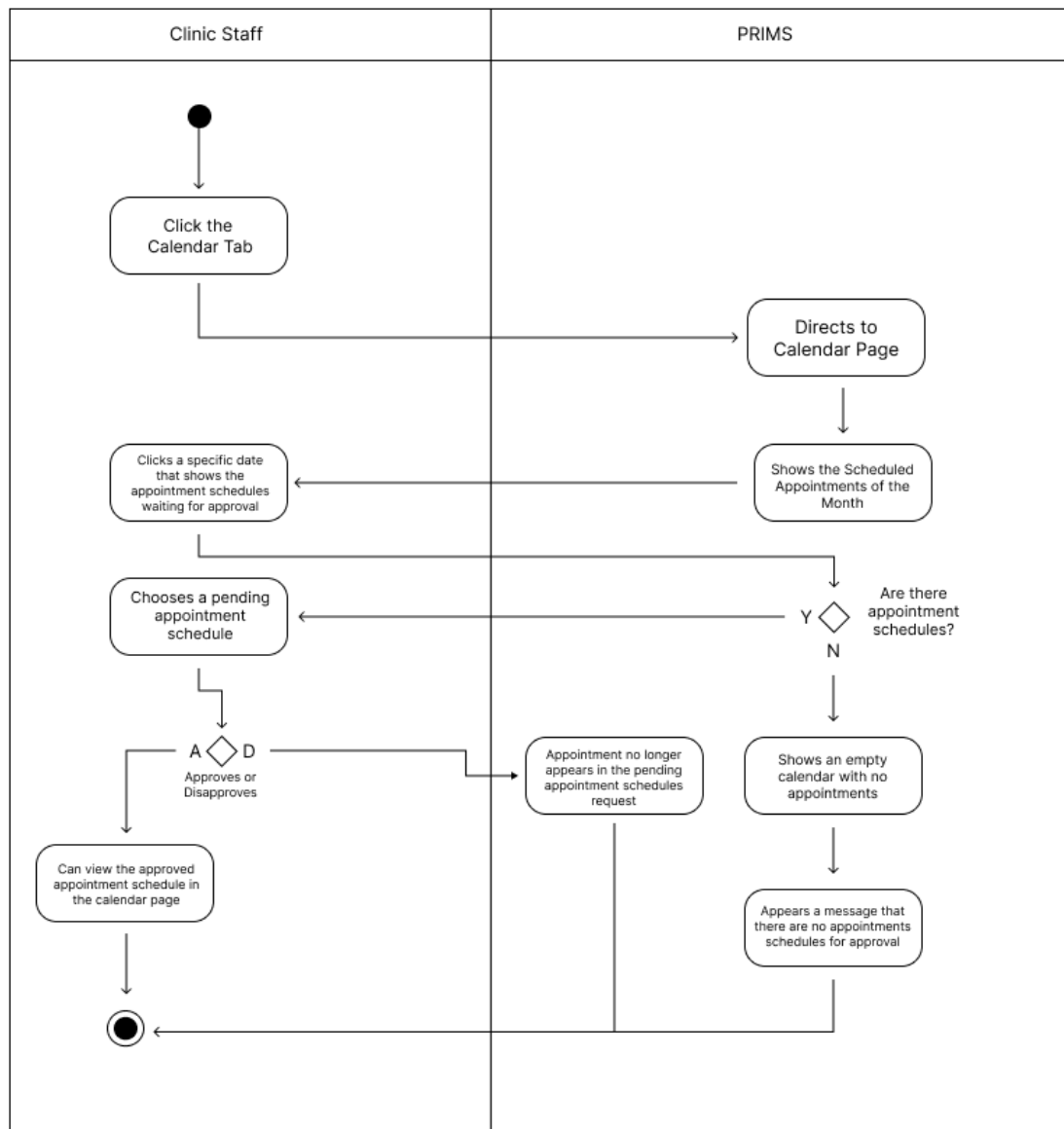


Figure 14 Activity Diagram for UC-004

UC-005: Cancellation of Appointment Schedules

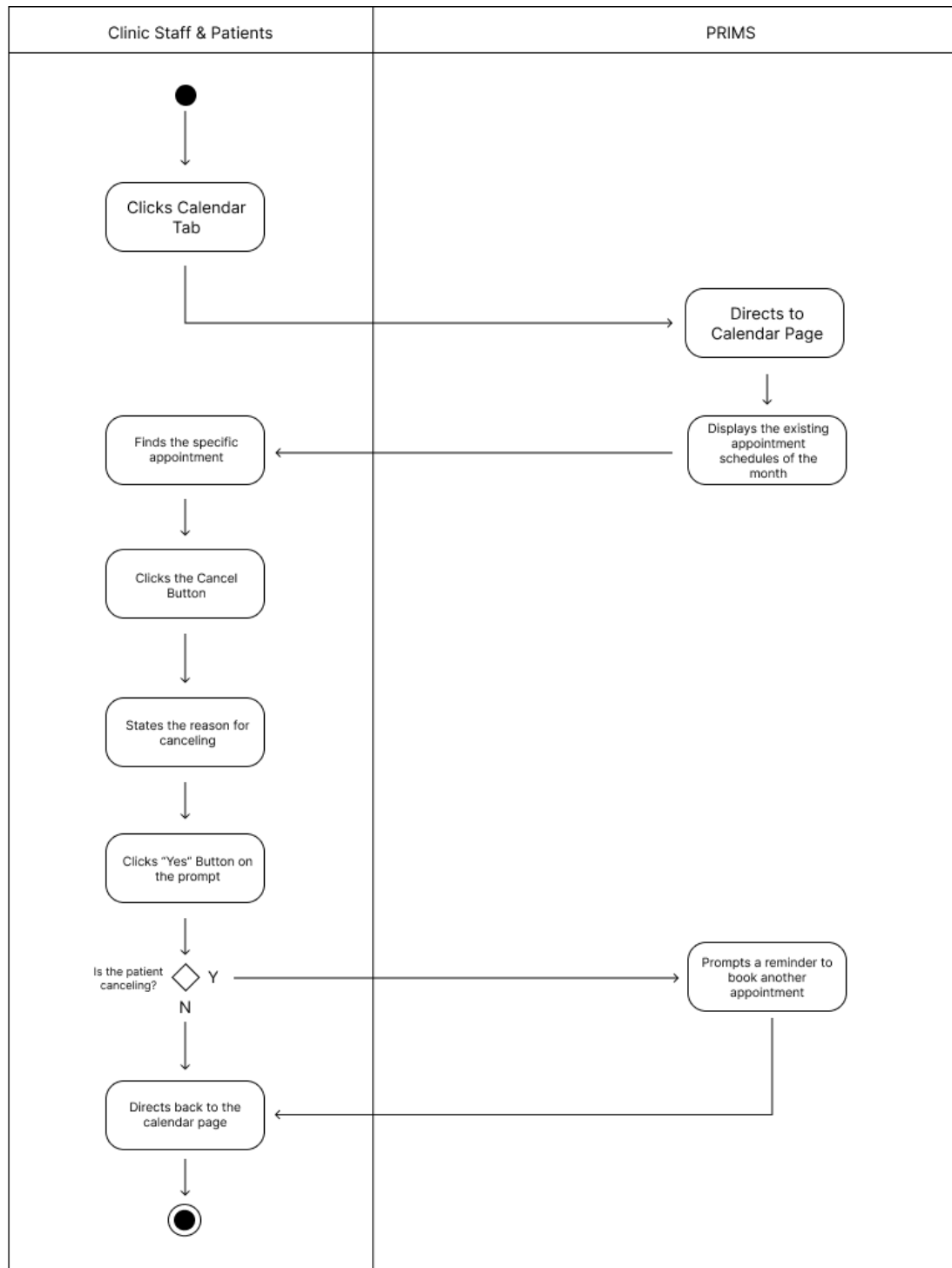


Figure 15 Activity Diagram for UC-005

UC-006: Generation of Summary Reports

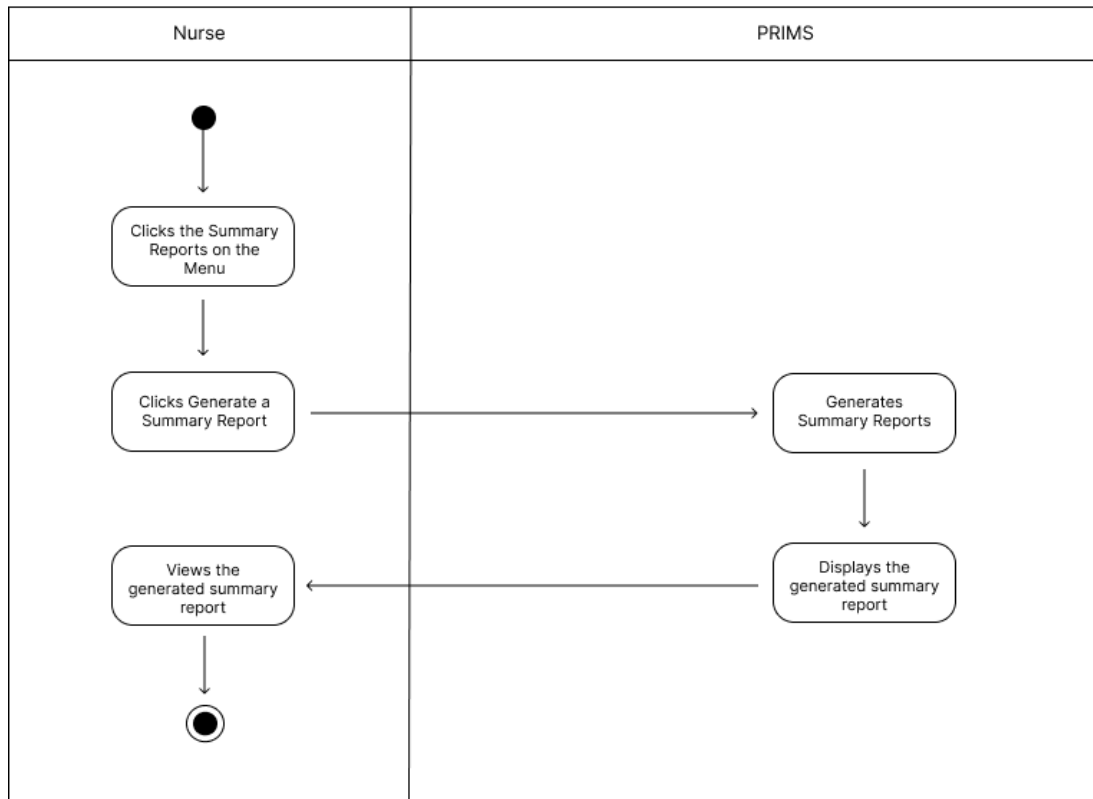


Figure 16 Activity Diagram for UC-006

UC-007: Schedule an Appointment

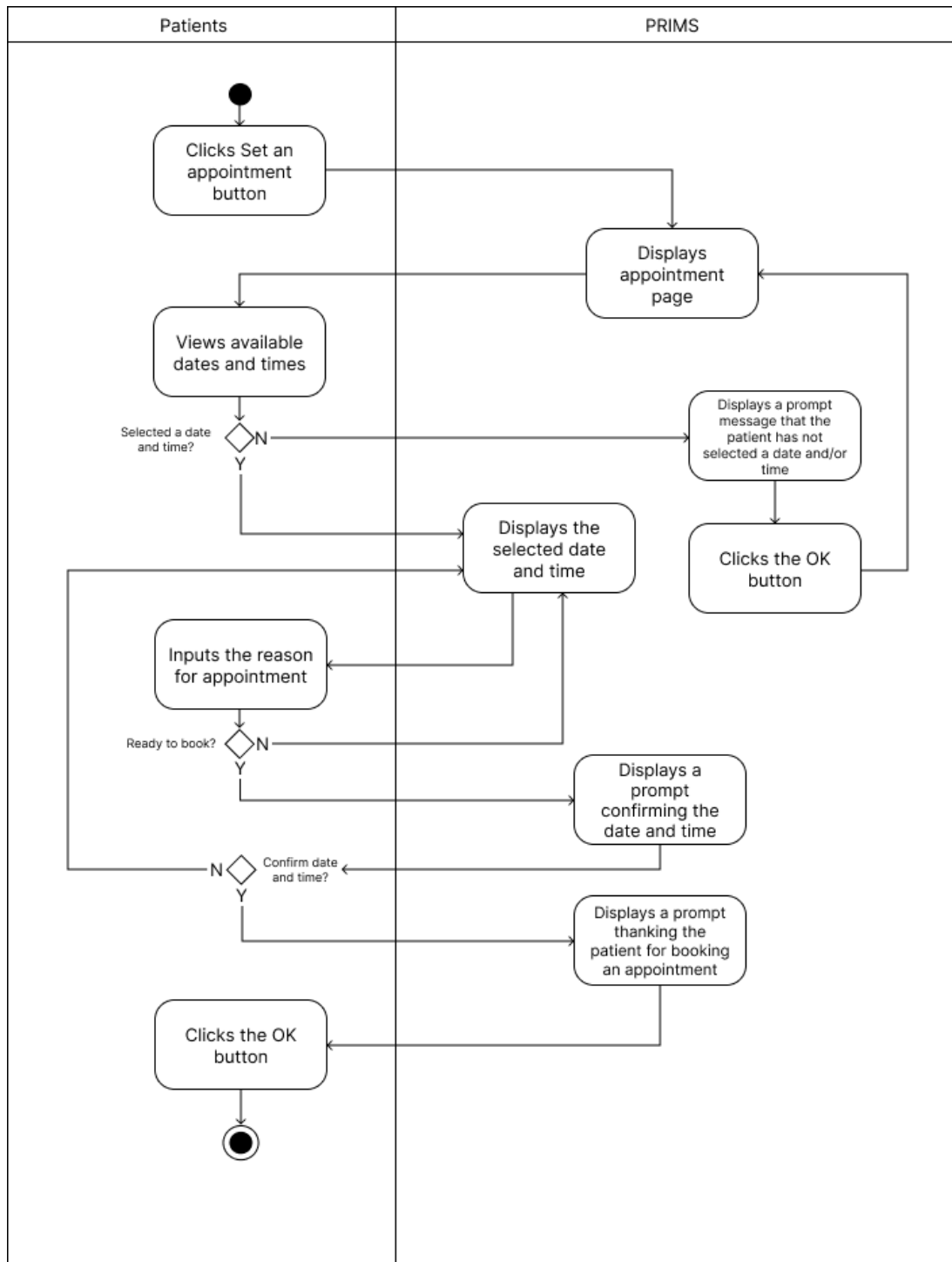


Figure 17 Activity Diagram for UC-007

UC-008: Fill Out Information for Medical History

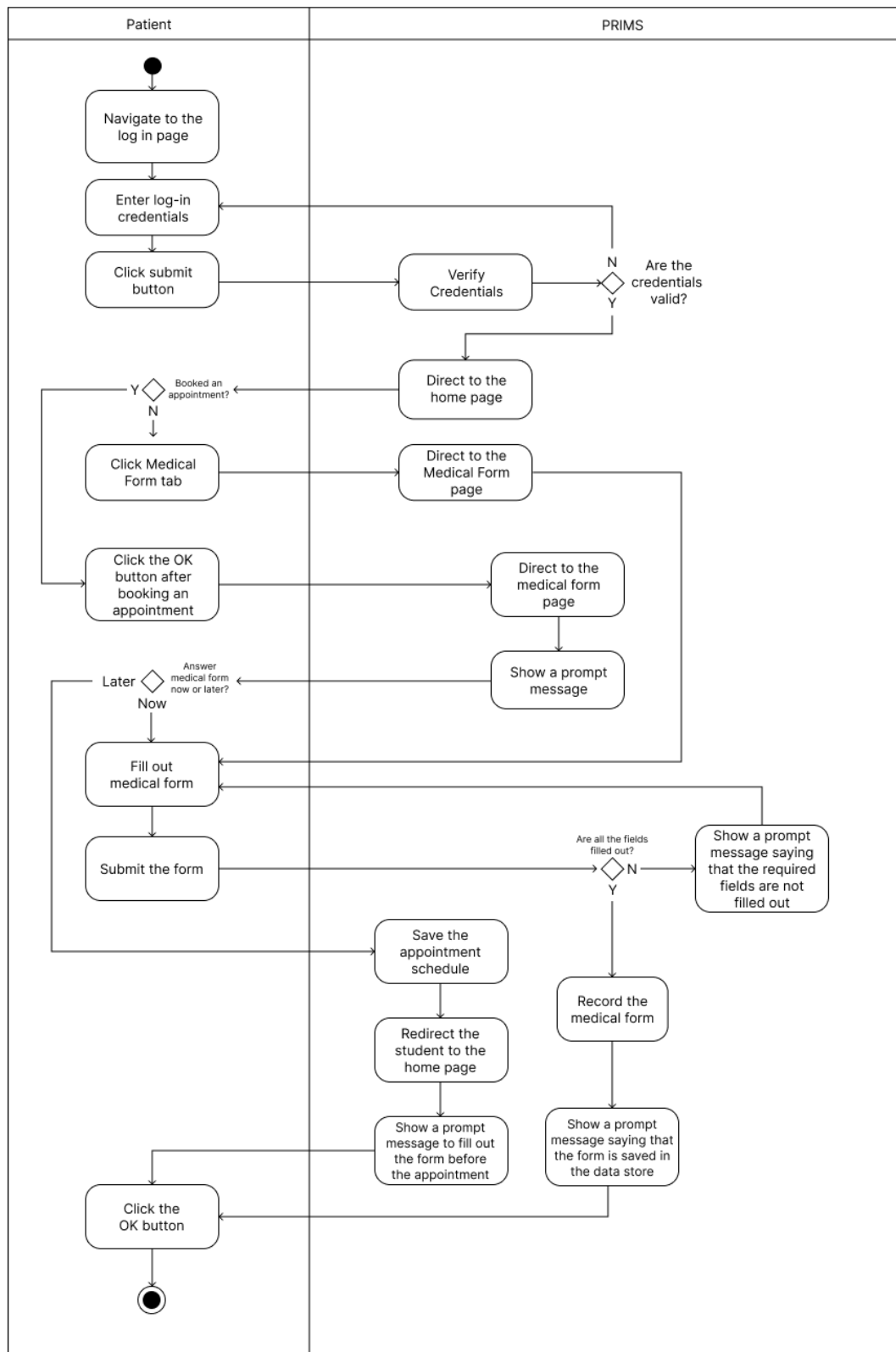


Figure 18 Activity Diagram for UC-008

Database Design

Entity Relationship Diagram



Figure 19 PRIMS Entity Relationship Diagram

Business Rule

PATIENTS and CATEGORY

Relationship Type: Many-to-One (M:1)

Each **PATIENT** belongs to one **CATEGORY** (e.g., student, faculty).

Each **CATEGORY** can have many **PATIENTS** associated with it.

PATIENTS and EMERGENCY_CONTACT

Relationship Type: One-to-One (1:1)

Each **PATIENT** can have one **EMERGENCY_CONTACT**.

Each **EMERGENCY_CONTACT** is associated with exactly one **PATIENT**.

PATIENTS and MEDICAL HISTORY

Relationship Type: One-to-One (1:1)

Each **PATIENT** can have one **MEDICAL_HISTORY** record.

Each **MEDICAL_HISTORY** is linked to exactly one **PATIENT**.

PATIENTS and APPOINTMENTS

Relationship Type: One-to-Many (1:M)

Each **PATIENT** can have many **APPOINTMENTS**.

Each **APPOINTMENT** is associated with one **PATIENT**.

CLINIC STAFF and APPOINTMENTS

Relationship Type: One-to-Many (1:M)

Each **CLINIC STAFF** (doctor or nurse) can handle many **APPOINTMENTS**.

Each **APPOINTMENT** is associated with one **CLINIC STAFF**.

PATIENTS and DIAGNOSIS

Relationship Type: One-to-Many (1:M)

Each **PATIENT** can have many **DIAGNOSIS** records.

Each **DIAGNOSIS** is associated with one **PATIENT**.

PATIENTS and TREATMENT

Relationship Type: One-to-Many (1:M)

Each **PATIENT** can undergo many **TREATMENTS**.

Each **TREATMENT** is associated with one **PATIENT**.

PATIENTS and PRESCRIPTION

Relationship Type: One-to-Many (1:M)

Each **PATIENT** can have many **PRESCRIPTIONS**.

Each **PRESCRIPTION** is associated with one **PATIENT**.

MEDICAL RECORDS and PATIENTS

Relationship Type: One-to-Many (1:M)

Each **PATIENT** can have many **MEDICAL RECORDS**.

Each **MEDICAL RECORD** is associated with one **PATIENT**.

MEDICAL RECORDS and CLINIC STAFF

Relationship Type: Many-to-One (M:1)

Each **MEDICAL RECORD** can be created or updated by one **CLINIC STAFF** member.

Each **CLINIC STAFF** member can create or update many **MEDICAL RECORDS**.

INVENTORY and CLINIC STAFF

Relationship Type: Many-to-One (M:1)

Each **INVENTORY** item update can be managed by one **CLINIC STAFF** member.

Each **CLINIC STAFF** member can update many **INVENTORY** items.

INVENTORY and CATEGORY

Relationship Type: Many-to-One (M:1)

Each **INVENTORY** item belongs to one **CATEGORY**.

Each **CATEGORY** can have many **INVENTORY** items.

TREATMENT and MEDICAL RECORDS

Relationship Type: One-to-One (1:1)

Each **TREATMENT** can be documented in one **MEDICAL RECORD** as part of a patient's treatment history.

Each **MEDICAL RECORD** may reference one **TREATMENT** entry to detail the treatment provided during a specific visit.

PRESCRIPTION and MEDICAL RECORDS

Relationship Type: One-to-One (1:1)

Each **PRESCRIPTION** can be documented in one **MEDICAL RECORD** entry as part of the record of medications prescribed.

Each **MEDICAL RECORD** may reference one **PRESCRIPTION** entry to include medication details for the patient's treatment

DIAGNOSIS and MEDICAL RECORDS

Relationship Type: One-to-One (1:1)

Each **DIAGNOSIS** can be documented in one **MEDICAL RECORD** as part of the patient's diagnosis history.

Each **MEDICAL RECORD** may reference one **DIAGNOSIS** entry to document the diagnosis made during a specific visit.

CLINIC STAFF and MEDICAL HISTORY

Relationship Type: One-to-Many (1)

Each **CLINIC STAFF** member can be responsible for or contribute to many **MEDICAL HISTORY** records, as they may manage or review multiple patients' histories.

Each **MEDICAL HISTORY** entry is associated with one specific **CLINIC STAFF** member who created, reviewed, or updated it.

Data Dictionary

CREDENTIALS

Table 18 Data Dictionary Table for CREDENTIALS

Field Name	Data Type	Format	Key	Description
credential_ID	INT	N/A	PK	Unique identifier for each credential record.
user_ID	INT	N/A	FK	References the PATIENTS table; links to the patient's information.
verified	boolean	Yes or No	N/A	Identifier if credentials are verified or not

PATIENTS

Table 19 Data Dictionary Table for PATIENTS

Field Name	Data Type	Format	Key	Description
patient_id	INT	N/A	PK	Unique identifier for each patient.
first_name	VARCHAR(50)	1 to 50 characters	N/A	Patient's first name.
middle_initial	VARCHAR(70)	1 to 70 characters	N/A	Patient's middle initial.
last_name	VARCHAR(50)	1 to 50 characters	N/A	Patient's last name.
email	VARCHAR(100)	Valid email format	N/A	Patient's email address for login and communication.
gender	VARCHAR(10)	1 to 10 characters	N/A	Patient's gender.
date_of_birth	DATE	YYYY-MM-DD	N/A	Patient's date of birth.
contact_number	VARCHAR(20)	Valid phone format	N/A	Patient's contact number.
category_id	INT	N/A	FK	References the CATEGORY table; defines the patient's role (student, faculty members, APC staff).
credential_id	INT	N/A	FK	References the CREDENTIALS table; defines each credential record.
medhistory_id	INT	N/A	FK	References the MEDICAL_HISTORY table; defines the medical history of each patient.
emergencycon_id	INT	N/A	FK	References the EMERGENCY_CONTACT table;

				defines the emergency contact of each patient.
--	--	--	--	--

CLINIC_STAFF

Table 20 Data Dictionary Table for CLINIC_STAFF

Field Name	Data Type	Format	Key	Description
clinic_staff_id	INT	N/A	PK	Unique identifier for each clinic staff.
clinic_staff_lname	INT	N/A	FK	Clinic staff's last name.
clinic_staff_fname	VARCHAR(45)	N/A	N/A	Clinic staff's first name.
clinic_staff_minitial	LONGTEXT	N/A	N/A	Clinic staff's middle initial.
role	DATE	YYYY-MM-DD	N/A	Defines the role of the clinic staff (e.g. 'doctor' or 'nurse').

CATEGORY

Table 21 Data Dictionary Table for CATEGORY

Field Name	Data Type	Format	Key	Description
category_id	INT	N/A	PK	Unique identifier for each role.
category_name	VARCHAR(50)	1 to 50 characters	N/A	Name of the category of the patient (e.g., 'student', 'faculty member', 'APC staff').

APPOINTMENT

Table 22 Data Dictionary Table for APPOINTMENT

Field Name	Data Type	Format	Key	Description
appointment_id	INT	N/A	PK	Unique identifier for each appointment.
patient_id	INT	N/A	FK	References the PATIENTS table; links to the patient.
doctor_id	INT	N/A	FK	References the USERS table; links to the doctor/nurse handling the appointment.
appointment_date	DATETIME	YYYY-MM-DD HH:MM	N/A	Date and time of the appointment.
status	VARCHAR(50)	'Pending', 'Approved', 'Canceled'	N/A	Status of the appointment.
reason_for_visit	VARCHAR(255)	1 to 255 characters	N/A	Reason for the appointment (e.g., check-up, follow-up).

MEDICAL_RECORDS

Table 23 Data Dictionary Table for MEDICAL_RECORDS

Field Name	Data Type	Format	Key	Description
medrecord_id	INT	N/A	PK	Unique identifier for each medical record.
patient_id	INT	N/A	FK	References the PATIENTS table; links to the patient.
doctor_id	INT	N/A	FK	References the USERS table (the doctor/nurse who created the record).
diagnosis_id	TEXT	N/A	N/A	Description of the patient's diagnosis.
treatment_id	TEXT	N/A	N/A	Description of the treatment given.
prescription_id	TEXT	N/A	N/A	Medications prescribed to the patient.
visit_date	DATETIME	YYYY-MM-DD HH:MM	N/A	Date of the patient's visit.
notes	TEXT	N/A	N/A	Additional notes about the patient's visit and condition.

PRESCRIPTION

Table 24 Data Dictionary Table for PRESCRIPTION

Field Name	Data Type	Format	Key	Description
prescription_ID	INT	N/A	PK	Unique identifier for each prescription record.
patient_id	INT	N/A	FK	References the PATIENTS table; links to the patient.
medication_name	VARCHAR(45)	N/A	N/A	Name of the medicine or the prescription
dosage	VARCHAR(45)	N/A	N/A	Defines the size of the medicine.
frequency	VARCHAR(45)	N/A	N/A	Defines how many times the dose will be taken.
start_date	DATE	YYYY-MM-DD	N/A	Defines the start date of intaking the dose or applying the medical remedies.
end_date	DATE	YYYY-MM-DD	N/A	Defines the end date of intaking the dose or applying the medical remedy.

DIAGNOSIS

Table 25 Data Dictionary Table for DIAGNOSIS

Field Name	Data Type	Format	Key	Description
------------	-----------	--------	-----	-------------

diagnosis_ID	INT	N/A	PK	Unique identifier for each diagnosis record.
patient_id	INT	N/A	FK	References the PATIENTS table; links to the patient.
diagnosis_code	VARCHAR(45)	N/A	N/A	Defines the code of the diagnosis.
diagnosis_name	VARCHAR(45)	N/A	N/A	Defines the name of the diagnosis of the patient.
diagnosis_date	DATETIME	YYYY-MM-DD HH:MM	N/A	Date and time of the patient's diagnosis
severity	VARCHAR(45)	N/A	N/A	Defines how severe the discomfort or illness of the patient is experiencing

TREATMENT

Table 26 Data Dictionary Table for TREATMENT

Field Name	Data Type	Format	Key	Description
treatment_ID	INT	N/A	PK	Unique identifier for each treatment record.
patient_id	INT	N/A	FK	References the PATIENTS table; links to the patient.
treatment_type	VARCHAR(45)	N/A	N/A	Defines what kind of treatment needs to be done.
treatment_details	LONGTEXT	N/A	N/A	Defines the description or details of the treatment.
start_date	DATE	YYYY-MM-DD	N/A	Defines the start date of intaking the dose or applying the medical remedies.
end_date	DATE	YYYY-MM-DD	N/A	Defines the end date of intaking the dose or applying the medical remedy.

INVENTORY

Table 27 Data Dictionary Table for INVENTORY

Field Name	Data Type	Format	Key	Description
inventory_id	INT	N/A	PK	Unique identifier for each inventory item.
item_name	VARCHAR(100)	1 to 100 characters	N/A	Name of the inventory item (e.g., medication, medical supply).
quantity	INT	Non-negative integer	N/A	Quantity available in stock.
description	TEXT	N/A	N/A	Description of the item.

date_supplied	DATETIME	YYYY-MM-DD HH:MM	N/A	Date when the inventory was last updated.
expiration_date	DATE	YYYY-MM-DD	N/A	Expiry date of the medicine (or medical supply, if applicable).
category	VARCHAR(45)	1 to 45 characters	N/A	Category of the medical supply (e.g. 'medicine,' 'first aid kit,' and 'medical supply').
date_updated	DATETIME	YYYY-MM-DD HH:MM	N/A	Defines the restock date of a medicine or medical supply.
updated_by	INT	N/A	FK	References the Users table (who last updated the inventory).

EMERGENCY_CONTACT

Table 28 Data Dictionary Table for EMERGENCY_CONTACT

Field Name	Data Type	Format	Key	Description
emergencycon_id	INT	N/A	PK	Unique identifier for each emergency contact record.
contact_lname	VARCHAR(70)	1 to 70 characters	N/A	Last name of the emergency contact of the patient.
contact_fname	VARCHAR(70)	1 to 70 characters	N/A	First name of the emergency contact of the patient.
contact_address	VARCHAR(150)	1 to 150 characters	N/A	Address of the emergency contact of the patient.
contact_relationship	VARCHAR(45)	1 to 45 characters	N/A	Relationship of the emergency contact with the patient.
emcontact_num	VARCHAR(45)	1 to 45 characters	N/A	Contact number of the emergency contact of the patient.

Updated Product Backlog/User Stories

Table 29 User Stories

User Stories				
ID	As a..	I want to be able to...	So that...	Priority
001	Nurse	Check scheduled appointments.	I would know if there were any conflicts with my schedule.	Must

002	Nurse	Notified when appointment is cancelled.	I'm not wasting my time waiting if someone will come or not.	Should
003	Patient	Schedule an appointment online and check real-time available slots to set an appointment.	I don't have to physically come to the clinic when setting up appointments and I would know the available time and date slots.	Must
004	Nurse	Manage medicine inventory.	I know when to request new stocks and to prevent overstocking of medicines.	Should
005	Nurse	Generate summary reports monthly and annually.	I can complete monthly and annual reports faster.	Should
006	Nurse	Edit the calendar.	I can let the patients know when the available time and dates are available.	Must

Partially Working Cloud-hosted Prototype

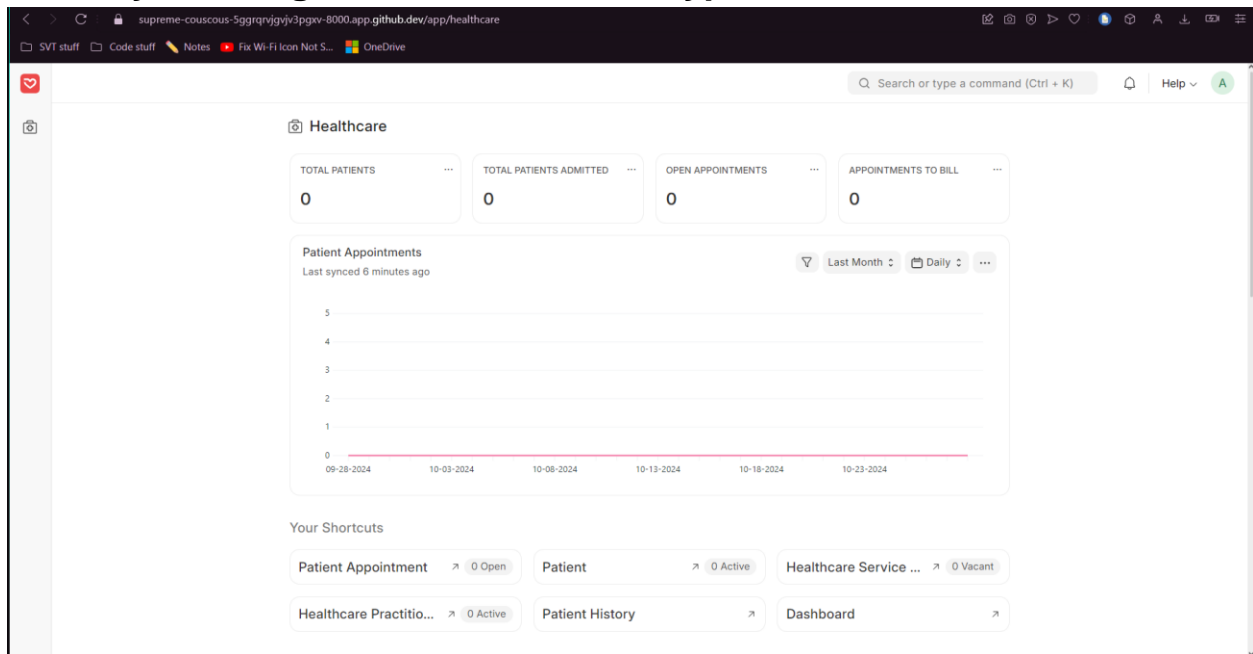


Figure 20 Healthcare tab

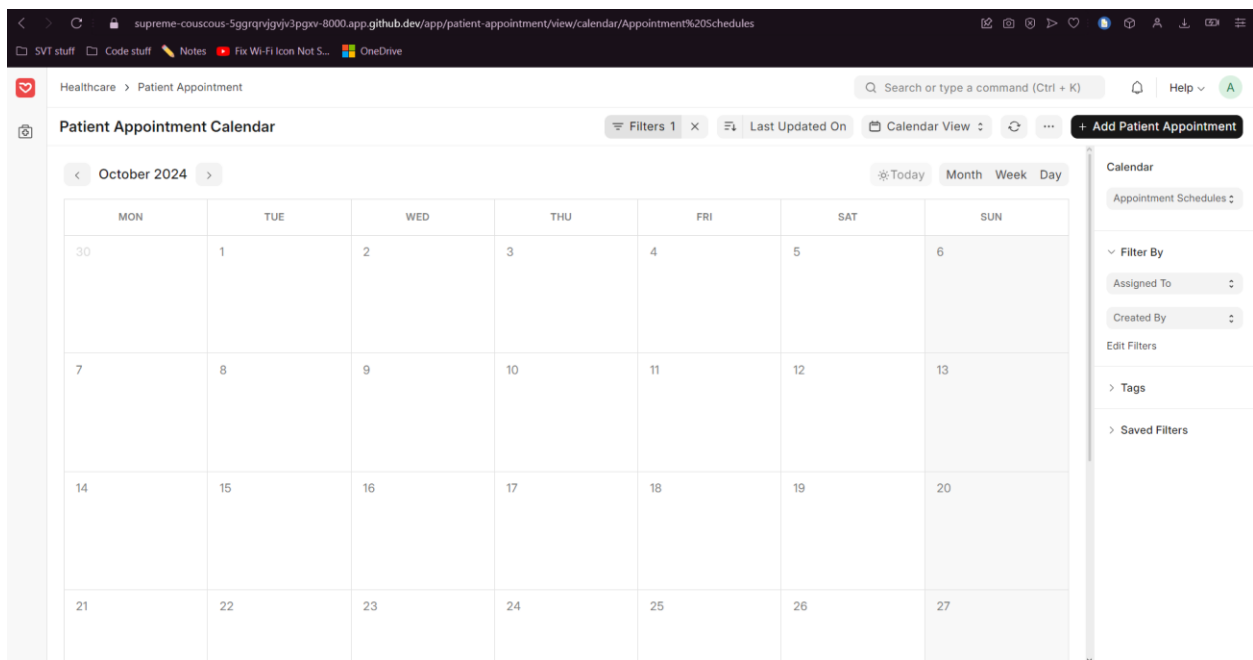


Figure 21 Patient Appointment Calendar tab

Prototype

Technology Stack

1. Git
 - A distributed version management system that is free and open source and made to work quickly and effectively on projects of all sizes.
2. GitHub Codespaces
 - Cloud-based development environment directly within GitHub.
3. Figma
 - A collaborative design tool for building our diagrams and system design.
4. Visual Paradigm
 - A collaborative tool that we used to create and edit our use case diagram.
5. SqlDBM
 - A web-based data modeling tool that we used to create and edit our Entity Relationship Diagram.
6. Frappe
 - The web application framework that we used for developing the system.

Github Project Repository

The link below leads to the team's GitHub repository, where they collaborate and manage the system:

<https://github.com/kentko27/prims-healthcare.git>

<https://github.com/APC-SoCIT/APC-2024-2025-T1-04-APC-Clinic---PRIMS>

Conclusion

In conclusion, the Patient Record and Interaction Management System (PRIMS) project is a meaningful step forward for healthcare at Asia Pacific College's Clinic. By using tools like data flow diagrams and use case diagrams, we've been able to design a system that simplifies how students and faculty can schedule appointments and manage clinic inventory. This means less waiting and more focus on providing quality care.

PRIMS is all about making healthcare more accessible and efficient for everyone on campus. Ultimately, this project highlights how technology can enhance our everyday experiences, ensuring that students and faculty receive the support they need in a more streamlined and user-friendly way.

Appendices

Appendix A: Project Vision

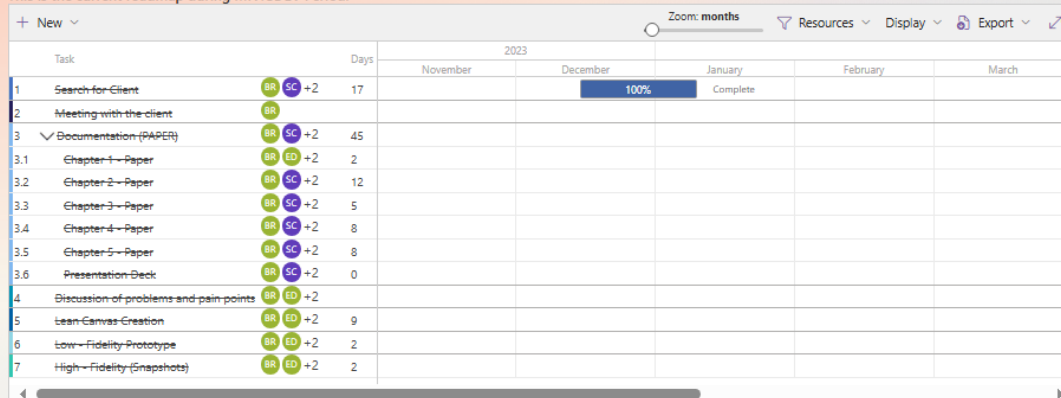
APC Clinic wants to save time on setting up appointments and an efficient way of managing and handling medical patient records. Thus, introducing PRIMS, a Patient Record & Interaction Management System that provides a record management and appointment scheduling system that fosters healthcare for their patients in Asia Pacific College.

Appendix B: Schedule

^ Roadmap (MNTSDEV)

Project Roadmap (MNTSDEV)

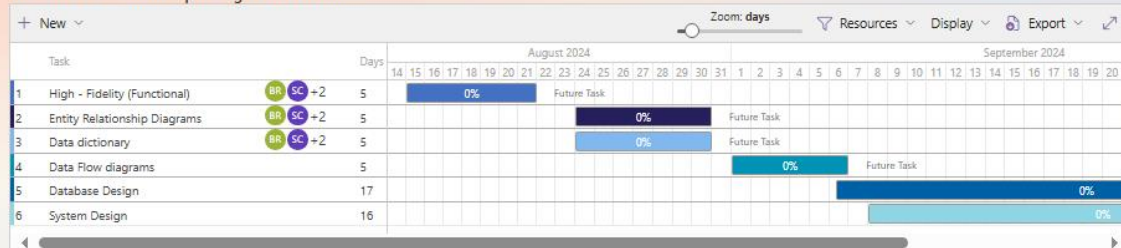
This is the current roadmap during MNTSDEV Period.



^ Roadmap (MSYADD1)

Project Roadmap (MSYADD1)

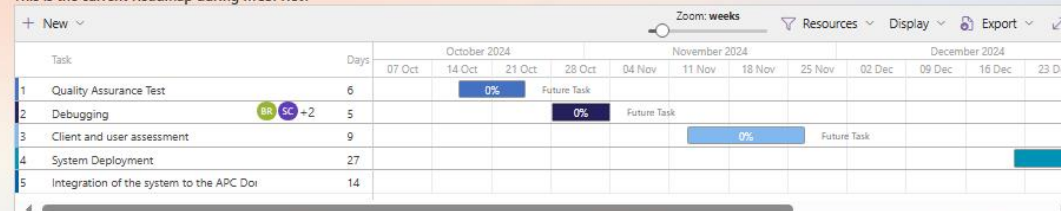
This is the current roadmap during MSYADD1 Period.



^ Roadmap (MCSPROJ)

Project Roadmap (MCSPROJ)

This is the current Roadmap during MCSPROJ.



Appendix C: Release Plan

Target Group: Asia Pacific College Clinic

Goal: Automate and digitize various processes of the school clinic.

Needs: A web-based system accessible to everyone within the APC community.

Value: The system will help reduce the time and effort required to schedule appointments, retrieve patients' medical records, and generate monthly summary reports. It will also provide an efficient way to track the stocks of medical supplies and notify the patients about the statuses of their appointments.

Key Features: User Log in, Appointment Scheduling, Medical Records Database, Inventory System, Notification Alerts

Release Plan:

Our team's release plan will be divided into three sections.

Phase 1

High Fidelity Prototype (Snapshots)
Research Documentation/Paper
Presentation Deck

Phase 2

High Fidelity Prototype (Functional)
System Design
Model Diagrams

Phase 3

Deployed System
Quality Assurance Testing

Appendix D: Product Roadmap

MNTSDEV	MSYADD1	MCSPROJ
Client <ul style="list-style-type: none">• Search for possible clients• Meetings with the client• Discussion of problems and pain points• Lean canvas creation	Design and Modeling <ul style="list-style-type: none">• High-fidelity prototype (functional)• Entity Relationship Diagrams• Data Dictionary• Data Flow Diagrams• System Design	Testing <ul style="list-style-type: none">• Quality assurance• Debugging• Client and user assessment Deployment <ul style="list-style-type: none">• System deployment

Project Proposal <ul style="list-style-type: none"> • High-fidelity prototype (design) • Documentation paper (Chapter 1 to 5) • Presentation deck 	<ul style="list-style-type: none"> • Database Design 	<ul style="list-style-type: none"> • Integration of the system to the APC domain
---	---	---

Appendix E: Minutes of the Meetings

1st Meeting for MSYADD1

August 13, 2024 || **Time Start:** 10:45 A.M. >> **Time End:** 11:20 A.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.



Screenshot from the start of the meeting

Meeting Facilitator: Byron Louis Rabajante	
Secretary (Assigned to take the meeting minutes): Clart Kent Nailgas	
List of attendees	Roles
Rabajante, Byron Nailgas, Clart Kent	PROJECT LEAD PRESENTATION LEAD

Catingub, Shannelien Mae Daduya, Erika Alessandra	DOCUMENTATION LEAD PROGRAMMING LEAD
--	--

Agenda/s

Agenda No.	Discussion
Agenda 01	Use case and User diagram
Agenda 02	Figma or Visual Paradigm?
Agenda 03	Assigning Of Tasks

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Admin View (Use Case)	August 18, 2024, Sunday 11:59PM
Nailgas, Clart Kent	Student View (Use Case)	August 18, 2024, Sunday 11:59PM
Catingub, Shannelien Mae	Admin View (Use Case)	August 18, 2024, Sunday 11:59PM
Daduya, Erika Alessandra	Student View (User Diagram and Use Case)	August 18, 2024, Sunday 11:59PM



Screenshot from the end of the meeting

Conclusion/s

After careful consideration, our team has made the strategic decision to transition from Visual Paradigm to Figma as our primary tool for design and collaboration. This shift is rooted in our growing focus on creating intuitive, user-centered designs, and the recognition that Figma is better suited to meet our evolving needs.

The decision to adopt Figma is a strategic move that aligns with our goal of enhancing our design workflows, fostering greater collaboration, and delivering superior user experiences. While Visual Paradigm served us well in the past, particularly in the realm of development and system modeling, Figma offers the modern, design-centric tools that our team needs to succeed in today's competitive landscape. We are confident that this transition will empower our team to work more efficiently, innovate more freely, and ultimately create better products for our users

Link/s

Link to recording: [Click here](#)

2nd Meeting for MSYADD1

August 20, 2024 || **Time Start:** 10:50 A.M. >> **Time End:** 11:00 A.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.



Screenshot from the start of the meeting

Meeting Facilitator: Clart Kent Nailgas

Secretary (Assigned to take the meeting minutes): Erika Alessandra Daduya

List of attendees

Roles

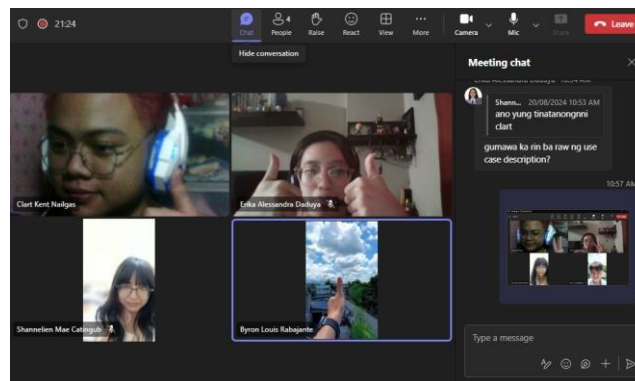
Rabajante, Byron Nailgas, Clart Kent Catingub, Shannelien Mae Daduya, Erika Alessandra	PROJECT LEAD PRESENTATION LEAD DOCUMENTATION LEAD PROGRAMMING LEAD
---	---

Agenda/s

Agenda No.	Discussion
Agenda 01	What development platform we will be using?
Agenda 02	Use case diagrams and fully dress descriptions
Agenda 03	Assigning of Tasks

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Research frameworks for clinics, if possible.	August 24, 2024, Saturday 11:59PM
Nailgas, Clart Kent	Fully dressed description, rechecking, and expansion	August 24, 2024, Saturday 11:59PM
Catingub, Shannelien Mae	Look for possible expansions in the use case diagrams and change format.	August 24, 2024, Saturday 11:59PM
Daduya, Erika Alessandra	Look for possible expansions in the use case diagrams and change format.	August 24, 2024, Saturday 11:59PM



Screenshot from the end of the meeting

Conclusion/s

We are still undecided about what development platform to use and will consult our adviser for advises and opinions as well as the ITRO for possible use of AWS. Use case diagrams will be reworked as well as the Fully dressed user case descriptions.

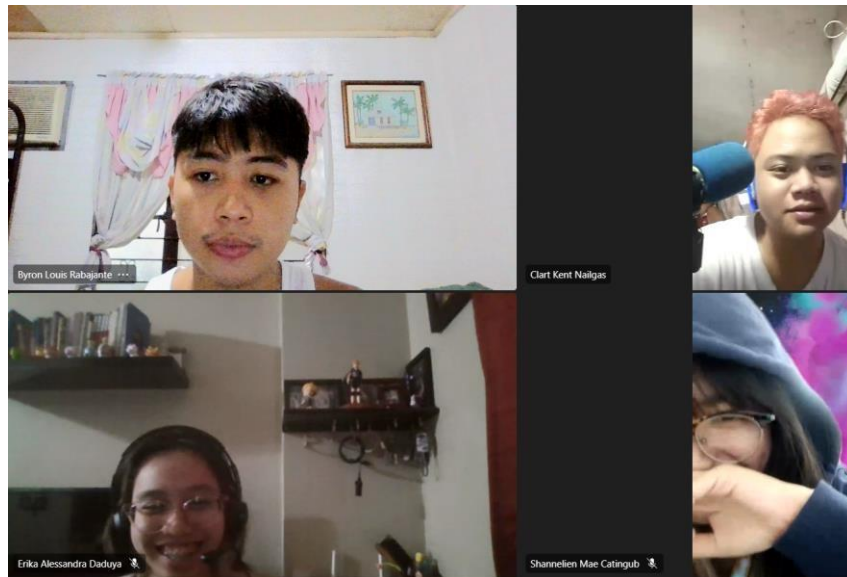
Link/s

Link to recording: [Click here](#)

3rd Meeting for MSYADD1

August 27, 2024 || **Time Start:** 10:18 A.M. >> **Time End:** 11:11 A.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.



Screenshot from the start of the meeting

Meeting Facilitator: Clart Kent Nailgas	
Secretary (Assigned to take the meeting minutes): Erika Alessandra Daduya	
List of attendees	Roles
Rabajante, Byron Nailgas, Clart Kent Catingub, Shannelien Mae Daduya, Erika Alessandra	PROJECT LEAD PRESENTATION LEAD DOCUMENTATION LEAD PROGRAMMING LEAD

Agenda/s

Agenda No.	Discussion
Agenda 01	Sending of Late Documents to Adviser
Agenda 02	Use of GPT on Test Case
Agenda 03	Template and Formatting
Agenda 04	Assigning of Tasks

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Creating and Finishing the Test Case 2 using GPT	August 30, 2024, Friday 11:59PM
Nailgas, Clart Kent	Creating and Finishing the Test Case 3 using GPT	August 30, 2024, Friday 11:59PM
Catingub, Shannelien Mae	Creating and Finishing the Test Case 4 using GPT	August 30, 2024, Friday 11:59PM
Daduya, Erika Alessandra	Creating and Finishing the Test Case 5 using GPT	August 30, 2024, Friday 11:59PM



Screenshot from the end of the meeting

Conclusion/s

Still waiting for the adviser's feedback/review on the diagrams.

Link/s

Link to recording: [Click here](#)

4th Meeting for MSYADD1

August 30, 2024 || **Time Start:** 10:40 A.M. >> **Time End:** 11:20 A.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.



Screenshot from the start of the meeting

Meeting Facilitator: Clart Kent Nailgas	
Secretary (Assigned to take the meeting minutes): Shannelien Mae Catingub	
List of attendees	Roles
Rabajante, Byron	PROJECT LEAD
Nailgas, Clart Kent	PRESENTATION LEAD
Catingub, Shannelien Mae	DOCUMENTATION LEAD
Daduya, Erika Alessandra	PROGRAMMING LEAD

Agenda/s

Agenda No.	Discussion
Agenda 01	Discussion of Different Frameworks
Agenda 02	Activity Diagram
Agenda 03	Revision of Use Cases and Test Cases
Agenda 04	Assigning of Tasks

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Creating and Finishing the Test Case 2 using GPT	September 1, 2024, Sunday 11:59PM
Nailgas, Clart Kent	Creating and Finishing the Test Case 3 using GPT	September 1, 2024, Sunday 11:59PM
Catingub, Shannelien Mae	Creating and Finishing the Test Case 4 using GPT	September 1, 2024, Sunday 11:59PM
Daduya, Erika Alessandra	Creating and Finishing the Test Case 5 using GPT	September 1, 2024, Sunday 11:59PM



Screenshot from the end of the meeting

Conclusion/s

We are now preparing and researching frameworks for our system, and we will now proceed on revisions.

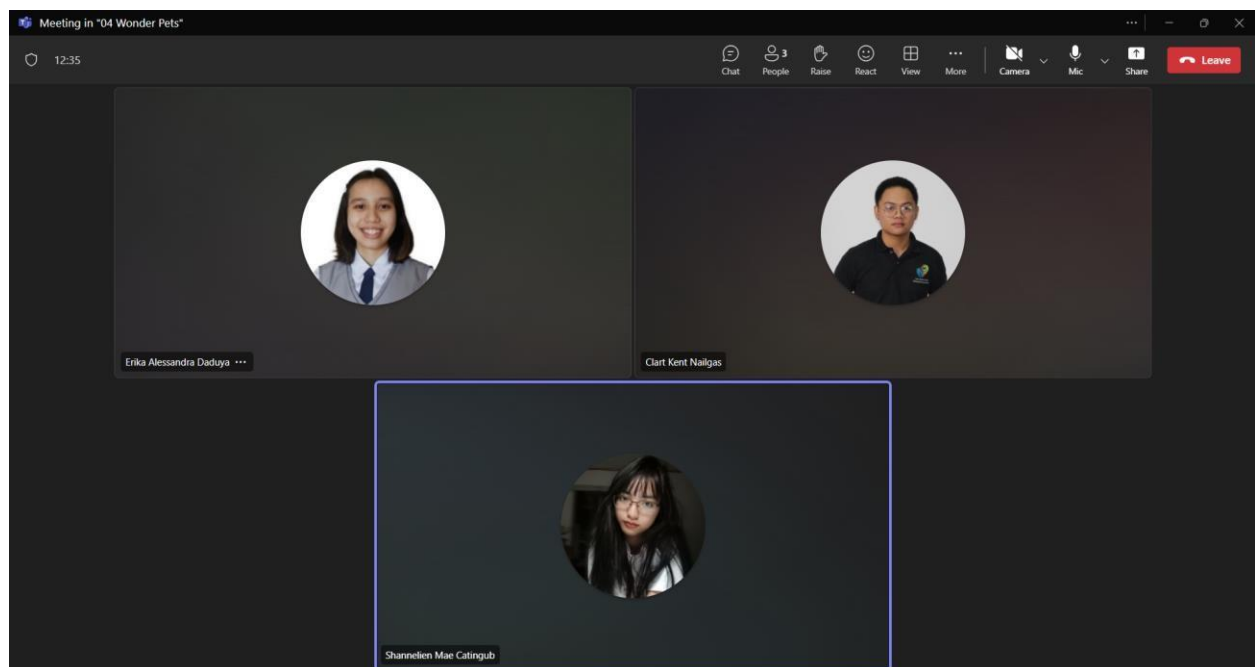
Link/s

Link to recording: [Click here](#)

5th Meeting for MSYADD1

September 24, 2024 || **Time Start:** 10:45 A.M. >> **Time End:** 10:50 A.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.



Screenshot from the start of the meeting

Meeting Facilitator: Clart Kent Nailgas

Secretary (Assigned to take the meeting minutes): Shannelien Mae Catingub

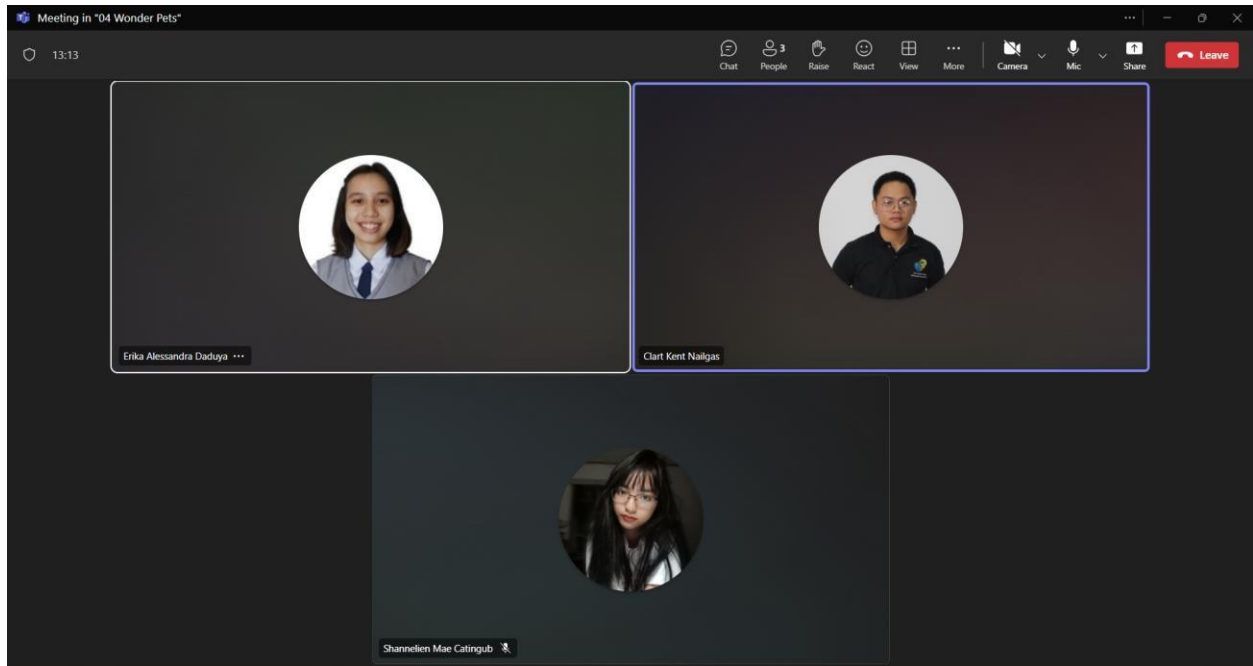
List of attendees	Roles
Rabajante, Byron	PROJECT LEAD
Nailgas, Clart Kent	PRESENTATION LEAD
Catingub, Shannelien Mae	DOCUMENTATION LEAD
Daduya, Erika Alessandra	PROGRAMMING LEAD

Agenda/s

Agenda No.	Discussion
Agenda 01	Revise Swimlane Diagram
Agenda 02	Start ERD
Agenda 03	Assigning of Tasks

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Revising Swimlane Diagram	September 26, 2024, Thursday 11:59PM
Nailgas, Clart Kent	Creating ERD	October 1, 2024, Tuesday 11:59PM
Catingub, Shannelien Mae	Revising Swimlane Diagram	September 26, 2024, Thursday 11:59PM
Daduya, Erika Alessandra	Revising Swimlane Diagram	September 26, 2024, Thursday 11:59PM



Screenshot from the end of the meeting

Conclusion/s

We are finishing the Swimlane diagram and creating a data dictionary for our ERD.

Link/s

Link to recording: [Click here](#)

6th Meeting for MSYADD1

October 4, 2024 || **Time Start:** 3:00 P.M. >> **Time End:** 3:30 P.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.

Meeting Facilitator: Clart Kent Nailgas	
Secretary (Assigned to take the meeting minutes): Shannelien Mae Catingub	
List of attendees	Roles
Rabajante, Byron	PROJECT LEAD

Nailgas, Clart Kent Catingub, Shannelien Mae Daduya, Erika Alessandra	PRESENTATION LEAD DOCUMENTATION LEAD PROGRAMMING LEAD
---	--

Agenda/s

Agenda No.	Discussion
Agenda 01	Revision of diagrams based on panelists feedback
Agenda 02	Creation of ERD

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Revision of Activity Diagrams and DFD Lvl 2.	October 5, 2024, Saturday 11:59PM
Nailgas, Clart Kent	Revision of DFD Lvl 2 and Continuation of ERD	October 5, 2024, Saturday 11:59PM
Catingub, Shannelien Mae	Revision of Activity Diagrams and DFD Lvl 2.	October 5, 2024, Saturday 11:59PM
Daduya, Erika Alessandra	Revision of Activity Diagrams and DFD Lvl 2.	October 5, 2024, Saturday 11:59PM

Conclusion/s

We are finishing the Revision of our diagrams based on our panelist's comment/feedback.

Link/s

Link to recording: N/A

7th Meeting for MSYADD1

October 11, 2024 || **Time Start:** 3:00 P.M. >> **Time End:** 3:30 P.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.

Meeting Facilitator: Clart Kent Nailgas	
Secretary (Assigned to take the meeting minutes): Shannelien Mae Catingub	
List of attendees	Roles
Rabajante, Byron	PROJECT LEAD
Nailgas, Clart Kent	PRESENTATION LEAD
Catingub, Shannelien Mae	DOCUMENTATION LEAD
Daduya, Erika Alessandra	PROGRAMMING LEAD

Agenda/s

Agenda No.	Discussion
Agenda 01	Revision of diagrams based on panelists feedback

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Revision of ERD	October 16, 2024, Wednesday 11:59PM
Nailgas, Clart Kent	Revision of ERD	October 16, 2024, Wednesday 11:59PM
Catingub, Shannelien Mae	Revision of ERD	October 16, 2024, Wednesday 11:59PM
Daduya, Erika Alessandra	Revision of ERD	October 16, 2024, Wednesday 11:59PM

Conclusion/s

We are finishing the revision of ERD based on our adviser's comment/feedback.

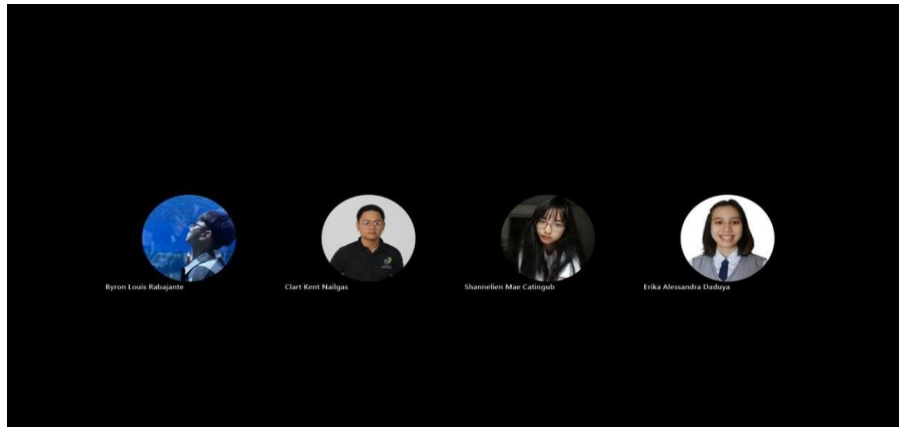
Link/s

Link to recording: N/A

8th Meeting for MSYADD1

October 18, 2024 || **Time Start:** 10:50 A.M. >> **Time End:** 11:30 A.M.

Patient Record Interactive Management System (PRIMS) The Patient Record and Interaction Management System, also known as PRIMS, project at Asia Pacific College's Clinic is designed to streamline healthcare access for students and faculty. By enabling effortless appointment scheduling with nurses and managing clinic inventory, PRIMS aims to enhance the efficiency and effectiveness of healthcare services on campus.



Screenshot from the start of the meeting

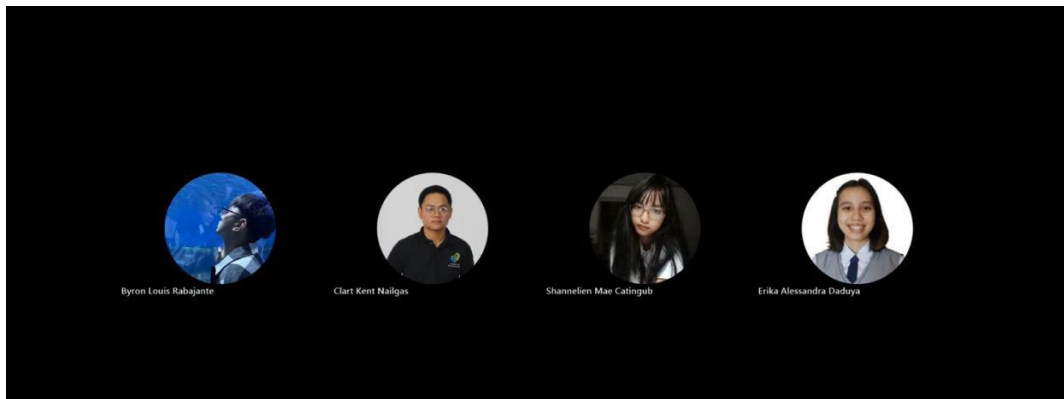
Meeting Facilitator: Clart Kent Nailgas	
Secretary (Assigned to take the meeting minutes): Shannelien Mae Catingub	
List of attendees	Roles
Rabajante, Byron	PROJECT LEAD
Nailgas, Clart Kent	PRESENTATION LEAD
Catingub, Shannelien Mae	DOCUMENTATION LEAD
Daduya, Erika Alessandra	PROGRAMMING LEAD

Agenda/s

Agenda No.	Discussion
Agenda 01	Creation of Mock Presentation for Adviser
Agenda 02	Revision of Diagrams and Use Case base on Panelists Comments
Agenda 03	Continuation of ERD

Action/s

Name of assigned person	Task/s	Deadline
Rabajante, Byron	Revision of Activity Diagrams. Created a mock presentation deck.	October 24, 2024, Thursday 11:59PM
Nailgas, Clart Kent	Revision of ERD & DFD. Created a mock presentation deck.	October 24, 2024, Thursday 11:59PM
Catingub, Shannelien Mae	Revision of Activity Diagrams. Created a mock presentation deck.	October 24, 2024, Thursday 11:59PM
Daduya, Erika Alessandra	Revision of UCD & DFD. Created a mock presentation deck.	October 24, 2024, Thursday 11:59PM



Screenshot from the end of the meeting

Conclusion/s

We plan to present a mock presentation to our adviser on Wednesday before we present our final presentation on Friday.

Link/s

Link to recording: [Click here](#)