A close-up of a logo

Description automatically generated

**Department of Computing**

**Software Architecture and Design**

**(55-608809-AF-20245)**

 **Task 2 -** **Individual Reflective Account**

**Project:**  Advanced Media Library Management System (AML)

**Student Name: Kyaw Min Htet (Kelvin)**

**Student ID: 34033113**

**Group #: 18**

**Date: 6. 1. 2024**

Table of Contents

[1. Introduction 3](#_Toc181621335)

[2. Reflective Account 3](#_Toc181621336)

[2.1 Positive Experiences 3](#_Toc181621337)

[2.2 Challenges Faced 3](#_Toc181621338)

[2.3 Lessons Learnt 3](#_Toc181621339)

[3. Quality of the System Architecture and Design 3](#_Toc181621340)

[4. Final Thoughts (Optional) 3](#_Toc181621341)

[Appendix 1: Peer Review 4](#_Toc181621342)

[References 5](#_Toc181621343)

# Introduction

I played an important role in the project, developing the frontend UI with Next.js, integrating with Express.js backend and MySQL database for my use cases (Media Borrow and Return). My primary responsibilities were to create ADRs, writing overview/scope, NFRs, Tabular Use Cases, Sequence Diagrams, C3, C4 Diagrams, Wireframes, and example Prototypes, and implementation. It also involved designing and implementing functionality of borrow and return of media ensuring accurate tracking and updating of data in MySQL database. I gained valuable experience in backend development as I had no prior experience, using Express.js. I then learned to implement CRUD operations to handle media transactions, and my contributions helped meet the project’s goal of providing an efficient and user-friendly system for managing library resources.

# Reflective Account

## 2.1 Positive Experiences

## 

I rejoiced when I was finally able to implement the media borrowing and return logic. Using MySQL queries, I made sure that the system tracked media items and prevented issues such as media not being available and so on. The feature was very important, and it was a big achievement for me. My team members also appreciate my focus on ensuring the UI for borrowing and returning was intuitive and accessible. The positive feedback form both users and the team overwhelmed me.

## 2.2 Challenges Faced

## 

One of the challenges I encountered was accurate tracking of media items during borrow and return processes. Initially, we faced issues as the system was not properly updating the availability of items after they were returned which led to confusion for users. To address this, I implemented validation checks with real-time updates. Testing the system under various user scenarios also revealed edge cases that required refining the logic for overdue items. In the future, I would focus on more automated testing for these scenarios earlier in the development cycle to catch such issues.

## 2.3 Lessons Learnt

# 

This project made me realize how important the database design was in developing complex systems. I learned to optimize queries for better performance and how to use transaction locks to avoid race conditions. I also started to understand solving problems under pressure as a skillset and got to know how important it was. The challenges required me to think critically, and adapt quickly, Feedback from my team emphasized the importance of clear communication when managing cross-functional tasks. I’m sure I will apply these to my future projects.

# 3. Quality of the System Architecture and Design

The N-tier architecture used in this project was crucial in maintaining separation of concerns, making it easier to manage and scale the system effectively. The architecture allowed for easy integration of media borrowing and return system, ensuring it functioned seamlessly with other modules. However, one limitation was that REST API calls for media transactions could have been optimized, especially in scenarios with large volumes of data. In future projects, I would consider using GraphQL for more efficient querying.

# Final Thoughts (Optional)

* The project improved my understanding of both frontend and backend development and transaction management using MySQL database, especially in complex scalable systems. I aim to enhance my skills in database optimization and explore cloud-based solutions to improve the scalability of my future projects.

# Appendix 1: Peer Review

Table – Task 1 Peer Review

|  |  |  |
| --- | --- | --- |
| Name | Notes | Mark |
| Aung Naing Win | Great throughout the project | 10/10 |
| Sandile Mankuso | Was a bit late sometimes but pulled through at the end | 7/10 |
|  |  |  |

# References