CSG3101 – Applied Project

ASSIGNMET 1 – PROJECT PROPOSAL

AI ClassMate Application

SRI Group 07

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Assignment 1 – Project Proposal

1. **Project Name –** AI Powered ClassMate Application (A Smart Platform Connecting Student and Tutors)
2. **Project Goal** - To develop a mobile application that connects students and tutors in Sri Lanka, providing transparent tutor discovery, class scheduling, and AI-based recommendations, beginning with a pilot in Colombo.
3. **Supervisor**:
    - Mr. Kavindu Yakupitiya
4. **Project Team**:

#	Name	Student ID	Specialization	Student Email
1.	Rusitha Mihirath Senarathna	10695678	Software Engineering	hmsenara@our.ecu.edu.au
2.	Viyath Bhagya Wijekoon	10688967	Cyber Security	Vwijekoo@our.ecu.edu.au
3.	Santhusa Dissanayake	10687368	Cyber Security	sdanapal@our.ecu.edu.au
4.	Sonal Dilshan	10665001	Cyber Security	swisidag@our.ecu.edu.au
5.	Sithum Bamunuarachchi	10695895	Software Engineering	bbamunua@our.ecu.edu.au

Table 1 - Project Team

5. **Project Background**:

Private tuition which is also known as shadow education has become an essential part of Sri Lanka's education system especially in urban areas such as Colombo where competition for national examinations is most intense. The Institute of Policy Studies of Sri Lanka (2023) states that the COVID-19 pandemic increased the use of private tuition and revealed problems with how classes were organized such as poor coordination and unequal digital readiness. Bulathwelage (2024) noted that during economic hard times, more than 80% of senior secondary students in Colombo continued to attend tuition, which shows both its necessity and the financial burden it puts on families.

The tuition industry has also been criticized for its growing commercialization. Dr. Isuru Senarath (2023) highlights that it has become more "marketing-driven," where tutor visibility is often decided by advertising methods rather than clear signs of quality. Students and parents are forced to rely on uncoordinated sources such as flyers, social media posts, and word-of-mouth to find appropriate tutors. This informal nature of the system leads to inefficiencies in enrollment, scheduling, and communication.

These findings show that the tuition system in Sri Lanka is both fragmented and inequitable. The sector does not have standardized procedures for handling enrollments, payments, and schedules, and students find it hard to determine tutor quality and appropriateness. The issue, therefore, is the lack of a centralized and transparent system to support the management and coordination of private tuition.

6. Project Scope:

6.1 Brief Description of Proposed Work

This project proposes the development of AI ClassMate, a mobile application designed to connect students with tuition tutors in Sri Lanka, starting with Colombo as the pilot location. The application will be developed using Flutter for cross-platform deployment, as explained in the Flutter documentation, while Firebase will provide authentication, database services, and cloud functions, as described in the Firebase developer documentation. The main features will include tutor discovery and filtering, class enrolment with seat availability checks, scheduling with clash detection, secure submission of payment receipts, and access to shared learning materials. According to (UNESCO, 2021) , artificial intelligence is increasingly used to support education, and this project will adopt similar practices by providing personalised tutor recommendations and student demand insights. IPS (2023) highlights the importance of technology-enabled coordination in the tuition sector, which informs the inclusion of a ChatBot to answer FAQs and guide users through the application.

6.1.1 In-Scope

- The app will be developed as a mobile application using Flutter.
- The first release will run on Android devices in Colombo as a pilot.
- Students will be able to search for tutors, view profiles, enrol in classes, and upload payment receipts.
- Tutors will be able to create classes, manage schedules, upload learning materials, and view enrolments.
- Admins will be able to approve tutors, publish classes, verify payments, and send announcements.
- AI features will include tutor recommendations, student demand insights, and a basic ChatBot for FAQs.
- The app will allow notifications, messaging, and downloading of unit materials.
- Reports and analytics will be provided for admins.

6.1.2 Out of Scope

- The project will not include a full iOS deployment, as the initial release will focus on Android devices.
- The system will not integrate third-party payment gateways; instead, it will rely on manual receipt uploads for this phase.
- A nationwide rollout is out of scope, with the pilot limited to the Colombo region.
- Advanced AI tutoring such as adaptive learning or automated teaching will not be implemented, with AI limited to recommendations, demand insights, and a basic ChatBot.

- Marketing and commercialisation activities beyond the academic prototype are not part of the current scope.

6.2 Functional Requirements

1. User must be able to register and log in using email or phone.
2. Student must be able to search and filter tutors by subject, class type, fees, and availability.
3. Student must be able to view tutor profiles including qualifications and classes offered.
4. Student must be able to view weekly class schedules.
5. Student must be able to enrol in classes with seat availability checks.
6. Student must be able to upload payment proof for invoices.
7. Student should be able to receive notifications and messages regarding enrolments, schedules, and payments.
8. Student should be able to view and download unit materials uploaded by a tutor.
9. Tutor must be able to create and manage classes with automated clash checks.
10. Tutor should be able to upload and manage unit materials.
11. Tutor must be able to view class enrolments and communicate with students.
12. Tutor could be able to access AI-driven demand insights on popular class times and formats.
13. Admin must be able to approve tutor registrations and publish classes.
14. Admin must be able to verify payments and issue refunds.
15. Admin should be able to broadcast announcements to selected groups.
16. Student should be able to receive AI-based tutor recommendations.
17. User should be able to interact with a ChatBot for FAQs, class navigation, and support.
18. System must be able to generate reports and analytics on enrolments, revenue, and outstanding payments.

6.2 Non-Functional Requirements

1. The system should be user-friendly with a simple, intuitive interface.
2. The system should be efficient, offering quick response times during normal use.
3. The system must be secure, ensuring safe storage and transmission of data through authentication and encryption.
4. The system should be reliable, operating consistently with minimal downtime.
5. The system could be scalable to support future expansion and new features beyond the pilot release.

6.3 Deliverables:

No.	Deliverable	Description	Format/Platform	Date
1.	Mobile Application	Mobile app (pilot release for Android)	APK / Play Store-ready package	4/10/20205
2.	Source code	Complete Flutter and Firebase project code	GitHub repository	4/10/20205
3.	System documentation	Architecture diagrams, design decisions, API references	PDF Document	12/10/20205
4.	User guide	Step-by-step guide for students, tutors, and admins	PDF Document	12/10/20205
5.	Developer manual	Setup instructions, deployment guide, coding standards	PDF Document	12/10/20205
6.	Test plan and results	Functional and non-functional test cases with results	PDF Document	12/10/20205
7.	Final project report	Evaluation of requirements, features implemented, limitations, and future work	PDF Document	15/10/20205

Table 2 - Final Deliverables

7. Schedule

#	Task	Required Resources	Deadline	Status	Responsible Person
1. Project Initiation & Planning					
1.1	Discuss initial project ideas (including alternative opt	Meeting tools, notes	03/08/2025	Completed	All members
1.2	Finalize initial project idea	Meeting tools	05/08/2025	Completed	All members
1.3	Evaluate functional requirements feasibility and com	Internet research, requirement templates	07/08/2025	Completed	All members
1.4	Contact potential supervisor (email sent by Viyath W	Email, ECU account	04/08/2025	Completed	Viyath Wijekoon
1.5	First meeting with supervisor to discuss plan	Supervisor meeting	09/08/2025	Completed	All members
1.6	Refine and confirm final project idea (AI ClassMate)	Brainstorming session	09/08/2025	Completed	All members
1.7	Brainstorm functional requirements	Brainstorming tools	10/08/2025	Completed	All members
1.8	Prepare draft functional requirements	Requirements document	12/08/2025	Completed	Rusitha, Viyath
1.9	First official supervisor meeting for feedback on requ	Supervisor meeting, requirements doc	13/08/2025	Completed	All members
2. Design Phase					
2.1	Create Use Case Diagram (started 13/08, finalized 14	Diagramming tools (Lucidchart)	14/08/2025	Completed	Rusitha Senarathna
2.2	Create Wireframes (started 13/08, ongoing)	Figma	15/08/2025	Completed	Rusitha Senarathna
2.3	Review and finalize wireframes	Figma, feedback sessions	16/08/2025	Completed	Rusitha Senarathna
2.4	Prepare UI Style Guide	Figma, design documentation tools	16/08/2025	Completed	Rusitha, Viyath
3. Development Environment Setup					
3.1	Install and configure Flutter SDK	Flutter SDK, Android Studio	15/08/2025	Completed	All members
3.2	Set up GitHub repository and branching strategy	GitHub, internet	18/08/2025	Doing	Backend/Frontend Le...
3.3	Configure Firebase backend services	Firebase account, internet	22/08/2025	To be Start...	Backend Devs, Sithum
4. Backend Development (Software E					
4.1	Implement User Authentication (Student, Tutor, Admi	Firebase Auth, API tools	27/08/2025	To be Start...	Software Eng. Team
4.2	Implement Class Management API	Firebase Firestore, API framework	03/09/2025	To be Start...	Software Eng. Team
4.3	Implement AI Recommendation Engine	AI model, dataset, Python/ML tools	12/09/2025	To be Start...	Software Eng. Team
4.4	Payment and Invoice Management API	Payment proof submission	18/09/2025	To be Start...	Software Eng. Team
5. Cyber Security Tasks					
5.1	Conduct system threat modeling	Threat modeling templates, security analysis tools	02/09/2025	To be Start...	Cyber Security Membe...
5.2	Design secure authentication workflow (MFA, passw	Security frameworks, Firebase Auth settings	05/09/2025	To be Start...	Cyber Security Membe...
5.3	Implement data encryption for stored and transmitte	Encryption libraries, Firebase security rules	10/09/2025	To be Start...	Cyber Security Membe...
5.4	Perform penetration testing on the application	OWASP ZAP, Burp Suite	05/10/2025	To be Start...	Cyber Security Membe...
5.5	Review Firebase security rules and access permissio	Firebase console, security audit tools	10/10/2025	To be Start...	Cyber Security Membe...
6. Frontend Development (Flutter)					
6.1	Develop Student Module UI & integration	Flutter, API endpoints	12/09/2025	To be Start...	Flutter Devs – Rusitha...
6.2	Develop Tutor Module UI & integration	Flutter, API endpoints	20/09/2025	To be Start...	Flutter Devs – Rusitha...
6.3	Develop Admin Module UI & integration	Flutter, API endpoints	26/09/2025	To be Start...	Flutter Devs – Rusitha...
7. Integration & Testing					
7.1	Conduct unit testing	Testing framework, test cases	01/10/2025	To be Start...	QA Team
7.2	Conduct integration testing	Backend & frontend integration	06/10/2025	To be Start...	QA Team
7.3	Fix bugs and optimize performance	Development tools, profiling tools	10/10/2025	To be Start...	All Devs
8. Deployment & Wrap-Up					
8.1	Deploy backend to Firebase/Cloud	Firebase hosting, server setup	11/10/2025	To be Start...	DevOps
8.2	Publish Flutter app for internal testing	Google Play Console, Apple TestFlight	12/10/2025	To be Start...	DevOps
8.3	Prepare final project documentation	Google Docs, project files	13/10/2025	To be Start...	All Members
8.4	Final presentation and submission	Presentation slides, report	15/10/2025	To be Start...	All Members

Figure 1 - Project Schedule

Link to the Project Schedule - https://docs.google.com/spreadsheets/d/1o-ooPLktrCkPHkcyi_pjEYa9ulNrm2hSPoWvfnzSCu8/edit?usp=sharing

Gantt Chart

7. SRI CSG3101.2 APCMA Gantt Chart.m

8. **Team Capability Alignment**:

9. #	Name	Role	Assigned Scope	Task Aligned with Course Learning	Assigned Task Numbers
1.	**Rusitha Senarathna**	Frontend Lead & Backend Support	Building user-friendly mobile interfaces in Flutter; ensuring consistency across UI; assisting backend integration with Firebase and data handling.	Applies Analysis & Design to create user flows, use case diagrams, and UI wireframes; uses Mobile Application Development to build features in Flutter; applies Project Methods for planning, scheduling, and documentation; contributes to Intelligent Systems by supporting integration of AI tutor recommendations and ChatBot features.	1.10, 1.13, 2.2, 2.3, 2.4 – 2.6, 2.7– 2.9, 3.1–3.3, 3.6, 3.9, 4.2, 6.1., 6.2, 6.3, 6.5, 6.7, 6.9, 6.11, 6.13, 6.15
2.	**Viyath Wijekoon**	Frontend Support & Cybersecurity Developer	Supporting frontend development; contributing to secure coding practices and authentication modules.	Focuses on building secure authentication and access features while supporting frontend integration. His work emphasizes secure coding, anomaly detection, and compliance in line with best practices in cybersecurity and system governance.	1.2–1.5, 1.14, 2.1, 2.4, 6.1, 6.3, 6.4, 6.6
3.	**Sithum Gimhara**	Backend Developer	Designing database structures, Firebase integration, and backend logic with APIs.	Applies Applications Development to design and implement backend logic; uses Mobile Application Development to integrate Firebase services and manage mobile data flow; applies Analysis & Design to structure the database and ensure efficient, scalable system architecture.	1.12, 1.16, 1.17, 3.4,3.5, 3.7,3.8, 3.10,3.12, 4.1, 4.2, 4.3,4.7, 4.9, 4.11, 4.12, 4.14, 4.16, 6.1, 6.2, 6.8
4.	**Santhusa Dissanayake**	Cybersecurity Developer	Implementing secure authentication,	Contributes to strengthening system security through encryption, role-based access	5.2, 5.6, 6.1

			encryption, and role-based access control.	control, and vulnerability mitigation. He ensures authentication mechanisms are reliable and aligned with secure system design principles.	
5.	**Sonal Dilshan**	Cybersecurity Developer	Supporting security and compliance, focusing on access control and system reliability.	Supports overall system reliability and compliance by enhancing backend security, monitoring for threats, and validating defenses. He also contributes to audit processes and vulnerability monitoring to maintain a secure environment.	5.3, 5.5, 5.7, 5.8, 5.12, 5.14, 5.18

Table 3 - Team Capability Alignment

10. Tools and Technical Requirements:

Type	Tools / Technologies	Purpose	Access Method
Software	Flutter (3.35, Dart 3.9)	Cross-platform mobile app development (Android first, iOS later).	Open-source SDK
	Figma	Wireframing and prototyping user interfaces.	Free
	Firebase (Auth, Firestore, Storage, Cloud Functions)	Authentication, real-time database, file storage, backend logic.	Free/educational tier
	Firebase Cloud Messaging (FCM)	Push notifications and real-time updates.	Free/educational tier
	TensorFlow Lite / Firebase ML Kit; Dialogflow	AI-based tutor recommendations and ChatBot assistant.	Free tier / APIs
	GitHub	Source code management and collaborative development.	Free
	Flutter Test Framework; Firebase Test Lab	Unit, widget, and device compatibility testing.	Free/limited quota

Hardware	Android Smartphones	Application testing and pilot deployment.	Student-provided
	Laptops with internet connectivity	Development, debugging, and collaboration.	Student-provided
Other Tools	MS Project	Create and maintain Gantt chart and WBS; manage tasks and deadlines.	Licensed (university)
	Google Sheets	Collaborative schedule tracking and real-time task updates.	Free
	ChatGPT	Drafting, refining reports, documentation support, and brainstorming.	Free / Plus subscription

Table 4 - Tools and Technical Requirements

11. Future Improvements

- Adding support for iOS devices after the Android pilot release.
- Integration of secure online payment gateways instead of manual receipt uploads.
- Expansion of the app to cover other major districts beyond Colombo.
- Development of more advanced AI features, such as adaptive learning and intelligent feedback for students.
- Multi-language support to improve accessibility across Sri Lanka.
- Integration of video conferencing for live online tutoring sessions.

12. References

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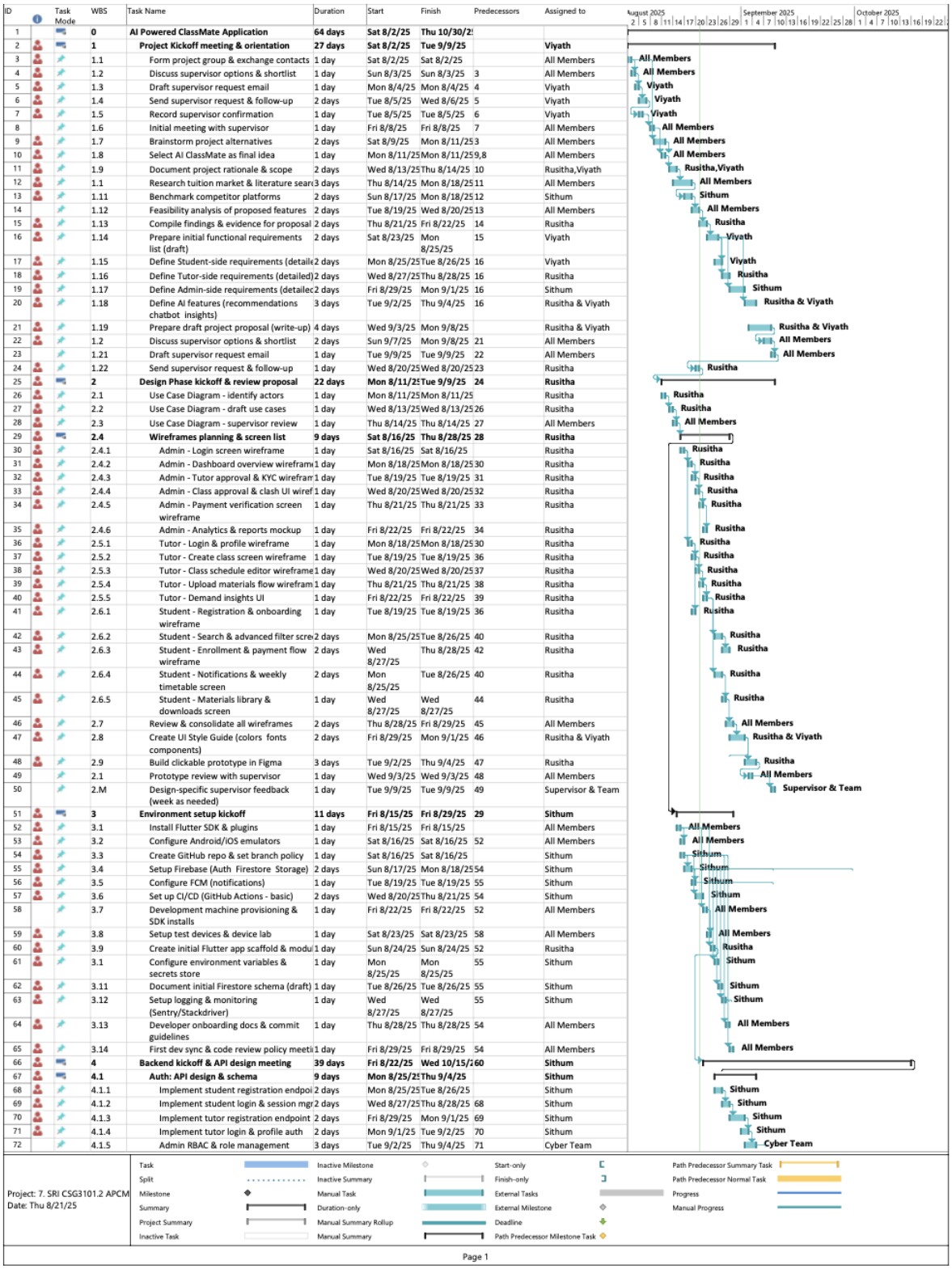
13. Appendices

Appendix A – Project Schedule Gantt Chart



ID	Task Mode	WBS	Task Name	Duration	Start	Finish	Predecessors	Assigned to
1		0	**AI Powered ClassMate Application**	**64 days**	**Sat 8/2/25**	**Thu 10/30/25**		
2		1	**Project Kickoff meeting & orientation**	**27 days**	**Sat 8/2/25**	**Tue 9/9/25**		**Viyath**
3		1.1	Form project group & exchange contacts	1 day	Sat 8/2/25	Sat 8/2/25		All Members
4		1.2	Discuss supervisor options & shortlist	1 day	Sun 8/3/25	Sun 8/3/25	3	All Members
5		1.3	Draft supervisor request email	1 day	Mon 8/4/25	Mon 8/4/25	4	Viyath
6		1.4	Send supervisor request & follow-up	2 days	Tue 8/5/25	Wed 8/6/25	5	Viyath
7		1.5	Record supervisor confirmation	1 day	Tue 8/5/25	Tue 8/5/25	6	Viyath
8		1.6	Initial meeting with supervisor	1 day	Fri 8/8/25	Fri 8/8/25	7	All Members
9		1.7	Brainstorm project alternatives	2 days	Sat 8/9/25	Mon 8/11/25	3	All Members
10		1.8	Select AI ClassMate as final idea	1 day	Mon 8/11/25	Mon 8/11/25	9,8	All Members
11		1.9	Document project rationale & scope	2 days	Wed 8/13/25	Thu 8/14/25	10	Rusitha,Viyath
12		1.1	Research tuition market & literature sear	3 days	Thu 8/14/25	Mon 8/18/25	11	All Members
13		1.11	Benchmark competitor platforms	2 days	Sun 8/17/25	Mon 8/18/25	12	Sithum
14		1.12	Feasibility analysis of proposed features	2 days	Tue 8/19/25	Wed 8/20/25	13	All Members
15		1.13	Compile findings & evidence for proposal	2 days	Thu 8/21/25	Fri 8/22/25	14	Rusitha
16		1.14	Prepare initial functional requirements list (draft)	2 days	Sat 8/23/25	Mon 8/25/25	15	Viyath
17		1.15	Define Student-side requirements (detaile	2 days	Mon 8/25/25	Tue 8/26/25	16	Viyath
18		1.16	Define Tutor-side requirements (detailed)	2 days	Wed 8/27/25	Thu 8/28/25	16	Rusitha
19		1.17	Define Admin-side requirements (detailec	2 days	Fri 8/29/25	Mon 9/1/25	16	Sithum
20		1.18	Define AI features (recommendations chatbot insights)	3 days	Tue 9/2/25	Thu 9/4/25	16	Rusitha & Viyath
21		1.19	Prepare draft project proposal (write-up)	4 days	Wed 9/3/25	Mon 9/8/25		Rusitha & Viyath
22		1.2	Discuss supervisor options & shortlist	2 days	Sun 9/7/25	Mon 9/8/25	21	All Members
23		1.21	Draft supervisor request email	1 day	Tue 9/9/25	Tue 9/9/25	22	All Members
24		1.22	Send supervisor request & follow-up	1 day	Wed 8/20/25	Wed 8/20/25	23	Rusitha
25		2	**Design Phase kickoff & review proposal**	**22 days**	**Mon 8/11/25**	**Tue 9/9/25**	**24**	**Rusitha**
26		2.1	Use Case Diagram - identify actors	1 day	Mon 8/11/25	Mon 8/11/25		Rusitha
27		2.2	Use Case Diagram - draft use cases	1 day	Wed 8/13/25	Wed 8/13/25	26	Rusitha
28		2.3	Use Case Diagram - supervisor review	1 day	Thu 8/14/25	Thu 8/14/25	27	All Members
29		2.4	**Wireframes planning & screen list**	**9 days**	**Sat 8/16/25**	**Thu 8/28/25**	**28**	**Rusitha**
30		2.4.1	Admin - Login screen wireframe	1 day	Sat 8/16/25	Sat 8/16/25		Rusitha
31		2.4.2	Admin - Dashboard overview wirefram	1 day	Mon 8/18/25	Mon 8/18/25	30	Rusitha
32		2.4.3	Admin - Tutor approval & KYC wirefram	1 day	Tue 8/19/25	Tue 8/19/25	31	Rusitha
33		2.4.4	Admin - Class approval & clash UI wiref	1 day	Wed 8/20/25	Wed 8/20/25	32	Rusitha
34		2.4.5	Admin - Payment verification screen wireframe	1 day	Thu 8/21/25	Thu 8/21/25	33	Rusitha
35		2.4.6	Admin - Analytics & reports mockup	1 day	Fri 8/22/25	Fri 8/22/25	34	Rusitha
36		2.5.1	Tutor - Login & profile wireframe	1 day	Mon 8/18/25	Mon 8/18/25	30	Rusitha
37		2.5.2	Tutor - Create class screen wireframe	1 day	Tue 8/19/25	Tue 8/19/25	36	Rusitha
38		2.5.3	Tutor - Class schedule editor wireframe	1 day	Wed 8/20/25	Wed 8/20/25	37	Rusitha
39		2.5.4	Tutor - Upload materials flow wirefram	1 day	Thu 8/21/25	Thu 8/21/25	38	Rusitha
40		2.5.5	Tutor - Demand insights UI	1 day	Fri 8/22/25	Fri 8/22/25	39	Rusitha
41		2.6.1	Student - Registration & onboarding wireframe	1 day	Tue 8/19/25	Tue 8/19/25	36	Rusitha
42		2.6.2	Student - Search & advanced filter scre	2 days	Mon 8/25/25	Tue 8/26/25	40	Rusitha
43		2.6.3	Student - Enrollment & payment flow wireframe	2 days	Wed 8/27/25	Thu 8/28/25	42	Rusitha
44		2.6.4	Student - Notifications & weekly timetable screen	2 days	Mon 8/25/25	Tue 8/26/25	40	Rusitha
45		2.6.5	Student - Materials library & downloads screen	1 day	Wed 8/27/25	Wed 8/27/25	44	Rusitha
46		2.7	Review & consolidate all wireframes	2 days	Thu 8/28/25	Fri 8/29/25	45	All Members
47		2.8	Create UI Style Guide (colors fonts components)	2 days	Fri 8/29/25	Mon 9/1/25	46	Rusitha & Viyath
48		2.9	Build clickable prototype in Figma	3 days	Tue 9/2/25	Thu 9/4/25	47	Rusitha
49		2.1	Prototype review with supervisor	1 day	Wed 9/3/25	Wed 9/3/25	48	All Members
50		2.M	Design-specific supervisor feedback (week as needed)	1 day	Tue 9/9/25	Tue 9/9/25	49	Supervisor & Team
51		3	**Environment setup kickoff**	**11 days**	**Fri 8/15/25**	**Fri 8/29/25**	**29**	**Sithum**
52		3.1	Install Flutter SDK & plugins	1 day	Fri 8/15/25	Fri 8/15/25		All Members
53		3.2	Configure Android/iOS emulators	1 day	Sat 8/16/25	Sat 8/16/25	52	All Members
54		3.3	Create GitHub repo & set branch policy	1 day	Sat 8/16/25	Sat 8/16/25		Sithum
55		3.4	Setup Firebase (Auth Firestore Storage)	2 days	Sun 8/17/25	Mon 8/18/25	54	Sithum
56		3.5	Configure FCM (notifications)	1 day	Tue 8/19/25	Tue 8/19/25	55	Sithum
57		3.6	Set up CI/CD (GitHub Actions - basic)	2 days	Wed 8/20/25	Thu 8/21/25	54	Sithum
58		3.7	Development machine provisioning & SDK installs	1 day	Fri 8/22/25	Fri 8/22/25	52	All Members
59		3.8	Setup test devices & device lab	1 day	Sat 8/23/25	Sat 8/23/25	58	All Members
60		3.9	Create initial Flutter app scaffold & modu	1 day	Sun 8/24/25	Sun 8/24/25	52	Rusitha
61		3.1	Configure environment variables & secrets store	1 day	Mon 8/25/25	Mon 8/25/25	55	Sithum
62		3.11	Document initial Firestore schema (draft)	1 day	Tue 8/26/25	Tue 8/26/25	55	Sithum
63		3.12	Setup logging & monitoring (Sentry/Stackdriver)	1 day	Wed 8/27/25	Wed 8/27/25	55	Sithum
64		3.13	Developer onboarding docs & commit guidelines	1 day	Thu 8/28/25	Thu 8/28/25	54	All Members
65		3.14	First dev sync & code review policy meeti	1 day	Fri 8/29/25	Fri 8/29/25	54	All Members
66		4	**Backend kickoff & API design meeting**	**39 days**	**Fri 8/22/25**	**Wed 10/15/25**	**60**	**Sithum**
67		4.1	**Auth: API design & schema**	**9 days**	**Mon 8/25/25**	**Thu 9/4/25**		**Sithum**
68		4.1.1	Implement student registration endpoi	2 days	Mon 8/25/25	Tue 8/26/25		Sithum
69		4.1.2	Implement student login & session mgr	2 days	Wed 8/27/25	Thu 8/28/25	68	Sithum
70		4.1.3	Implement tutor registration endpoint	2 days	Fri 8/29/25	Mon 9/1/25	69	Sithum
71		4.1.4	Implement tutor login & profile auth	2 days	Mon 9/1/25	Tue 9/2/25	70	Sithum
72		4.1.5	Admin RBAC & role management	3 days	Tue 9/2/25	Thu 9/4/25	71	Cyber Team

Figure 2 - Gantt Chart Part 1

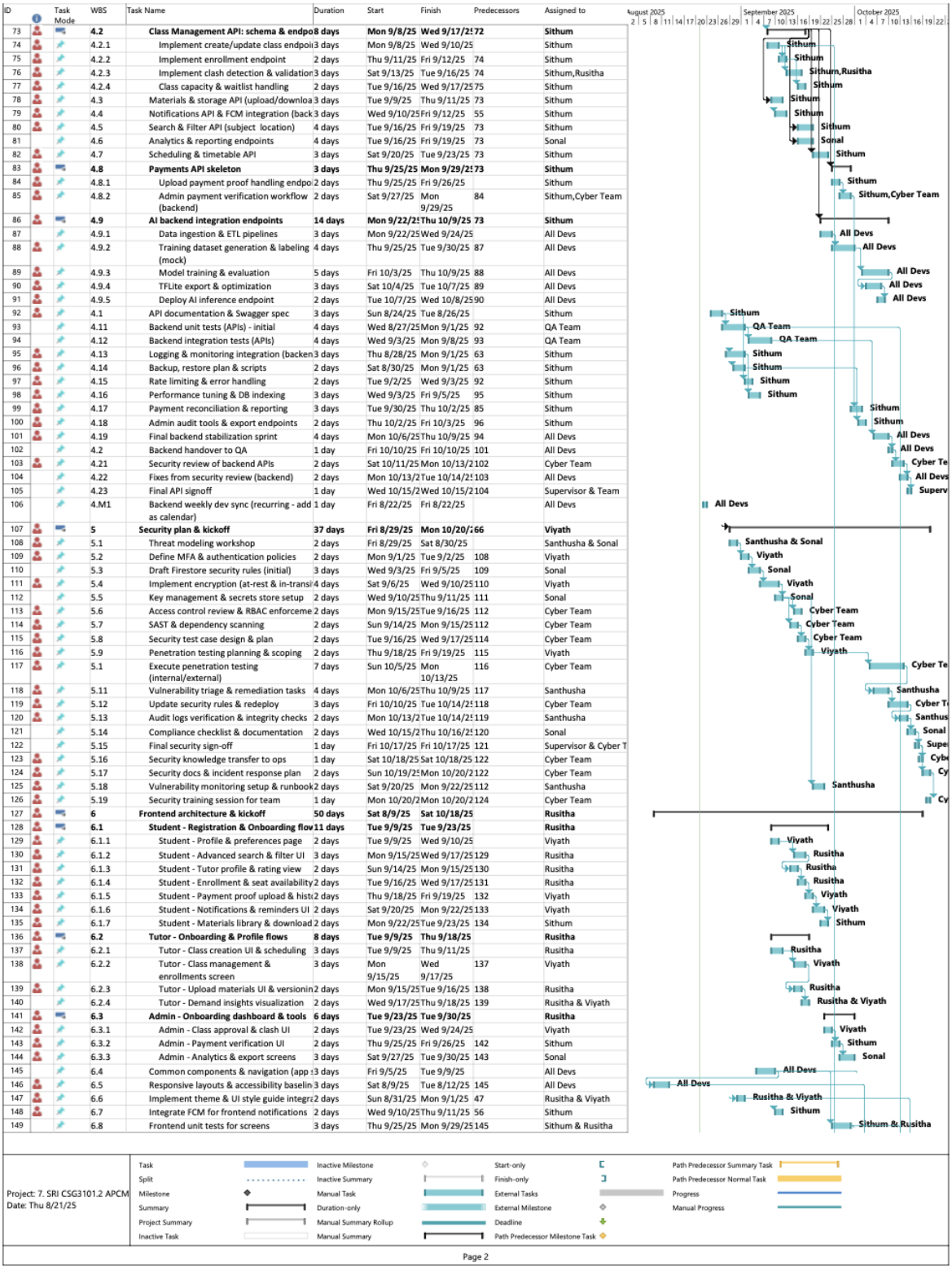
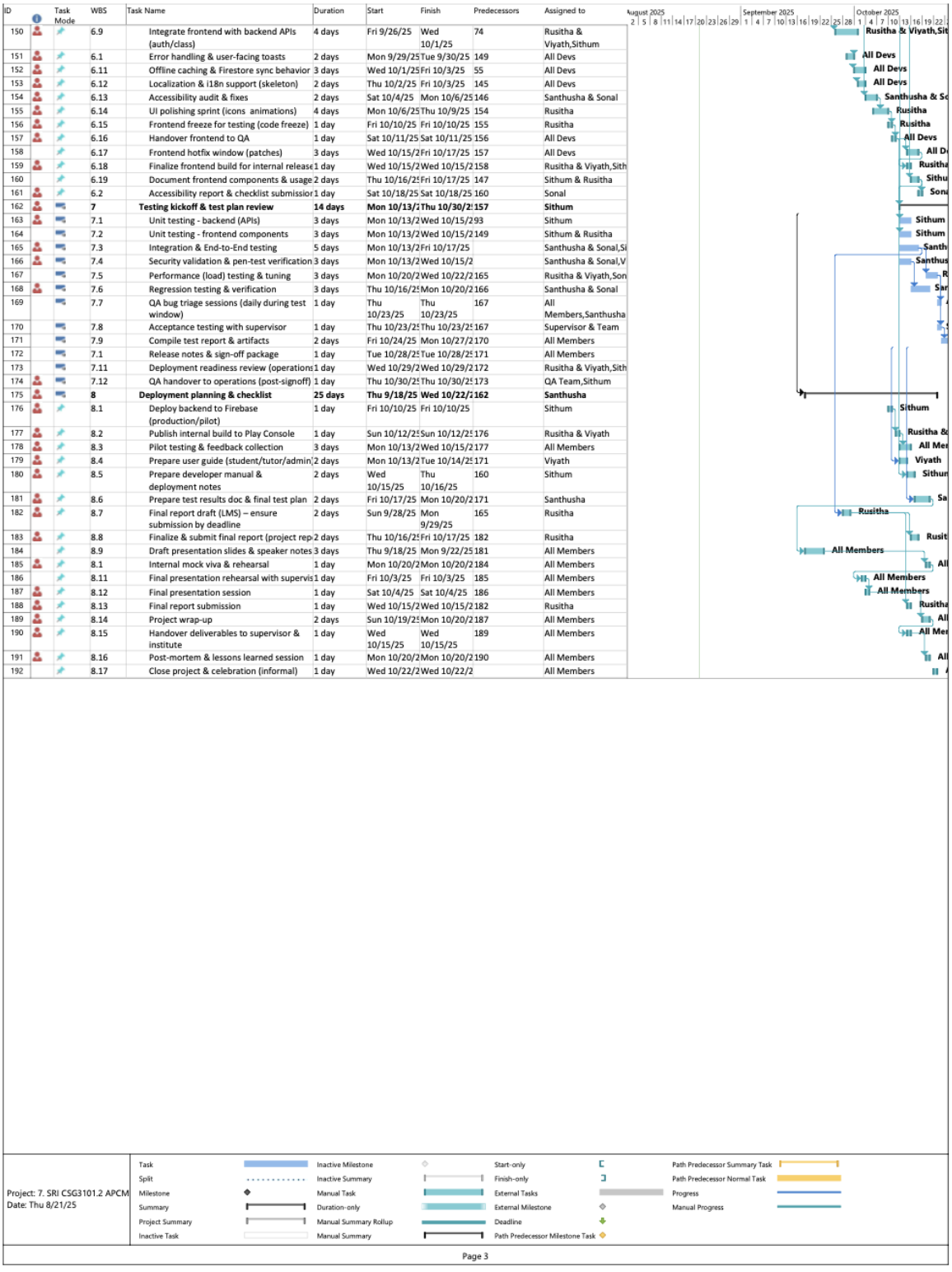


Figure 3 - Gantt Chart Part 2



ID	Task Mode	WBS	Task Name	Duration	Start	Finish	Predecessors	Assigned to
150		6.9	Integrate frontend with backend APIs (auth/class)	4 days	Fri 9/26/25	Wed 10/1/25	74	Rusitha & Viyath,Sithum
151		6.1	Error handling & user-facing toasts	2 days	Mon 9/29/25	Tue 9/30/25	149	All Devs
152		6.11	Offline caching & Firestore sync behavior	3 days	Wed 10/1/25	Fri 10/3/25	55	All Devs
153		6.12	Localization & i18n support (skeleton)	2 days	Thu 10/2/25	Fri 10/3/25	145	All Devs
154		6.13	Accessibility audit & fixes	2 days	Sat 10/4/25	Mon 10/6/25	146	Santhusha & Sonal
155		6.14	UI polishing sprint (icons animations)	4 days	Mon 10/6/25	Thu 10/9/25	154	Rusitha
156		6.15	Frontend freeze for testing (code freeze)	1 day	Fri 10/10/25	Fri 10/10/25	155	Rusitha
157		6.16	Handover frontend to QA	1 day	Sat 10/11/25	Sat 10/11/25	156	All Devs
158		6.17	Frontend hotfix window (patches)	3 days	Wed 10/15/2	Fri 10/17/25	157	All Devs
159		6.18	Finalize frontend build for internal release	1 day	Wed 10/15/2	Wed 10/15/2	158	Rusitha & Viyath,Sith
160		6.19	Document frontend components & usage	2 days	Thu 10/16/2	Fri 10/17/25	147	Sithum & Rusitha
161		6.2	Accessibility report & checklist submissior	1 day	Sat 10/18/25	Sat 10/18/25	160	Sonal
162		**7**	**Testing kickoff & test plan review**	**14 days**	**Mon 10/13/2**	**Thu 10/30/2**	**157**	**Sithum**
163		7.1	Unit testing - backend (APIs)	3 days	Mon 10/13/2	Wed 10/15/2	93	Sithum
164		7.2	Unit testing - frontend components	3 days	Mon 10/13/2	Wed 10/15/2	149	Sithum & Rusitha
165		7.3	Integration & End-to-End testing	5 days	Mon 10/13/2	Fri 10/17/25		Santhusha & Sonal,Si
166		7.4	Security validation & pen-test verification	3 days	Mon 10/13/2	Wed 10/15/2		Santhusha & Sonal,V
167		7.5	Performance (load) testing & tuning	3 days	Mon 10/20/2	Wed 10/22/2	165	Rusitha & Viyath,Son
168		7.6	Regression testing & verification	3 days	Thu 10/16/2	Mon 10/20/2	166	Santhusha & Sonal
169		7.7	QA bug triage sessions (daily during test window)	1 day	Thu 10/23/25	Thu 10/23/25	167	All Members,Santhusha
170		7.8	Acceptance testing with supervisor	1 day	Thu 10/23/2	Thu 10/23/2	167	Supervisor & Team
171		7.9	Compile test report & artifacts	2 days	Fri 10/24/25	Mon 10/27/2	170	All Members
172		7.1	Release notes & sign-off package	1 day	Tue 10/28/2	Tue 10/28/2	171	All Members
173		7.11	Deployment readiness review (operations	1 day	Wed 10/29/2	Wed 10/29/2	172	Rusitha & Viyath,Sith
174		7.12	QA handover to operations (post-signoff)	1 day	Thu 10/30/2	Thu 10/30/2	173	QA Team,Sithum
175		**8**	**Deployment planning & checklist**	**25 days**	**Thu 9/18/25**	**Wed 10/22/2**	**162**	**Santhusha**
176		8.1	Deploy backend to Firebase (production/pilot)	1 day	Fri 10/10/25	Fri 10/10/25		Sithum
177		8.2	Publish internal build to Play Console	1 day	Sun 10/12/2	Sun 10/12/2	176	Rusitha & Viyath
178		8.3	Pilot testing & feedback collection	3 days	Mon 10/13/2	Wed 10/15/2	177	All Members
179		8.4	Prepare user guide (student/tutor/admin	2 days	Mon 10/13/2	Tue 10/14/2	171	Viyath
180		8.5	Prepare developer manual & deployment notes	2 days	Wed 10/15/25	Thu 10/16/25	160	Sithum
181		8.6	Prepare test results doc & final test plan	2 days	Fri 10/17/25	Mon 10/20/2	171	Santhusha
182		8.7	Final report draft (LMS) – ensure submission by deadline	2 days	Sun 9/28/25	Mon 9/29/25	165	Rusitha
183		8.8	Finalize & submit final report (project rep	2 days	Thu 10/16/2	Fri 10/17/25	182	Rusitha
184		8.9	Draft presentation slides & speaker notes	3 days	Thu 9/18/25	Mon 9/22/25	181	All Members
185		8.1	Internal mock viva & rehearsal	1 day	Mon 10/20/2	Mon 10/20/2	184	All Members
186		8.11	Final presentation rehearsal with supervis	1 day	Fri 10/3/25	Fri 10/3/25	185	All Members
187		8.12	Final presentation session	1 day	Sat 10/4/25	Sat 10/4/25	186	All Members
188		8.13	Final report submission	1 day	Wed 10/15/2	Wed 10/15/2	182	Rusitha
189		8.14	Project wrap-up	2 days	Sun 10/19/2	Mon 10/20/2	187	All Members
190		8.15	Handover deliverables to supervisor & institute	1 day	Wed 10/15/25	Wed 10/15/25	189	All Members
191		8.16	Post-mortem & lessons learned session	1 day	Mon 10/20/2	Mon 10/20/2	190	All Members
192		8.17	Close project & celebration (informal)	1 day	Wed 10/22/2	Wed 10/22/2		All Members

Figure 4 - Gantt Chart Part 3

Appendix B – Team Contract

Group Contract for CSG3101 Applied Project

Group norms are the rules that define acceptable behaviour amongst members of a group. Norms include levels of performance valued by the group, expectations of group members, beliefs and values in relation to study, relationships between group members and teamwork within the group. Writing down these agreed norms in the form of a Group Contract provides a means of clarifying and enforcing these norms when necessary. This generally leads to higher levels of commitment to group goals and better group performance. It can also reduce the chances of the ***free-rider*** emerging within the group which can be distressing for all group members, particularly responsible group members who do their fair share of the work.

A ***Group Contract*** is a requirement of this unit and must be submitted in your first Project Management Report complete with all signatures.
A sample of the Group Contract is included below which must be modified according to your group's needs.

Expulsion of a Group Member: In cases where one or more members act contrary to the objectives of the whole group a method of dispute resolution (and in some cases expulsion) must be included in the contract. In the event that the majority of a group wishes to expel a group member, they must show clearly the number of opportunities that the member in question has received to remedy a situation. This must be verifiable and auditable (note verbal acknowledgment is insufficient). There must be a minimum of three occasions where a group member has been notified of his/her inappropriate performance, and the issues should be clearly documented in previous weekly progress reports showing both a member's poor performance AND the means by which this was professionally communicated within the group.

Sample contract:

Group Contract

1. The subject matter of this contract

This contract is entered into by the students named below for the purpose of ensuring that each individual group member fulfills his/her obligations for completing the group assignment for the unit CSG3101 Applied Project.

2. The consideration

1. All group members will be punctual at meetings.
2. All group members should attend meetings unless by prior agreement with the group.

3. All group members will stay at the meeting until it is agreed that the meeting is adjourned.
4. All group members will agree to a specific day/time for each weekly meeting and an agreed procedure for informing all other members prior to any missed meetings.
5. All group members will come to the meetings prepared by completing the agreed tasks on time.
6. The group will actively seek the contributions and opinions of each member at meetings and during group discussions.
7. Each group member will take turns at both listening and talking.
8. Dominating the group's discussion and decision making is not acceptable.
9. Group members will take turns in writing down minutes of the meeting.
10. The group member taking minutes will record allocated tasks to be completed by group members by name and agreed deadlines for task completion.
11. The group members must decide and declare which method of communication is to be the preferred and agreed method (i.e., MS Teams, ECU email, face-to-face.
12. The group members must decide on an auditable and verifiable method of detailing completed tasks and or individual elements. (i.e., Google groups, tasks management, written master file)
13. Work allocation will be according to an agreed procedure and is documented below *(insert method of breaking down the assignment and allocation of work to group members).*
14. Where disputes arise regarding the work tasks or agreed behaviours in which a group member is not performing according to the terms of this agreement, the following process will be entered into to resolve the dispute: *(insert the dispute resolution procedure for your group*). Disputes must be resolved within the group and documentation must be retained that relates to attempts to resolve a dispute or to encourage a group member to make his or her contribution to the assignment).
15. Ejection of a non-performing or disruptive group member. The Contract MUST include a specific method for dealing with group members where the performance of the group is affected.

3. Names and signatures of the parties to this Group Contract

Student signature	Student name (printed)	Student Number	Date
Rusitha	Rusitha Mihirath Senarathna	10695678	12/08/2025
Viyath	Viyath Bhagya Bandara Wijekoon	10688967	12/08/2025
Santhusa	Danapala Kandambige Santhusa Didulantha Dissanayake	10687368	12/08/2025
Sonal	Wisidagamage Don Sonal Dilshan	10665001	12/08/2025
Sithum	Bamunu Arachchige Sithum Gimhara Bamunuarachchi	10695895	12/08/2025

Date of Fully Signed copy given to Supervisor and Unit Coordinator

19/08/2025

Appendix C – Additional UML Diagrams

Use Case Diagram

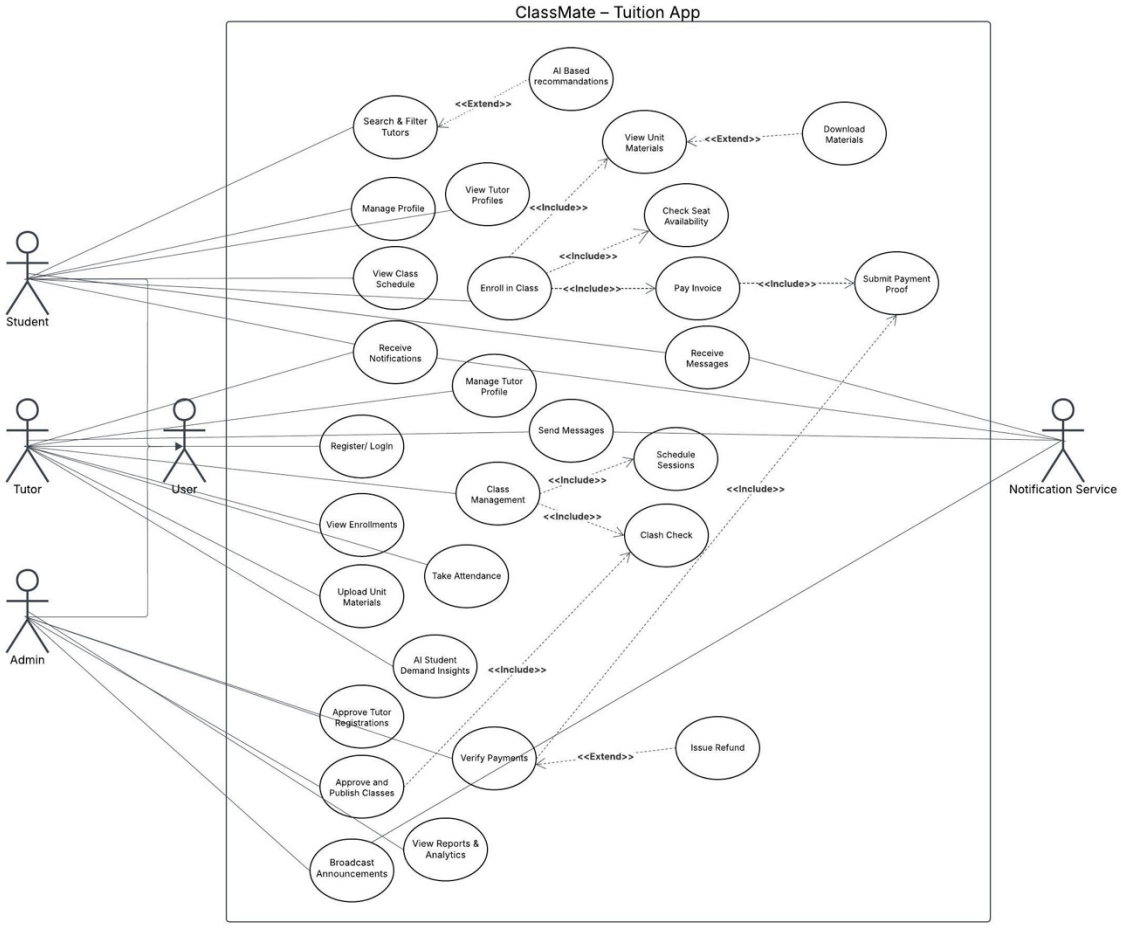


Figure 5 - Use Case Diagram

ERD Diagram

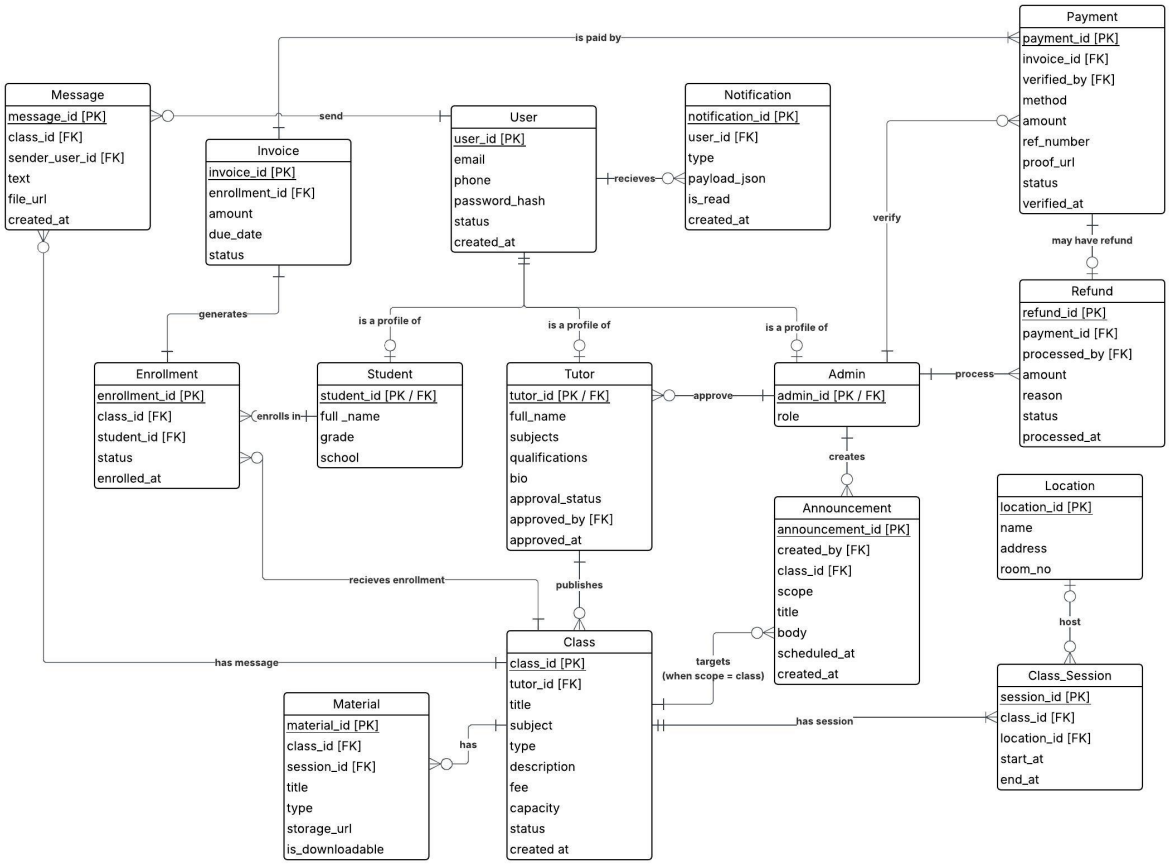


Figure 6 - ERD Diagram