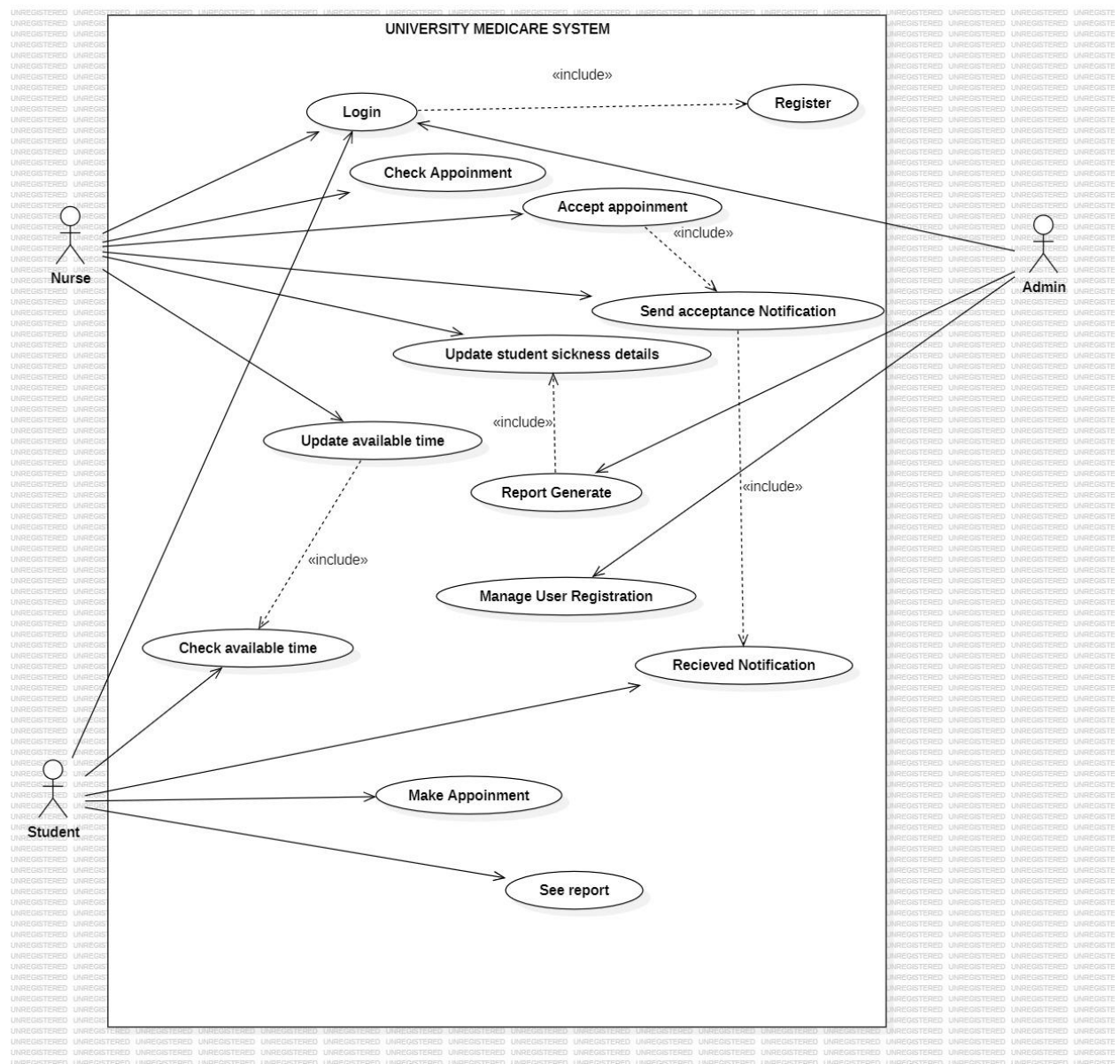




**FACULTY OF TECHNOLOGY UNIVERSITY OF COLOMBO**  
**DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY**  
**IC 2303 - Agile Software Development**

**UNIVERSITY MEDICARE SYSTEM USECASE DIAGRAM**



### Group Members

1. E.M.Prabhath Lakshitha - 2022t01527
2. Navodya D.D.A. - 2022t01556
3. S.Y.T.Hansani - 2022t01536
4. W.M.N.U.Wickramaarachchi - 2022t01585
5. Sewwandi D.M. - 2022t01578



# **University of Colombo**

Faculty of Technology

Department of ICT

**IC 2303 - Agile Software Development(21/22)**

## **UNIVERSITY MEDICARE SYSTEM**

### **Group Members**

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# 1.Epic Story Cards

2. As a Student, I want to book and manage medical appointments so that I can receive timely healthcare services.
3. As a Nurse, I want to manage and update appointment details so that I can ensure students receive proper medical care.
4. As an Admin, I want to manage users and system notifications so that I can ensure smooth operations of the Medicare system.

## 2. Features for Each Epic Story Card

### **Epic 1: Student Appointment Management**

1. Check Available Time
2. Make Appointment
3. See Report

### **Epic 2: Nurse Appointment & Medical Data Management**

1. Check Appointment
2. Accept Appointment
3. Update Available Time
4. Update Student Sickness Details
5. Generate Reports

### **Epic 3: Admin System Management**

1. Manage User Registration
2. Send Acceptance Notification
3. Receive Notifications

### 3. User Stories and tasks for each feature

#### Epic 1: Student Appointment Management

##### Feature 1: Check Available Time

1. **User Story 1:** As a student, I want to view available appointment slots so that I can plan my visit accordingly.

**Tasks:**

- Design and develop a UI to display available time slots.
- Implement a backend function to fetch available slots from the database.
- Ensure real-time updates when an appointment is booked.

2. **User Story 2:** As a student, I want to filter available time slots based on my preferred date so that I can quickly find a suitable time.

**Tasks:**

- Add a date filter to the UI for selecting preferred time slots.
- Implement backend logic to fetch filtered results.
- Test filtering functionality for accuracy and performance.

3. **User Story 3:** As a student, I want to receive notifications when a slot becomes available so that I can book an earlier appointment if needed.

**Tasks:**

- Implement a waitlist feature where students can opt to be notified.
- Develop a notification system (email/SMS) for available slots.
- Ensure notifications are sent only for relevant slots based on preferences.

## **Feature 2: Make Appointment**

1. **User Story 4:** As a student, I want to book an appointment online so that I can receive medical consultation without delays.

### **Tasks:**

- Develop an appointment booking UI with required fields.
- Implement a backend API to store bookings in the database.
- Add appointment validation to prevent double booking.

2. **User Story 5:** As a student, I want to cancel or reschedule my appointment so that I can adjust my plans if needed.

### **Tasks:**

- Create a cancellation/reschedule button in the UI.
- Implement backend logic to modify or delete appointments.
- Ensure that rescheduling updates the available time slots dynamically.

3. **User Story 6:** As a student, I want to receive an email or SMS confirmation after booking so that I have proof of my appointment.

### **Tasks:**

- Integrate an email/SMS notification service.
- Create a confirmation template with appointment details.
- Ensure notifications are sent immediately after booking.

## **Feature 3: See Report**

1. **User Story 7:** As a student, I want to access my medical reports securely so that I can review my health history.

### **Tasks:**

- Implement user authentication for secure access.
- Develop a UI for students to view their reports.
- Encrypt medical reports to ensure data privacy.

2. **User Story 8:** As a student, I want to download my reports in PDF format so that I can share them with other doctors if needed.

**Tasks:**

- Develop a backend function to generate reports in PDF format.
- Add a "Download Report" button to the UI.
- Ensure downloaded reports maintain their original formatting.

3. **User Story 9:** As a student, I want to receive a notification when a new report is available so that I don't have to keep checking manually.

**Tasks:**

- Implement a notification system for new reports.
- Develop a dashboard alert for newly uploaded reports.
- Ensure notifications are sent via email and system alerts.

## **Epic 2: Nurse Appointment & Medical Data Management**

### **Feature 4: Check Appointment**

1. **User Story 10:** As a nurse, I want to see a list of upcoming appointments so that I can prepare for my consultations.

**Tasks:**

- Develop an appointment list view with date and time details.
- Implement backend logic to fetch upcoming appointments.
- Ensure data updates dynamically when new appointments are added.

2. **User Story 11:** As a nurse, I want to filter appointments by student name or date so that I can quickly find relevant bookings.

**Tasks:**

- Add search and filter options in the UI.
- Optimize database queries for fast filtering.
- Test different filter criteria for accuracy.

3. **User Story 12:** As a nurse, I want to mark an appointment as completed so that I can keep track of treated students.

**Tasks:**

- Develop a "Mark as Completed" button in the UI.
- Update the database to store appointment status.
- Send notifications to students when their appointment is completed.

## **Feature 5: Accept Appointment**

1. **User Story 13:** As a nurse, I want to accept or reject student appointments so that I can manage my workload.

**Tasks:**

- Implement an approval/rejection option in the UI.
- Develop backend logic to update appointment status.
- Notify students when their appointment is accepted or rejected.

2. **User Story 14:** As a nurse, I want to leave a note when rejecting an appointment so that students understand why.

**Tasks:**

- Add a text field for rejection reasons.
- Ensure rejection messages are stored and visible to students.
- Send rejection reasons via email/SMS notifications.

3. **User Story 15:** As a nurse, I want to receive notifications when a new appointment is booked so that I can review them promptly.

**Tasks:**

- Implement a push notification system for new bookings.
- Create a dashboard alert for pending approvals.
- Ensure notifications include student details and requested time.



## Feature 6: Update Available Time

1. **User Story 16:** As a nurse, I want to update my available slots so that students can book appointments according to my schedule.

### Tasks:

- Develop an interactive calendar UI for setting availability.
- Implement backend logic to save and update availability.
- Ensure changes reflect in the student booking system.

2. **User Story 17:** As a nurse, I want to set break times in my schedule so that I can manage my workload effectively.

### Tasks:

- Add an option in the scheduling interface for nurses to define break times.
- Implement logic to block appointment slots during breaks.
- Ensure break times are visually distinct in the scheduling UI.
- Send notifications to students if their booked slot overlaps with a newly set break.
- Test break time functionality with different scheduling patterns.

3. **User Story 18:** As a nurse, I want to temporarily disable bookings for a specific day so that I can handle emergencies or workload changes.

### Tasks:

- Implement a toggle feature to disable bookings for selected days.
- Ensure disabled days are reflected in the student booking interface.
- Notify students who have existing bookings on the disabled day.
- Create an override function for admins in case of errors.
- Test the disabling feature to ensure it works without affecting other dates.
- Tasks for Feature

## Feature 7: Update Student Sickness Details

1. **User Story 19:** As a nurse, I want to record a student's sickness details so that we have a medical history for future reference.

### Tasks:

- Design a structured form for recording student sickness details.
- Implement backend storage for sickness records linked to student profiles.
- Ensure records can be retrieved and updated when needed.
- Add validation to ensure accurate data entry.
- Test the sickness recording system with different user inputs.

2. **User Story 20:** As a nurse, I want to attach prescriptions or treatment notes so that students can follow medical advice properly.

### Tasks:

- Add file upload functionality for prescriptions and treatment notes.
- Implement a secure storage system for medical document attachments.
- Ensure students can view and download their prescriptions.
- Set access permissions so only authorized personnel can modify records.
- Test the file upload and retrieval system for different file formats.

3. **User Story 21:** As a nurse, I want to update a student's health record if new symptoms appear so that their medical history remains accurate.

### Tasks:

- Implement an edit function for updating student health records.
- Track version history for changes made to health records.
- Ensure students and admins receive notifications of significant updates.
- Create an audit log to track who modified records and when.
- Test the update system to handle concurrent modifications.
- Tasks for Feature

## Feature 8: Generate Reports

4. **User Story 22:** As a nurse, I want to generate reports on student health trends so that I can analyze recurring issues.

### Tasks:

- Implement a report generation module with filters for health trends.
- Design visual charts and graphs for easier data interpretation.
- Ensure data aggregation from multiple student records for trend analysis.
- Provide sorting and filtering options to refine report insights.
- Test report accuracy using sample health records.

5. **User Story 23:** As a nurse, I want to export reports to Excel or PDF so that I can share them with administrators.

### Tasks:

- Implement an export functionality for reports in Excel and PDF formats.
- Ensure correct formatting of exported reports for readability.
- Add a download button in the nurse's dashboard for quick access.
- Test file generation for different report sizes and formats.
- Optimize report generation speed for large datasets.

6. **User Story 24:** As a nurse, I want to receive an automatic monthly summary report so that I can review overall health patterns.

### Tasks:

- Develop an automated system to compile monthly summary reports.
- Schedule reports to be generated and sent at the beginning of each month.
- Ensure reports are emailed to designated recipients (nurses, admins).
- Add an option for manual report generation on demand.
- Test the scheduling and email delivery of reports.

## **Epic 3: Admin System Management**

### **Feature 9: Manage User Registration**

1. **User Story 25:** As an admin, I want to register new students and nurses so that they can use the system.

#### **Tasks:**

- Develop a registration form for users.
- Implement backend logic for account creation.
- Send confirmation emails after successful registration.

2. **User Story 26:** As an admin, I want to deactivate user accounts if necessary so that we can maintain security.

#### **Tasks:**

- Add a deactivation option in the admin panel.
- Implement database logic to disable accounts without deleting data.
- Notify users when their accounts are deactivated.

3. **User Story 27:** As an admin, I want to reset user passwords upon request so that users can regain access if they forget their credentials.

#### **Tasks:**

- Develop a password reset request form.
- Implement email verification for password reset.
- Ensure passwords are encrypted before storage.

### **Feature 10: Send Acceptance Notification**

1. **User Story 28:** As an admin, I want to send appointment confirmations to students so that they know their appointment is approved.

#### **Tasks:**

- Automate email/SMS notifications for approvals.
  - Ensure confirmations include appointment details.
  - Store notification logs for tracking.
2. **User Story 29:** As an admin, I want to send reminders about upcoming appointments so that students don't forget them.

**Tasks:**

- Develop an automated reminder system.
- Configure reminder timing (e.g., 24 hours before).
- Allow users to customize reminder settings.

## **Feature 11: Receive Notifications**

1. **User Story 31:** As an admin, I want to receive notifications when a nurse updates student health records so that I stay informed.

**Tasks:**

- Implement admin notification system.
- Ensure updates include timestamp and responsible nurse.
- Allow admins to filter notifications by category.

2. **User Story 32:** As an admin, I want to receive alerts if a nurse's schedule changes so that I can manage student expectations.

**Tasks:**

- Develop a schedule tracking system to log changes made by nurses.
- Implement a real-time notification mechanism for schedule updates.
- Ensure notifications are categorized based on urgency (e.g., schedule change, cancellation).
- Add a feature for admins to acknowledge or respond to schedule changes.
- Implement a weekly summary report of schedule modifications.
- Test alert delivery via email, push notifications, and dashboard alerts.

3. **User Story 33:** As an admin, I want to track system activity (e.g., new user registrations, cancellations) so that I can monitor system health.

**Tasks:**

- Implement a logging system to track key system activities (registrations, cancellations, etc.).
- Develop an admin dashboard widget to display recent system activity.
- Ensure logs include timestamps, user roles, and action types.
- Implement filters for admins to sort activities by type (e.g., appointments, user actions).
- Create an export feature for downloading activity logs in CSV/PDF format.
- Set up automated alerts for critical activities (e.g., mass cancellations).
- Test the activity tracking system under different scenarios to ensure accuracy.



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**IC 2303 - Agile Software Development (21/22)**

**Refined/Groomed Product Backlog – University Medicare System**

**Group members**

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- 3. S.Y.T.Hansani - 2022t01536**
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ID	User Story	Priority	Story Points	Status
US 01	As a student, I want to book, cancel, or reschedule appointments online so that I can manage my bookings flexibly.	High	8	In progress
US 02	As a nurse, I want to manage my schedule, including setting breaks and disabling specific days, so that students can book appointments accordingly.	High	8	In progress
US 03	As a nurse, I want to record and update student sickness details with the ability to modify records as symptoms change.	High	8	In progress
US 04	As a nurse, I want to generate and export reports on student health trends in Excel or PDF format for administrative review.	High	8	In progress
US 05	As a student, I want to view and filter available appointment slots based on my preferred date so that I can plan my visit accordingly.	Medium	5	To do
US 06	As a student, I want to receive notifications when an appointment is confirmed or a slot becomes available so that I can stay informed and act promptly.	Medium	5	To do
US 07	As a nurse, I want to view, filter, and manage upcoming appointments by student name or date so that I can stay organized.	Medium	5	To do
US 08	As an admin, I want to register students and nurses so that they can use the system.	Medium	5	To do
US 09	As an admin, I want to receive notifications when a nurse updates student records or changes their schedule so I stay informed.	Medium	5	To do



US 10	As a nurse, I want to accept, reject (with reason), or mark appointments as completed so that I can control my workload and keep track of treated students.	Medium	5	To do
US 11	As an admin, I want to send appointment confirmations and reminders to students so that they're aware of upcoming visits.	Medium	5	To do
US 12	As a nurse, I want to attach prescriptions or treatment notes to student records so that students can follow medical advice.	Medium	5	To do
US 13	As an admin, I want to track system activity (e.g., registrations, cancellations) so that I can monitor usage.	Medium	5	To do
US 14	As an admin, I want to monitor and manage user activity logs to ensure smooth operations and accountability.	Medium	5	To do
US 15	As a student, I want to securely access and download my medical reports in PDF format so that I can review and share my health history.	Medium	5	To do
US 16	As a nurse, I want to receive a monthly summary report automatically so that I can review overall health patterns.	Medium	5	To do
US 17	As a nurse, I want to receive notifications when new appointments are booked so that I can review them promptly.	Low	3	To do
US 18	As a student, I want to be notified when a new health report is available so that I don't have to keep checking manually.	Low	3	To do
US 19	As an admin, I want to deactivate accounts or reset passwords upon request so that security and access are properly managed.	Low	3	To do
US 20	As a student, I want to receive email or SMS confirmations after booking so that I have a record of my appointment.	Low	3	To do



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**IC 2303 - Agile Software Development (21/22)**  
**Product Roadmap – University Medicare System**

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### **Sprint Timeline:**

- Sprint 1: June 1 – June 14
- Sprint 2: June 15 – June 28
- Sprint 3: June 29 – July 12

### **Epic: Appointment Management**

<b>Capability (features)</b>	<b>Sprint 1 (Jun 1–14)</b>	<b>Sprint 2 (Jun 15–28)</b>	<b>Sprint 3 (Jun 29–Jul 12)</b>
View & Filter Appointments	View available slots Filter by date	Improve filter UI and response time	-
Book/Cancel/Reschedule	Book appointment	Cancel/Reschedule Receive SMS/Email confirmation	Introduce rescheduling limits and rules
Nurse Scheduling	View nurse availability/ Set break/disable days	Propose new time from nurse	-
Manage Appointments (Nurse)	View appointment list/ Accept/Reject appointments	Mark appointment as completed Filter by name/date	Add appointment notes capability

### **Epic: Student Medical Records**

<b>Capability (features)</b>	<b>Sprint 1 (Jun 1–14)</b>	<b>Sprint 2 (Jun 15–28)</b>	<b>Sprint 3 (Jun 29–Jul 12)</b>
View & Download Reports	Access health history	Download reports (PDF)	UI enhancements for report viewer
Notifications	Notify when a new report is available	-	-
Health Record Management	Record student sickness details	Update sickness record Attach prescriptions	Add tagging for illness types

## Epic: Reporting & Analysis

Capability (features)	Sprint 1 (Jun 1–14)	Sprint 2 (Jun 15–28)	Sprint 3 (Jun 29–Jul 12)
Generate Reports	-	Generate & export reports (PDF/Excel)	Refine data filters and export options
Monthly Summaries	-	-	Automatic monthly report

## Epic: User & System Management

Capability (features)	Sprint 1 (Jun 1–14)	Sprint 2 (Jun 15–28)	Sprint 3 (Jun 29–Jul 12)
User Registration	Admin registers students and nurses	-	-
Notifications for Admin	Nurse updates → Admin notified Schedule changes → Admin alerted	-	-
System Activity Monitoring	Track user activity	-	-
Appointment Reminders	-	Send appointment reminders	-
Account Management	-	Deactivate accounts /Reset passwords	Add role management (e.g. admin/nurse)

# Visual Diagram Of Our University Medicare System’s Road Map

