

Tutor Support System at HCMUT

Assignment's Specification

Ho Chi Minh City University of Technology (HCMUT)

Faculty of Computer Science and Engineering

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This specification follows the structure and conventions used in prior course specifications, adapted to the Tutor Support System context.

Abstract

This report describes the specification and design of a Tutor Support System (TSS) developed to modernize and scale the Tutor/Mentor program at HCMUT. The study investigates how a centralized platform can support tutor and student profiles, tutor-student matching, session scheduling and booking, feedback and progress tracking, and departmental reporting while integrating with existing HCMUT infrastructure (SSO and DATACORE). Requirements engineering (use-case modelling, MoSCoW prioritization) and detailed functional/non-functional analysis were used to derive the system's core capabilities and constraints. The resulting specification defines an MVP that emphasizes secure role-based access control, reliable scheduling and notifications, data synchronization with university sources, and extensible reporting and analytics. We demonstrate that the proposed TSS design meets performance, security, and usability targets for campus deployment and provides clear upgrade paths for optional AI-assisted matching and community features. This work contributes a complete, submission-ready specification that enables HCMUT to implement a practical, auditable tutoring platform that improves student support and administrative decision-making.

Keywords: Tutor Support System, tutor–student matching, scheduling & booking, role-based access control, HCMUT SSO integration, reporting

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1 Assignment's outcome

Upon completion of this assignment, students will be able to:

- Identify stakeholders, roles, objectives, and scope for a university-scale information system.
- Specify functional and non-functional requirements clearly and traceably.
- Model core use-cases for tutoring workflows (registration, matching, booking, feedback).
- Define system integration touchpoints with HCMUT infrastructure (SSO, Data-Core, Library).
- Produce a consistent, submission-ready specification document in L^AT_EX.

2 Introduction

HCMUT requires a platform to support students in their academic and skills development journey. The **Tutor Support System (TSS)** will modernize the management of the Tutor/Mentor program, enabling scalable operations and data-driven improvement across departments.

3 Description

3.1 Stakeholders, Roles, and Expectations

3.1.1 Stakeholders

Stakeholders are individuals or entities who can affect or are affected by the project outcomes.

Primary: HCMUT staff (customer), course instructors (project managers), development team, designers.

Secondary: Students (end-users), tutors, government, competitors.

Stakeholders may be internal (within HCMUT: Office of Academic Affairs, Office of Student Affairs, departments) or external (students, tutors).

3.1.2 Roles

Roles are permissions and capabilities within the system: Student, Tutor, Coordinator, Department Chair, Program Administrator.

3.1.3 Expectations

Each role expects secure access, clear workflows, and reliable performance. Students expect easy registration and booking; tutors expect manageable scheduling; administrators expect robust reporting.

3.2 Objectives and Scope

Objectives Design and develop an efficient, secure, and scalable software supporting the Tutor/Mentor program:

- Manage tutor/student information (profiles, expertise, support needs).
- Enable registration, selection or automated matching.
- Support scheduling, booking, cancellation, rescheduling (online or in-person).
- Provide progress tracking, feedback, evaluation.
- Generate reports for departments and offices to optimize resources and recognition.
- Integrate with HCMUT SSO/DataCore/Library for consistency and security.

Scope This specification covers:

- Core features: profile management, matching, scheduling, notifications, feedback, reporting.
- Integrations: HCMUT_SSO (auth), HCMUT_DATACORE (personal data), HCMUT_LIBRARY (learning resources).
- Roles: Student, Tutor, Coordinator, Department Chair, Program Admin (RBAC).

Out of Scope (MVP): Full production DB, advanced AI features (smart matching, personalization), external integrations beyond HCMUT.

4 Functional Requirements

4.1 Functional Requirements List

The following table summarizes the functional requirements of the Tutor Support System. Requirements are grouped into thematic categories to ensure clarity and traceability.

Prioritization Method: In this project, we applied the MoSCoW prioritization technique to classify functional requirements. This method categorizes requirements into four levels:

- Must: Essential for the system to function; without them, the system fails to meet its objectives.
- Should: Important but not vital; the system can still operate without them in the first release.
- Could: Desirable enhancements that improve usability or efficiency if time/resources allow.
- Won't (this time): Explicitly excluded from the current scope, possibly considered for future releases.

This approach ensures clarity in requirement importance and helps manage project scope effectively.

4.2 User & Information Management (FR-UM)

• FR-UM.01 – Profile

- *Description:* The system shall allow students and tutors to view and update their personal profiles, with core information (name, student ID, email, role, faculty/major) synchronized from the university's database.
- *Acceptance Criteria:*

- * Profiles automatically include core fields (name, student ID, email, role, faculty/major) synced from the university database; users are not required to manually enter these fields.
- * Profile changes are timestamped and stored.
- *Priority:* Must
- **FR-UM.02 – Role-based Access Control**
 - *Description:* The system shall enforce role-based access control to regulate permissions for students, tutors, coordinators, department heads, and administrators.
 - *Acceptance Criteria:*
 - * Each role has defined permissions.
 - * Unauthorized access attempts are logged.
 - *Priority:* Must

4.3 Tutor–Student Matching (FR-MAT)

- **FR-MAT.01 – Manual Tutor Selection**
 - *Description:* The system shall allow students to register for the tutoring program.
 - *Acceptance Criteria:*
 - * Students can successfully submit a registration request to join the tutoring program.
 - *Priority:* Must
- **FR-MAT.02 – Manual Tutor Selection**
 - *Description:* The system shall allow students to search for and manually select tutors based on expertise, availability, and preferences. Core tutor information (subject, department, schedule) is synchronized from the university database, while teaching preferences are provided by tutors.
 - *Acceptance Criteria:*
 - * Students can filter tutors by at least three criteria (e.g., subject, availability, preferences).
 - * Selection creates a pending match awaiting tutor confirmation.
 - *Priority:* Must
- **FR-MAT.03 – Smart Matching**
 - *Description:* The system shall provide automated tutor–student matching using predefined criteria such as subject, availability, and tutor workload. Matching relies on synchronized data from DATACORE combined with tutor-specified preferences.
 - *Acceptance Criteria:*
 - * System generates a ranked list of tutors with explanation of matching factors.
 - * Confirmation from both tutor and student finalizes the match.

- *Priority*: Should
- **FR-MAT.04 – Coordinator Assignment**
 - *Description*: The system shall allow coordinators, department chairs, or administrators to manually assign tutors to students when necessary, overriding automated or student-selected matches.
 - *Acceptance Criteria*:
 - * Only authorized roles can assign tutors.
 - * Manual assignment overrides previous matches.
 - * Assignment details (who, when, reason) are logged and traceable.
 - *Priority*: Must

4.4 Session & Scheduling Management (FR-SCH)

- **FR-SCH.01 – Tutor Availability**
 - *Description*: The system shall allow tutors to set and manage their availability for consultation sessions, synchronized with official university timetables where applicable.
 - *Acceptance Criteria*:
 - * Only tutors can create, edit, and delete available slots.
 - * The system prevents overlapping slots.
 - * Slots cannot conflict with official class schedules imported from DATA-CORE.
 - *Priority*: Must
- **FR-SCH.02 – Session Booking**
 - *Description*: The system shall allow students to book in-person or online sessions with tutors based on available slots.
 - *Acceptance Criteria*:
 - * Booking is allowed only within available tutor slots.
 - * The system prevents double-booking of the same slot.
 - *Priority*: Must
- **FR-SCH.03 – Session Modification**
 - *Description*: The system shall allow students to cancel or reschedule booked sessions.
 - *Acceptance Criteria*:
 - * Cancellation and rescheduling must follow configured rules (e.g., at least 2 hours before session start).
 - * The system ensures new booking adheres to availability and no conflicts.
 - *Priority*: Must
- **FR-SCH.04 – Notifications & Reminders**
 - *Description*: The system shall automatically send notifications and reminders for upcoming sessions or schedule changes.

- *Acceptance Criteria:*
 - * Notification sent immediately upon booking, cancellation, or reschedule.
 - * Reminder sent at least 24h and 1h before session start.
- *Priority:* Must

4.5 Feedback & Progress Tracking (FR-FBK)

- **FR-FBK.01 – Session Feedback**
 - *Description:* The system shall enable students to provide structured feedback for each completed session.
 - *Acceptance Criteria:*
 - * Feedback form is available only after session completion.
 - * Each student can submit one feedback entry per session.
 - * Feedback is linked to session ID and timestamped.
 - *Priority:* Must
- **FR-FBK.02 – Progress Recording**
 - *Description:* The system shall allow tutors to record mentee progress and generate optional summaries after sessions.
 - *Acceptance Criteria:*
 - * Only tutors can log progress, which is linked to session ID.
 - * Summaries may include text notes and optional attachments.
 - * All records are timestamped and stored for reporting.
 - *Priority:* Should

4.6 Reporting & Analytics (FR-RPT)

- **FR-RPT.01 – Departmental Reports**
 - *Description:* The system shall generate reports for academic departments to monitor student learning performance.
 - *Acceptance Criteria:*
 - * Reports include attendance, performance indicators, and session counts.
 - * Data exportable to CSV/PDF.
 - *Priority:* Should
- **FR-RPT.02 – Academic Affairs Overview**
 - *Description:* The system shall provide overview reports for the Office of Academic Affairs to optimize resource allocation.
 - *Acceptance Criteria:*
 - * Reports show tutor workload distribution and student demand trends.
 - * Dashboards update with latest synced data.
 - *Priority:* Should
- **FR-RPT.03 – Student Affairs Outcomes**

- *Description:* The system shall provide summarized participation data for the Office of Student Affairs to support training credits and scholarship considerations.
- *Acceptance Criteria:*
 - * Reports list eligible students based on configured rules.
 - * Calculation rules are transparent and logged.
- *Priority:* Should

4.7 Integration with HCMUT Infrastructure (FR-INT)

- **FR-INT.01 – HCMUT_SSO Integration**
 - *Description:* The system shall integrate with HCMUT_SSO for unified authentication.
 - *Acceptance Criteria:*
 - * Only valid SSO accounts can log in.
 - * Single sign-out follows HCMUT SSO rules.
 - *Priority:* Must
- **FR-INT.02 – DATACORE Synchronization**
 - *Description:* The system shall synchronize core personal and academic data from HCMUT_DATACORE.
 - *Acceptance Criteria:*
 - * Sync occurs periodically or near real-time.
 - * Conflicts resolved with DATACORE as source of truth.
 - *Priority:* Must
- **FR-INT.03 – Role assignment**
 - *Description:* The system shall automatically assign roles (student, tutor, coordinator, department chair, administrator) based on centralized HCMUT role data.
 - *Acceptance Criteria:*
 - * System assigns roles upon login via SSO.
 - * Role updates in DATACORE are reflected in the system within defined sync intervals.
 - *Priority:* Must
- **FR-INT.04 – Library Resource Linking**
 - *Description:* The system shall connect with HCMUT_LIBRARY to allow tutors and students to share relevant materials.
 - *Acceptance Criteria:*
 - * Users can attach library resources to sessions or summaries.
 - * Access permissions follow HCMUT library rules.
 - *Priority:* Could

4.8 Advanced / Optional Features (FR-ADV)

These features are not mandatory for the MVP but can enhance the Tutor Support System if resources permit:

- **FR-ADV.01 – Intelligent Matching (AI Integration)**

- *Description*: The system may leverage AI techniques to optimize tutor-student pairing by analyzing multiple factors such as performance history, learning style, and tutor workload.
- *Acceptance Criteria*:
 - * AI suggestions ranked with justification.
 - * Users can compare AI suggestion with manual choice.
- *Priority*: Optional

- **FR-ADV.02 – Online Community Platform**

- *Description*: The system may provide a forum or community space where tutors and students can exchange resources, discuss topics, and collaborate outside formal sessions.
- *Acceptance Criteria*:
 - * Users can create discussion threads and share files.
 - * Moderation tools available for coordinators.
- *Priority*: Optional

- **FR-ADV.03 – Personalized Learning Support**

- *Description*: The system may use AI-driven recommendations to suggest learning materials, exercises, or tutoring approaches tailored to individual students.
- *Acceptance Criteria*:
 - * Recommendations adapt to student's history and feedback.
 - * Users can accept or reject suggestions.
- *Priority*: Optional

- **FR-ADV.04 – Multi-Program Tutoring**

- *Description*: The system may support both academic tutoring (courses, skills) and non-academic mentoring (career guidance, soft skills).
- *Acceptance Criteria*:
 - * System allows defining and tracking multiple tutoring program types.
 - * Reports distinguish between academic and non-academic activities.
- *Priority*: Optional

4.9 Non-interactive Functional Requirements (FR-NI)

- **FR-NI-01 – Automatic Notifications**

- *Description*: The system shall automatically send confirmation, reminder, and cancellation/rescheduling notifications to students and tutors without manual intervention.
- *Priority*: Must

- **FR-NI-02 – DataCore Sync**

- *Description:* The system shall periodically synchronize personal data (name, ID, faculty, email, status) from HCMUT_DATACORE.
- *Trigger:* Hourly schedule + on change-webhook
- *Output:* Up-to-date user records with change log
- *Acceptance Criteria:* $\geq 99\%$ updates reflected within 10 minutes of source change.
- *Priority:* Must

- **FR-NI-03 – Automatic Inactive Detection**

- *Description:* The system should detect logged-in accounts with no activity for a specific period of time and log them out to maintain stability and security.
- *Acceptance Criteria:*
 - * The system saves the state of the inactive account before logging out.
 - * The threshold for inactive time is dynamic, depending on the state of the system.
- *Priority:* Optional

- **FR-NI-04 – Scheduled Database Cleanup**

- *Description:* The system shall automatically perform database cleanup on a scheduled basis, removing obsolete temporary data, expired logs, and error records to maintain storage efficiency and system performance.
- *Acceptance Criteria:*
 - * Temporary data and logs older than 12 months are automatically deleted or archived.
 - * Cleanup runs during off-peak hours to avoid disruption.
 - * A cleanup summary report (records removed, storage freed) is logged.
 - * Cleanup failures trigger an alert for administrators.
- *Priority:* Should

- **FR-NI-05 – Disaster Recovery & Backup**

- *Description:* The system shall maintain automated backup and disaster recovery mechanisms to ensure data resilience and continuity in case of failure or outage.
- *Acceptance Criteria:*
 - * Full backups daily; incremental backups every 15 minutes.
 - * Backups encrypted and stored in two geographically separate locations.
 - * RPO ≤ 15 minutes, RTO ≤ 4 hours.
 - * Backup integrity verified after each operation.
 - * Failed backups trigger administrator alerts.
- *Priority:* Should

- **FR-NI-06 – Attendance Logging**

- *Description:* The system shall automatically mark attendance when a student

joins an online tutoring session via the platform.

- *Acceptance Criteria:*
 - * Attendance log created within 1 minute of session start.
 - * Logs include session ID, student ID, timestamp.
- *Priority:* Should

5 Non-Functional Requirements

5.1 Performance Requirements

- NFR1: Concurrent Users: The system shall handle at least **1000 concurrent users** without degradation, verified by load testing.
- NFR2: Response Time: 95% of key actions (login, enrollment, course access, page load) shall complete within **3 seconds** under normal load.
- NFR3: Real-Time Notifications: Notifications (reminders, announcements, deadlines) shall be delivered within **2 seconds** of the triggering event in 95% of cases.

5.2 Security & Reliability Requirements

- NFR4: Data Encryption: All personal and academic data shall be encrypted at rest with **AES-256** and in transit with **TLS 1.2 or higher**.
- NFR5: Access Control & Logging: 100% of authentication and access attempts shall be logged and retained for at least **90 days**.
- NFR6: Uptime: The system shall provide at least **99% uptime** during the academic year (excluding scheduled maintenance), monitored monthly.
- NFR7: Data Integrity: Recovery testing shall confirm **zero data loss** during transient failures; operations shall be idempotent.

5.3 Usability & Accessibility Requirements

- NFR8: User Interface: Usability testing (System Usability Scale) shall achieve a score of at least **80/100**.
- NFR9: Task Simplicity: Key workflows (course enrollment, submission, reschedule) shall require **no more than 3 steps**.
- NFR10: Multi-Platform Support: The system shall function correctly on at least **3 major browsers** (Chrome, Firefox, Edge) and on **desktop, tablet, and smartphone**.
- NFR11: Accessibility Standards: The system shall meet **WCAG 2.1 AA** accessibility compliance.

5.4 Software Quality Attributes

- NFR12: Scalability: The system shall support a **50% increase in users** beyond baseline load without major reconfiguration.

- NFR13: Maintainability: The codebase shall achieve at least **80% unit test coverage** and pass linting with no critical errors.
- NFR14: Extensibility: Adding a new feature (e.g., adaptive learning, AI tutor matching) shall require no more than **2 person-weeks** of integration effort.
- NFR15: Observability: The system shall provide logs covering **100% of authentication and enrollment events** and collect usage metrics (active users, completed courses) with **5-minute granularity**.

5.5 Business Rules

- NFR16: Legal Compliance: The system shall comply with Vietnamese data protection laws and pass an annual **compliance audit with zero critical findings**.

6 Use-Case View

6.1 General Use-Case Diagram

Placeholder for diagram:

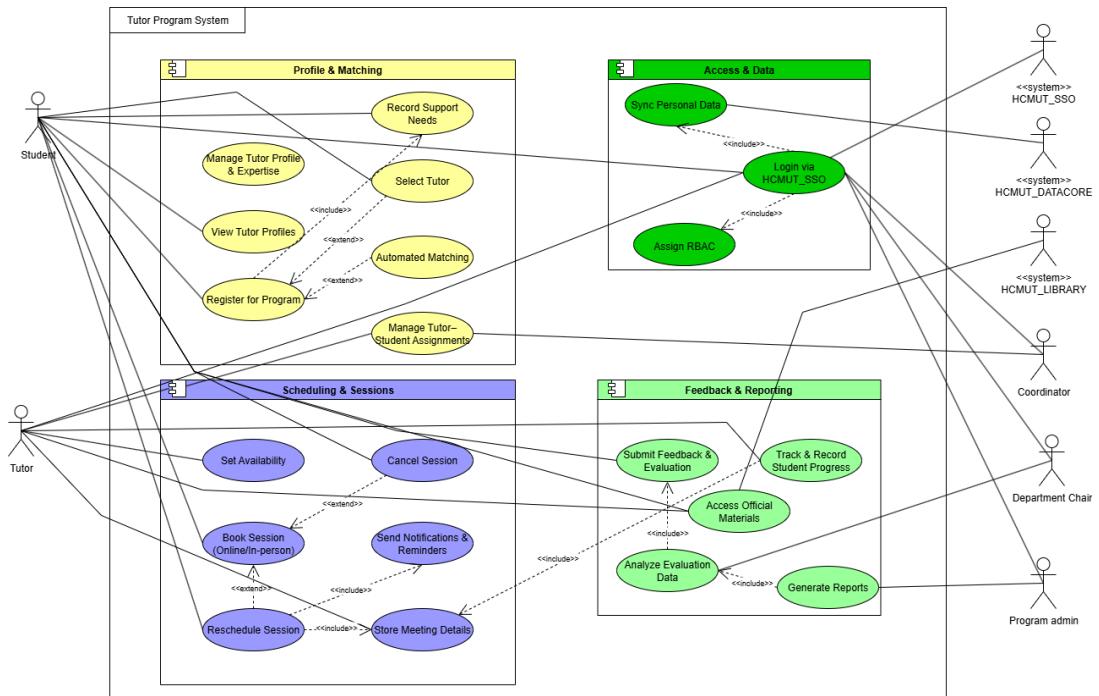


Figure 1: General Tutor program system

6.2 UC-01 Log in & Profile Management

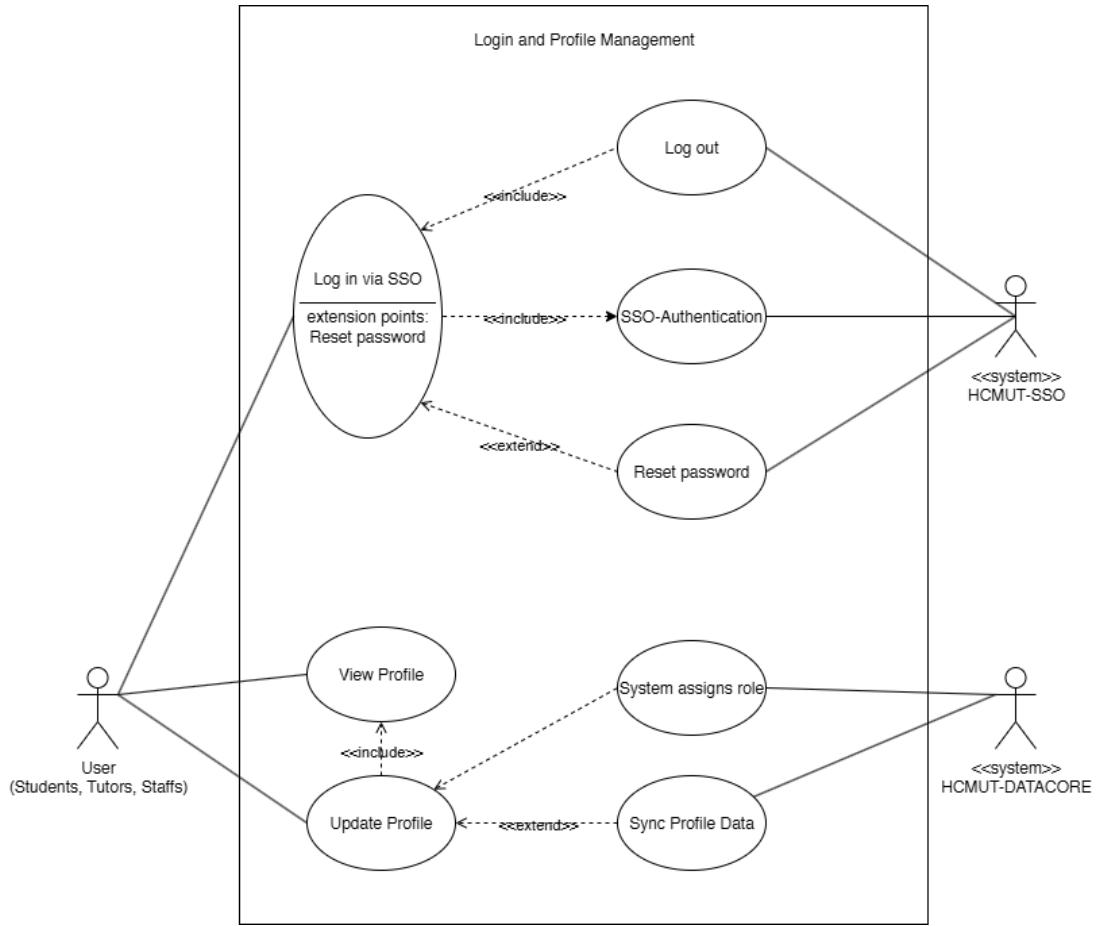


Figure 2: Log in and Manage Profile

Use-case ID	UC-01a
Use-case name	Login via SSO
Use-case overview	To allow students, tutors, and staff to log in securely via HCMUT_SSO with role assignment handled by the system.
Actors	<ul style="list-style-type: none"> Users (Students, Tutors, Staff), HCMUT_SSO, System
Preconditions	<ol style="list-style-type: none"> Users have valid SSO credentials. HCMUT_SSO service is available.
Trigger	User selects the "Login via SSO" option.
Main Flow (Steps)	<ol style="list-style-type: none"> User initiates login via HCMUT_SSO. System sends authentication request to SSO service. HCMUT_SSO validates credentials. On success, the system fetches user data and assigns role. On failure, the system denies access.

Postconditions	<ul style="list-style-type: none"> • User is authenticated and session established. • Role assignment is ready for system use.
Alternative Flows	<ol style="list-style-type: none"> 1. Invalid Login: Invalid login → Access denied with error message. 2. Role Update: Role update in DATACORE synced during login.
Exception Flows	<ul style="list-style-type: none"> • SSO Service Unavailable: SSO service unavailable → System shows maintenance/unavailable message. • Network Error: Network error → User prompted to retry login.

Table 1: Use Case UC-01a: Login via SSO

Use-case ID	UC-01b
Use-case name	Profile Management
Use-case overview	To allow students and tutors to view and update their profiles, with core data synchronized from HCMUT _ DATACORE.
Actors	<ul style="list-style-type: none"> • Student, Tutor, HCMUT _ DATACORE, System
Preconditions	<ol style="list-style-type: none"> 1. Users is authenticated via SSO. 2. Profile data exists in DATACORE.
Trigger	User go to "Profile" page, and or click "Edit" button.
Main Flow (Steps)	<ol style="list-style-type: none"> 1. System retrieves profile information from DATACORE. 2. User views profile fields (ID, name, email, faculty, role). 3. User updates non-core profile details. 4. System validates and saves changes. 5. System syncs updated data with DATACORE.
Postconditions	<ul style="list-style-type: none"> • User profile is updated and synchronized with DATACORE; changes are timestamped and logged.
Alternative Flows	<ol style="list-style-type: none"> 1. DATACORE unavailable: DATACORE unavailable → Updates stored locally until sync resumes.
Exception Flows	<ul style="list-style-type: none"> • Invalid update request: System rejects and shows error. • Sync conflict: DATACORE treated as source of truth.

Table 2: Use Case UC-01b: Profile Management

6.3 UC-02 Tutor-Student Matching

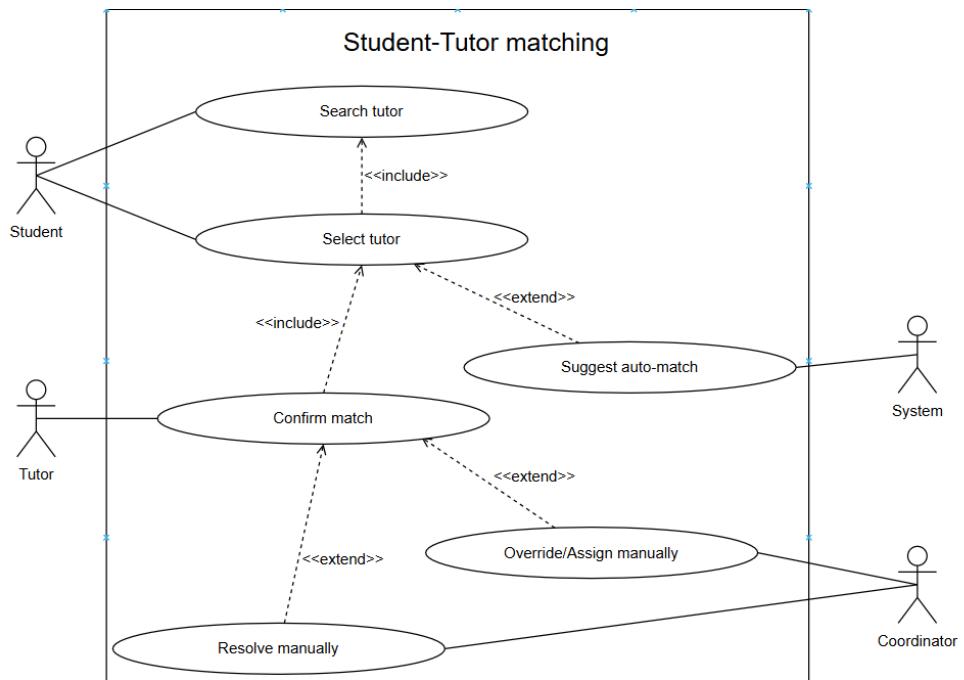


Figure 3: Tutor–Student Matching

Use-case ID	UC-02
Use-case name	Tutor–Student Matching
Use-case overview	To allow students to search and select tutors manually or request an automated match, with tutor confirmation and coordinator intervention when necessary.
Actors	Student (primary), Tutor, Coordinator, System
Preconditions	<ol style="list-style-type: none"> 1. Student and tutor profiles exist in the system. 2. The system is operational and accessible. 3. Student is authenticated in the system.
Trigger	Student initiates a search for tutors or requests an auto-match.
Steps	<ol style="list-style-type: none"> 1. Student searches for tutors by subject, availability, or preferences. 2. Student selects a tutor; a pending match is created. 3. System may suggest an auto-match (ranked list) based on the student's criteria. 4. Tutor reviews the pending match and confirms the match. 5. If confirmed, the system finalizes and logs the pairing.
Postconditions	A tutor–student pairing is established and logged in the system.
Alternative Flows	<ol style="list-style-type: none"> 1. Auto-match rejected by student or tutor → Coordinator resolves manually. 2. No tutors found → System suggests broadening search criteria. 3. Tutor does not respond within time limit → Coordinator is notified to assign a tutor.
Exception Flow	<ol style="list-style-type: none"> 1. Network failure prevents search or confirmation (system prompts user to retry). 2. Tutor or student profile missing/corrupted → System logs an error and notifies Coordinator.

Table 3: Use Case UC-02: Tutor–Student Matching

6.4 UC-03 Session Scheduling Management

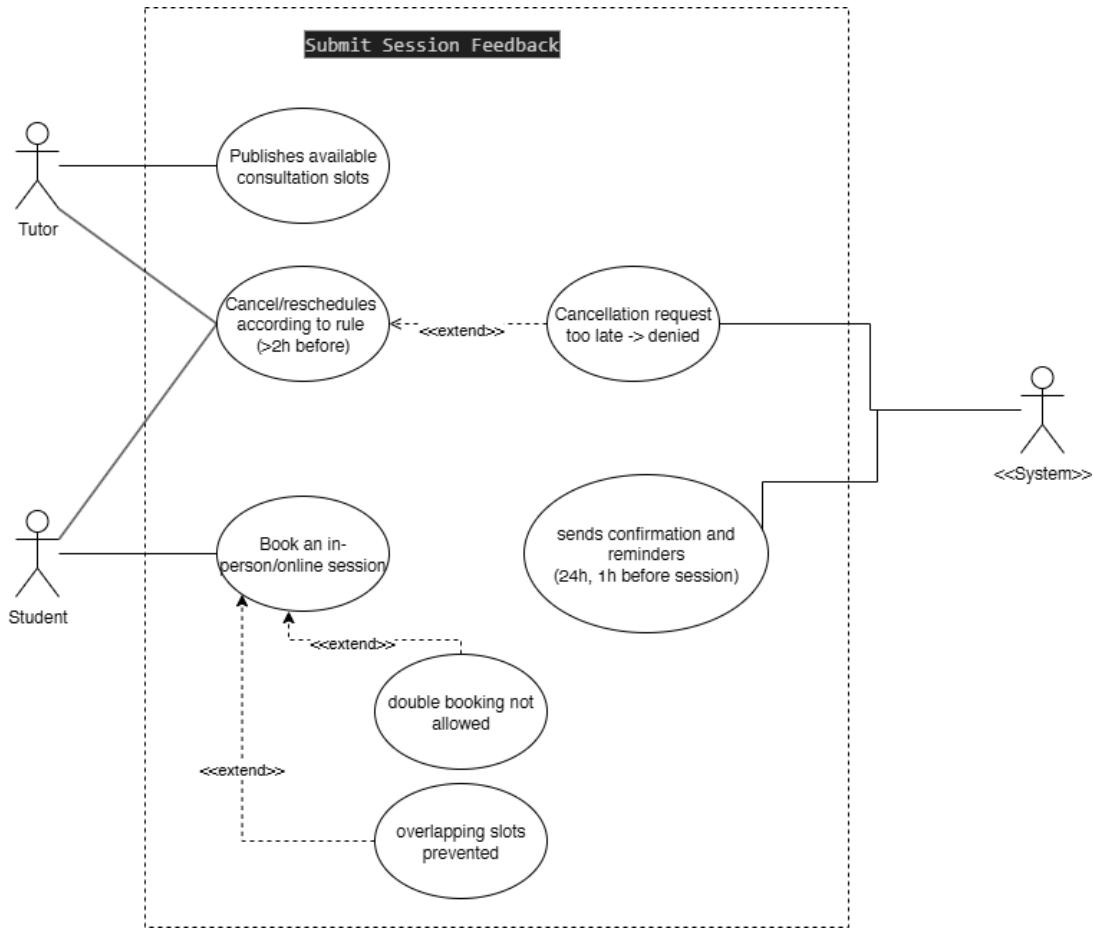


Figure 4: Session Scheduling Management

Use-case ID	UC-03a
Use-case name	Publish and Manage Tutor Availability
Overview	To allow a tutor to create, edit, and manage available consultation slots, while the system prevents overlapping sessions and validates scheduling rules.
Actors	Tutor, System
Preconditions	<ul style="list-style-type: none"> • Tutor is authenticated in the system. • The scheduling database is accessible.
Trigger	Tutor selects “Set Availability” or modifies existing slots.
Main Flow (Steps)	<ol style="list-style-type: none"> 1. Tutor publishes available consultation slots. 2. System checks for overlapping slots. 3. If no conflicts are found, slots are confirmed and saved. 4. Tutor may later edit or delete slots before they are booked.
Postconditions	<ul style="list-style-type: none"> • Valid time slots are stored in the system and visible to students.
Alternative Flows	AF1: Overlapping slot detected → system rejects slot creation and displays conflict message.
Exception Flows	<ul style="list-style-type: none"> • Database or connection error → slot creation aborted, system logs error.

Table 4: Use Case UC-03a: Publish and Manage Tutor Availability

Use-case ID	UC-03b
Use-case name	Session Booking, Reminders, and Cancellation Rules
Overview	To allow a student to book an in-person or online session with a tutor, receive automatic confirmations and reminders, and manage cancellations or reschedules according to defined rules.
Actors	Student, Tutor, System
Preconditions	<ul style="list-style-type: none"> • Tutor has published available slots. • Student is authenticated and matched with a tutor.
Trigger	Student initiates a booking or a cancellation/reschedule request.
Main Flow (Steps)	<ol style="list-style-type: none"> 1. Student views tutor's available consultation slots. 2. Student selects a preferred slot and submits booking. 3. System checks for double booking or slot conflicts. 4. Booking is confirmed, and notifications are sent to student and tutor. 5. System automatically sends reminders (24h and 1h before the session). 6. If cancellation or reschedule is requested $\geq 2h$ before session it is approved.
Postconditions	<ul style="list-style-type: none"> • Session status updated (booked, rescheduled, or cancelled). • All notifications are logged and delivered.
Alternative Flows	<p>AF1: Cancellation request too late ($<2h$ before) → denied with reason.</p> <p>AF2: Tutor unavailable → student notified and slot reopened.</p>
Exception Flows	<ul style="list-style-type: none"> • Network or database failure → transaction aborted, retry suggested.

Table 5: Use Case UC-03b: Session Booking, Reminders, and Cancellation Rules

6.5 UC-04 Feedback & Progress Tracking

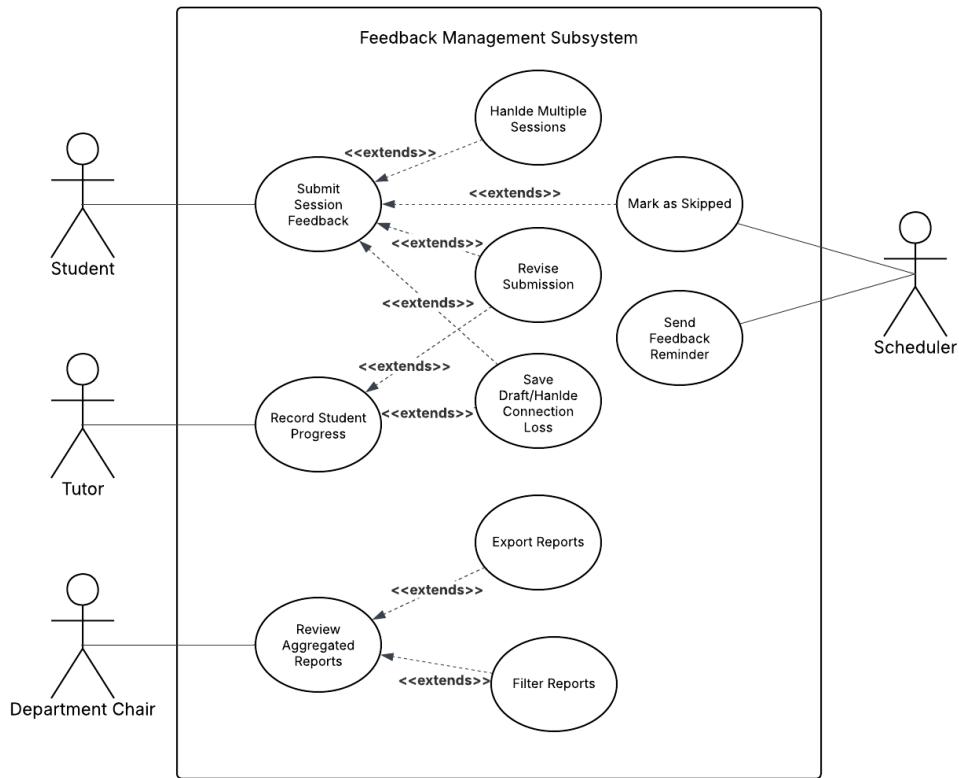


Figure 5: Submit Session Feedback

Use-case ID	UC-04a
Use-case name	Submit Session Feedback
Use-case overview	To allow a student to submit structured feedback after a tutoring session. The feedback is linked to the session and stored for later evaluation and reporting.
Actors	<ul style="list-style-type: none"> • Student (primary) • Scheduler (secondary, for reminders and marking ‘Skipped’)
Preconditions	<ol style="list-style-type: none"> 1. A tutoring session has been completed. 2. The system is running and accessible. 3. Student is authenticated in the system.
Trigger	The student clicks the “Submit Feedback” option after the session is completed.

Main Flow (Steps)	<ol style="list-style-type: none"> 1. System displays a feedback form linked to the completed session. 2. Student fills in and submits the structured feedback. 3. System validates the input and saves the feedback in the database. 4. System links the feedback to the corresponding session.
Postconditions	<ul style="list-style-type: none"> • Feedback is stored in the database and linked to the correct session. • If skipped, the system records a “Feedback Skipped” status for that session. • Data is available for tutors and department chairs in aggregated reports.
Alternative Flows	<ol style="list-style-type: none"> 1. Multiple Session Feedback: If multiple sessions are pending, the system displays a list and allows the student to submit feedback sequentially. 2. Draft Save/Connection Loss: The student may save incomplete feedback as a draft and return later. System automatically saves the draft if connection is lost before final submission. 3. Feedback Revision: Within a defined grace period (e.g., 24h), the student may edit and resubmit feedback; the updated version replaces the original. 4. Skipped Feedback: If no feedback is submitted within the allowed time, the Scheduler triggers a process to mark the session’s feedback status as “Skipped.”
Exception Flows	<ul style="list-style-type: none"> • Database Error: If the system fails to save the final submission due to a database error, it logs the error and prompts the student to retry later. • Missing Session Record: If the session record is missing or corrupted, the system logs an error and notifies the coordinator.

Table 6: Use Case UC-04a: Submit Session Feedback

Use-case ID	UC-04b
Use-case name	Record Student Progress
Use-case overview	To allow tutors to record student progress and optionally add session summaries for reference and tracking purposes.
Actors	Tutor

Preconditions	1. A tutoring session has been completed. 2. The system is running and accessible. 3. Tutor is authenticated in the system.
Trigger	Tutor accesses the session record and selects “Record Progress.”
Steps	1. Tutor opens the specific session record. 2. Tutor enters progress notes and, optionally, a session summary. 3. Tutor submits the record. 4. System validates the input and saves the record, linking it to the session.
Postconditions	1. Student progress and optional session summary are saved. 2. Data is linked to the session and available for departmental review.
Alternative Flows	A1: Optional Summary → Tutor skips writing a session summary (only progress notes are saved). A2: Draft Save / Connection Loss → Tutor may save incomplete notes as a draft; the system auto-saves the draft if the connection is lost. A3: Note Revision → Within a 24-hour grace period, tutor may edit and resubmit notes; the new version replaces the previous record.
Exception Flow	1. Database error → System logs the issue and notifies the tutor to retry. 2. Missing or locked session → System notifies the tutor and logs the error.
Priority	Should

Table 7: Use Case UC-04b: Record Student Progress

Use-case ID	UC-04c
Use-case name	Review Aggregated Reports (Feedback & Progress)
Overview	To allow the department chair to review aggregated feedback and progress data for monitoring tutor performance and program effectiveness.
Actors	Department Chair
Preconditions	1. Feedback and progress records exist in the database. 2. The system is running and accessible. 3. Department Chair is authenticated in the system.
Trigger	Department Chair selects “Aggregated Reports Overview.”

Main Flow (Steps)	<ol style="list-style-type: none"> 1. Department Chair selects report criteria (e.g., date range, tutor, course). 2. System retrieves all relevant feedback and progress data. 3. System processes and displays aggregated statistics, charts, or reports.
Postconditions	<ul style="list-style-type: none"> • Aggregated data is available for decision-making. • Reports may be exported or stored for institutional use.
Alternative Flows	<p>AF1 Filtering: Department Chair filters or drills down data by tutor, course, or specific time period.</p> <p>AF2 Export Report: Department Chair exports the report in a chosen format (e.g., PDF, CSV) for external analysis.</p>
Exception Flows	<ul style="list-style-type: none"> • Database/Retrieval Failure: If database retrieval fails, the system shows a technical error message and logs the issue for system administrators. • No Data: If no data matches the selected criteria, the system displays a clear message: “No data available for this selection.”

Table 8: Use Case UC-04c: Review Aggregated Reports

6.6 UC-05 Reporting & Analytics

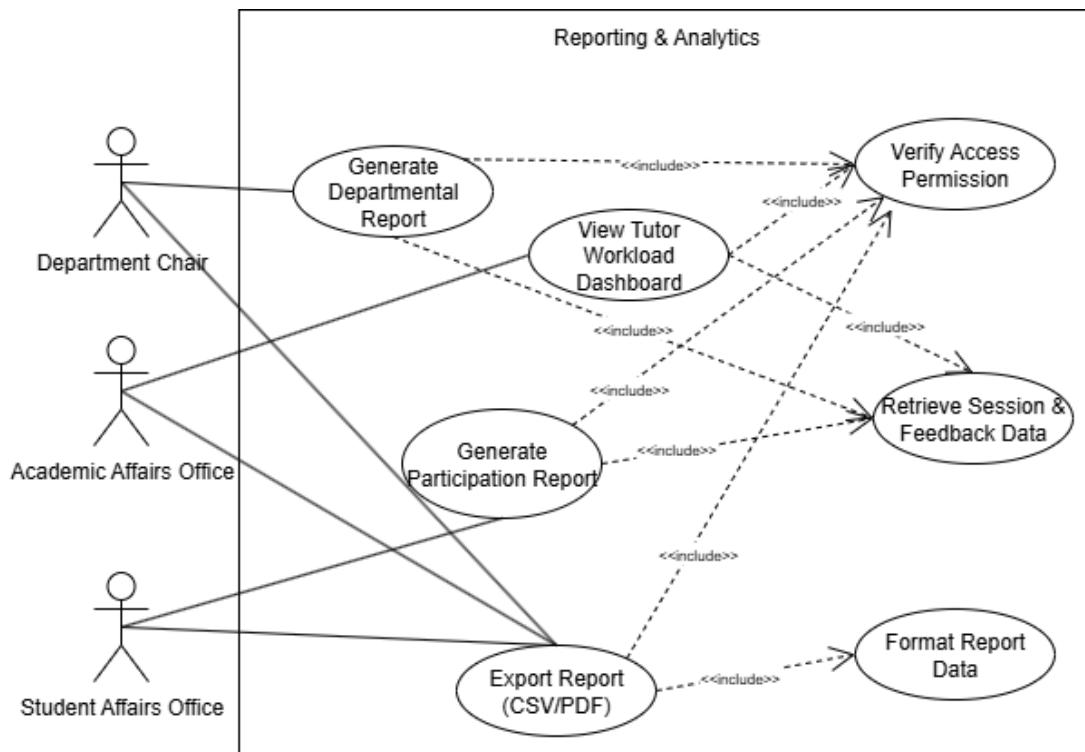


Figure 6: Reporting and Analytics

Use-case ID	UC-05a
Use-case name	Generate Departmental Report
Use-case overview	Department Chair generates a department-level report (attendance, performance, session counts) for academic monitoring and decisions.
Actors	Department Chair
Preconditions	<ol style="list-style-type: none"> 1. Authenticated and authorized to view departmental reports. 2. Sessions, feedback, and (if applicable) progress data exist. 3. System is operational.
Trigger	Chair opens “Reporting” and selects “Departmental Report”.
Steps	<ol style="list-style-type: none"> 1. Set filters (term/date, program/department, tutor/cohort). 2. System retrieves and analyzes metrics (attendance, performance, session counts). 3. System displays tables/charts with data-source notes. 4. Optional: Export CSV/PDF with metadata (generation time, filters, version); log action.
Postconditions	<ol style="list-style-type: none"> 1. Departmental report displayed; optional file generated. 2. Action recorded in the audit log.
Alternative Flows	<ol style="list-style-type: none"> 1. Change filters/scope → system refreshes results.
Exception Flow	<ol style="list-style-type: none"> 1. No data for selected criteria → show “No data available for this selection.” 2. Export error (I/O or size) → suggest narrowing scope or retrying. 3. Data source unavailable → show service notice; allow retry when available.

Table 9: Use Case UC-05a: Generate Departmental Report

Use-case ID	UC-05b
Use-case name	View Tutor Workload Dashboard
Use-case overview	Academic Affairs views tutor workload and student demand to allocate resources effectively.
Actors	Academic Affairs Office
Preconditions	<ul style="list-style-type: none"> 1. Authenticated and authorized for workload dashboards. 2. Sessions/booking and feedback data exist. 3. System is operational.
Trigger	Office opens “Workload & Demand” dashboard.
Steps	<ul style="list-style-type: none"> 1. Select filters (term/date, department/program). 2. System aggregates tutor load and demand indicators. 3. System displays dashboard (tables/charts, drill-down). 4. Optional: Export CSV/PDF with metadata; log action.
Postconditions	<ul style="list-style-type: none"> 1. Workload dashboard visible; optional export ready. 2. Access recorded in the audit log.
Alternative Flows	<ul style="list-style-type: none"> 1. Drill-down by tutor/program → refresh view.
Exception Flow	<ul style="list-style-type: none"> 1. No data for selected criteria → show “No data available for this selection.” 2. Export error (I/O or size) → suggest narrowing scope or retrying. 3. Data source unavailable → show service notice; allow retry when available.

Table 10: Use Case UC-05b: View Tutor Workload Dashboard

Use-case ID	UC-05c
Use-case name	Generate Participation Report
Use-case overview	Student Affairs generates participation reports for credit/scholarship consideration.
Actors	Student Affairs Office
Preconditions	<ul style="list-style-type: none"> 1. Authenticated and authorized for participation reports. 2. Sessions and attendance/feedback records exist. 3. System is operational.
Trigger	Office selects “Participation Report”.
Steps	<ul style="list-style-type: none"> 1. Choose filters (term/date, cohort, program, thresholds). 2. System compiles participation metrics and eligibility indicators. 3. System displays results; Optional: export CSV/PDF with metadata; log action.
Postconditions	<ul style="list-style-type: none"> 1. Participation report displayed; optional file generated. 2. Action logged.
Alternative Flows	<ul style="list-style-type: none"> 1. Adjust filters/criteria → refresh results.
Exception Flow	<ul style="list-style-type: none"> 1. No data for selected criteria → show “No data available for this selection.” 2. Export error (I/O or size) → suggest narrowing scope or retrying. 3. Data source unavailable → show service notice; allow retry when available.

Table 11: Use Case UC-05c: Generate Participation Report

6.7 UC-06 Integration with HCMUT Infrastructure

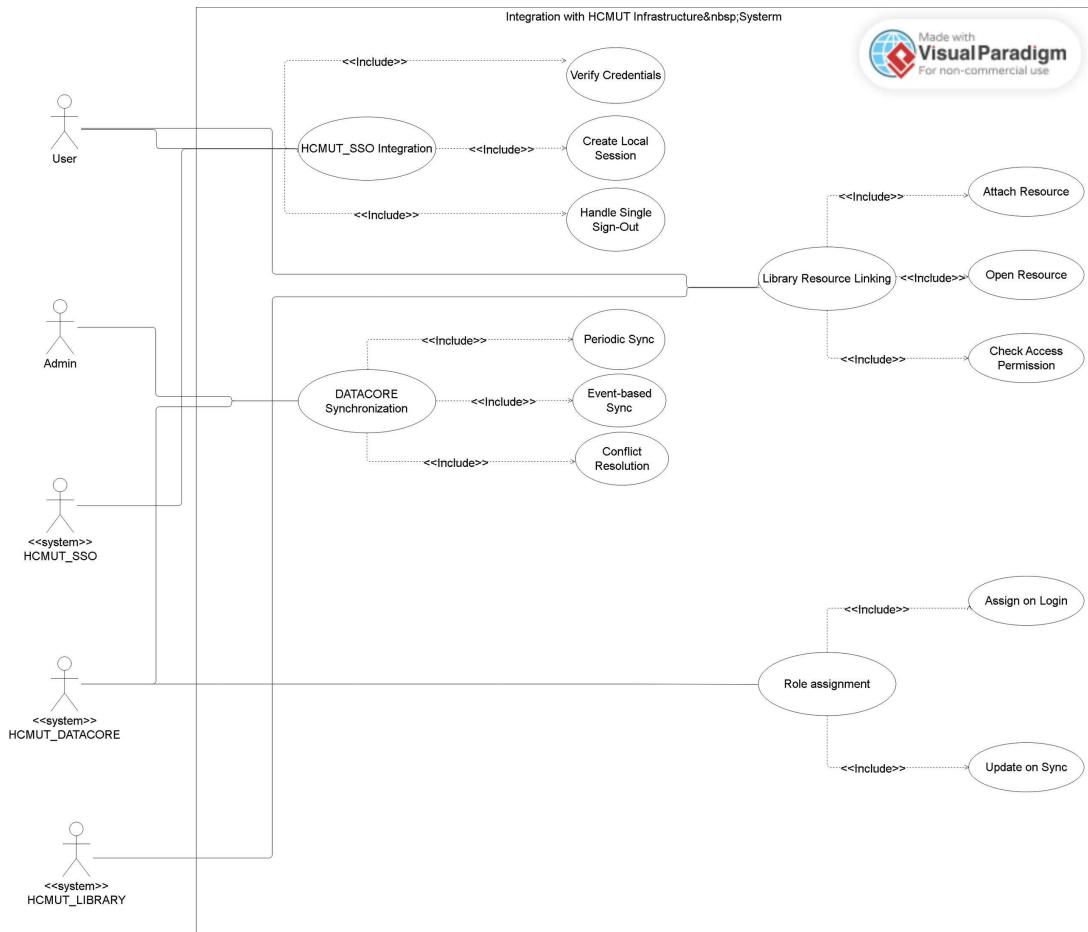


Figure 7: Integration with HCMUT Infrastructure

Use-case ID	UC-06a
Use-case name	HCMUT_SSO Integration
Use-case overview	The system integrates with HCMUT_SSO for unified authentication, allowing users to log in using university credentials and automatically manage single sign-out.
Actors	User, System, HCMUT_SSO
Preconditions	HCMUT_SSO service is operational and reachable.
Trigger	User initiates login via HCMUT_SSO.
Steps	<ol style="list-style-type: none"> 1. User selects “Login with HCMUT_SSO”. 2. System redirects to the authentication portal. 3. HCMUT_SSO validates credentials and returns a token. 4. System verifies the token and creates a session. 5. Upon sign-out at SSO, the system terminates the local session.
Postconditions	<ol style="list-style-type: none"> 1. User is successfully authenticated. 2. Single sign-out ensures session consistency.
Exception Flow	<ol style="list-style-type: none"> 1. Invalid or expired token → login attempt rejected. 2. SSO service unavailable → system displays maintenance message.
Priority	Must

Table 12: Use Case UC-06a: HCMUT_SSO Integration

Use-case ID	UC-06b
Use-case name	DATACORE Synchronization
Use-case overview	The system synchronizes personal and academic data from HCMUT_DATACORE periodically or in near real-time to ensure data consistency and reduce manual entry.
Actors	System, HCMUT_DATACORE, Administrator
Preconditions	DATACORE APIs are online and accessible.
Trigger	Scheduled synchronization or data-change event detected.
Steps	<ol style="list-style-type: none"> 1. System triggers synchronization with DATACORE. 2. Retrieve updated profiles and academic data. 3. Validate and compare data with local records. 4. Update local data using DATACORE as source of truth. 5. Log synchronization status and timestamp.
Postconditions	<ol style="list-style-type: none"> 1. Local data mirrors DATACORE. 2. Synchronization events logged for auditing.
Exception Flow	<ol style="list-style-type: none"> 1. Connection timeout or API error → retry with exponential backoff. 2. Invalid data format → skip record and log validation error.
Priority	Must

Table 13: Use Case UC-06b: DATACORE Synchronization

Use-case ID	UC-06c
Use-case name	Role Assignment
Use-case overview	The system automatically assigns user roles (student, tutor, coordinator, department chair, or administrator) based on centralized role data from DATACORE and SSO.
Actors	User, System, HCMUT_DATACORE
Preconditions	User is authenticated via SSO and DATACORE role data is available.
Trigger	User login or scheduled role update.
Steps	<ol style="list-style-type: none"> 1. Retrieve role mapping from DATACORE. 2. Match user ID with centralized role data. 3. Assign permissions based on role. 4. Apply changes in access-control policies. 5. Log the role-assignment event.
Postconditions	<ol style="list-style-type: none"> 1. User roles align with centralized data. 2. Updated permissions take effect immediately.
Exception Flow	<ol style="list-style-type: none"> 1. Role data missing → assign default “student” role and notify admin. 2. Role conflict → logged and flagged for manual verification.
Priority	Must

Table 14: Use Case UC-06c: Role Assignment

Use-case ID	UC-06d
Use-case name	Library Resource Linking
Use-case overview	The system connects with HCMUT_LIBRARY to let tutors and students attach or access library materials securely within tutoring sessions or summaries.
Actors	Student, Tutor, System, HCMUT_LIBRARY
Preconditions	Library API and authentication services are available.
Trigger	User attaches or opens a library resource.
Steps	<ol style="list-style-type: none"> 1. User searches or selects a library resource. 2. System requests metadata and access permissions. 3. Verify user eligibility via role-based access. 4. Attach or open the resource in session view. 5. Log the access event.
Postconditions	<ol style="list-style-type: none"> 1. Resource successfully linked to the session or summary. 2. Access rights enforced per library policy.
Exception Flow	<ol style="list-style-type: none"> 1. Access denied → system displays permission error. 2. Library service unavailable → prompt user to retry or queue attachment.
Priority	Could

Table 15: Use Case UC-06d: Library Resource Linking

6.8 UC-07 Advanced / Optional Features

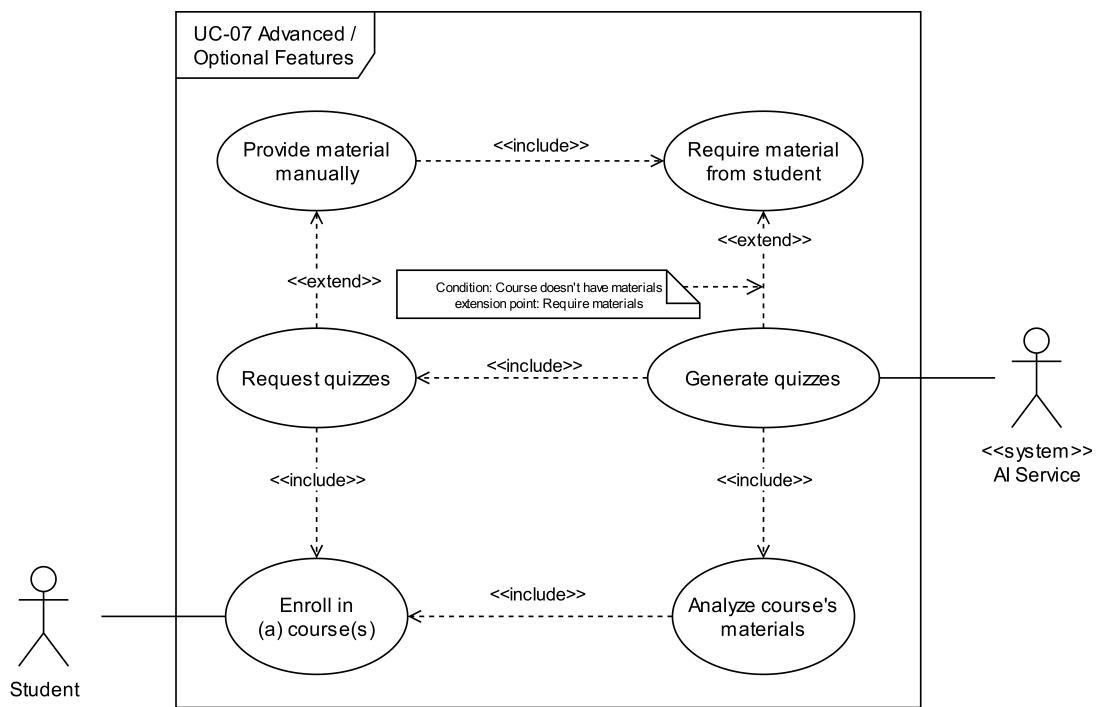


Figure 8: AI-generated review quizzes

Use-case ID	UC-07
Use-case name	AI-generated review quizzes
Use-case overview	Provide students with quizzes related to the courses they are enrolling.
Actors	Students, AI service
Preconditions	<ol style="list-style-type: none"> 1. The system is running. 2. Internet connection is available. 3. AI service must be available. 4. The courses must have learning materials uploaded by tutors.
Trigger	Students use the AI-based quiz generation function.
Steps	<ol style="list-style-type: none"> 1. Retrieve uploaded course materials of the course. 2. Process and analyze the content with AI. 3. Search the internet for related academic resources and quizzes. 4. Generate quiz questions covering the key topics. 5. Display the quiz to the requested students.
Postconditions	<ol style="list-style-type: none"> 1. The quizzes are displayed on the screen of the requested students, and they can download the quizzes as a document file. 2. The quizzes can be available until the end of the login session of the requested students, or until they finished the course if they chose to save the quizzes
Alternative Flows	<ul style="list-style-type: none"> - If the course doesn't have any learning materials, notify the user and request them for manual typing in key topics needed for review. A1: Invalid login → Access denied with error message.
Exception Flow	<ol style="list-style-type: none"> 1. If AI service isn't available, display an error.

Table 16: Use Case UC-07: AI-generated review quizzes

7 Sequence Diagram

7.1 SQ-01 Log in, Log out & Profile Management

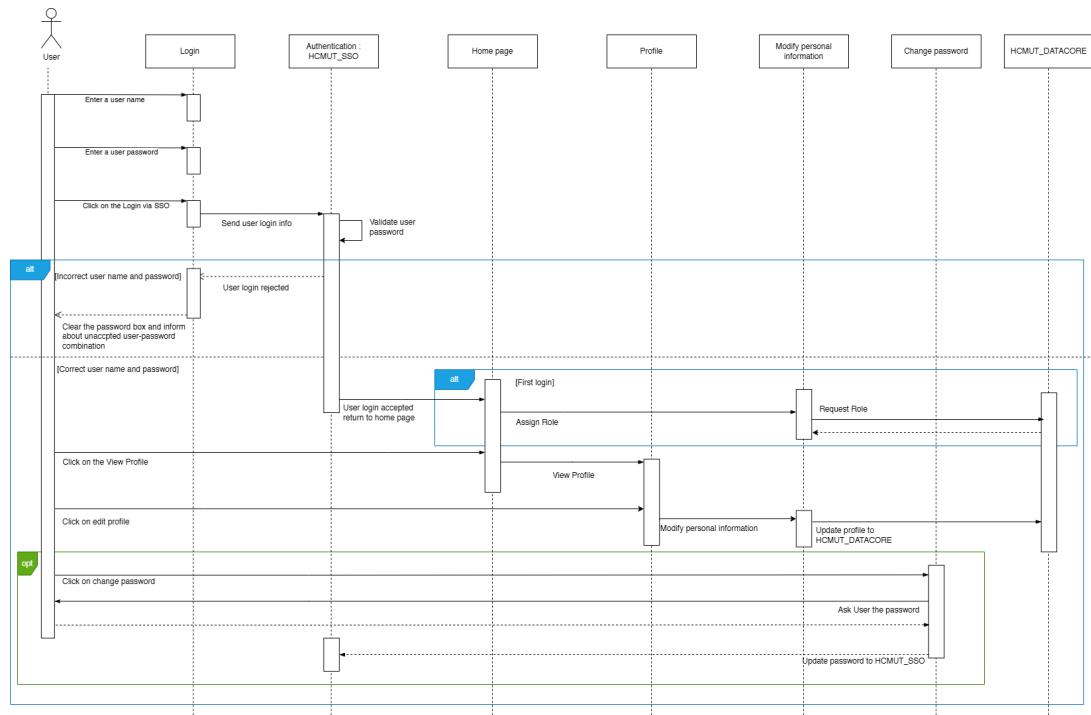


Figure 9: Log in, Log out & Profile Management

7.2 SQ-02 Tutor-Student Matching

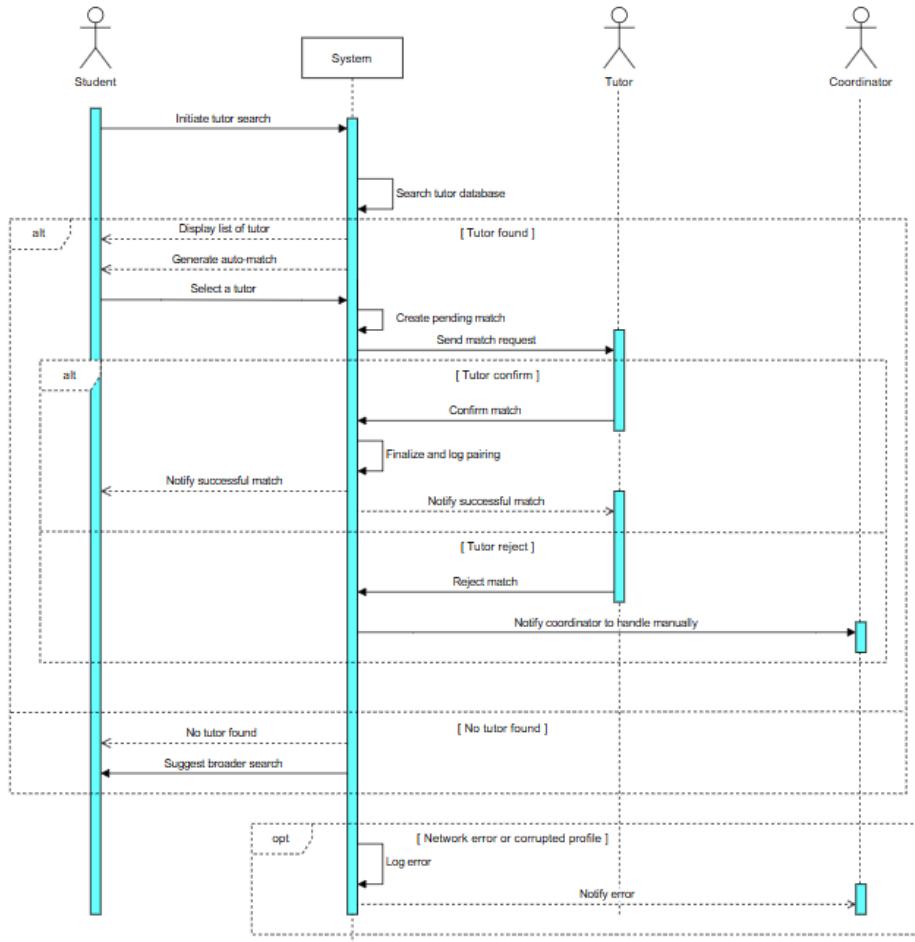


Figure 10: Tutor-Student Matching

7.3 SQ-03 Session Scheduling Management

Session Scheduling Management

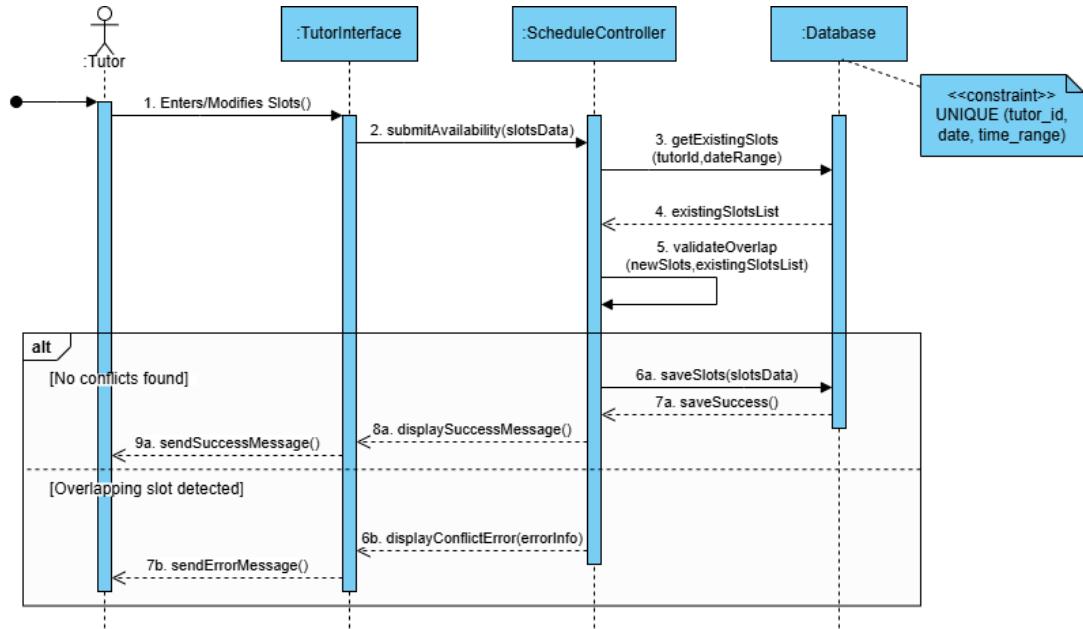


Figure 11: Tutor published available time slots

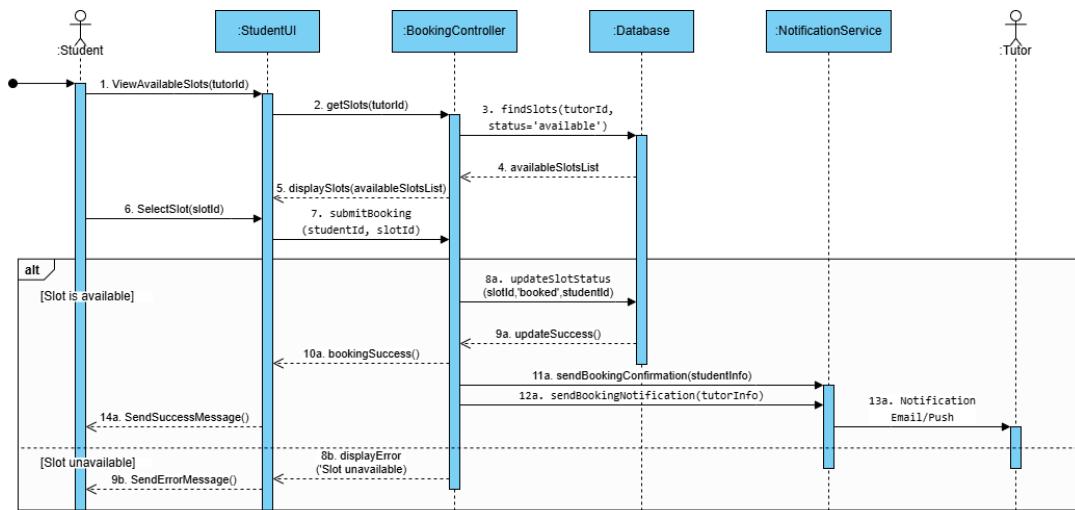


Figure 12: Student view and book session

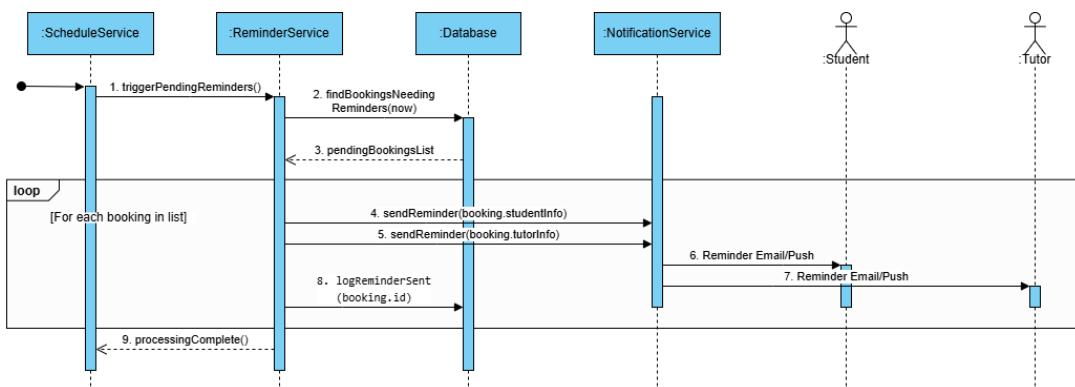


Figure 13: System sends notification reminders

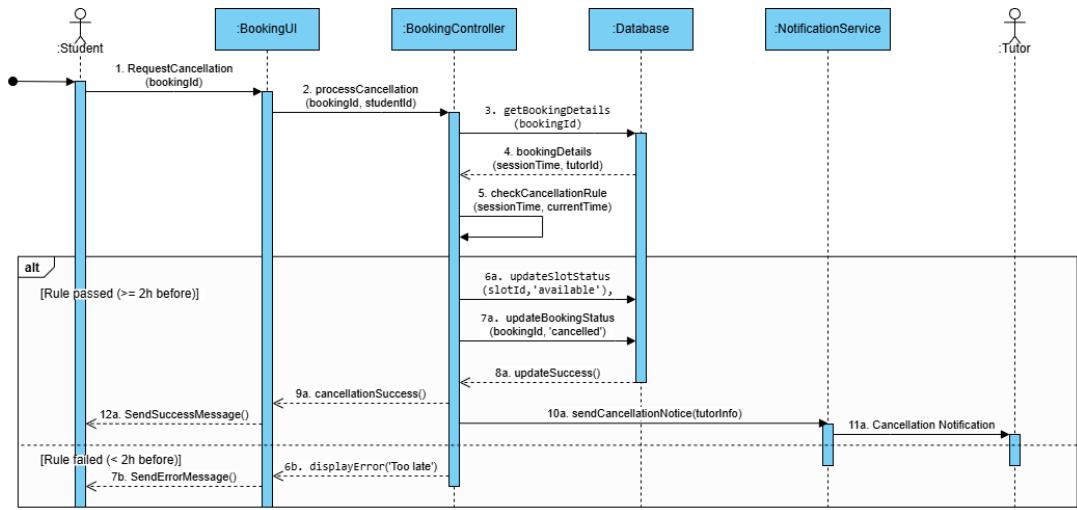


Figure 14: Cancellation and rescheduling

7.4 SQ-04 Feedback & Progress Tracking

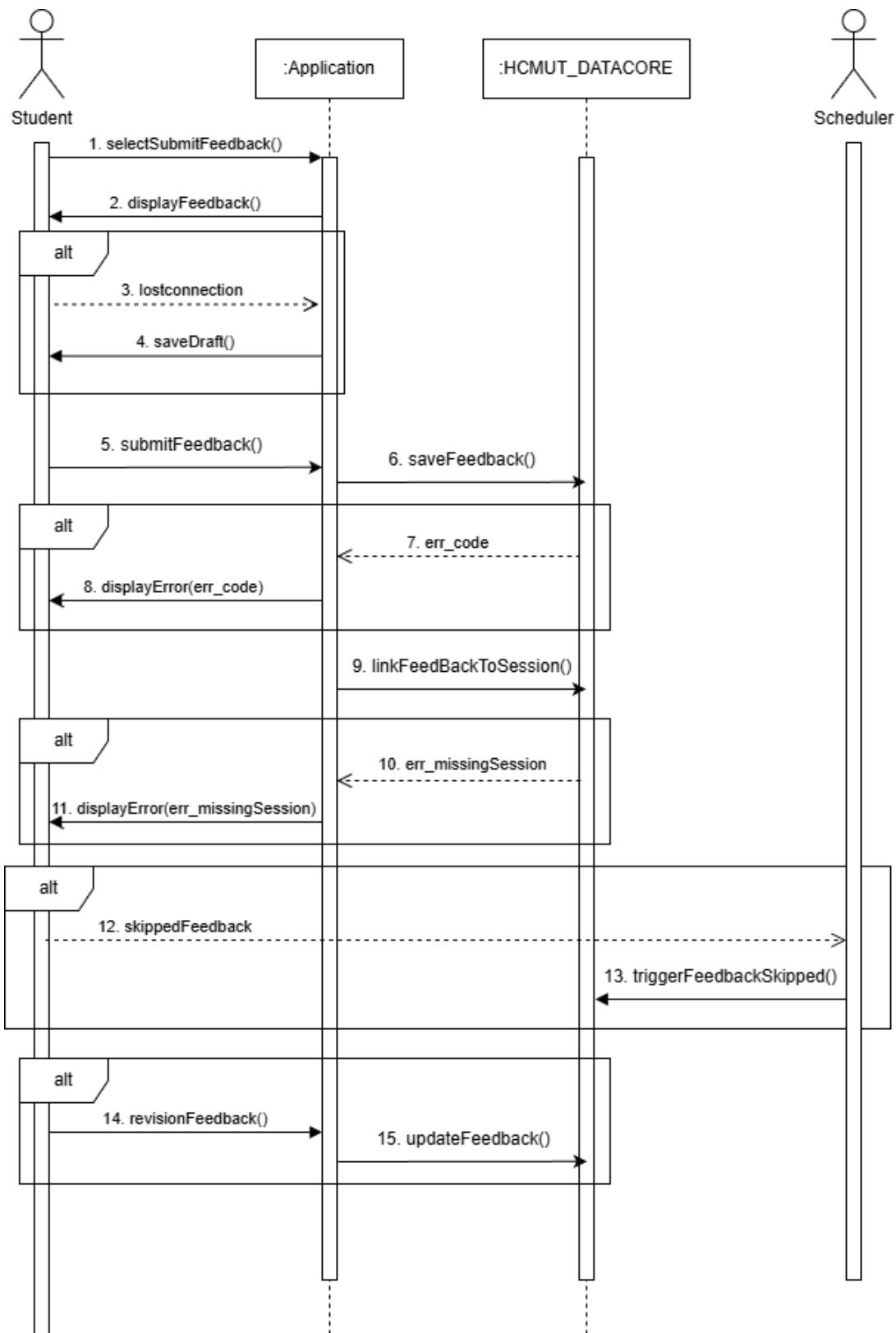


Figure 15: Feedback Submission

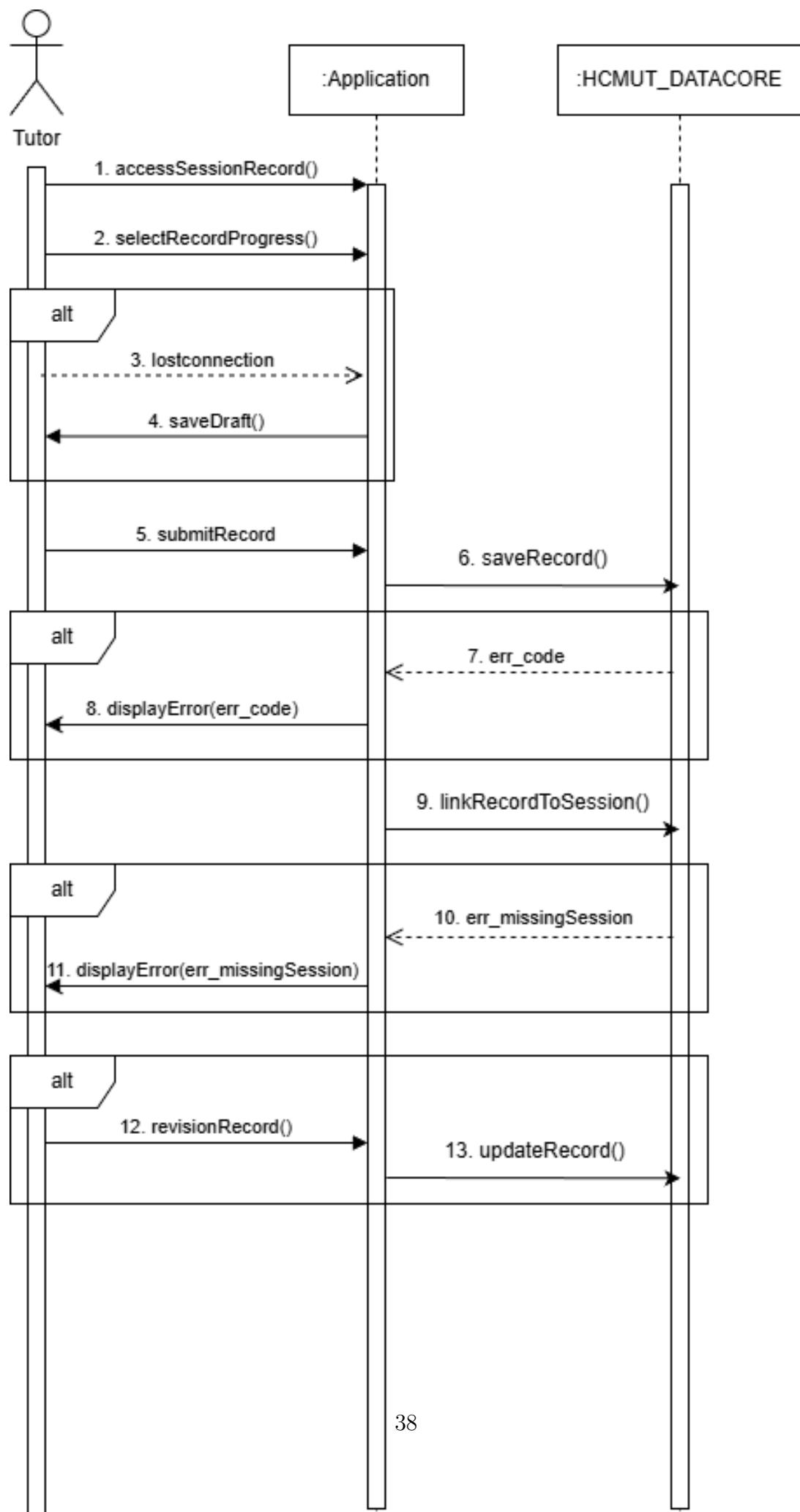


Figure 16: Session Recording Access

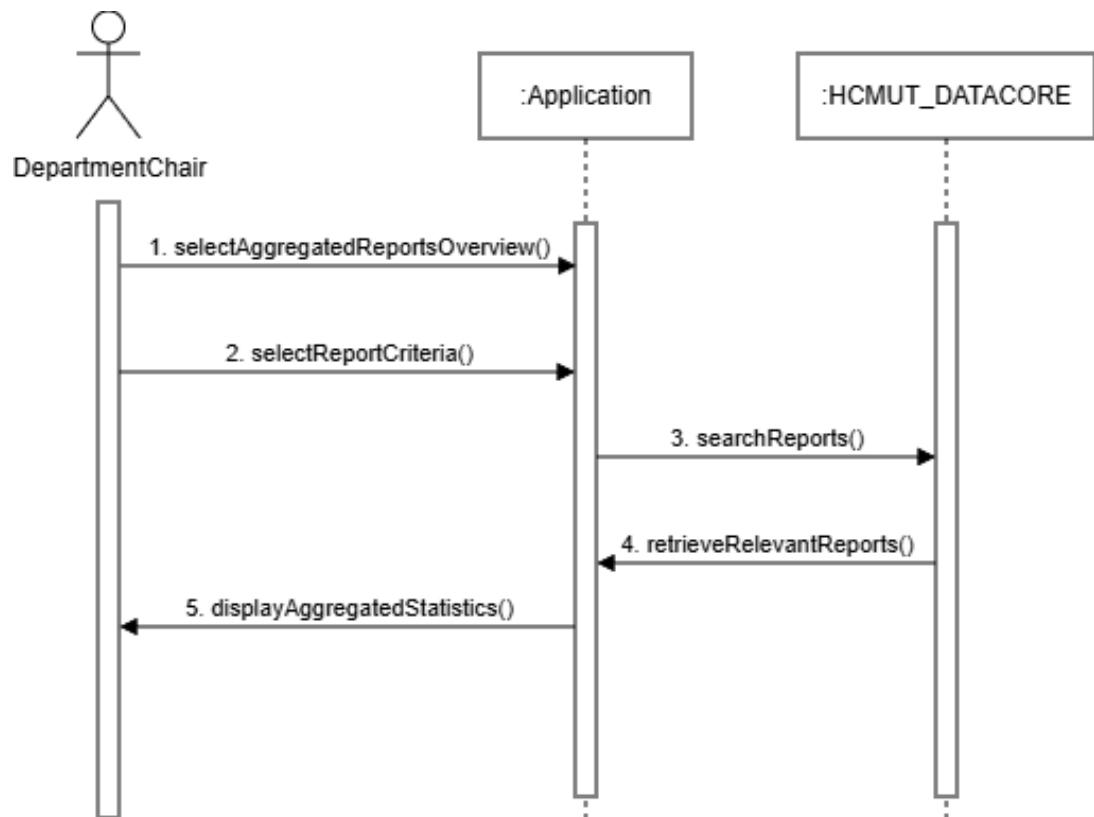


Figure 17: Report Tracking

7.5 SQ-05 Reporting & Analytics

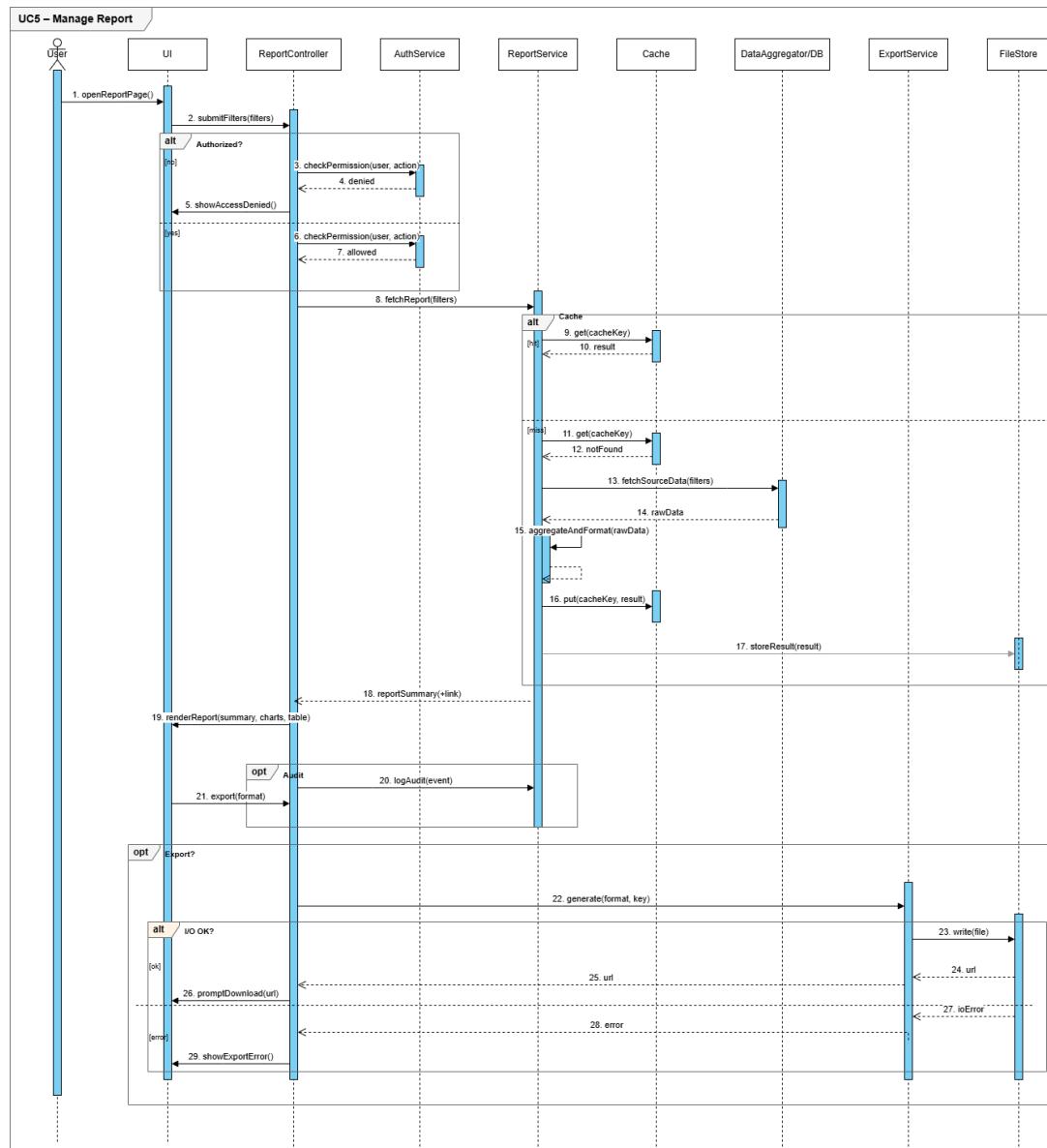


Figure 18: Reporting & Analytics

8 Activity Diagram

8.1 AC-01 Log in, Log out & Profile Management

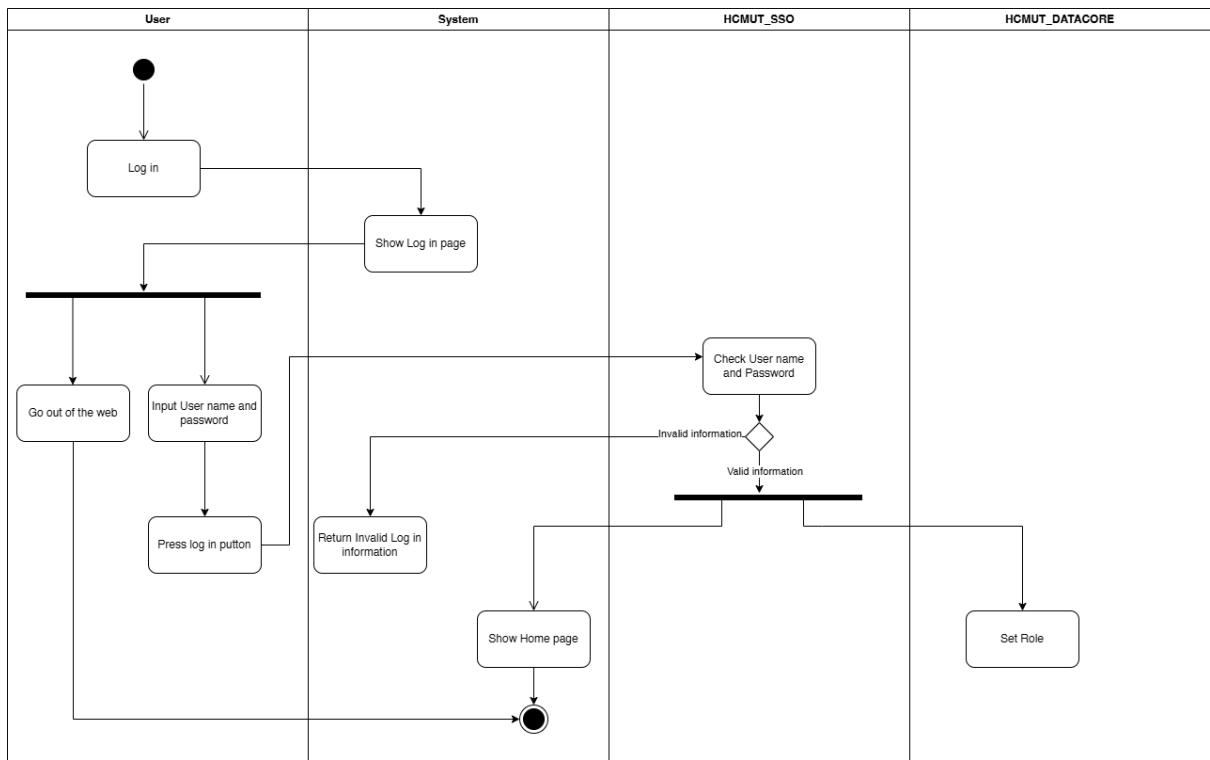


Figure 19: Log in

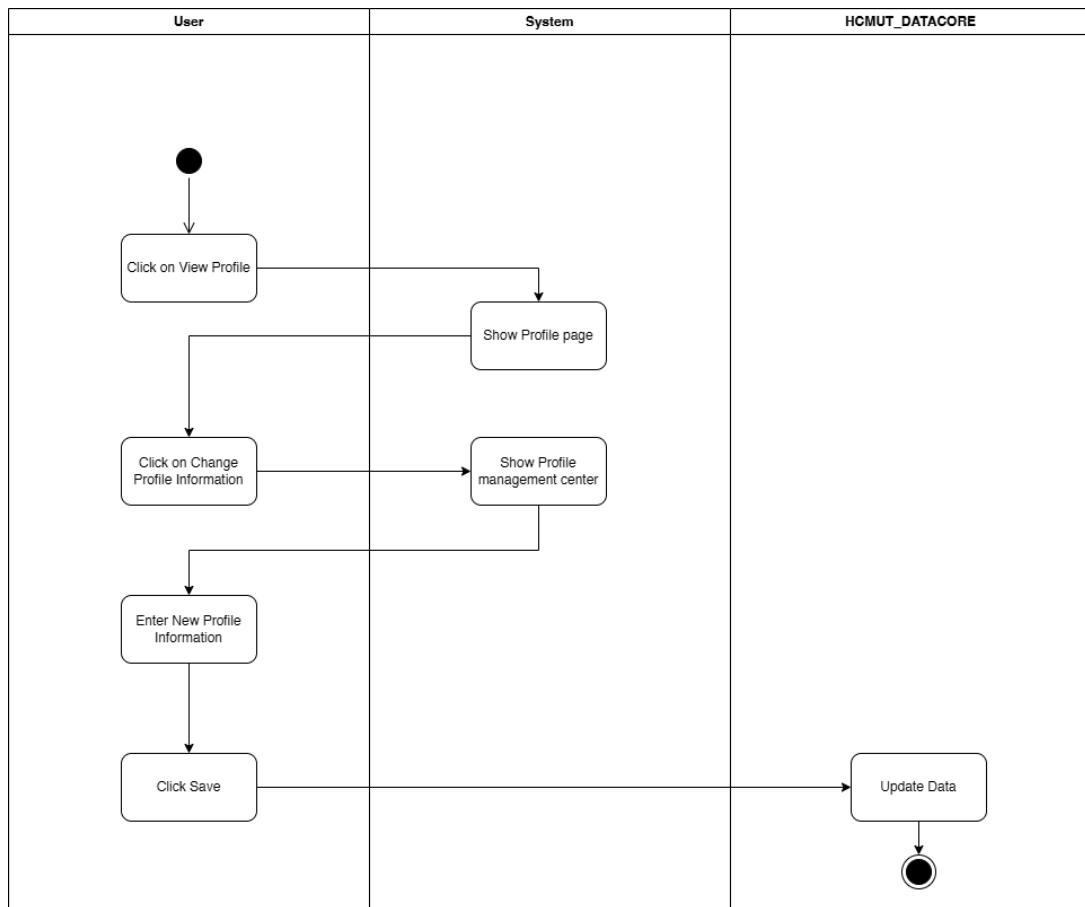


Figure 20: View Profile & Edit Profile

8.2 AC-02 Tutor-Student Matching

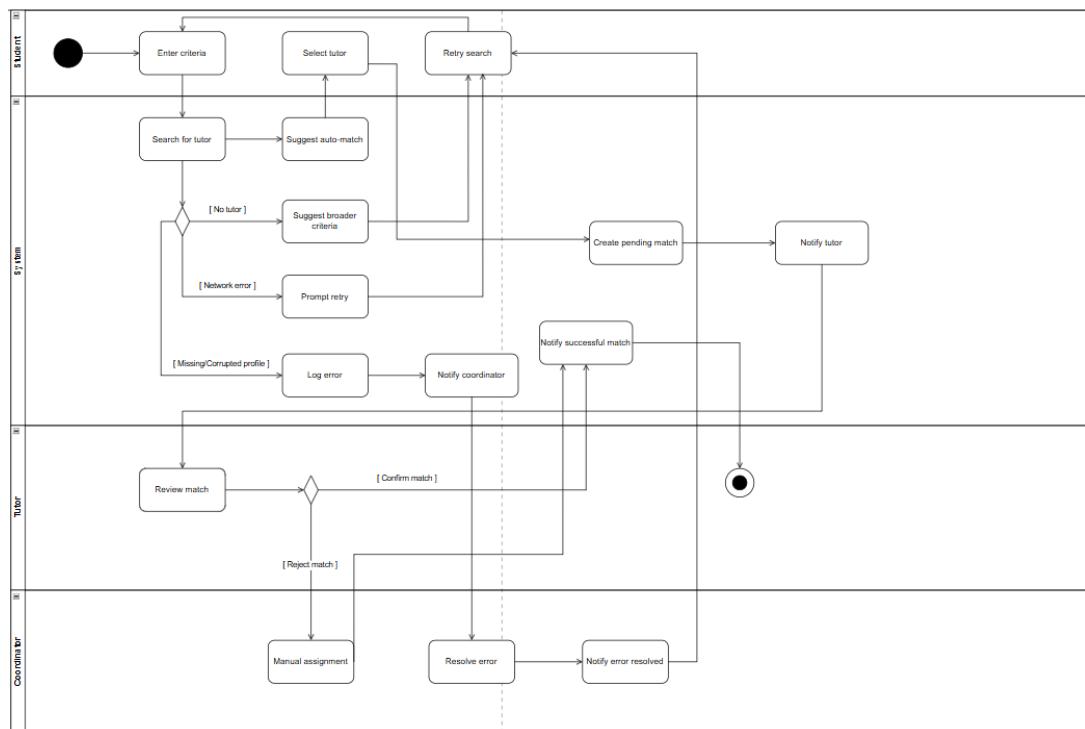


Figure 21: Tutor-Student Matching

8.3 AC-03 Session Scheduling Management

Session Scheduling Management

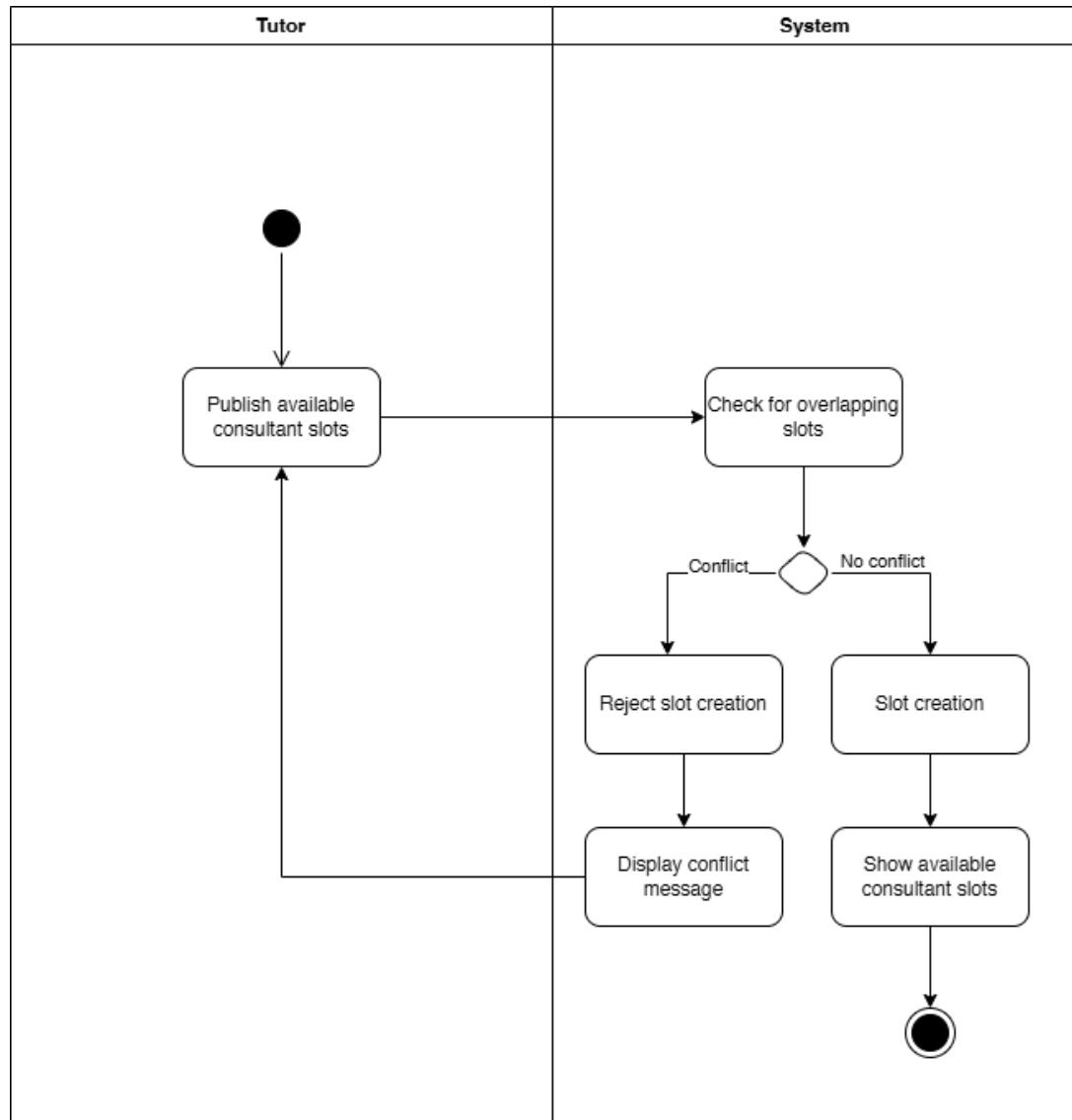


Figure 22: Tutor published available time slots

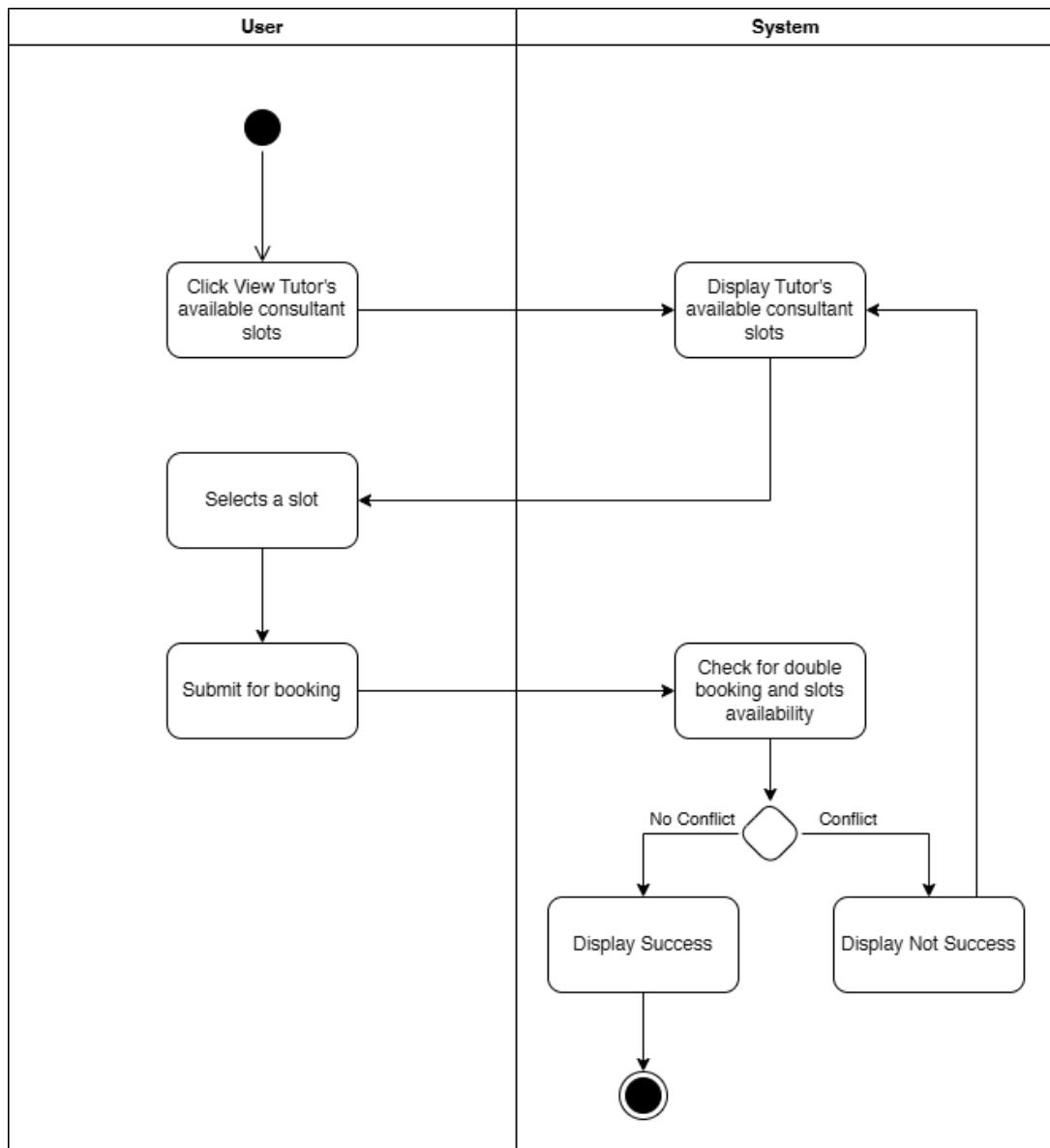


Figure 23: Student view and book session

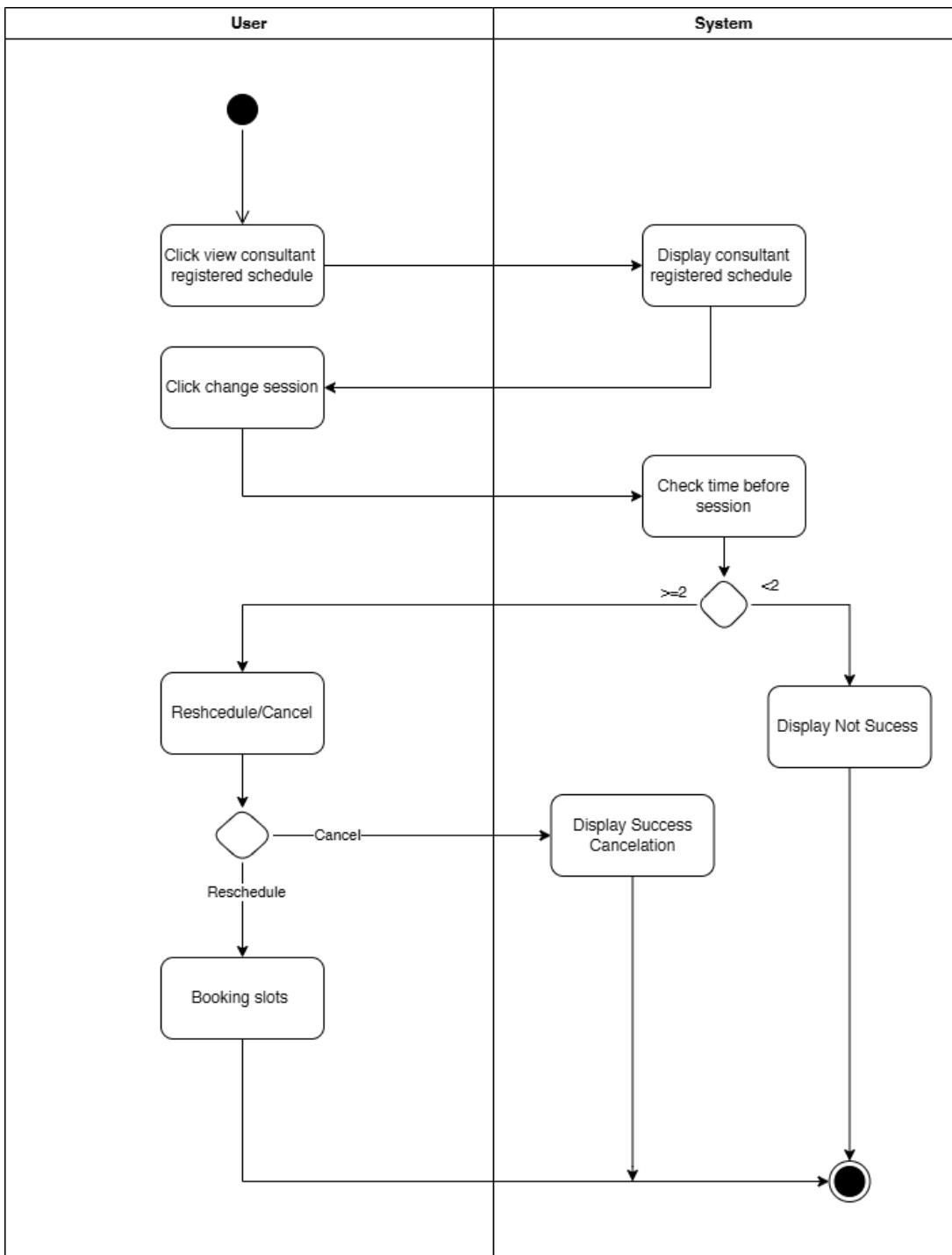


Figure 24: Cancellation and rescheduling

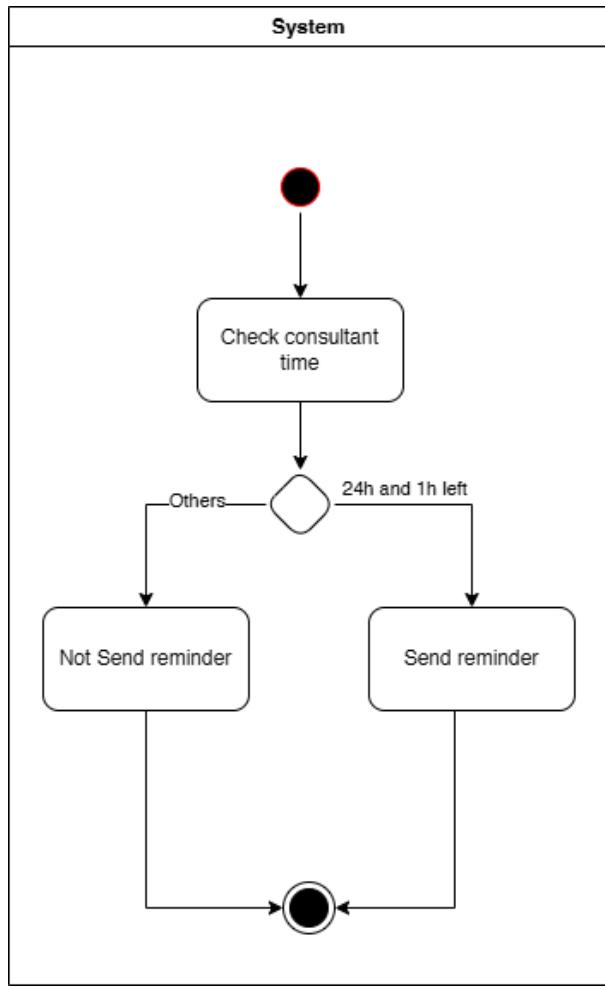


Figure 25: System sends notification reminders

8.4 AC-04 Feedback & Progress Tracking

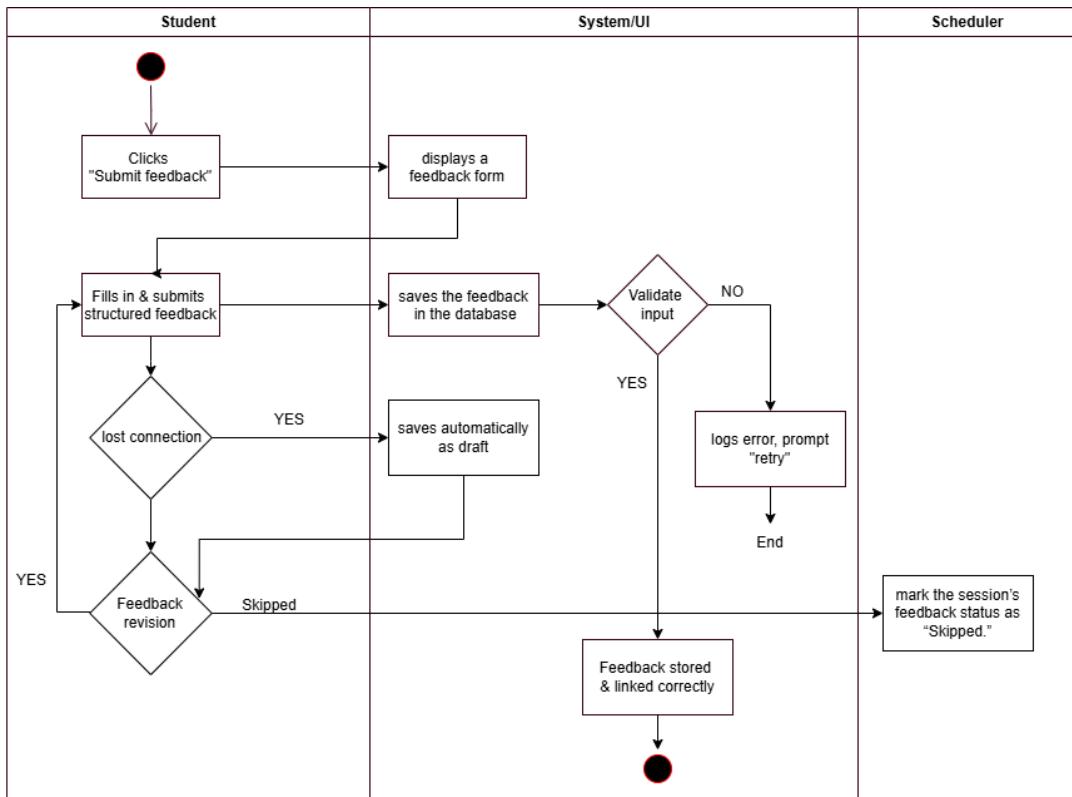


Figure 26: Feedback Submission

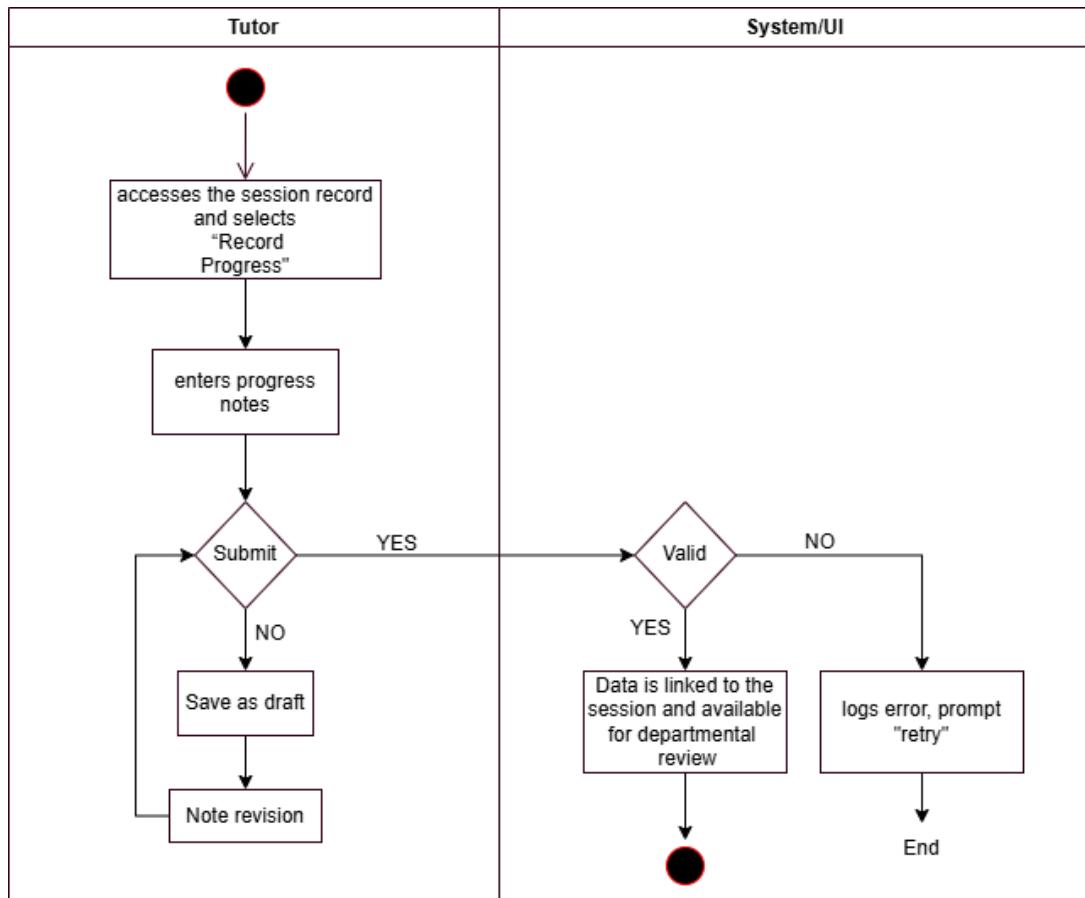


Figure 27: Session Recording Access

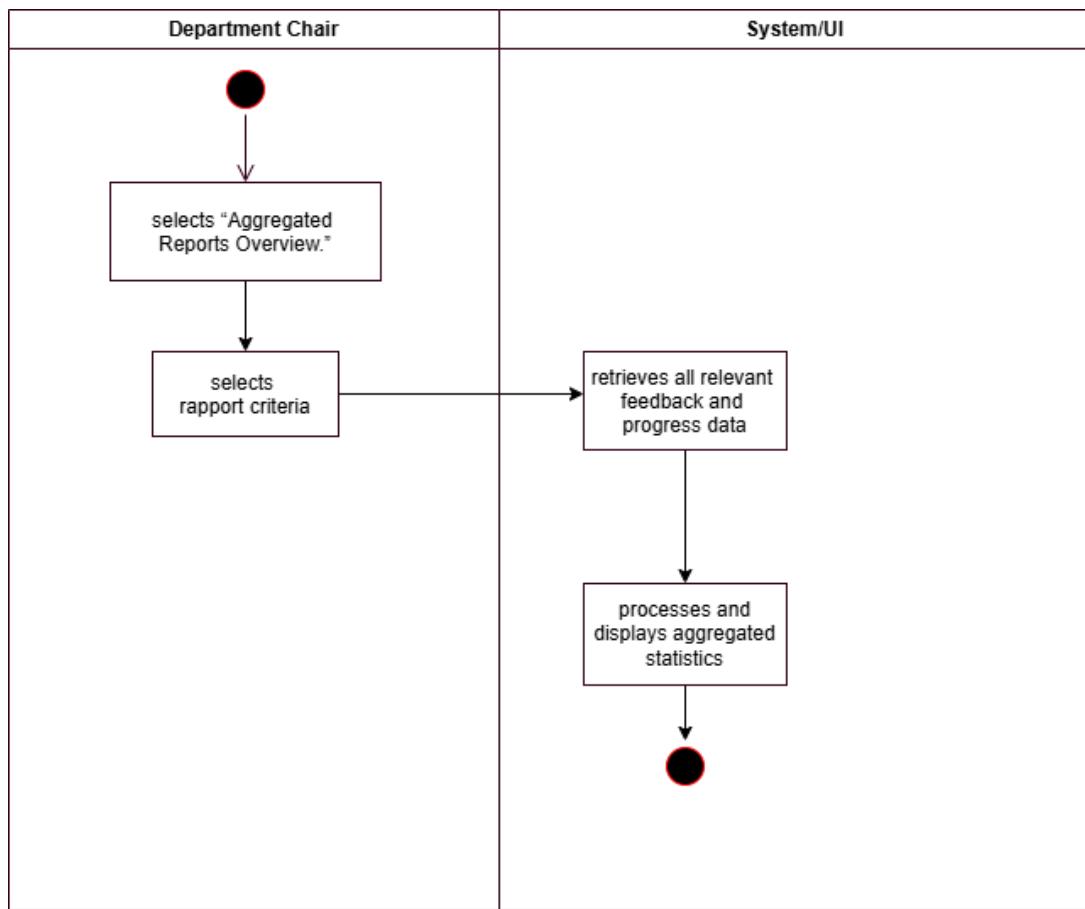


Figure 28: Report Tracking

8.5 AC-05 Reporting & Analytics

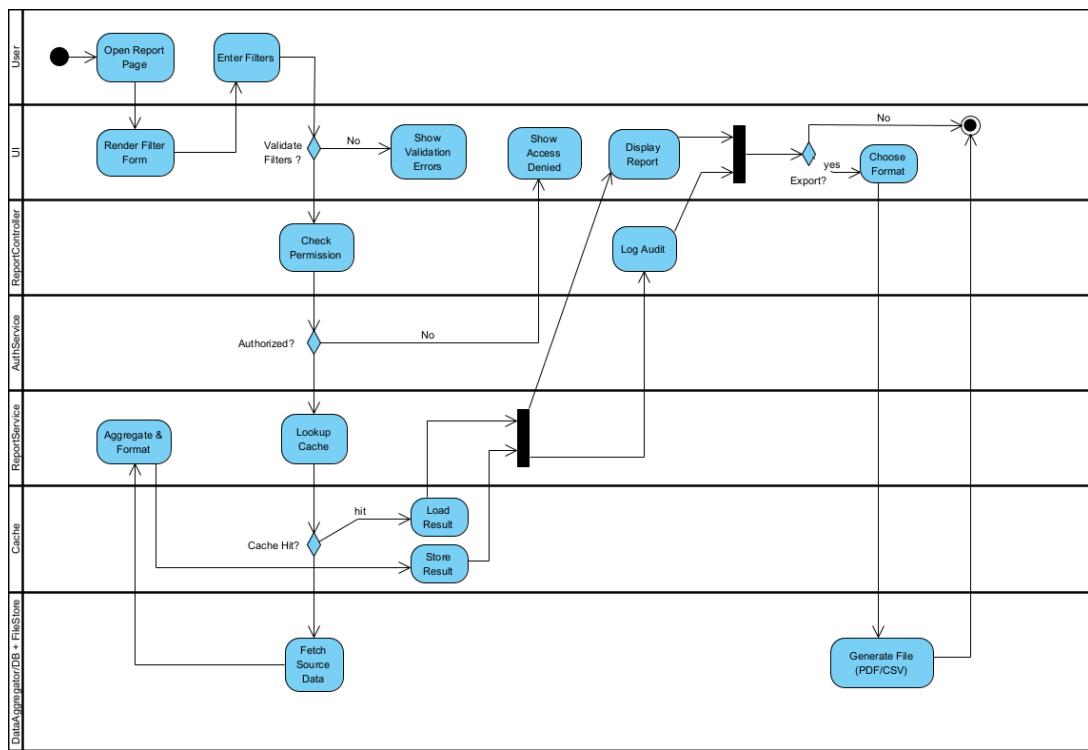


Figure 29: Reporting & Analytics

9 State Diagram

9.1 SD-01 Log in, Log out & Profile Management

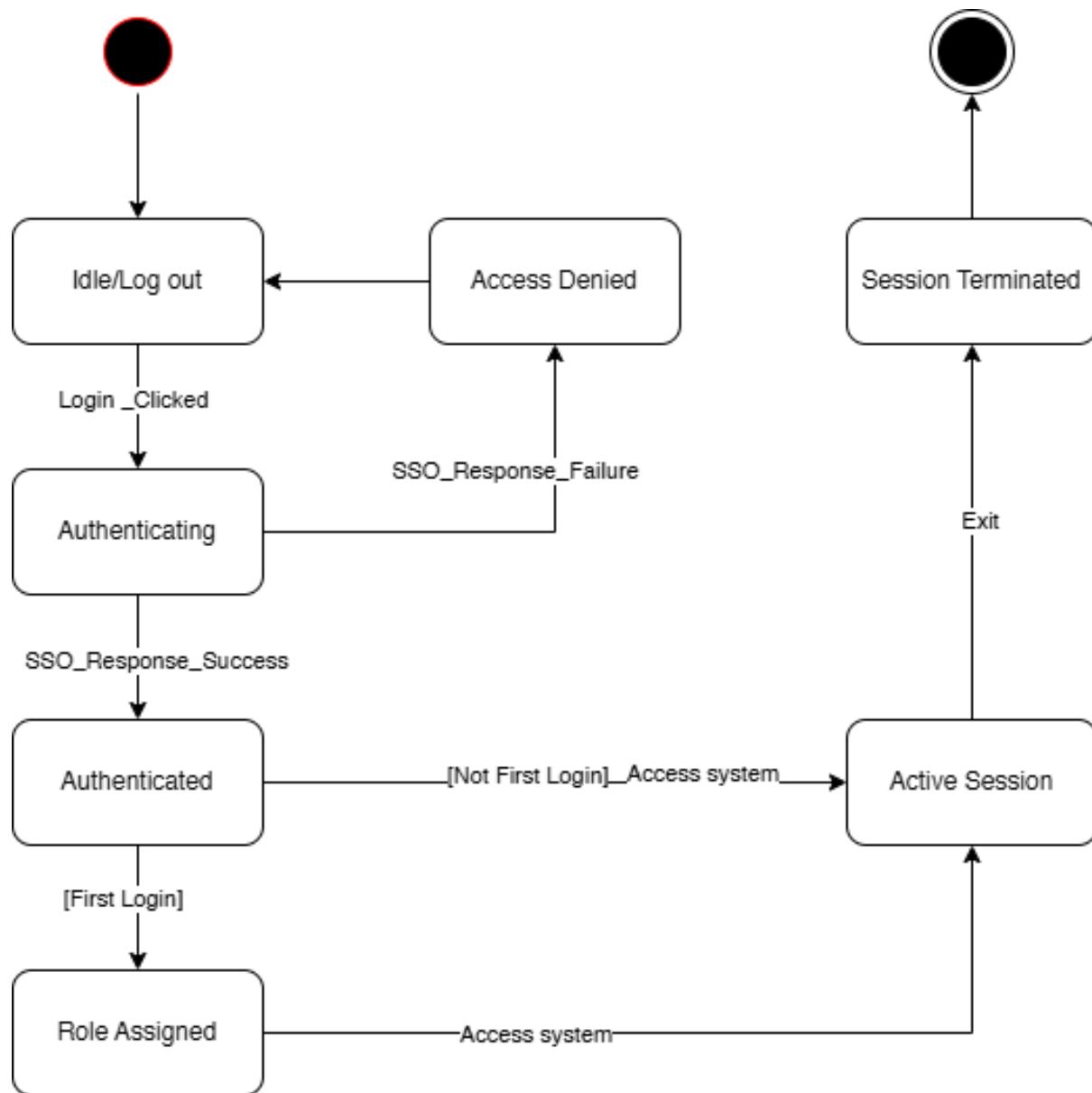


Figure 9: Log in

9.2 SD-02 Tutor-Student Matching

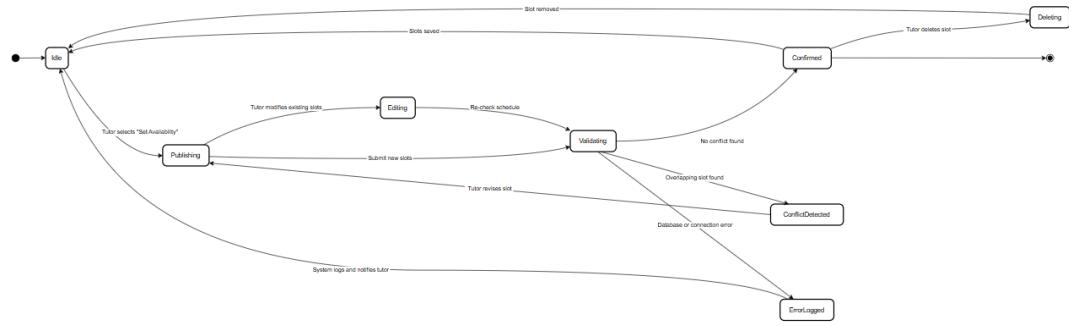


Figure 10: Tutor-Student Matching

9.3 SD-03 Session Scheduling Management

Session Scheduling Management

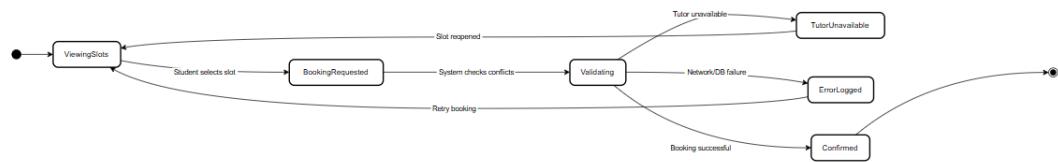


Figure 11: Booking a session



Figure 12: System Reminders

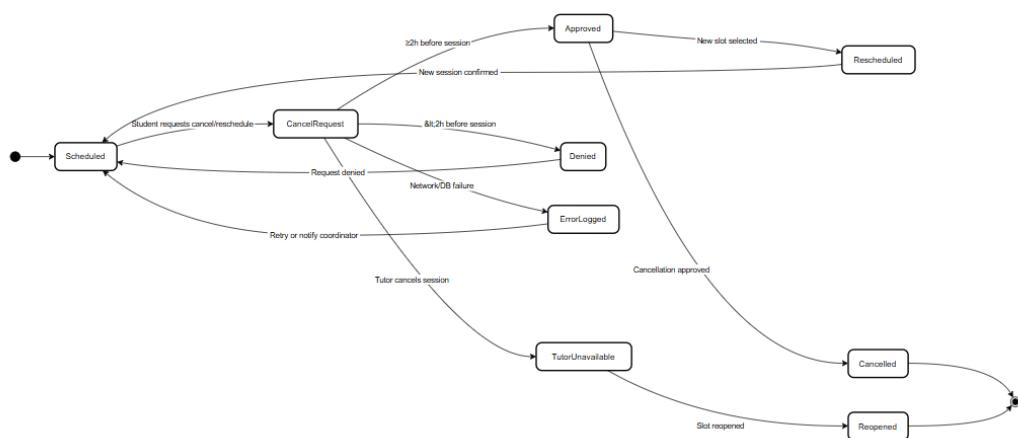


Figure 13: Cancellation and rescheduling

9.4 SD-04 Reporting & Analytics

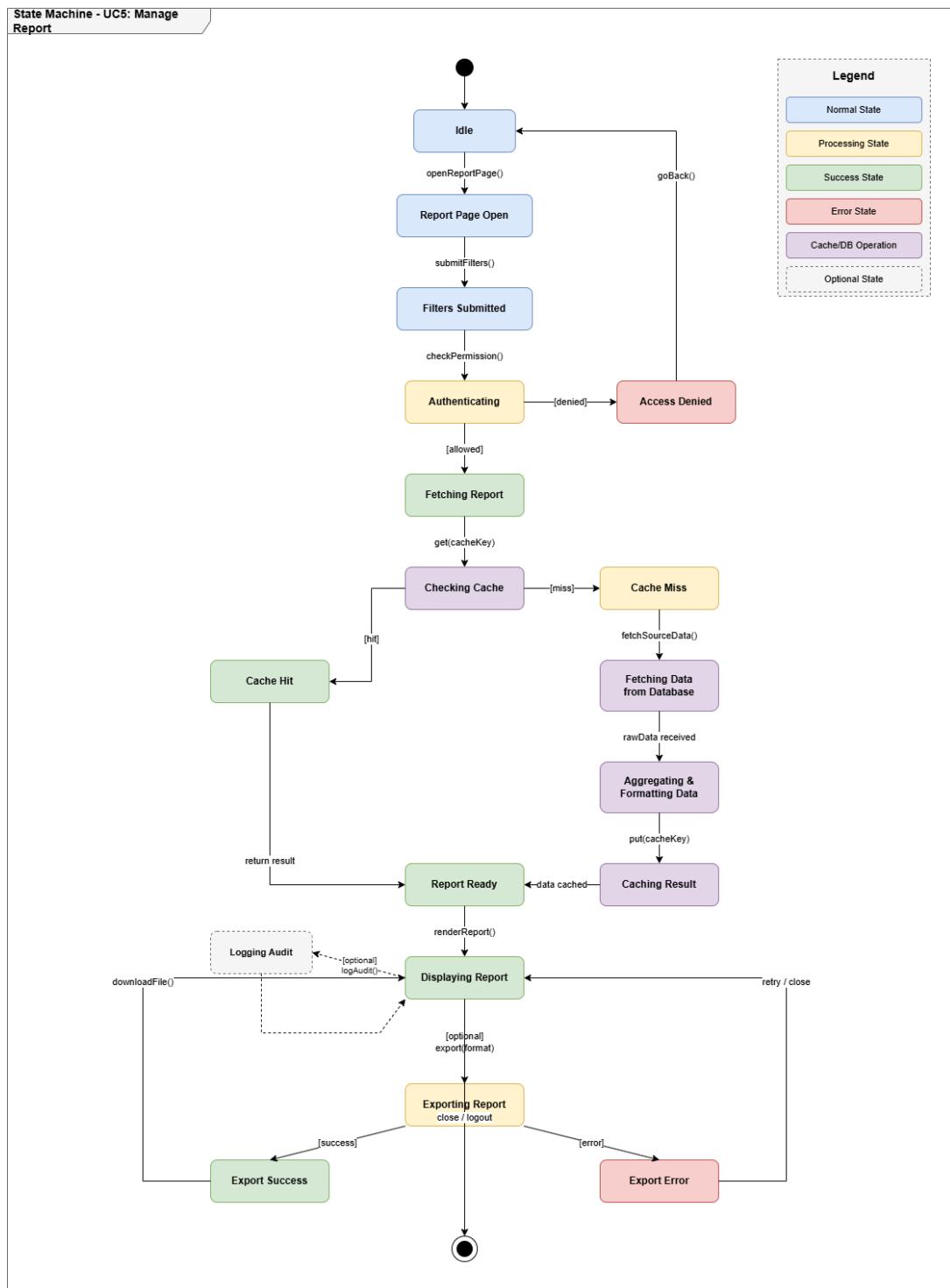


Figure 18: Manage Reports

10 Mockup

10.1 MU-01 Log in, Log out & Profile Management

The landing page for the Tutor Support System is designed to provide users with a clear overview of its features and benefits. It includes a header with the university logo and navigation links, a main content area with sections for user guides, system integrations, and performance metrics, and a footer with contact information and legal disclaimers.

Header: TUTOR SUPPORT SYSTEM, Ho Chi Minh City University of Technology (HCMUT)

Main Content Area:

- Get the help you need, when you need it.**
 - Find a tutor, book a session, and track your learning progress — all integrated with HCMUT_SSO and DATACORE.
- What you can do**
 - Browse approved tutors by subject & department
 - Smart matching based on availability and course needs
 - Book, reschedule, and receive reminders
 - View feedback and progress across sessions
- Integration**

Securely integrated with HCMUT_SSO, DATACORE and Library. Single sign-on lets you access services with one login.
- Technical support**

E-mail: support@hcmut.edu.vn
Tel: (84-8) 38847256 - 7204

About Us – Tutor Support System

Tutor Support System is an academic support platform for HCMUT students: find suitable tutors, schedule support sessions, track progress and provide quality feedback. The system securely integrates with HCMUT_SSO, DATACORE and library to ensure a unified experience within the university ecosystem.

Who uses the system?

Students	Tutors
<ul style="list-style-type: none">Find tutors, book sessions, track learning progress.Receive personalized learning suggestions (AI Personalized).Submit feedback after sessions, join Forum/Q&A.	<ul style="list-style-type: none">Manage availability, accept support requests.Record progress logs for each student.Review feedback, improve teaching quality.
Coordinators	Departments / Admin
<ul style="list-style-type: none">Điều phối tutor, xử lý xung đột/overbook.Cấu hình Matching Rules, xem Matching Suggestions.Báo cáo Workload/Utilization, theo dõi vấn đề feedback.	<ul style="list-style-type: none">Departmental & Participation reports.SSO/Library health, notifications log, export jobs.RBAC & audit logs đảm bảo tuân thủ.

Integrations

- HCMUT_SSO: Đăng nhập 1 lần, bảo mật tập trung.
- DATACORE: Đồng bộ vai trò, khoa/chương trình.
- Library: Tài liệu học tập, quyền truy cập theo chính sách.

Impact (mock)

128	3,240
Active tutors	Sessions / term
4.7/5	14
Avg. rating	Programs covered

Footer:

- Tutor Support System**

Academic support network for HCMUT students.
Find tutors, book sessions, and get guided learning.
Securely integrated with HCMUT_SSO and DATACORE.
- Quick Links**

[Find a Tutor](#)
[Book a Session](#)
[Your Dashboard](#)
[Submit Feedback](#)
- Support**

[Academic Affairs](#)
[Student Affairs](#)
[Library Resources](#)
[Report an Issue](#)

© 2025 Tutor Support System – Ho Chi Minh City University of Technology (HCMUT)

Figure 9: Landing page

TUTOR SUPPORT SYSTEM
Ho Chi Minh City University of Technology (HCMUT)

Enter your Username and Password

Username
student@hcmut.edu.vn

Password

Sign in

Languages

- Vietnamese
- English

Please note

The Login page enables single sign-on to multiple websites at HCMUT. This means that you only have to enter your user name and password once for websites that subscribe to the Login page.

You will need to use your HCMUT Username and password to login to this site. The "HCMUT" account provides access to many resources including the HCMUT Information System, e-mail, ...

For security reasons, please Exit your web browser when you are done accessing services that require authentication!

Technical support

E-mail: support@hcmut.edu.vn
Tel: (84-8) 38847256 - 7204

Tutor Support System
Academic support network for HCMUT students.
Find tutors, book sessions, and get guided learning.
Securely integrated with HCMUT_SSO and DATACORE.

Quick Links

- Find a Tutor
- Book a Session
- Your Dashboard
- Submit Feedback

Support

- Academic Affairs
- Student Affairs
- Library Resources
- Report an Issue

© 2025 Tutor Support System – Ho Chi Minh City University of Technology (HCMUT)

Figure 9: Log in page

TUTOR SUPPORT SYSTEM

Learning Feedback Community AI Tools **Profile**

My Profile
Update your personal information.

Account Information

Full name Nguyen Viet Trung	Student ID 2353xxxx
Program Computer Engineering (OISP)	Department Computer Science & Engineering
Email (HCMUT) 2353xxxx@hcmut.edu.vn	

Personal Information

Phone +84 901 234 567	Personal Email trung.nguyen@gmail.com
Short Introduction Computer Science student passionate about web development and AI.	

Save changes

Figure 9: View profile & Edit profile page

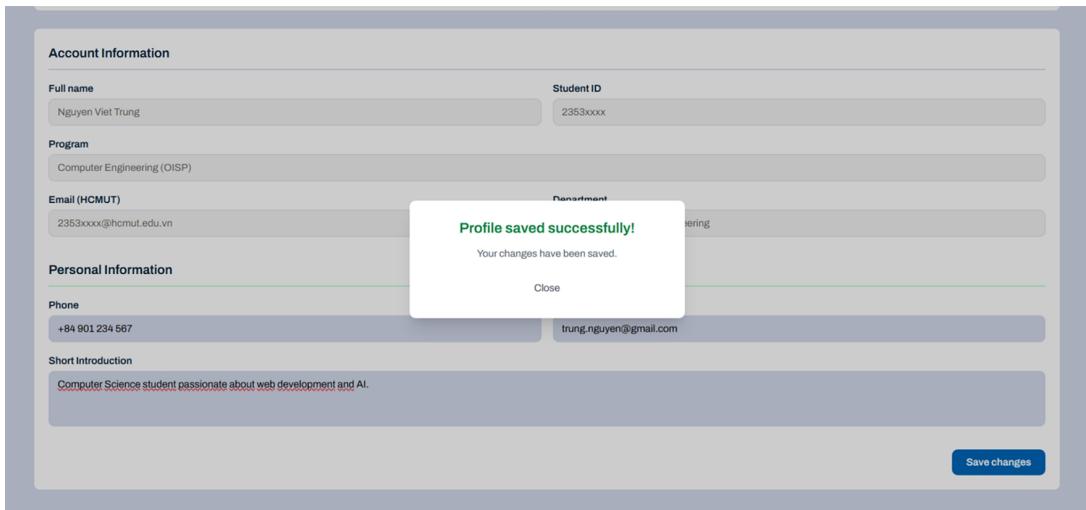


Figure 9: Save change Profile page

10.2 MU-02 Tutor-Student Matching

The screenshot shows the 'AI Tutor Match' section of the 'TUTOR SUPPORT SYSTEM'. At the top, there's a navigation bar with links for Learning, Feedback, Community, AI Tools, and Profile.

AI Tutor Match

We analyze your subject, schedule, and learning style to recommend the best tutors for you. You can still browse and book manually.

AI Suggestion • Last updated: just now • This does not auto-book.

Tell us what you need

FR-ADV01 Intelligent Matching

Course / Topic

CO1001 – Programming Fundamentals

Used to filter tutors with matching expertise.

When can you study?

Weekdays 18:00 – 21:00

We'll only show tutors who are free in this range.

Your preferred style (optional)

Step-by-step explanation + Q&A

Helps rank tutors whose style matches you.

What are you struggling with?

Example: I don't understand pointer-to-pointer and recursion stack frames. I freeze during lab check.

We'll use this (privately) to improve the match explanation.

Generate AI Match

Prefer to choose manually? [Browse all tutors](#) →

Suggested Tutors [Personalized ranking](#)

Top 3 matches based on availability, style, workload

Nguyen T. A. Match #1

EXPERTISE
CO1001 - Pointers & Recursion

NEXT AVAILABILITY
Wed 19:00 - Fri 20:00

STYLE
Step-by-step, asks you to explain back

Workload OK

Confidence: High

Why we think this is a good match

- Available Wed after 18:00, same as you.
- Recently helped 3 students pass Lab 03 pointer debugging.
- Teaches using "you explain it back", which matches your preferred style.

Request Session

or [View profile](#)
or [See timetable](#)

Doan A. K. Match #2

EXPERTISE
Data Structures - Linked Lists

NEXT AVAILABILITY
Sat 09:00 - Sun 10:30

STYLE
Whiteboard simulation, timed questions

Workload OK

Confidence: Medium

Why we think this is a good match

- Strong at exam-style drilling under time pressure.
- You said you "freeze during lab check", this tutor focuses on confidence under pressure.
- Weekend morning slots match your "weekends morning" preference.

Request Session

or [View profile](#)
or [See timetable](#)

Truong Q. T. Match #3

EXPERTISE
Systems / Debugging live code

NEXT AVAILABILITY
Fri 21:00 (online only)

STYLE
Hands-on screen share & live fix

High Load

Confidence: Medium

Why we think this is a good match

- Specializes in debugging C code under real conditions.
- Prefers remote / live share — matches "lab debugging together".
- Warning: workload is high, session acceptance may take longer.

Request Session

or [View profile](#)
or [See timetable](#)

FR-ADV01 Intelligent Matching: Ranked suggestions with explanation - User can still choose manually

Figure 10: AI Tutor-Student Matching page

The screenshot shows the 'Find a Tutor' section of the Tutor Support System. At the top, there is a search bar with placeholder text 'e.g. CO1001, Calculus I', a dropdown for 'Availability' set to 'Any time', and a dropdown for 'Department' set to 'All Departments'. Below the search bar are three tutor profiles:

- Nguyen T. A.**: High match - 82%.
Senior student - CSE
CO1001 - Programming Fundamentals
Computer Science and Engineering
Next available:
Wed 14:00 - Online / B4-205 (2 left) | Fri 09:30 - Online (1 left)
Status: Available
Book session | View profile
- Pham Q. T.**: Good match - 74%.
Tutor - Applied Math
MA1001 - Calculus I
Applied Mathematics
Next available:
Thu 09:00 - C2-301 (2 left) | Sat 10:15 - Online (no)
Status: Available
Book session | View profile
- Truong Q. T.**: Available soon.
Tutor - EEE
EE2002 - Digital Systems
Electrical & Electronics Engineering
Next available:
Fri 16:30 - Lab D1 (1 left)
Status: 1 slot this week
Book session | View profile

Figure 10: Find a Tutor page

TUTOR SUPPORT SYSTEM
COORDINATOR

Operations Tutors Students Reports

Coordinator Assignment

Manually assign a tutor to a student. This will override any previous or pending matches. Only Coordinator / Dept Chair / Admin can do this. (FR-MAT.04)

- Assignment is logged with your coordinator ID. • Student and tutor will receive notifications.

Student Information Student

Student ID	2362525	Full name (from DATACORE)	Nguyen Manh Quoc Khanh
Search or enter the student who needs tutoring support.		Read-only from DATACORE.	
Faculty / Major	Computer Science and Engineering	Requested Support In	Programming Fundamentals (CO1001)
Course or skill area the student needs help with.			

Tutor Selection Tutor

Tutor	Nguyen T. A. · CO1001 · CS Faculty · 3 mentees
Pick a tutor. Their current workload and subject expertise is shown.	
Earliest Available Slot	Wed · 14:00 · B4-205
Pulled from tutor availability (FR-SCH.01).	
Coordinator Note / Reason	Urgent support before midterm; previous tutor is at capacity.
This reason will be logged in audit, visible to department chairs.	

Override Policy

- This assignment will override any existing pending match.
- Both student and tutor will receive notifications.
- This action is recorded with your Coordinator ID and timestamp.

Assignment Summary

Draft - Not saved FR-MAT.04

Student	2362525 — Nguyen Manh Quoc Khanh Computer Science and Engineering
Focus Course	CO1001 — Programming Fundamentals
Tutor	Nguyen T. A. · CO1001 · CS Faculty · 3 mentees
Earliest Slot	Wed 14:00 · B4-205 / Online
Coordinator Reason	Urgent support before midterm; previous tutor is at capacity.

Assign Now

By assigning, you confirm this pairing is appropriate and acknowledge it will be logged.

HOMUT Tutor Support System · Coordinator View · Manual override of tutor-student match

Figure 10: Coordinator assignment page

The screenshot shows a "Smart Match Suggestion" page from the Tutor Support System. It displays three identical profiles for a tutor named Nguyen T. A., who is teaching Programming Fundamentals (CO1001) at the Faculty of Computer Science. Each profile has a matching score of 98%. The profiles include sections for Availability Fit, Style & Focus, and Student Feedback. Both Availability Fit and Style & Focus mention a preference for "Wednesday - 14:00 (B4-205 or Online)" and "Afternoon / On campus". The Student Feedback section notes a "High clarity rating from first-year students who struggled with pointers." At the bottom of each profile are "Request This Tutor" and "View Tutor Profile" buttons.

The footer navigation bar includes links for "Tutor Support System", "Quick Links" (Find a Tutor, Book a Session, Your Dashboard, Submit Feedback), and "Support" (Academic Affairs, Student Affairs, Library Resources, Report an Issue). The footer also contains a copyright notice: "© 2025 Tutor Support System - Ho Chi Minh City University of Technology (HCMUT)".

Figure 10: Smart match suggestion page

10.3 MU-03 Session Scheduling Management

Session Scheduling Management

The screenshot shows the "Tutor Availability Setup" page. It displays the current weekly availability for the tutor. The days are listed with their respective availability slots. Monday has two slots: one from 09:00 to 10:30 (Offline) and another from 14:00 to 15:30 (Online). Tuesday has no slots. Wednesday has one slot from 13:30 to 15:00 (Offline). Thursday has no slots. Friday has one slot from 09:00 to 10:30 (Online). Below the calendar, there is a form to "Add new slot" with fields for Day, Start Time, End Time, and Status (Online/Offline). A note at the bottom states: "Your changes will be synchronized with HCMUT_DATACORE. Students will only see available slots not conflicting with your official timetable." There is a "Save availability" button at the bottom right.

Figure 11: Tutor published available time slots

Session Details

Tutor must have published an available slot before booking.

Student Name / ID

Nguyen M. Q. Khanh · 2352525

Choose Time Slot

Wed 14:00 - Online / B4-205

Mode

In-person at campus

What do you want to work on?

Tutor will see this message before confirming.

Heads up

You already have a session near this time. You can still continue, but system may warn about back-to-back sessions.

By clicking "Request Session", the system will hold this slot, notify the tutor, and send reminders (24h & 1h before).

Booking Summary

Draft · Not submitted

Tutor

Nguyen T. A.
CO1001 – Programming Fundamentals
Computer Science and Engineering
–Tutor's preferred teaching style is not specified.*

Selected slot

Wed 14:00 - Online / B4-205

Mode

In-person at campus

Goal for session

— (no note)

Policy

- Reschedule/cancel ≥ 2h before start.
- System prevents double-booking of the same slot.
- Notifications sent to student & tutor automatically.

Figure 12: Student book session page

Upcoming & Pending

Your next bookings, including those waiting for tutor approval.

Wed - 14:00 - 15:30 - Room B4-205 / Online

Tutor Nguyen T. A. Programming Fundamentals (CO1001)	Mode In-person or Online	Status Tutor accepted · Scheduled
---	------------------------------------	---

Your request to tutor

I need help with recursion and pointer debugging from lab 03. I'm getting segmentation faults.

Can reschedule / cancel up to 2h before start (FR-SCH.03).

Fri - 09:00 - 10:30 - Online

Tutor Doan A. K. Data Structures	Mode Online only	Status Waiting · You're in queue
---	----------------------------	--

Your request to tutor

I need a whiteboard-style walkthrough of linked lists. Please test me after each step.

Can reschedule / cancel up to 2h before start (FR-SCH.03).

Figure 13: Cancellation and rescheduling page

Notifications & reminders

Your system messages, reminders, and alerts.

Reminder

Your session #S-2002 starts in 2 hours.
Today 09:33

Feedback posted by tutor for session #S-1994

Yesterday 13:01

Scheduled update

CO1001 office-hour moved to Wed 15:30.
Yesterday 09:15

Figure 14: System sends notification reminders

Upcoming & Pending

Wed - 14:00 - 15:30 - Room B4-205 / Online	Mode	Status	Confirmed	Reminder
Tutor: Nguyen T. A. Programming Fundamentals (CO1001)	In-person or Online	Tutor accepted - Scheduled		

Fri - 09:00 - 10:30 - Online	Mode	Status	Awaiting Tutor Confirmation	
Tutor: Nguyen T. A. Programming Fundamentals (CO1001)	In-person or Online	Tutor accepted - Scheduled		

Completed Sessions

Wed - 14:00 - 15:30 - Room B4-205 / Online	Mode	Status	Needs Feedback	Submit Feedback
Tutor: Nguyen T. A. Programming Fundamentals (CO1001)	In-person or Online	Tutor accepted - Scheduled		

Fri - 09:00 - 10:30 - Online	Mode	Status	View Session Summary	
Tutor: Nguyen T. A. Programming Fundamentals (CO1001)	In-person or Online	Tutor accepted - Scheduled		

Tutor Support System
Academic support network for HCMUT students.
Find a tutor | Book a session | Your Dashboard | Submit Feedback

Quick Links
Find a Tutor | Book a Session | Your Dashboard | Submit Feedback

Support
Academic Affairs | Student Affairs | Library Resources | Report an issue

Figure 14: My registered sessions page

Session Detail

Session Information

Date & Time Wed - 14:00 - 15:30	Location / Mode Room B4-205 (on campus) or Online (via Google Meet)
Tutor Nguyen T. A. Faculty of Computer Science "We go through your code step by step."	Status Confirmed by tutor Reminder already sent to you

Your Request / Goal for this Session
I need help with recursion and pointer debugging from lab 03.
I keep getting segmentation faults and I don't understand stack frames.

Tutor Notes / Session Summary
We'll walk through your code together. You will explain each pointer manipulation line-by-line. We'll also prepare 2 short "exam-style" recursion questions.

Cancellation Policy
You can cancel or reschedule this session up to 2 hours before start. After that, last-minute cancellations may be recorded for review by the coordinator.

Actions

Reschedule / Cancel
Move this session or cancel it if you can't attend. Must be > 2h before start.

Reschedule Session
Cancel Session

After the Session
When this session is completed, you'll be asked to submit feedback about the tutor's performance. If you don't respond in time, it will be marked "Feedback Skipper".

Submit Feedback

Tutor Support System
Academic support network for HCMUT students.
Find a Tutor | Book a Session | Your Dashboard | Submit Feedback

Quick Links
Find a Tutor | Book a Session | Your Dashboard | Submit Feedback

Support
Academic Affairs | Student Affairs | Library Resources | Report an issue

Figure 14: Session details page

10.4 MU-04 Feedback & Progress Tracking

Figure 15: Submit feedback page

Figure 16: Tutor progress log page

Completed Sessions
Fill in feedback to help improve tutoring quality.

Mon · Oct 27 · 09:00 – 10:30 · C2-301

Tutor Pham Q. T. Calculus I (MA1001)	Focus Midterm-style timed drills	Status Completed - Feedback pending
--	-------------------------------------	--

Session summary
Practiced derivative problems under exam timing. You were asked to explain each step.

Sat · Oct 18 · 08:30 – 10:00 · Online

Tutor Truong Q. T. Digital Systems (EE2002)	Focus Timing diagrams, flip-flop troubleshooting	Status Completed - Feedback deadline passed
---	---	--

System note
Marked as "Feedback Skipped" and visible to department analytics for summary only.

Your feedback is linked to this session (FR-FBK-01).

Your feedback is linked to this session (FR-FBK-01).

Needs Feedback **Submit Feedback** **View Session Summary**

Figure 17: Completed session page

10.5 MU-05 Reporting & Analytics

TUTOR SUPPORT SYSTEM DEPARTMENT CHAIR **Reports**

Participation report
Filter by cohort/program, set thresholds.

2023 CSE Min sessions per student 2

Class	# Students	Participated
K23-CSE-01	62	41
K23-CSE-02	58	35

Export report

Figure 18: Participation report page

TUTOR SUPPORT SYSTEM STUDENT AFFAIRS **Dashboard Reports Export**

Student Affairs Dashboard
Term 2025-1 · Today: 2/11/2025 **Participation Eligibility**

Program Overview

Total Participants 342 +12% vs Last Term	Eligible Students 287 +8% vs Last Term	Sessions Completed 1456 +15% vs Last Term	Avg Feedback Rate 89% +3% vs Last Term
---	---	--	---

System Alerts

- ⚠️ 3 tutors have overbooked sessions this week.
- 💡 12 students have not submitted session feedback yet.
- 💡 5 students are near eligibility threshold (need 1 more session).

Quick Actions

- View Participation Report**
- Check Eligibility**
- Export Reports**
- Export Summary Report**

Recent Activity

- Participation report exported 2 hours ago By: sa_admin
- Eligibility rules updated 5 hours ago By: sa_admin
- PDF report generated 1 day ago By: sa_staff

View All Logs

Figure 18: Student Affairs dashboard page

The screenshot shows the 'Eligibility / Credits' section of the dashboard. It includes fields for 'Minimum Sessions Attended' (set to 4) and 'Minimum Feedback Completion (%)' (set to 75), with a 'Recalculate Eligibility' button. Below this is a table titled 'Eligible Students (5)' listing student IDs, names, sessions attended, and feedback percentages. A summary statistics box indicates 8 total students, 5 eligible, and 3 not eligible.

Student ID	Name	Sessions	Feedback (%)
2252001	Nguyen Van A	7	100%
2252003	Le Minh K	5	80%
2252005	Hoang Tuan L	6	83%
2252006	Nguyen Anh T	4	75%
2252007	Vo Thanh C	8	88%

Figure 18: Eligibility & Credits page

10.6 MU-06 Integration with HCMUT Infrastructure

The screenshot shows the 'Library Resources' section of the system. It lists several documents: 'EE2002 – Digital Systems Lab Manual (Rev. 2024)', 'CO1001 – Intro to Programming: Midterm Review Set', 'Internal Faculty Memo: Academic Advisory Guidelines', and 'MA1001 – Calculus I Final Practice (2024)'. Each item has 'Preview', 'Attach to session', and 'Add to My Library' buttons. To the right, a 'My Library' sidebar displays two items: 'CO1001 – Intro to Programming: Midterm Review Set' and 'EE2002 – Digital Systems Lab Manual (Rev. 2024)', each with a 'View' and 'Delete' button.

Figure 18: Library resource search page

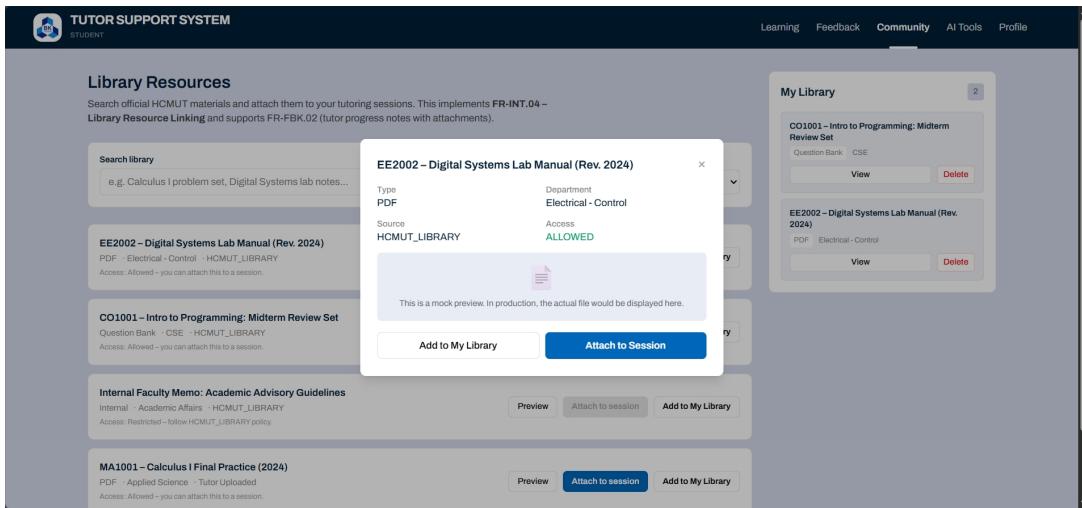


Figure 18: Attachment to session page

10.7 MU-07 Study & Advanced Features

Figure 18: Personalized study plan page

The screenshot shows a document view page from a 'TUTOR SUPPORT SYSTEM'. At the top, there's a navigation bar with icons for user profile, Learning, Feedback, Community, AI Tools, and Profile. Below the header, a breadcrumb trail shows 'Back to Library' and the current document title, 'EE2002 - Digital Systems Lab Manual (Rev. 2024) PDF - Electrical - Control'. The main content area features the title 'Introduction to Programming' and code 'CO1001'. Below the title is a section titled 'Lecture Notes & Lab Manual' with a note 'Revision 2024'. A 'Course Overview' box contains a brief description of the course goals. A 'Learning Objectives' box lists two items: 'Understand basic programming concepts and problem-solving techniques' and 'Master C programming syntax and semantics'.

Figure 18: Document view page

This screenshot shows the 'Table of Contents' page for the same document. On the left, a sidebar displays a 'Table of Contents' with five chapters: Chapter 1: Introduction (Page 1), Chapter 2: Basic Concepts (Page 15), Chapter 3: Advanced Topics (Page 32), Chapter 4: Applications (Page 48), and Chapter 5: Exercises (Page 85). The main content area is identical to the previous screenshot, showing the course title, revision information, course overview, and learning objectives.

Figure 18: Table of contents page

The screenshot shows the 'Community Forum / Q&A' section of the Tutor Support System. At the top, there are dropdown menus for 'All course' and 'All status', and a search bar with placeholder text 'Find by title or keyword...'. Below this is a 'Create new question' form with a title 'CO1001 – Question about assignment' and a text area containing the message 'Can I delete all and do from scratch?'. A 'Post Question' button is at the bottom right of the form. To the right of the form is a 'Moderation' button. The main content area displays a 'Question List (9)' with the following items:

- Pinned CO1001 – How to pass the last test case?** by 2353xxxx · Today 10:12 · 5 replies
- CO1001 – Question about assignment** by you · just now · 0 replies
- CO1001 – Question about assignment** by you · just now · 0 replies
- a CO1001** by you · just now · 0 replies
- a CO1001** by you · just now · 0 replies
- CO1001 – Question about pointer and array** by 2350xxxx · 1 week ago · 12 replies
- PH1001 – Conservation of momentum law** by 2251xxxx · 3 days ago · 8 replies
- MA1001 – Differential homework week 5** by 2278xxxx · 2 days ago · 0 replies
- EE2002 – Any quick tips for Karnaugh map?** by 2252xxxx · Yesterday 21:03 · 2 replies

Figure 18: Community forum page

The screenshot shows the same 'Community Forum / Q&A' section after a question has been posted. A modal window in the center displays a green checkmark icon and the message 'Question posted successfully! Your question has been published to the forum.' with a 'Close' button. The rest of the page is identical to Figure 18, showing the question list and the creation form.

Figure 18: Successful question post page

The screenshot shows a forum post titled "CO1001 - How to pass the last test case?". The post was asked by user "2353xxxx" and has 5 replies. The first reply from "tutor_co1001" suggests using fgets or read line by line then parse. The second reply from "2353xxxx" says they'll try it. The third reply from "2354xxxx" says they had the same issue and using fgets + sscanf worked for them. There is a "Post Reply" button at the bottom.

Figure 18: Reply forum's question page

The screenshot shows the "AI Quiz Generator" page. It has tabs for "Generator", "My Questions", and "Analysis", with "Generator" selected. The "Your request" section asks for practice questions based on topic, difficulty, and confusion notes. It includes fields for "Question source" (set to "Trusted bank (recommended)"), "Topic / Course" (set to "CO1001 - Recursion / Pointer Debugging"), "Difficulty" (set to "Intro / warm-up"), and "What confuses you most?" (with an example note about pointer references). A "Generate Quiz" button is at the bottom.

Figure 18: AI Quiz generator (1) page

The screenshot shows the 'AI Quiz Generator' page of the Tutor Support System. At the top, there's a navigation bar with links for Learning, Feedback, Community, AI Tools, and Profile. Below the navigation is a title 'AI Quiz Generator' and a subtitle 'Generate practice questions based on your topic, difficulty, and confusion notes.' There are three tabs: 'Generator' (selected), 'My Questions', and 'Analysis'. The main form has sections for 'Your request' (a text area for describing struggles), 'Question source' (radio buttons for 'Trusted bank (recommended)' and 'AI creative'), 'Topic / Course' (dropdowns for CO1001 – Recursion / Pointer Debugging and Intro / warm-up), 'Difficulty' (dropdown for 'FIR-ADV03 - Adaptive difficulty'), 'What confuses you most?' (a text area with placeholder text about pointer references), and a 'Generate Quiz' button. Below this is a preview area titled 'Last generated (3 questions)' showing three questions with multiple-choice answers and a 'Bank' button. At the bottom, a note says 'Generated quizzes are automatically saved to "My Questions" page.'

Figure 18: AI Quiz generator (2) page

The screenshot shows the 'My AI Quizzes' page. At the top, there's a navigation bar with links for Learning, Feedback, Community, AI Tools, and Profile. Below the navigation is a title 'My AI Quizzes' and a subtitle 'Review generated questions. Skip ones you don't like, or solve them to track your progress.' There are three tabs: 'Generator' (disabled), 'My Questions' (selected), and 'Analysis'. A 'Filters' section allows filtering by Status (ALL), Topic (ALL), and Source (ALL). Below this, it says '3 questions' and lists three quizzes with their details (topic, difficulty, source, date), each with 'Solve', 'Skip', and 'Delete' buttons. The quiz details are: Q1. What is the base case in a recursive function? (Topic: CO1001 – Recursion / Pointer Debugging, Difficulty: Intro / warm-up, Source: Trusted Bank, Date: 11/2/2025, 2:54:47 PM); Q2. What happens when you dereference a NULL pointer in C? (Topic: CO1001 – Recursion / Pointer Debugging, Difficulty: Intro / warm-up, Source: Trusted Bank, Date: 11/2/2025, 2:54:47 PM); and Q3. Where is local variable data stored during function execution? (Topic: CO1001 – Recursion / Pointer Debugging, Difficulty: Intro / warm-up, Source: Trusted Bank, Date: 11/2/2025, 2:54:47 PM).

Figure 18: My AI Quizzes page

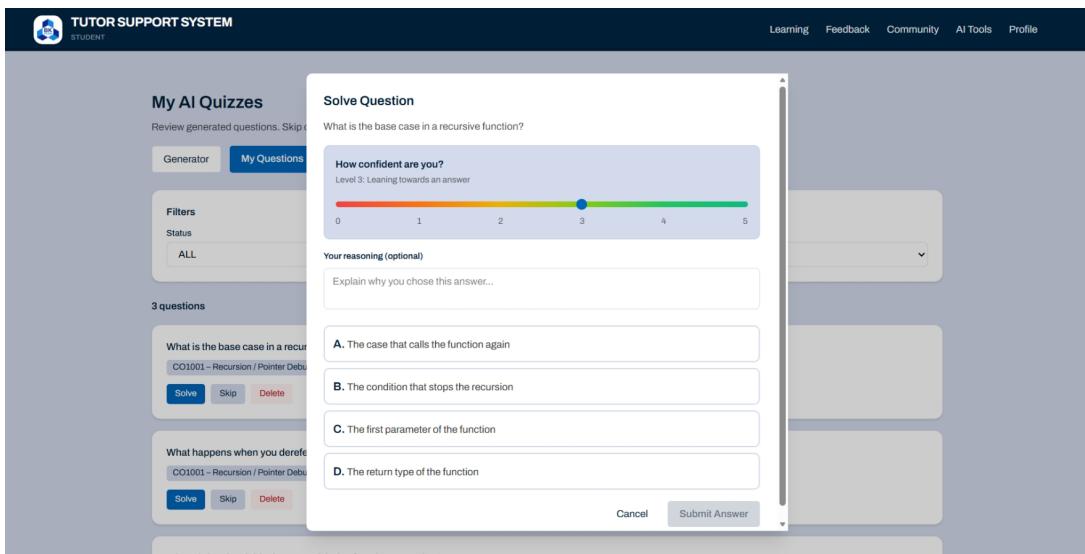


Figure 18: Solve question page (1)

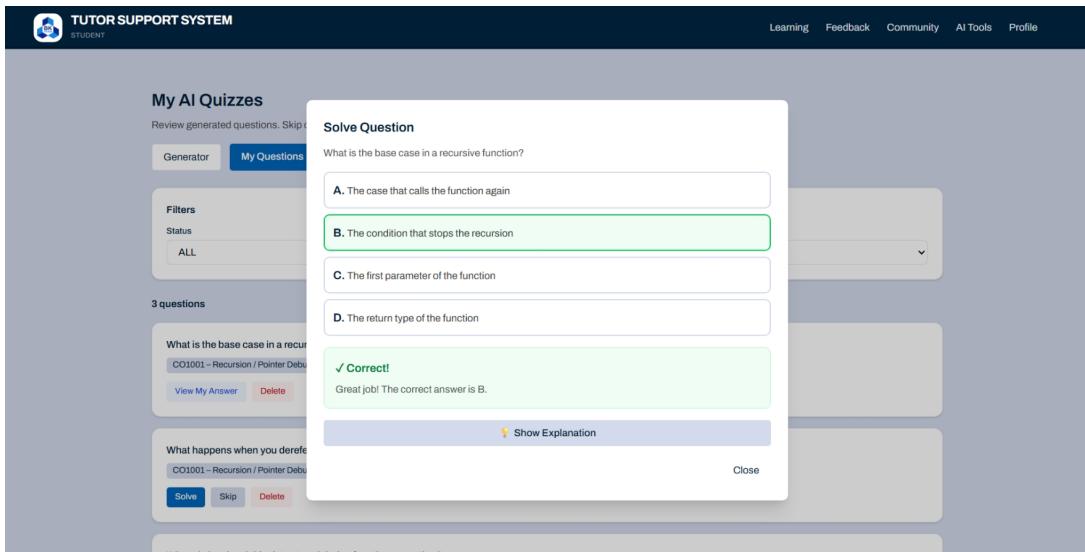


Figure 18: Solve question page (2)-answer

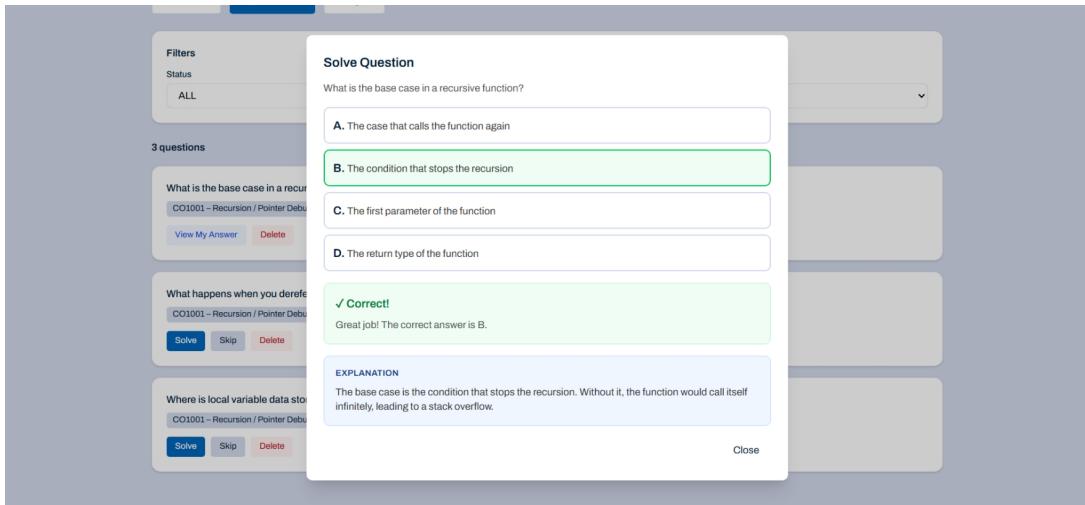


Figure 18: Solve question page (3)-explanation

The screenshot displays the 'Quiz Analysis' section of the Tutor Support System. At the top, there are four summary boxes: 'TOTAL GENERATED 3', 'SOLVED 1', 'CORRECT 1', and 'SKIPPED 0'. Below this is a 'TRUSTED VS AI' box showing '1/0'. The next section, 'Confidence Level Analysis', shows three categories: 'LOW CONFIDENCE (0-1)' with 0 attempts, 'MID CONFIDENCE (2-3)' with 1 attempt (100% correct), and 'HIGH CONFIDENCE (4-5)' with 0 attempts. Below these are five confidence levels: 0: No Idea (0), 1: Wild Guess (0), 2: Unsure (0), 3: Leaning (1, 100% correct), 4: Confident (0), and 5: Absolutely (0). An 'AI RECOMMENDATIONS' section follows. The next section, 'Weak Topics (lowest accuracy first)', lists 'CO1001 – Recursion / Pointer Debugging' with 100% accuracy. The final sections are 'Source Effectiveness' (Trusted Bank: 100% solved; AI Freeform: 0% solved) and 'Difficulty Breakdown' (Intro / warm-up: 1/3 solved).

Figure 18: Quiz analysis page

10.8 MU-08 Admin Tools

The screenshot shows the Admin Dashboard of the Tutor Support System. At the top, there's a navigation bar with links for Dashboard, Exports, Integrations, Audit, Users & Roles, and System Tasks. The main area is titled "Admin Dashboard" and includes a brief description: "Monitor integrations, exports, and system health for the Tutor Support System." Below this, there are four status boxes: "SSO STATUS" (Online, green), "LAST DATACORE SYNC" (5 mins ago, blue), "PENDING EXPORTS" (2, orange), and "AUDIT EVENTS (24H)" (134, gray). A section for "Recent Exports" lists three items: "Departmental Report (CSV)" (E-090, Done), "Participation Report (PDF)" (E-091, Queued), and "Audit Logs (CSV)" (E-092, Processing). Another section for "Integrations" shows three entries: "HCMUT_SSO" (OK, Last checked: 2025-11-02 10:05), "DATACORE" (OK, Last checked: 2025-11-02 10:03), and "HCMUT_LIBRARY" (DEGRADED, Last checked: 2025-11-02 09:58).

Figure 18: Admin dashboard page

The screenshot shows the Audit Logs page. At the top, there's a navigation bar with links for Dashboard, Exports, Integrations, Audit (which is highlighted in blue), Users & Roles, and System Tasks. The main area is titled "Audit Logs" and includes a brief description: "View recent authentication events, role changes, exports, and data sync activities." Below this, there are two filter sections: "Filters" (Actor (user or system) and Event Type, both set to "All Events") and "Audit Events (8)". A table then lists eight audit events:

Time	Actor	Event	Target	Details
2025-11-02 10:10	admin@hcmut.edu.vn	EXPORT	Departmental CSV	Job E-091 created
2025-11-02 10:05	system	SYNC	DATACORE	34 profiles updated
2025-11-02 09:55	coord01	ROLE_CHANGE	student 2352525	Role -> TUTOR (temporary)
2025-11-02 09:40	admin@hcmut.edu.vn	EXPORT	Audit Logs CSV	Job E-092 created
2025-11-02 09:30	2352525@hcmut.edu.vn	LOGIN	Student Portal	SSO authentication successful
2025-11-02 09:15	system	SYNC	HCMUT_LIBRARY	12 resources indexed
2025-11-02 08:50	coord01	ROLE_CHANGE	student 2353001	Role -> COORDINATOR (temporary)
2025-11-02 08:30	admin@hcmut.edu.vn	LOGIN	Admin Portal	SSO authentication successful

Figure 18: Audit logs page

Integrations

Monitor and test connections to HCMUT_SSO, DATACORE, and HCMUT_LIBRARY.

Integration	Status	Last sync
HCMUT_SSO	Online	2025-11-02 10:05
DATACORE	Online	2025-11-02 10:03
HCMUT_LIBRARY	Degraded	2025-11-02 09:58

Last Integration Errors

Integration	Error Message	Timestamp
HCMUT_LIBRARY	403 - access restricted for course resources	2025-11-02 09:58

Figure 18: Integrations page

Exports & Reports

Recent exports and their statuses. You can trigger new exports for Departmental, Participation, and Audit reports.

Create New Export

- New: Departmental (CSV)
- New: Participation (PDF)
- New: Audit Logs (CSV)

Export Jobs

Job ID	Name	Requested at	Status	Actions
E-090	Departmental Report (CSV)	2025-11-01 21:15	Done	Download
E-091	Participation Report (PDF)	2025-11-02 08:05	Queued	Cancel
E-092	Audit Logs (CSV)	2025-11-02 09:40	Processing	Cancel
E-093	System Errors (JSON)	2025-11-02 10:05	Failed	Retry

Figure 18: Export & Report page

Users & Roles

Inspect current roles (Student, Tutor, Coordinator, Department Chair, Program Admin) and local overrides.

Search Users

Sync roles from DATACORE (mock)

Users (5)

User	Email / ID	Current Role(s)	Source	Actions
2352525 – Khanh	2352525@hcmut.edu.vn	Student	DATACORE	View Add role Remove role
coord01 – Student Affairs	coord01@hcmut.edu.vn	Coordinator, StudentAffairs	Local Override	View Add role Remove role
admin	admin@hcmut.edu.vn	ProgramAdmin	Local	View Add role Remove role
2353001 – Minh	2353001@hcmut.edu.vn	Student, Tutor	Local Override	View Add role Remove role
dept01 – CS Dept Chair	dept01@hcmut.edu.vn	DepartmentChair	DATACORE	View Add role Remove role

Figure 18: Users & Roles page

The screenshot shows the 'System Tasks' page of the 'TUTOR SUPPORT SYSTEM'. At the top, there is a navigation bar with links for Dashboard, Exports, Integrations, Audit, Users & Roles, and System Tasks. The 'System Tasks' link is highlighted. Below the navigation bar, the title 'System Tasks' is displayed, followed by a subtitle: 'View and run scheduled tasks such as DB cleanup, log archiving, and backups.'

Scheduled Tasks

Task	Schedule	Last run	Status
Daily DB cleanup	Everyday at 03:00	2025-11-02 03:01	Success
Incremental backup	Every 15 minutes	2025-11-02 10:00	Success
Full backup	Everyday at 01:00	2025-11-02 01:02	Success

Task History

Time	Task	Result
2025-11-02 03:01	Daily DB cleanup	OK (12 MB freed)
2025-11-02 01:02	Full backup	OK (stored in dc-hcmut-bucket-02)
2025-11-01 03:01	Daily DB cleanup	OK (9 MB freed)

Figure 18: System tasks page

11 System Integration

- **HCMUT_SSO:** OAuth2/OIDC-based single sign-on.
- **HCMUT_DATACORE:** Read-only sync of personal data (name, ID, role, faculty, email).
- **HCMUT_LIBRARY:** Link and share official materials within sessions.

12 Working Demonstration

12.1 Authentication

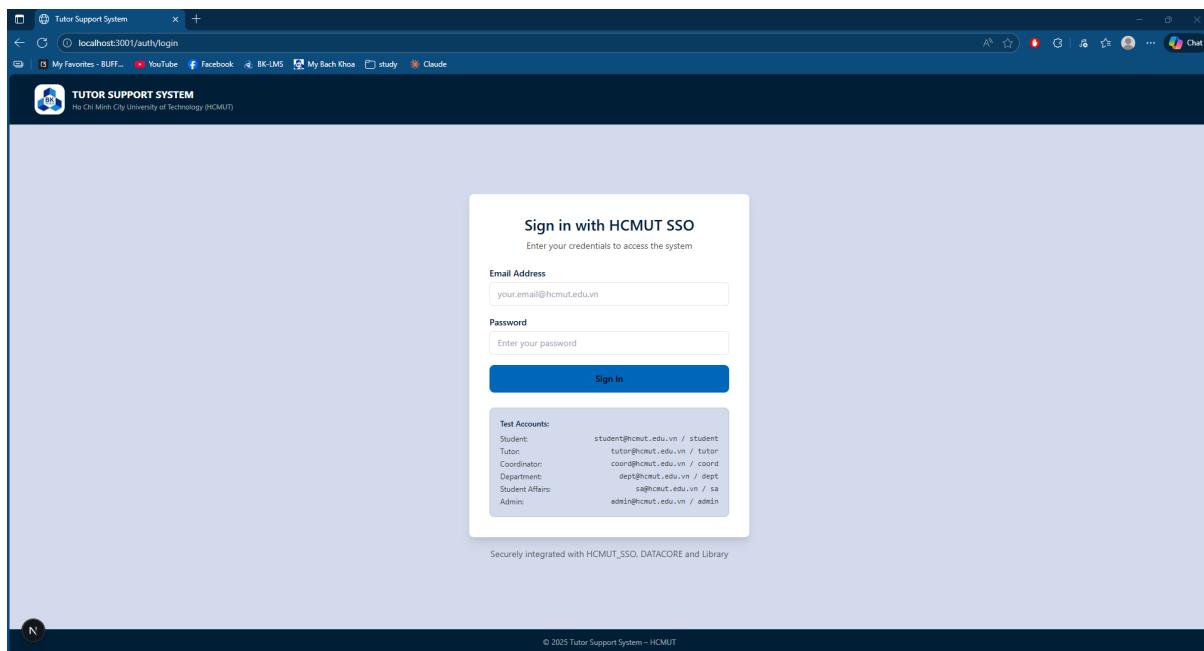


Figure 1: Login page with test account list

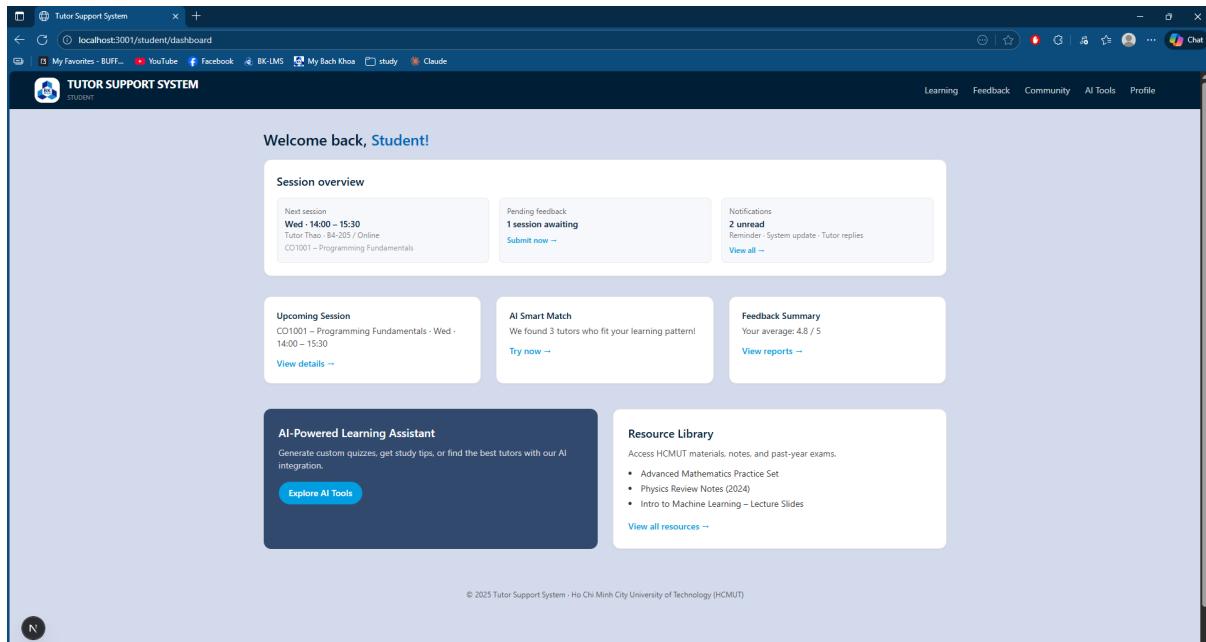


Figure 2: Student Dashboard after successful login

12.2 Student Flow

Figure 3: Find Tutor page with subject filter

Core information

- Full name: Nguyen Tran An
- Student ID: 2352525
- Email: nguyen.an@hcmut.edu.vn
- Faculty / Major: Computer Science and Engineering

Expertise & teaching

Detailed expertise: Extensive experience tutoring programming fundamentals: recursion, pointers, data structures. Can help with debugging C/C++ assignments and whiteboard problem-solving.

Prefer 1:1 debugging sessions: bring code samples

I prefer hands-on sessions where students bring their code. I usually work through problems step-by-step and provide small exercises to practice. I can do both online and in-person sessions.

Full availability

11/29/2025, 7:11:43 PM	11/30/2025, 7:11:43 PM
12/2/2025, 7:11:43 PM	

Book session

Quick info

Match: High match - 82%

Stats

Sessions completed: 124
Average rating: 4.8

Recent feedback

"Very clear explanations, helped me fix a tricky bug." 11/28/2025, 7:11:43 PM
"Good walkthroughs recommended." 11/16/2025, 7:11:43 PM

Figure 4: Tutor detailed profile (expertise, availability, feedback)

Session Details

Tutor must have published an available slot before booking.

Tutor selected: NGUYEN T. A. (CO1001 - Programming Fundamentals, Computer Science and Engineering, Interactive problem-solving with whiteboard examples)

Student Name / ID: Nguyen M. Q. Khanh - 2352525

Choose Time Slot: Wed 14:00 - Online / Campus 1

Mode: Online (Meet/Zoom)

What do you want to work on?

Example: I need help with recursion and pointer debugging from lab 03..

Heads up: You already have a session near this time. You can still continue, but system may warn about back-to-back sessions.

Booking Summary:

UC-03b / FR-SCH02

Tutor: NGUYEN T. A. (CO1001 - Programming Fundamentals)

Selected slot: Wed 14:00 - Online / Campus 1

Mode: Online (Meet/Zoom)

Goal for session: — (no note)

Policy:

- Reschedule/cancel ≥ 2h before start.
- System prevents double-booking of the same slot.
- Notifications sent to student & tutor automatically.

Request Session

Figure 5: Book Session form (subject, tutor, time, mode)

My Sessions

View your upcoming sessions, pending requests, and completed sessions. You can reschedule, cancel, or submit feedback from here.

- You can reschedule / cancel at least 2h before the session start.
- Sessions marked "Awaiting Tutor Confirmation" are not final yet.
- Completed sessions that have no feedback will ask you to submit feedback.

Upcoming & Pending

Your next bookings, including those waiting for tutor approval.

Mon, Oct 27 - 09:00-10:30

Tutor	Mode	Status	Actions
John Doe CO1001 - Programming Fundamentals	Online	Tutor accepted - Scheduled	Confirmed Reminder sent Reschedule Cancel Session

Can reschedule / cancel up to 2h before start (PR-SCK-03).

Completed Sessions

Fill in feedback to help improve tutoring quality.

Tue, Oct 26 - 14:00-15:30

Tutor	Focus	Status	Actions
Pham Quoc Thang MA1001 - Calculus I	Derivatives practice	Completed - Feedback pending	Needs Feedback Submit Feedback

Session summary
Covered integration by parts and sample problems.

Your feedback is linked to this session (PR-FBQ-01).

Figure 6: My Sessions list (Upcoming, Completed)

AI Tutor Match

We analyze your subject, schedule, and learning style to recommend the best tutors for you. You can still browse and book manually.

AI Suggestion • Last updated: just now • This does not auto-book.

Tell us what you need
FR-AZy/21 Intelligent Matching

Course / Topic Required
CO1001 – Programming Fundamentals

Used to filter tutors with matching expertise.

When can you study?
Weekdays 18:00 – 21:00

We will only show tutors who are free in that range.

Your preferred style (optional)
Step-by-step explanation + Q&A

Helps rank tutors whose style matches yours.

What are you struggling with?
Example I don't understand pointer-to-pointer and recursion stack frames. I freeze during lab check.

We will use this (private) to improve the match explanation.

Generate AI Match

Prefer to choose manually? [Browse all tutors](#)

Suggested Tutors Personalized ranking

Top 3 matches based on availability, style, workload

Tutor	Match #	Workload	Action
Nguyen T. A.	Match #1	Workload OK	Request Session
Programming fundamentals/recurisongpoint	NEXT AVAILABILITY Wed 14:00 - Fri 09:30	Prefers 11 debugging sessions; bring code samples	or View profile
Why we think this is a good match	Confidence: High		
<ul style="list-style-type: none"> Matches subject CO1001 – Programming Fundamentals Match score: High match - 82% Expertise: Programming Fundamentals/recurisongpointes 			
Pham Q. T.	Match #2	Workload OK	Request Session
Calculusproblem solvingexam techniques	NEXT AVAILABILITY Thu 09:00 - Sat 10:15	Prefers step-by-step proofs; accepts whiteboard sessions	or View profile
Why we think this is a good match	Confidence: High		
<ul style="list-style-type: none"> Matches subject MA1001 – Calculus I Match score: Good match - 74% Expertise: Calculus,problem solving,exam techniques 			
Truong Q. T.	Match #3	Workload OK	Request Session
Calculusproblem solvingexam techniques	NEXT AVAILABILITY Sat 10:15 - Sun 11:30	Prefers step-by-step proofs; accepts whiteboard sessions	or View profile
Why we think this is a good match	Confidence: High		
<ul style="list-style-type: none"> Matches subject MA1001 – Calculus I Match score: Good match - 74% Expertise: Calculus,problem solving,exam techniques 			

Figure 7: AI Tools interface (Quiz, Personalized, Analysis)

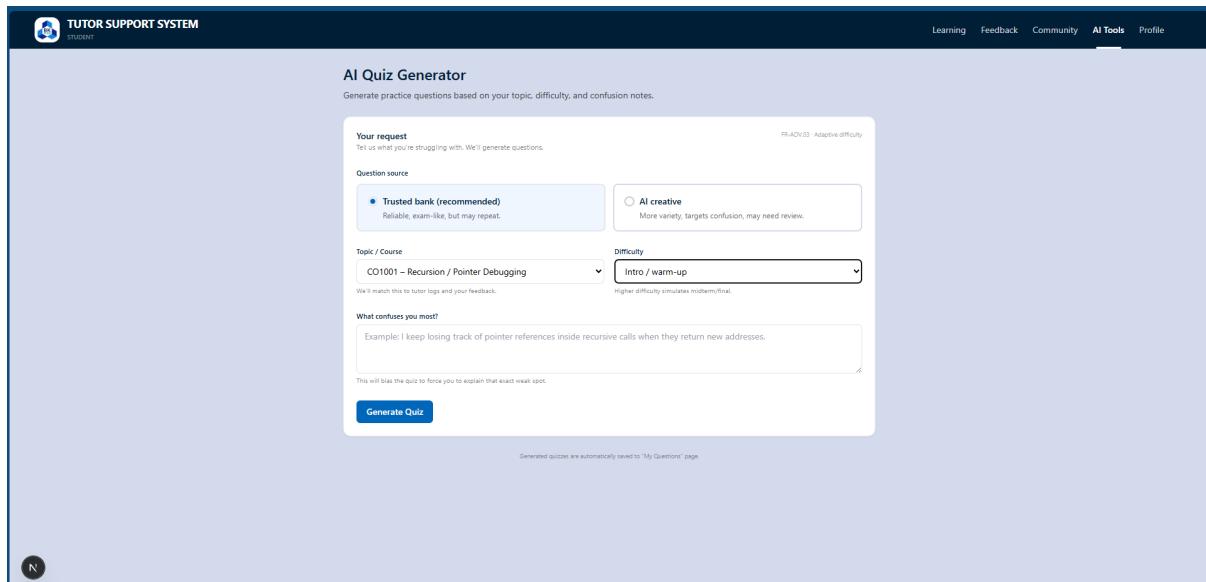


Figure 8: AI Quiz interface with personalized questions

Last generated (3 questions)

Q1. What is the base case in a recursive function?

- A. The case that calls the function again
- B. The condition that stops the recursion
- C. The first parameter of the function
- D. The return type of the function

Q2. What happens when you dereference a NULL pointer in C?

- A. Returns 0
- B. Returns NULL
- C. Causes undefined behavior (likely segmentation fault)
- D. Automatically allocates memory

Q3. Where is local variable data stored during function execution?

- A. Heap memory
- B. Stack memory
- C. Static memory
- D. Register memory only

Saved to My Questions

Bank

Bank

Bank

Go to My Questions

Figure 9: AI Quiz interface with personalized questions

The screenshot shows the 'Library Resources' section of the Tutor Support System. At the top, there is a search bar with placeholder text 'e.g. Calculus I problem set, Digital Systems lab notes...' and a dropdown menu set to 'All'. Below the search bar, there are several resource cards:

- Intro to Algorithms**: PDF - Computer Science and Engineering - HCMUT_LIBRARY. Access: Allowed - you can attach this to a session.
- Digital Systems Lab Guide**: PDF - Electrical & Electronics Engineering - HCMUT_LIBRARY. Access: Restricted - follow HCMUT_LIBRARY policy.
- Discrete Mathematics - Lecture Slides**: PDF - Applied Mathematics - HCMUT_LIBRARY. Access: Allowed - you can attach this to a session.
- Operating Systems - Question Bank (Midterm)**: Question Bank - Computer Science and Engineering - HCMUT_LIBRARY. Access: Allowed - you can attach this to a session.
- Calculus I - Practice Problems**: PDF - Applied Mathematics - User Uploaded. Access: Allowed - you can attach this to a session.
- FPGA Labs - Project Template**: PDF - Electrical & Electronics Engineering - HCMUT_LIBRARY. Access: Restricted - follow HCMUT_LIBRARY policy.

To the right, there is a 'My Library' section showing a message: 'My Library is empty. Add resources from the main list using "Add to My Library".'

Figure 10: Library resources (books, videos, slides)

The screenshot shows the 'Community Forum / Q&A' section of the Tutor Support System. At the top, there is a header with dropdown menus for 'All course' and 'All status', and a search bar with placeholder text 'Find by title or keyword...'. Below the header, there is a 'Create new question' form:

- Question title (e.g., 'CO1001 – segmentation fault error'): CO1001
- Detailed content (optional): [Text area]
- Attachments (optional): Choose Files [No file chosen]
- Post Question button

Below the form is a 'Question List (5)' section displaying five threads:

- Pinned CO1001 – How to pass the last test case?**: CO1001 by 2353xxxx - 2025-11-29T12:12:46.866Z - 5 replies. Actions: open, Unpin, Report.
- CO1001 – Question about pointer and array**: CO1001 by 2350xxxx - 2025-11-22T12:12:46.866Z - 12 replies. Actions: resolved, Pin, Report.
- PH1001 – Conservation of momentum law**: PH1001 by 2251xxxx - 2025-11-26T12:12:46.866Z - 8 replies. Actions: resolved, Pin, Report.
- MA1001 – Differential homework week 5**: MA1001 by 2251xxxx - 2025-11-27T12:12:46.866Z - 12 replies. Actions: pending, Pin, Report.

Figure 11: Forum discussion with threads and replies

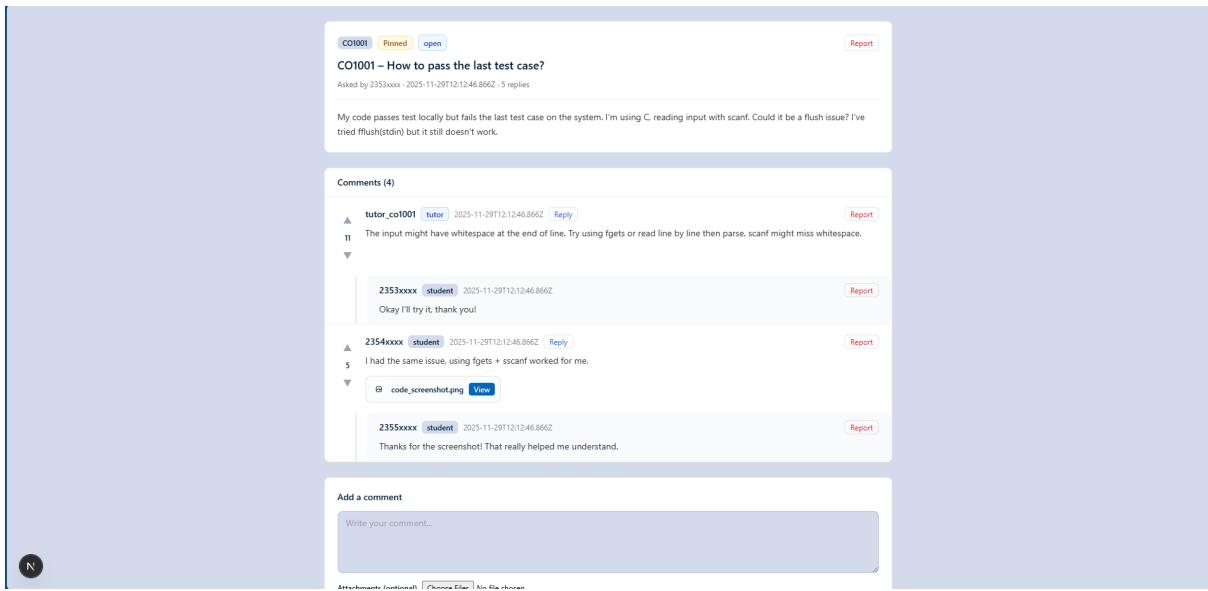


Figure 12: Forum discussion with threads and replies

12.3 Tutor Flow

TUTOR SUPPORT SYSTEM

Tutor Dashboard
Overview of your tutoring sessions, pending requests, and student feedback.

28 Total Sessions This semester	3 Pending Requests	4.7 / 5 Avg Feedback from 18 students	4 Upcoming Next 7 days
--	------------------------------	--	-------------------------------------

Upcoming & Pending Sessions
Manage your upcoming sessions or confirm new requests.

- Mon - 09:00-10:30 - B4-205 / Online**
CO1001 - Programming Fundamentals - Student: Nguyen M. Q. Khanh [Confirmed](#)
- Tue - 14:00-15:30 - Online only**
CO1002 - Data Structures - Student: Le P. T. Hien [Awaiting confirmation](#) [Confirm](#)

Recent Feedback
Latest feedback from your tutoring sessions.

- Tran N. T. Bao - MA1001 - Calculus I**
Oct 27, 2025 - Rating: **★★★★★**
"Explained really clearly! Helped me understand derivatives."
[View](#)
- Nguyen V. Phuc - CO1001 - Programming Fundamentals**
Oct 25, 2025 - Rating: **★★★★★**
"Helpful session, but we ran out of time for one exercise."
[View](#)

Figure 13: Tutor Dashboard (statistics, sessions today, requests)

Incoming Session Requests

Approve or reject booking requests sent by students. Approved slots will appear on your schedule and in the student dashboard.

Pending approvals

- Nguyen M. Q. Khanh - 2352525**
15 min ago
CO1001 - Programming Fundamentals
Wed - 14:00 – 15:30 - 84-205 / Online
- Tran H. Minh - 2353001**
1 hour ago
MA1001 - Calculus I
Thu - 09:00 – 10:30 - Online only

Today / Upcoming

- Today - 15:30 – 16:30
Pham Q. T. – E02002 - Digital Systems
Online (away)
- Tomorrow - 09:00 – 10:30
Le N. H. – C02003 - Data Structures
84-205

Recent decisions

- Approved Vu T. Q. for MA1001 - Calculus I
Today - 10:30
- Rejected (anonymous) for Unmatched subject
Today - 10:30
Not teaching this course / time conflict

Figure 14: Pending requests from students

Tutor Availability Setup

Manage your weekly availability for tutoring sessions. Students can only book in these slots.

Current Weekly Availability

Day	Slots
Monday	2 slots
Tuesday	0 slot(s)
Wednesday	1 slot(s)
Thursday	0 slot(s)
Friday	1 slot(s)

Add new slot

Day: [dropdown] 10:30 AM [time picker] 12:00 PM [time picker] Online [dropdown] + Add Slot

Your changes will be synchronized with HCMUT_DATACORE. Students will only see available slots not conflicting with your official timetable.

Save availability

Figure 15: Tutor availability calendar

Your Sessions (Today / Week)

Quick view for upcoming sessions.

Today

- 09:00 — MA1001
Student 23531xx - C2-301
- 14:00 — CO1001
Student 23535xx - 84-205

This week

- Tue 10:30 — CO2002
- Thu 13:30 — CO2002

Figure 16: Today's sessions list

TUTOR SUPPORT SYSTEM

Dashboard Teaching **Feedback** Profile

Tutor Progress Log

After each tutoring session, record the mentee's progress. This is visible to coordinators and used for department reports.

SESSIONS TO LOG	
Nguyen M. Q. Khanh	Completed
CO1001 : Programming Fundamentals Wed, Oct 27 - 14:00-15:30 - Room 84-205 / Online	
Tran H. Minh	Completed
MA1001 - Calculus I Tue, Oct 28 - 08:00-10:15 - C2-301	
Le T. Cam Tu	In progress
EE2002 - Digital Systems Tue, Oct 29 - 16:30-18:00 - Lab D1	

Tip: this list is usually filtered to "sessions in last 48h" holding sessions without log.

Nguyen M. Q. Khanh - 2352525

CO1001 - Programming Fundamentals
Wed, Oct 27 - 14:00-15:30 - Room 84-205 / Online
Topic: Recursion & pointer debugging - Lab 03

Once submitted, this log is visible to coordinator / department. You can edit within 24h.

Understanding level: Excellent – fully grasped **Engagement**: Highly engaged

Used for student progress analytics.

Session summary: Student could trace recursion stack correctly by the end. Needs follow-up on pointer-to-pointer usage.

This will appear in student dashboard + coordinator reports.

Next recommendation / plan (optional): Example: practice recursion problems 7–10, review memory model next session.

Attach file (optional): Click to upload notes or summary files (PDF, DOCX)

Attach lab notes, summary, or exercise sheets used in this session.

FR-FBX-02 - Progress Recording - Auto-timestamped - Editable 24h

Save draft **Submit progress log**

Figure 17: Student progress log

TUTOR SUPPORT SYSTEM

Dashboard Teaching **Feedback** Profile

Feedback from Students

Filter by course, score, time; sort; and export. Data below is mock for demo.

All courses	Score ≥ Any	All time	Search session / student / text...	Sort: Newest
Average Score 3.75 Across 12 feedback(s)	New in last 7 days 0 Based on time filter above	Low scores (≤ 2) 2 Consider follow-up with students		

Score Distribution

Score	Count
5	1
4	3
3	3
2	2
1	1

Feedback List

Showing 8 of 12

Session	Course	Student	Score	Comment	When
S-1994	CO1001	23531xx	5	Very clear explanation!	12 Nov 2025 10:20 UTC
S-2030	CO1001	23511xx	5	Loved step-by-step approach.	12 Nov 2025 03:40 UTC
S-2001	MA1001	23486xx	3	Ok but a bit fast.	11 Nov 2025 14:00 UTC
S-2002	EE2002	23510xx	5	Great pacing & visuals.	09 Nov 2025 09:15 UTC
S-2009	CO1001	23555xx	2	Hard to follow pointers.	08 Nov 2025 16:45 UTC
S-2033	MA1001	23523xx	4	Examples matched homework.	07 Nov 2025 11:25 UTC
S-2012	PH1001	23561xx	4	Good recap at the end.	05 Nov 2025 08:10 UTC
S-2015	MA1001	23577xx	5	Clear strategies for practice.	03 Nov 2025 13:30 UTC

Page 1 / 2 **Prev** **Next**

Recent Comments

- [CO1001] 23531xx - S-1994 - score 5 - Very clear explanation!
- [CO1001] 23511xx - S-2030 - score 5 - Loved step-by-step approach.
- [MA1001] 23486xx - S-2001 - score 3 - Ok but a bit fast.
- [EE2002] 23510xx - S-2002 - score 5 - Great pacing & visuals.
- [CO1001] 23555xx - S-2009 - score 2 - Hard to follow pointers.

Figure 18: Feedback from students (rating, comments)

12.4 Coordinator Flow

The screenshot shows the 'Coordinator Dashboard' section of the Tutor Support System. It includes a 'Matching suggestions' box listing two tutor-student pairs with their details and a 'Review & Assign' button. To the right is a 'Schedule conflicts' box listing two conflicts with their details and a 'Resolve now' button.

Figure 19: Coordinator Dashboard (sessions, conflicts, alerts)

The screenshot shows the 'Sessions & Issues' section of the system. It displays three session entries: 'Nguyen M.Q. (S-1001)', 'Tran T.H. (S-1002)', and 'Le V.D. (S-1003)'. Each entry shows tutor information, course, date, time, and any associated issues like 'late cancellation' or 'missing feedback'. Buttons for 'Mark resolved' are visible next to each entry.

Figure 20: Sessions management with filters

The screenshot shows the 'Overbook / Conflicts' section. It displays two conflict types: 'Tutor Double Booking' (ID: conf-1) involving tutor Pham Q.T. on Wednesday at 14:00 in Room B4-205, and 'Room Conflict' (ID: conf-2) involving Room C1-202 booked for a department meeting at 10:00. Both conflicts have 'Resolve' buttons.

Figure 21: Conflicts resolution (double-booking, room conflicts)

Figure 22: Automated matching suggestions from system

Figure 23: Manual matching tool (select student, find tutor)

Figure 24: Pending assignments awaiting approval

Tutor Availability Monitor
See which tutors have published availability (PR-SCH-01), who is almost full, and who still needs to declare slots. Useful for manual assignment / conflict resolution.

Tutor	Faculty	Subjects	Status	Next slot	Load
Pham Quoc Thang tut-tut-1	CSE	Programming Fundamentals	OK	Wed 14:00 (Online)	12/6
Tran Huu Nam tut-tut-2	CSE	Data Structures	OK	Thu 18:00 (Online)	20/6
Truong Quoc Thai tut-tut-3	Math	Calculus I	Almost full	—	30/6
Nguyen Thi An tut-tut-4	EE	Digital Systems	OK	Tue 10:00 (In-person)	5/6

PR-SCH-01 Tutor declares slot. PR-ALM-03 Coordinator can nudge tutors who don't publish.

Figure 25: Tutors management (status, workload, availability)

12.5 Department Chair Flow

Department Dashboard
Overview of tutoring operations: capacity, quality, risks.

42
Tutors Active
This term

318
Sessions (30d)
Completed

4.6 / 5
Avg Rating
2,184 feedbacks

7
Open Issues
Need review

Workload Snapshot

- CO1001 – 38% of total hours
- MA1001 – 24% of total hours
- EE2002 – 21% of total hours
- PH1001 – 17% of total hours

Notices

- Midterm period starts next week. Expect +25% demand.
2025-10-25
- 3 tutors near max workload. Consider rebalance.
2025-10-22

Figure 26: Department Dashboard overview

Students
At-a-glance usage and risk flags.

Khanh - 2352525 Major: CSE - Sessions: 6 Open profile
Minh - 2353001 Major: CSE - Sessions: 4 ⚠️ Low attendance last 2 weeks Open profile

Figure 27: Students management

Tutors
Roster and quick stats.

Nguyen A - tutor01 Rating 4.8 - Load 62h - CO 1001, PH1001 View profile
Tran B - tutor02 Rating 4.5 - Load 38h - MA1001 View profile
Le C - tutor03 Rating 4.7 - Load 70h - EE2002, CO1001 View profile

Figure 28: Tutors management

Performance reports
Track key performance indicators and trends.

Last 30 days ▾

Match success rate 94% ↑ +2.1%	Average response time 2.3h ↓ -0.4h	Student satisfaction 4.6/5 ↑ +0.2
Tutor utilization 87% ↑ +3.2%	Conflict resolution rate 96% → 0.0%	

Detailed breakdown

Match success rate by subject Mathematics: 96% Physics: 92% Chemistry: 95% Biology: 93%		
Response time distribution < 1 hour: 45% 1-2 hours: 30% 2-4 hours: 20% > 4 hours: 5%		
Satisfaction by grade level 9th grade: 4.4/5 10th grade: 4.5/5 11th grade: 4.7/5 12th grade: 4.6/5		

N 1 issue X

Figure 29: Performance Report (tutor efficiency, charts)

Workload Report
Distribution of accumulated hours per tutor.

≤ 30h	8 tutor(s)
31-50h	19 tutor(s)
51-70h	11 tutor(s)
> 70h	4 tutor(s)

Figure 30: Workload Report (workload distribution)

Participation Report
Student participation, coverage and trends.

Course	Participants	Coverage	Notes
CO1001	812	92%	High usage around midterms
MA1001	604	88%	Improve off-peak slots

Figure 31: Participation Report (student participation rate)

Feedback Analytics
Filter by course and minimum score.

Average Score	High Ratings (>4)	Coverage
4.25 Across 4 feedback(s)	3 Quality indicator	4 Courses in dataset

All courses		Score ≥ Any			
ID	Course	Tutor	Score	Comment	When
F-1001	CO1001	tutor01	5	Great explanation.	2025-10-20 09:20
F-1002	MA1001	tutor02	4	Helpful pace.	2025-10-21 13:00
F-1003	EE2002	tutor03	3	Too fast at first.	2025-10-22 08:10
F-1004	PH1001	tutor04	5	Clear demos.	2025-10-22 17:30

Figure 32: Feedback Trends (rating trends over time)

Export Center
Generate and download department reports.

New: Departmental		New: Participation	New: Workload
Job	Name	Requested	Status
E-201	Departmental (PDF)	2025-10-21 21:15	Done
E-202	Participation (CSV)	2025-10-22 08:05	Queued

Figure 33: Exports Management (report export)

12.6 Student Affairs Flow

The dashboard displays the following key metrics:

- Total Participants: **342** (+12% vs Last Term)
- Eligible Students: **287** (+8% vs Last Term)
- Sessions Completed: **1456** (+15% vs Last Term)
- Avg Feedback Rate: **89%** (+3% vs Last Term)

System Alerts:

- 3 tutors have overbooked sessions this week.
- 12 students have not submitted session feedback yet.
- 5 students are near eligibility threshold (need 1 more session).

Buttons at the bottom include: View Participation Report, Check Eligibility, Export Reports, and Export Summary Report.

Recent Activity:

- Training credit approved (2 hours ago by sa_admin)
- Escalation created (7 hours ago by sa_admin)
- Participation report imported (1 day ago by sa_admin)

[View All Logs](#)

Figure 34: Student Affairs Dashboard

Eligibility / Credits

Define eligibility rules and check which students qualify for training credits or scholarships.

Eligibility Rules

Minimum Sessions Attended	4	Minimum Feedback Completion (%)	75
---------------------------	---	---------------------------------	----

Recalculate Eligibility

Eligible Students (5)

Student ID	Name	Sessions	Feedback (%)
2252001	Nguyen Van A	7	100%
2252003	Le Minh K	5	80%
2252005	Hoang Tuan L	6	83%
2252006	Nguyen Anh T	4	75%
2252007	Vo Thanh C	8	88%

[Export List](#)

Total Students: **5**

Eligible: **5**

Not Eligible: **0**

Figure 35: Eligibility Tracking (eligibility criteria)

Participation report

Filter by cohort/program, set thresholds.

Year	Program	Min sessions per student
2023	CSE	2

Class	# Students	Participated
K23-CSE-01	62	41
K23-CSE-02	58	35

Export report

Figure 36: Participation Tracking (participation monitoring)

12.7 Admin Flow

Admin Dashboard

Monitor integrations, exports, and system health for the Tutor Support System.

SSO STATUS	LAST DATACORE SYNC	PENDING EXPORTS	AUDIT EVENTS (24H)
Online green	5 mins ago blue	2 orange	134 gray

Recent Exports

- Departmental Report (CSV) E-090 - 2025-11-01 21:15 Done
- Participation Report (PDF) E-091 - 2025-11-02 08:05 Queued
- Audit Logs (CSV) E-092 - 2025-11-02 09:40 Processing

Integrations

- HCMUT_SSO OK Last checked: 2025-11-02 10:05
- DATACORE OK Last checked: 2025-11-02 10:03
- HCMUT_LIBRARY DEGRADED Last checked: 2025-11-02 09:58

Figure 37: Admin Dashboard (system overview, health status)

Users & Roles

Inspect current roles (Student, Tutor, Coordinator, Department Chair, Program Admin) and local overrides.

User	Email / ID	Current Role(s)	Source	Actions
2352525 – Khanh	2352525@hcmut.edu.vn	Student	DATACORE	View Add role Remove role
coord01 – Student Affairs	coord01@hcmut.edu.vn	Coordinator	Local Override	View Add role Remove role
admin	admin@hcmut.edu.vn	ProgramAdmin	Local	View Add role Remove role
2353001 – Minh	2353001@hcmut.edu.vn	Student	Local Override	View Add role Remove role
dept01 – CS Dept Chair	dept01@hcmut.edu.vn	DepartmentChair	DATACORE	View Add role Remove role

Figure 38: RBAC Permissions Matrix (6 roles with detailed permissions)

System Tasks

View and run scheduled tasks such as DB cleanup, log archiving, and backups.

Scheduled Tasks

		Run cleanup now	Run backup now
Daily DB cleanup	Schedule: Everyday at 03:00 Last run: 2025-11-02 03:01	Success	
Incremental backup	Schedule: Every 15 minutes Last run: 2025-11-02 10:00	Success	
Full backup	Schedule: Everyday at 01:00 Last run: 2025-11-02 01:02	Success	

Task History

Time	Task	Result
2025-11-02 03:01	Daily DB cleanup	OK (12 MB freed)
2025-11-02 01:02	Full backup	OK (stored in dc-hcmut-bucket-02)
2025-11-01 03:01	Daily DB cleanup	OK (9 MB freed)

Figure 39: System Tasks Management (background jobs, status)

Integrations

Monitor and test connections to HCMUT_SSO, DATACORE, and HCMUT_LIBRARY.

HCMUT_SSO Last sync: 2025-11-02 10:05 Test login flow View status	DATACORE Last sync: 2025-11-02 10:03 Force sync now View sync log	HCMUT_LIBRARY Last sync: 2025-11-02 09:58 Retry connection Open library sync
---	---	--

Last Integration Errors

HCMUT_LIBRARY 403 – access restricted for course resources	2025-11-02 09:58
--	------------------

Figure 40: Integrations Management (HCMUT_SSO, DATACORE, Library)

Exports & Reports

Recent exports and their statuses. You can trigger new exports for Departmental, Participation, and Audit reports.

Create New Export

Audit Logs (CSV)

Export Jobs

Job ID	Name	Requested at	Status	Actions
E-369	Audit Logs (CSV)	2025-11-29 07:42 PM	Queued	Cancel
E-090	Departmental Report (CSV)	2025-11-01 21:15	Done	Download
E-091	Participation Report (PDF)	2025-11-02 08:05	Queued	Cancel
E-092	Audit Logs (CSV)	2025-11-02 09:40	Processing	Cancel
E-093	System Errors (JSON)	2025-11-02 10:05	Failed	Retry

Figure 41: Export Jobs Management (jobs list, status, download)

Figure 42: Audit Logs Viewer (activity logs, filters)

13 Coding Rules and Constraints

To align with prior functional-programming constraints used in course assignments, if applicable:

- Only allowed imports per assignment rules.
- Prefer pure functions; avoid global state.
- Prefer higher-order functions and list comprehensions over loops.
- Single-assignment variables within functions to encourage immutability.

(Adapt or remove this section if your instructor does not require functional-programming constraints.)

14 Submission and Deliverables

Deliverables:

- PDF generated from this L^AT_EX project.
- Any supporting diagrams (PNG/PDF) in the `images/` folder.

Submission notes:

- Ensure the document compiles on Overleaf without custom fonts or non-standard packages.

15 Generative AI Usage Statement

In accordance with the project guidelines on responsible Generative AI usage, our team adopted AI tools in a controlled, transparent, and academically ethical manner. The use of AI was limited to supporting activities where it provided efficiency gains without replacing core technical understanding or deliverable creation.

Scope of AI Usage

Generative AI was employed strictly for auxiliary purposes, including:

- **Summarization and clarification of project materials:** AI was used to condense long requirement descriptions, meeting notes, and reference documents to support faster team coordination.
- **Idea exploration and conceptual outlining:** During requirement analysis and early design phases, AI assisted in generating preliminary ideas or alternative approaches, which were then fully validated and rewritten by team members.
- **Debugging assistance:** AI was used to interpret error messages, analyze logs, and propose potential debugging steps. All code fixes and final implementations were made manually based on our own evaluation.

Activities Where AI Was Not Used

To preserve authenticity and comply with the project requirements, AI was **not** used for any core technical work, including:

- Writing functional or non-functional requirements.
- Developing use-case descriptions or scenarios.
- Constructing system architecture, deployment views, or development views.
- Creating UML diagrams (sequence, activity, class, or state-chart diagrams).
- Implementing source code, data models, business logic, or algorithms.
- Designing mockups, UI flows, or system interactions.

All of these components were manually developed by team members through independent analysis, team discussion, and iterative refinement.

Rationale for Limited AI Use

This approach ensures that:

- All technical deliverables reflect genuine understanding and original work.
- AI is used only where it meaningfully reduces administrative or repetitive workload.
- The project complies fully with academic integrity guidelines by avoiding over-reliance on automated tools.

Transparency and Integrity

The above description represents the complete and accurate disclosure of AI usage throughout the project. No unreported, excessive, or concealed use of Generative AI occurred. All substantial technical outputs were created directly by the team, consistent with the academic integrity requirements stated in the project description.

16 Workload

Table 17: Workload Allocation Summary for Tutor Support System Project

Team Member	Key Responsibilities Throughout the Project
Tran Huu Hoang Long	Requirements review; checking and consolidating functional requirements and use-cases; detailed work on UC1; contributing to use-case diagram refinement; developing FR-UM and FR-MAT; creating State/Activity/Sequence diagrams for UC1–UC2; preparing the deployment view; contributing to source code implementation.
Doan Anh Khoi	Non-functional requirement preparation; detailed UC2 scenario; non-interactive functional requirement; developing FR-UM and FR-MAT; contributing State/Activity/Sequence diagrams for UC1–UC3; preparing test cases; contributing to implementation tasks.
Arthur Bardot	Non-functional requirements; detailed UC3 scenario; non-interactive functional requirement; developing FR-SCH, FR-FBK, FR-RPT, FR-INT, FR-ADV; producing State/Activity/Sequence diagrams for UC3–UC7; preparing the development view; responsible for slide creation and final presentation delivery.
Nguyen Manh Quoc Khanh	Functional requirements; detailed UC4 scenario; non-interactive functional requirement; developing FR-SCH, FR-FBK, FR-RPT, FR-INT, FR-ADV; producing State/Activity/Sequence diagrams for UC4–UC7; preparing the development view; contributing to implementation tasks.
Pham Quang Tuan	Use-case diagram development; detailed UC5 scenario; non-interactive functional requirement; developing FR-SCH, FR-FBK, FR-RPT; generating State/Activity/Sequence diagrams for UC3–UC5; producing class diagrams and method descriptions; contributing to slide preparation.
Phan Ngoc Lan Chi	Functional requirements; detailed UC6 scenario; non-interactive functional requirement; developing FR-INT and FR-ADV; producing State/Activity/Sequence diagrams for UC6–UC7; preparing the development view; responsible for slide creation and final presentation delivery.
Truong Quoc Thai	Use-case diagram development; detailed UC7 scenario; non-interactive functional requirement; developing FR-FBK, FR-RPT, FR-INT, FR-ADV; producing State/Activity/Sequence diagrams for UC4–UC7; preparing class diagrams and method descriptions; contributing to slide preparation.

17 Changelog

Version	Notes
1.0	Initial draft tailored for Tutor Support System (26 September 2025).
1.1	Functional Requirement, Non-Functional Requirement and General Use-case diagram (24 September 2025).
1.2	Detail Use-case diagram and Table, Non-Interactive Functional Requirement and Fix 1.1 log submission(01 October 2025).
2.0	Complete State, Activity, Sequence and Mockup diagrams (01 November 2025).