

# Lecturer Claim Automation System

ST10442580  
PROG6121 Final POE



# Contents



## Title and Profession

Introduction to slide



## Design and Architecture

All the designs and Understanding of **MVC Pattern** and **Separation of Concerns** (Service Layer).



## functionality

**Calculation Logic, User Views/Tracking,**



## Automation and Conclusion



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## Slide 1:

I am presenting my Portfolio of Evidence for the **Lecturer Claim Automation System (L-CAS)**, a web application built for PROG6121.

This system was designed to replace a manual, paper-based process, transforming it into a secure, automated digital workflow."

"My presentation will focus on the architectural decisions, the implementation of the core Functional Requirements (F1-F4), and crucially, the **Process Automation (P3)** features I developed.



## Slide 2: Design

"The foundation of L-CAS is the **ASP.NET Core MVC** pattern, using C# and Entity Framework Core for data management."

"The key design decision was enforcing **Separation of Concerns**. We have the Controller to handle traffic, and the Database for persistence."

"But critically, the **Service Layer** is where all the POE requirements are fulfilled. It executes F1, F2, and P3 logic. This isolation makes the system maintainable and highly testable."

"(*Referencing the Diagram*): This diagram shows the clean flow: The Controller delegates business tasks to the Service Layer, which then interacts with the database."

## Slide 2: Design -image:

The Open Systems Interconnections model



## Slide 3:Functional Requirements:

Starting with basic requirements, **F3** is the **Claim Submission** form. This form uses Data Annotations to ensure data validation, such as checking for valid emails and requiring all fields."

"Once submitted, the lecturer needs to track the claim (**F4**). The system ensures strict security by filtering the list to show **only** the claims associated with the lecturer's email

Showing claims for: \*\*Freda@rcconnect.edu\*\*

TITLE (ID)	HOURS CLAIMED	STATUS	SUBMISSION DATE	FINAL PAYMENT (F1)
Logistic erros (#1006)	89.50	Pending	11/21/2025	R 22,375.00
Rewrite (#1007)	50.20	Pending	11/21/2025	R 12,550.00
transportation (#1008)	67.60	Pending	11/21/2025	R 16,900.00

## Slide 4: Functional Requirements:

**Automatic Calculation** is simple: the Service Layer calculates the Final Payment Amount by multiplying the hours claimed by the standard hourly rate *before* the claim is saved. No manual calculation is needed."

**"F2 (Manager Flagging)** is our initial risk control. If a claim exceeds **160 hours**, the Service Layer automatically sets a **RequiresManagerFlag** to true. This proactively highlights claims that may indicate fraud or budget issues.

Calculates the sum of **\*\*HoursClaimed\*\*** only for claims with **`Status = Approved`**. All other claims (Pending/Rejected) are automatically excluded (P3 Automation).

Lecturer Email (F4)

jane.doe@university.edu

This field simulates the authenticated user's session ID and determines which claims appear in **\*\*My Claims (F4)\*\***.

Claim Title

e.g., End-of-Semester Marking

Hours Claimed (F2)

e.g., 120.5

Note: Claims > **160 hours** are automatically Flagged (F2) and prioritized in the Verification Queue (P3).

Submit Claim (F3)

Governing Constant (F1)

R 250.00

/ Hour

TOTAL HOURS FOR APPROVED CLAIMS

**648.10**

TOTAL PAYMENT DUE (F1)

**R 162,025.00**

## Slide 5: Automation:

This is the first part of **P3 Automation**—making the Coordinator's job efficient. Instead of reviewing claims randomly, the system implements a **Priority Queue**.

"The sorting logic is two-tiered: **1. High-Risk claims (Flagged)** are always moved to the top of the queue. **2. Within that group, we use FIFO (First-In, First-Out)** based on the submission date.

### Claim #1005: Counselling

Lecturer: timothy@rcconnect.edu | Hours: **120.10** | Date: 11/21/2025

Approve ▾

Process Decision  
(F2)

### Claim #1006: Logistic erros

Lecturer: Freda@rcconnect.edu | Hours: **89.50** | Date: 11/21/2025

Approve ▾

Process Decision  
(F2)

### Claim #1007: Rewrite

Lecturer: Freda@rcconnect.edu | Hours: **50.20** | Date: 11/21/2025

Approve ▾

Process Decision  
(F2)

### Claim #1008: transportation

Lecturer: Freda@rcconnect.edu | Hours: **67.60** | Date: 11/21/2025

Approve ▾

Process Decision  
(F2)



# Slide 6: Payroll

The second part of **P3** is the **Payroll Report**. Its core function is financial security."

"The system aggregates the total hours **only** for claims that have {Status} = {Approved}. All Pending or Rejected claims are automatically excluded from the final payment total.

Claims are automatically ordered by **\*\*Flagged (High Risk)\*\***, then by **\*\*Submission Date\*\*** (P3 Automation).

## Claim #1002: Mid-Term Exam Marking

Lecturer: jane.doe@university.edu | Hours: **100.50** | Date: 11/10/2025

Approve ▾

Process Decision  
(F2)

## Claim #1004: End of year marking

Lecturer: timothy@rcconnect.edu | Hours: **140.20** | Date: 11/21/2025

Approve ▾

Process Decision  
(F2)

## Claim #1005: Counselling

Lecturer: timothy@rcconnect.edu | Hours: **120.10** | Date: 11/21/2025

Approve ▾

Process Decision  
(F2)

Calculates the sum of **\*\*HoursClaimed\*\*** only for claims with 'Status = Approved'. All other claims (Pending/Rejected) are automatically excluded (P3 Automation).

Governing Constant (F1)

R 250.00

/ Hour

TOTAL HOURS FOR APPROVED CLAIMS

**648.10**

TOTAL PAYMENT DUE (F1)

**R 162,025.00**



## Conclusion:

In summary, L-CAS successfully integrates all required functional (F1-F4) and process automation (P3) requirements, delivering a tested, robust solution."

"Looking forward, the next critical step would be implementing **ASP.NET Identity** to manage secure user roles (Lecturer vs. Coordinator) and adding an **Audit Trail** to track exactly who is approved.