Part 1 – Planning and Design Report

Contract Monthly Claim System (CMCS)

1. Introduction

The Contract Monthly Claim System (CMCS) is designed to streamline the submission, verification, and approval of monthly claims by contract lecturers. The system aims to replace manual, paper-based processes with a secure, efficient, and user-friendly digital platform. It will cater to three primary user roles: Lecturer, Programme Coordinator, and Academic Manager, each with distinct permissions and responsibilities.
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2. Design Choice

The CMCS will be developed as a **.NET Core MVC web application** to ensure cross-platform accessibility and scalability. MVC architecture is chosen for its clear separation of concerns, which simplifies maintenance and future enhancements. SQL Server will serve as the database management system due to its robust integration with .NET technologies and strong security features.

The user interface will be built with Razor Pages and styled using Bootstrap for responsive design. This ensures that the system is accessible on desktops, tablets, and mobile devices. Security measures will include role-based authentication, input validation, HTTPS encryption, and secure file handling.
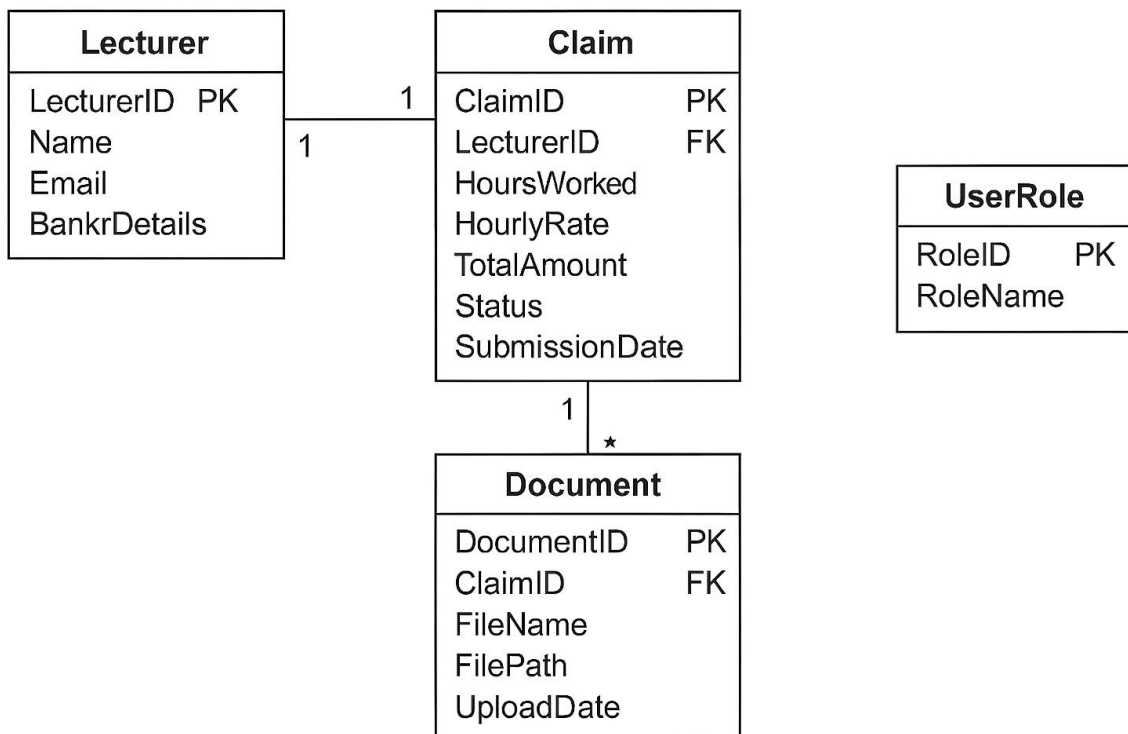
3. Database Structure

The database will consist of the following key entities:

- **Lecturer**: Stores personal and payment details (LecturerID, Name, Email, HourlyRate, BankDetails).

- **Claim**: Records claim submissions (ClaimID, LecturerID, HoursWorked, HourlyRate, TotalAmount, Status, SubmissionDate).
- **Document**: Stores metadata for uploaded supporting files (DocumentID, ClaimID, FileName, FilePath, UploadDate).
- **UserRole**: Defines system roles and permissions (RoleID, RoleName).

Relationships:

- One Lecturer can submit multiple Claims.
- One Claim can have multiple supporting Documents.
- Each UserRole can be assigned to multiple users.

Lecturer	
LecturerID	PK
Name	
Email	
BankrDetails	

Claim	
ClaimID	PK
LecturerID	FK
HoursWorked	
HourlyRate	
TotalAmount	
Status	
SubmissionDate	

UserRole	
RoleID	PK
RoleName	

Document	
DocumentID	PK
ClaimID	FK
FileName	
FilePath	
UploadDate	

Design notes:

- Status values: Pending, Approved, Rejected.
- Totals: TotalAmount is derived from HoursWorked * HourlyRate (stored for snapshotting at submission time).
- Referential integrity: Claim.LecturerID → Lecturer.LecturerID; Document.ClaimID → Claim.ClaimID.

4. GUI Layout

Lecturer View:

- Dashboard showing claim history and statuses.
- "Submit Claim" form with fields for hours worked, hourly rate, and notes.
- File upload section for supporting documents.

Coordinator/Manager View:

- Pending claims list with filtering and sorting options.
- Detailed claim view with Approve/Reject actions.
- Status update functionality with optional comments.

Gui wireframe mockups

Lecturer dashboard (claims list + entry points)

CMCS · Lecturer   Switch to Coordinator

[Submit Claim]   [My Documents]   [Profile]

My Claims

#	Date	Hours	Rate	Total	Status	Actions
12	2025-03-28	10.0	500.00	5000.00	Approved	View
13	2025-04-02	8.0	520.00	4160.00	Pending	View

Legend: ● Pending ● Approved ● Rejected

Claim #13 Status

✓ Submitted ——————— ② Under Review ——————— ③ Decision

Submit claim (form)

Switch to Coordinator

← Back to Dashboard

Submit Claim

Hours Worked:

Hourly Rate:

Total:
0.00

Notes:

Supporting Documents:

Choose File   No file chosen

(pdf, docx, xlsx; max 5 MB)

Submit   Cancel

Validation cues:
- Hours/Rate: numeric, required, positive.
- File: extension and size checks with inline error messages.

Coordinator/manager dashboard (verification queue)

Switch to Lecturer

Claims Management

Filter: All Lecturers

Pending   Approved   Rejected   All

Pending Claims

#	Lecturer	Date	Hours	Rate	Total	Actions
8	A. Dlamini	2025-04-02	8.0	520	4160	View
9	B. Naidoo	2025-04-03	6.0	480	2880	View

Claim detail (review + decision)

Switch to Lecturer

← Back to Dashboard

Claim #8 — Pending

Claim Information

Lecturer	Date	Status
A. Dlamini	2025-04-02	Pending

Hours	Rate	Total
8.0	520.00	4160.00

Notes

Guest lecture wk1

Documents

Evidence.pdf	⬇ Download
Timesheet.xlsx	⬇ Download

Claim Information

Lecturer	Date	Status
A. Dlamini	2025-04-02	Pending

Hours	Rate	Total
8.0	520.00	4160.00

Notes

Guest lecture wk1

Documents

Evidence.pdf	⬇ Download
Timesheet.xlsx	⬇ Download

Review Decision

Comment (Optional)

Add a comment about your decision...

Approve   Reject

5. Assumptions and Constraints

Assumptions:
- All users have internet access and basic computer literacy.
- Hourly rates are pre-approved and stored in the system.

Constraints:
- File uploads limited to 5 MB and formats .pdf, .docx, .xlsx.
- Only authenticated users can access the system.
- The system must comply with institutional data protection policies.

6. Project Plan

Task	Duration	Dependencies
Requirements gathering	2 days	None
Database design (ERD/UML)	3 days	Requirements
GUI wireframes	4 days	Requirement
Prototype front-end build	5 days	Wireframes
Internal review & adjustments	2 days	Prototype
Documentation finalisation	2 days	All tasks

7. Conclusion

The CMCS will provide a secure, efficient, and transparent process for managing contract lecturer claims. By leveraging MVC architecture, a well-structured database, and responsive design principles, the system will improve operational efficiency, reduce administrative errors, and enhance user satisfaction. The planning and design outlined in this report form a solid foundation for the development phase. Ntwalo/Contract-Monthly-Claim-System-CMCS- My github Project.