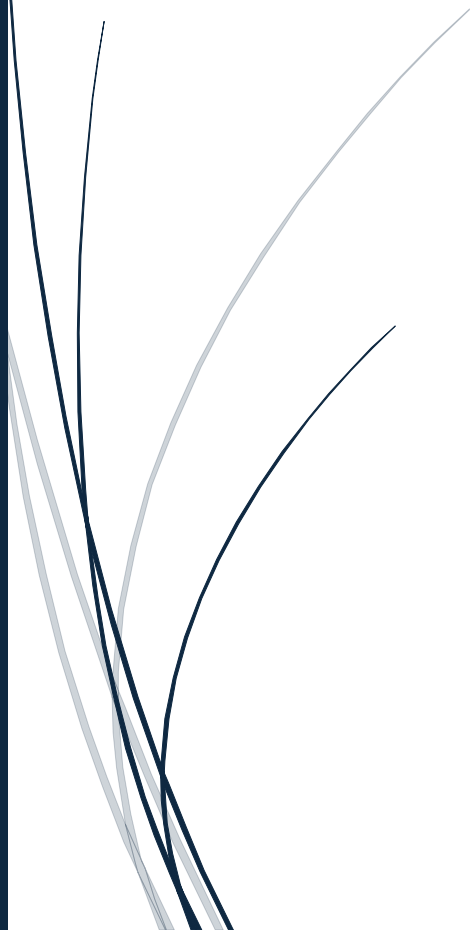# Programming 2B [PROG6212] POE

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Table of Contents

1. Introduction

The Contract Monthly Claim System (CMCS) is designed to simplify and streamline the monthly claim submission and approval process for Independent Contractor (IC) lecturers. Traditionally, this process has been manual, paper-based, and time-consuming. The CMCS prototype introduces a digital workflow where lecturers can create claims, upload supporting documents, and track their status. Claims are then reviewed by Programme Coordinators and approved by Academic Managers.

For Part 1 of the POE, the focus is on **planning and design only**—no functionality has been implemented as of yet. Deliverables include:

- A **UML class diagram** representing the system's database structure.

- A **project plan (Gantt chart)** showing tasks, dependencies, and timelines across 6 weeks.

- **GUI wireframes** designed in Figma to demonstrate user flows for lecturers, coordinators, and managers.

Key users:

- **Lecturers**: Submit claims and supporting documents.

- **Programme Coordinators**: Review claims.

- **Academic Managers**: Approve/reject claims.

2. Design Choices

The design decisions were guided by clarity, usability, accessibility, and alignment with the assignment requirements. A major focus was ensuring the CMCS is **user-friendly for both lecturers and administrators**, some of whom may not be highly technical or may have accessibility needs.

Structure

- **Navigation**: A top menu for Dashboard, Claims, Reports, and Settings ensures intuitive access. Menu items are grouped logically, reducing cognitive load for new users (Khanh, 2025).

- **Role-based access**: Screens differ for lecturers (submission, status tracking) versus coordinators/managers (approval dashboards). Each user sees only what is relevant to their role, avoiding clutter.

Layout

- **Lecturer Dashboard**: Simple form with large, clearly labelled fields for hours worked, hourly rate, notes, and file uploads. Status indicators are shown prominently so lecturers can track claims easily.

- **Coordinator Dashboard**: Displays pending claims in a table with big action buttons ("Approve" and "Reject"), reducing the chance of misclicks.

- **Manager Dashboard**: Provides final approval with clear visibility into coordinator decisions, ensuring transparency and accountability.

- **Login Page**: Includes role selection (Lecturer, Coordinator, Manager) with large text and high-contrast fields to support ease of use for all ages.

Colour Scheme

- **Blue and White as the primary palette**: Chosen for a **modern, professional look**. Blue symbolises trust and reliability, while white backgrounds create a clean, uncluttered feel that supports long reading sessions without strain (Elliot, 2015). This theme communicates that CMCS is a professional, trustworthy system designed for academic administration.

- **Green/Red for actions**: Used specifically for **Approve** (green) and **Reject** (red), following universal colour conventions that reduce the need for users to read every label (Babich, 2019).

- **Neutral greys for secondary elements**: Help ensure focus remains on primary actions and data (Elliot, 2015).

**Accessibility & Usability Considerations**

- **Larger, brighter text**: Font sizes are slightly increased compared to standard UI designs, ensuring readability for older users and those with mild visual impairments (Hou, Anicetus and He, 2022).

- **High contrast**: Dark text on light backgrounds and bold buttons with strong colour contrast help users with reduced vision (Hou, Anicetus and He, 2022).

- **Consistent iconography**: Icons accompany key buttons (e.g., ✓ for approve, ✗ for reject) to reinforce meaning beyond text and colour.

- **Error prevention**: Confirmation dialogs are included for critical actions (like rejecting a claim), giving users a chance to review their decision.

These design choices were made to show that **CMCS values usability, inclusivity, and clarity**, ensuring all users—whether lecturers, coordinators, or managers—can perform their tasks efficiently with minimal training so no matter what we try and make the user experience as pleasant as possible.

Assumptions & Constraints

- **Assumption**: Lecturers will provide accurate hours and claims. The system does not independently validate teaching hours it working on the honest system.

- **Constraint**: Only common file formats (.pdf, .docx, .xlsx) up to 10 MB are supported for uploads.

- **Constraint**: Prototype is front-end only (no back-end logic in Part 1).

3. UML Class Diagram for Database
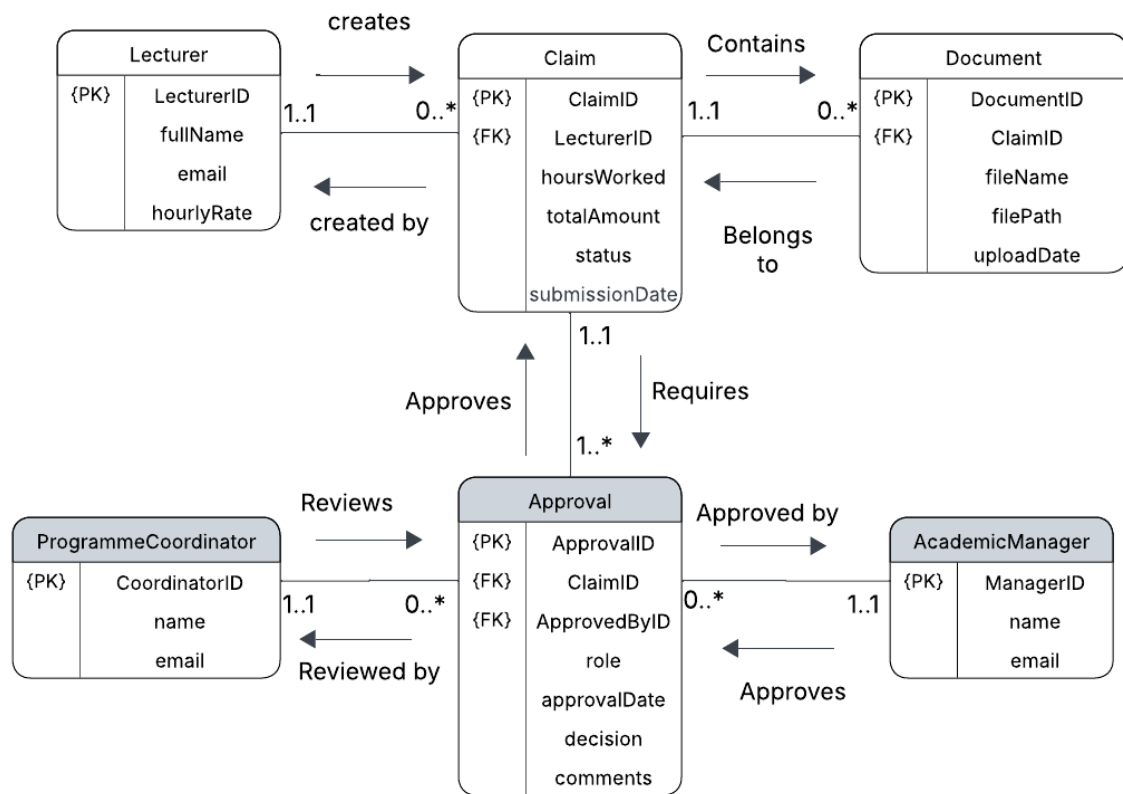
The UML accurately reflects system requirements:

- **Lecturer creates Claims**, which include hours worked, hourly rate, total amount (calculated), and status.

- **Claims contain Documents**, supporting lecturer submissions.

- **Claims require Approvals**, which are linked to both Programme Coordinators (review) and Academic Managers (final approval).

- Relationships are labelled with verbs (creates, contains, approves) for clarity, and all PK/FK relationships are explicitly shown.

This model ensures referential integrity and directly supports CMCS workflows

4. Project Plan
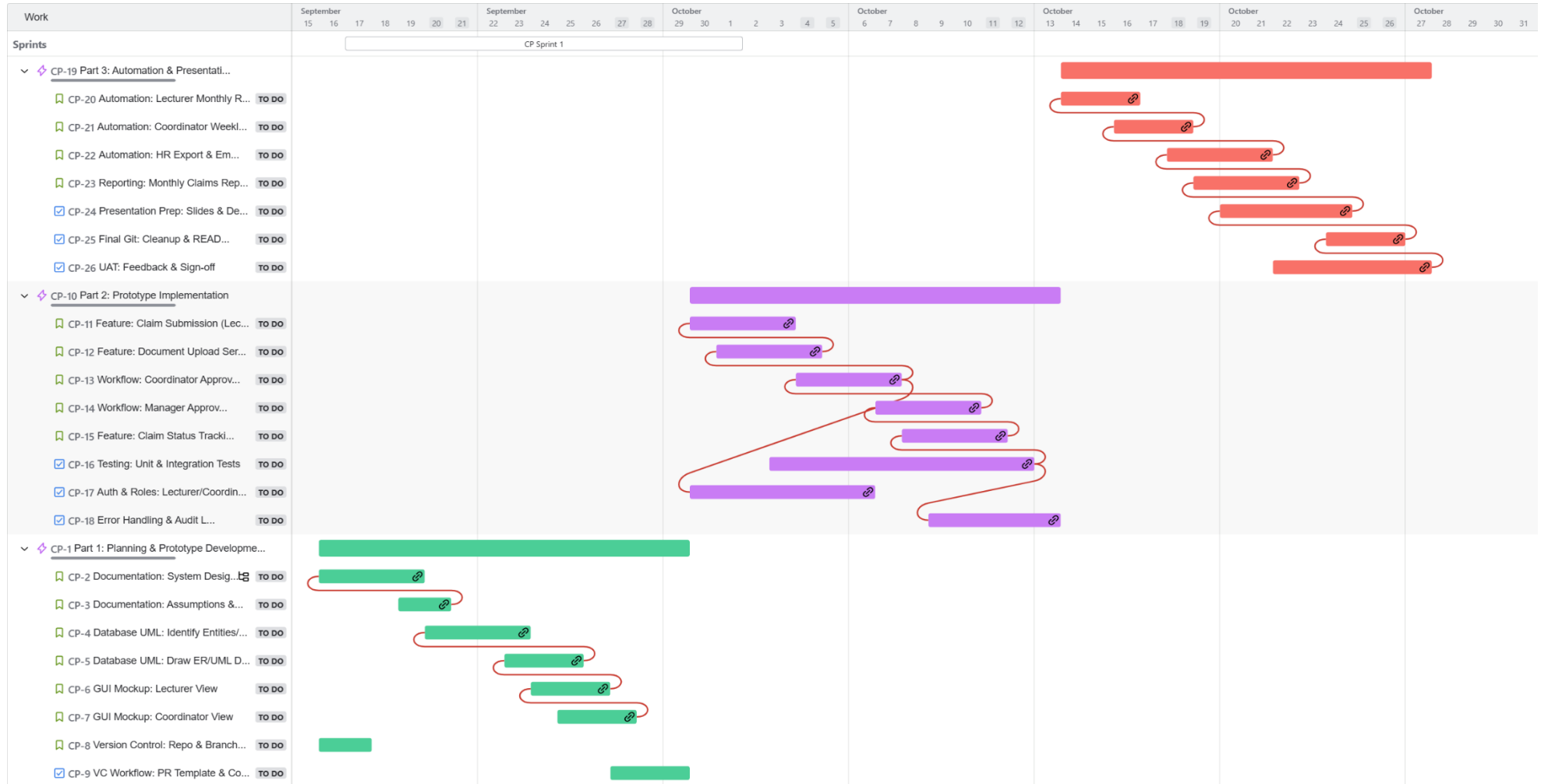
*The project plan covers **6 weeks (16 Sept – 27 Oct 2025)**:*

- ***Weeks 1–2 (Part 1)**: Planning, UML, documentation, GUI mockups, version control setup.*

- ***Weeks 3–4 (Part 2)**: Prototype implementation – claim submission, document uploads, approval workflows, unit testing.*

- ***Weeks 5–6 (Part 3)**: Automation features (auto-calculation, HR reporting, workflow automation), final presentation, version control wrap-up.*

Dependencies are clearly defined—for example, UML completion before GUI design, and coordinator approval before manager approval. This makes the plan realistic and achievable

5. GUI UI

About   Help   Contact

Welcome to CMCS
Sign in to your account

Username

Enter your username

Password

Enter your password

Role

Select your role   ⌄

☐ Remember me   Forgot your password?

Login

CMCS

▤ Dashboard

▤ Claims

▣ Payments

👤 Profile

⚙ Settings

Dashboard
Welcome, Dr. Eleanor Vance

Submit a New Claim

Hours Worked   Hourly Rate (ZAR)

e.g., 40   e.g., 850

Notes

Add any additional notes...

Supporting Documents

🖼

Upload a file or drag and drop
PDF, DOCX, XLSX up to 10MB

Claim Status

CLAIM ID	DATE	AMOUNT	S
#12345	2024-07-26	R 4,250.00	
#12344	2024-07-15	R 5,100.00	
#12343	2024-06-20	R 3,400.00	

⑦ Help & Support

➡ Logout

Pending Claims

Review and manage claims submitted by lecturers.

LECTURER NAME	HOURS WORKED	TOTAL AMOUNT (ZAR)	SUBMISSION DATE		
Dr. Amelia Harper	20	R 28,500	2024-07-20	✓ Approve	✗ Reject
Prof. Ethan Carter	15	R 21,375	2024-07-21	✓ Approve	✗ Reject
Dr. Olivia Bennett	25	R 35,625	2024-07-22	✓ Approve	✗ Reject
Prof. Noah Davis	18	R 25,650	2024-07-23	✓ Approve	✗ Reject
Dr. Sophia Clark	22	R 31,350	2024-07-24	✓ Approve	✗ Reject

Academic Manager Dashboard

Pending Coordinator Approvals

🔍 Search claims...   ☰ Filter

Lecturer	Programme	Claim Date	Amount (ZAR)	Status	Actions	
Dr. Anya Sharma	Data Science	2024-07-15	R 22,000	Coordinator Approved	⊘ Approve	⊗ Reject
Prof. Ben Carter	Business Analytics	2024-07-18	R 27,500	Coordinator Approved	⊘ Approve	⊗ Reject
Dr. Chloe Davis	Cybersecurity	2024-07-20	R 20,167	Coordinator Approved	⊘ Approve	⊗ Reject
Prof. David Evans	Software Engineering	2024-07-22	R 23,833	Coordinator Approved	⊘ Approve	⊗ Reject
Dr. Emily Foster	Artificial Intelligence	2024-07-25	R 25,667	Coordinator Approved	⊘ Approve	⊗ Reject

Showing 1 to 5 of 20 results   Previous   Next

Pages and Purposes:

- **Login Page**: Entry point where users select role (Lecturer, Coordinator, Manager).

- **Lecturer Dashboard**: Submit claims, upload documents, track claim statuses.

- **Coordinator Dashboard**: Review lecturer claims, verify details, approve/reject.

- **Manager Dashboard**: View coordinator-approved claims and provide final approval.

- **Claims Page**: Displays pending and approved claims in table format with status tracking.

The UI is clean, role-specific, and consistent across all pages. By applying colour-coded actions and simple layouts, it enhances usability and reduces the risk of user errors

6. References

Babich, N., 2019. *Using Red and Green in UI Design. Exploring the common ways red and green... | by Nick Babich | UX Planet*. [online] Available at: <https://uxplanet.org/using-red-and-green-in-ui-design-66b39e13de91> [Accessed 17 September 2025].

Elliot, A.J., 2015. Color and psychological functioning: A review of theoretical and empirical work. *Frontiers in Psychology*, 6(APR). https://doi.org/10.3389/FPSYG.2015.00368.

Hou, G., Anicetus, U. and He, J., 2022. How to design font size for older adults: A systematic literature review with a mobile device. *Frontiers in Psychology*, 13. https://doi.org/10.3389/FPSYG.2022.931646.

Khanh, L., 2025. *Navigation UX: Pattern Types and Tips to Enhance User Experience*. [online] Available at: <https://userpilot.com/blog/navigation-ux/> [Accessed 17 September 2025].

7. AI Usage and Disclaimer

Section(s) of Assessment	AI Tool Used	Purpose / Intention	Date(s) of Use	Evidence (Link or Screenshot)
e.g., Part 1 – Design Choices	ChatGPT (OpenAI GPT-5)	Helped brainstorm wording for colour scheme justification, accessibility considerations, and layout explanations	2025-09-18	https://chatgpt.com/s/t_68cad69cb53081919c2e004f5a687739
e.g., Part 1 – UML Explanation	ChatGPT (OpenAI GPT-5)	Clarified relationship labelling (creates, contains, approves) and ensured PK/FK consistency	2025-09-18	https://chatgpt.com/s/t_68cad576462c8191978857a4fc4cffda
e.g., Part 1 – Project Plan	ChatGPT (OpenAI GPT-5)	Assisted in writing project plan explanation aligned with Gantt chart	2025-09-17	https://chatgpt.com/s/t_68cad576462c8191978857a4fc4cffda