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1. Introduction

1.1 Purpose

The purpose of this SDD document is to describe the architectural design, components, data design, and showcase the interface and features in the Education Resource Manager And Discussion System. The audience that specify in SDD are the students or anyone who seeks for knowledge and resources.

1.2 Scope

This software system will be a web-based system for students, teachers or professors of any study level, from basic level to PhD level. The system will be designed for users to upload their course materials or download from other users' uploads. Users can also create educational discussion rooms for questions or research they made and can interact in posts and communicate with them. The system also provides tools for admins to manage the users, files, categories, and posts.

1.3 Definitions, Acronyms and Abbreviation

Terms	Definition
SDD	Software Design Description
MVC	Model-View-Controller
ERMAD	is the short name for the system from Education Resource Manager And Discussion
ERD	Entity Relationship Diagram

1.4 Overview

This SDD document contains 4 titles that are system architecture design that describes the architecture and design pattern that chosen in the system, detail description of components that shows more details to the package diagrams and components, data design that shows the entity relationship diagram with tables shows more details to the entities, and interface design that shows how the front end of the system will look like with view to the navigations.

2. System Architectural Design

2.1 Architecture Style and Rationale

The architecture model chosen for the system is Model-View-Control Design pattern. Model layer represents the data that is used in the system, View layer represents the interface of the system, and Control layer represents the connection between model and view and handles the logic. What makes the pattern chosen is it offers the flexibility that allows the system to add or remove files with ease and ensures that the model remains unaffected by view changes.

2.2 Architecture Model

The figure 2.1 below shows the architecture model of the system.

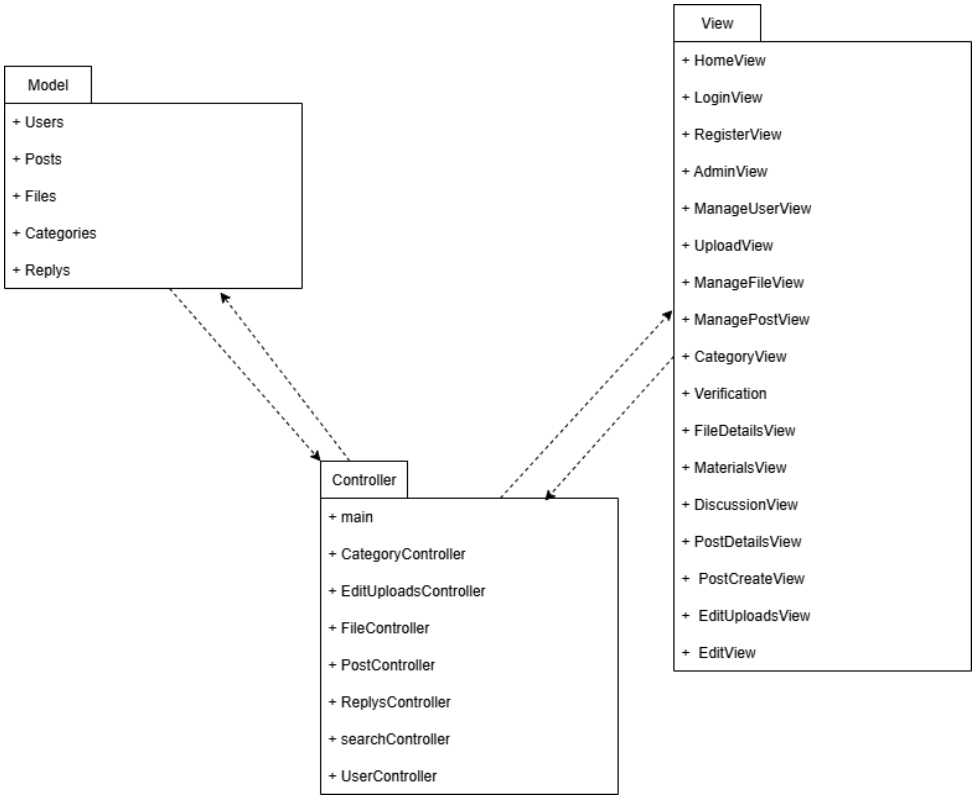

Figure 2.1: architecture pattern model of ERMAD system

2.3 Use Case Diagram

The figure 2.2 below shows the use case diagram of the system.

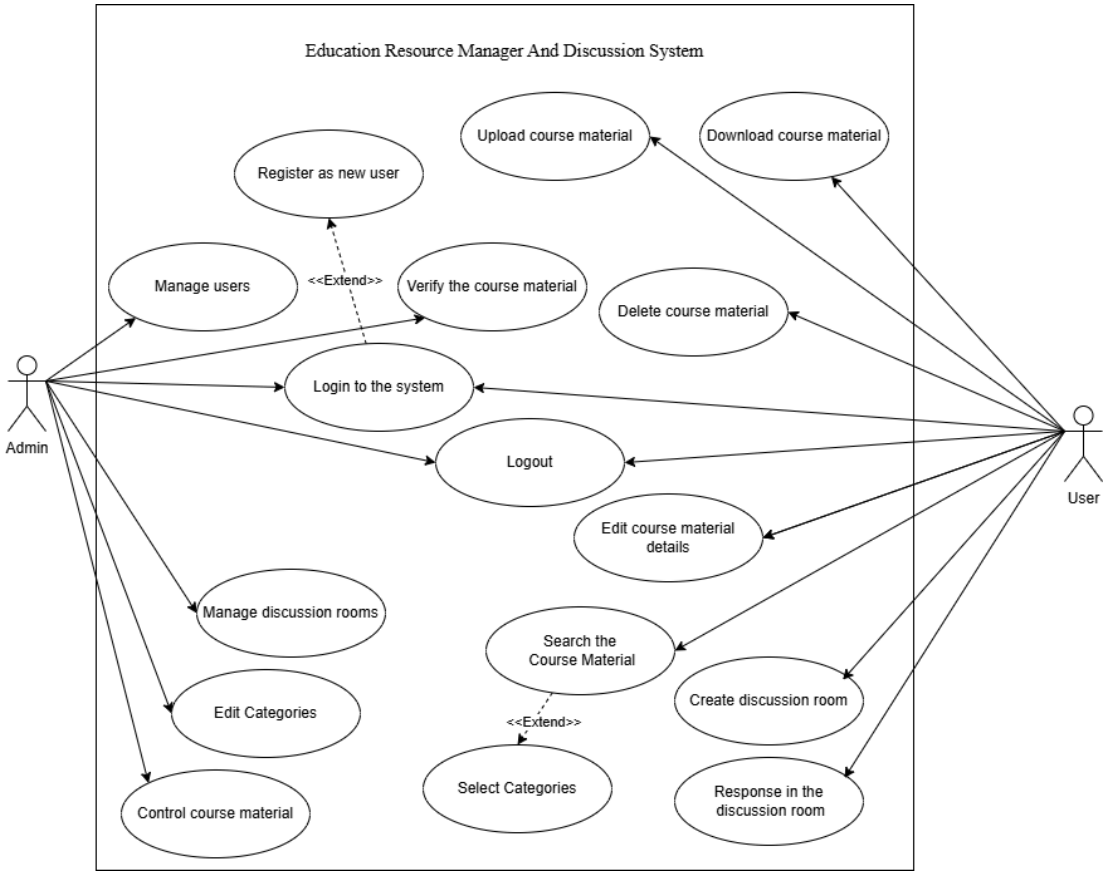

Figure 2.2: Use Case Diagram of ERMAD system

3. Detailed Description of Components

3.1 Complete Package Diagram

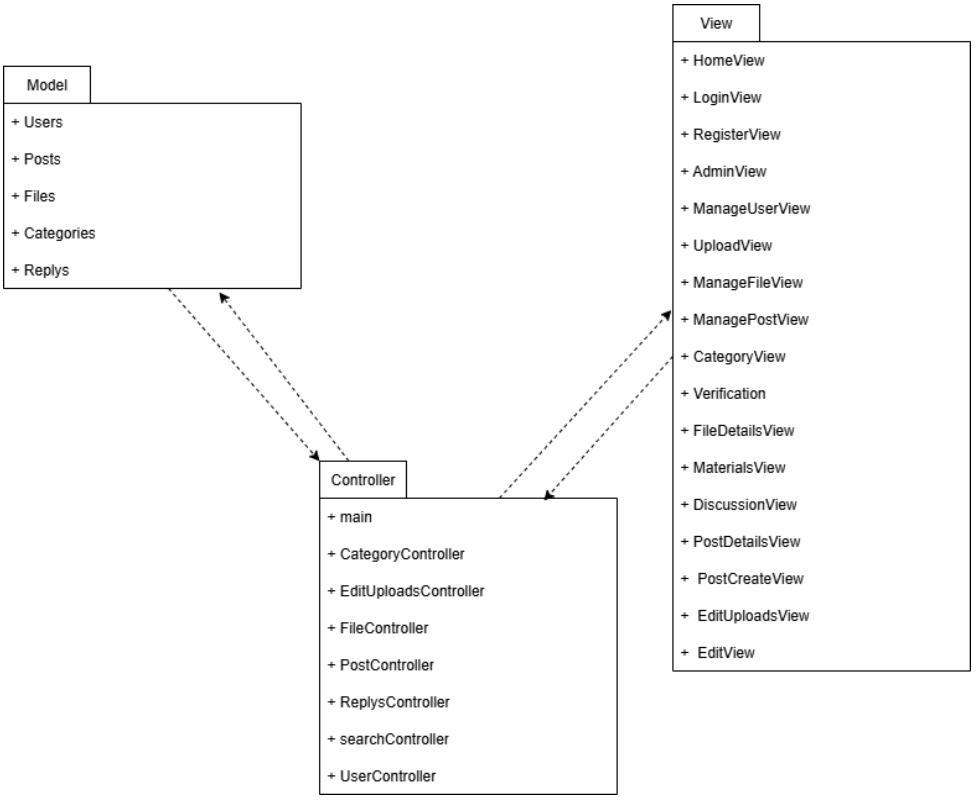

Figure 3.1: Package Diagram of ERMAD system

3.2 Detailed Description

3.2.1 Module <account management module>

3.2.1.1 P001: Package <account management package>

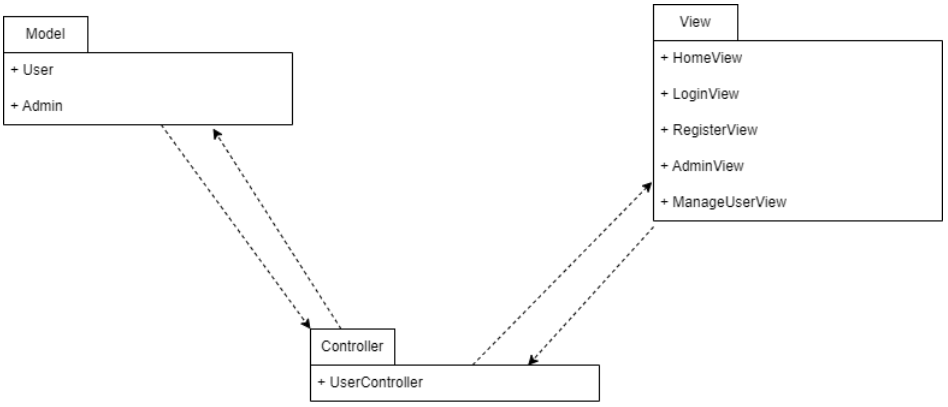

Figure 3.3: Package Diagram of <account management package>

3.2.1.2 Sequence Diagrams

1) SD001: Sequence diagram of <Login to the system>

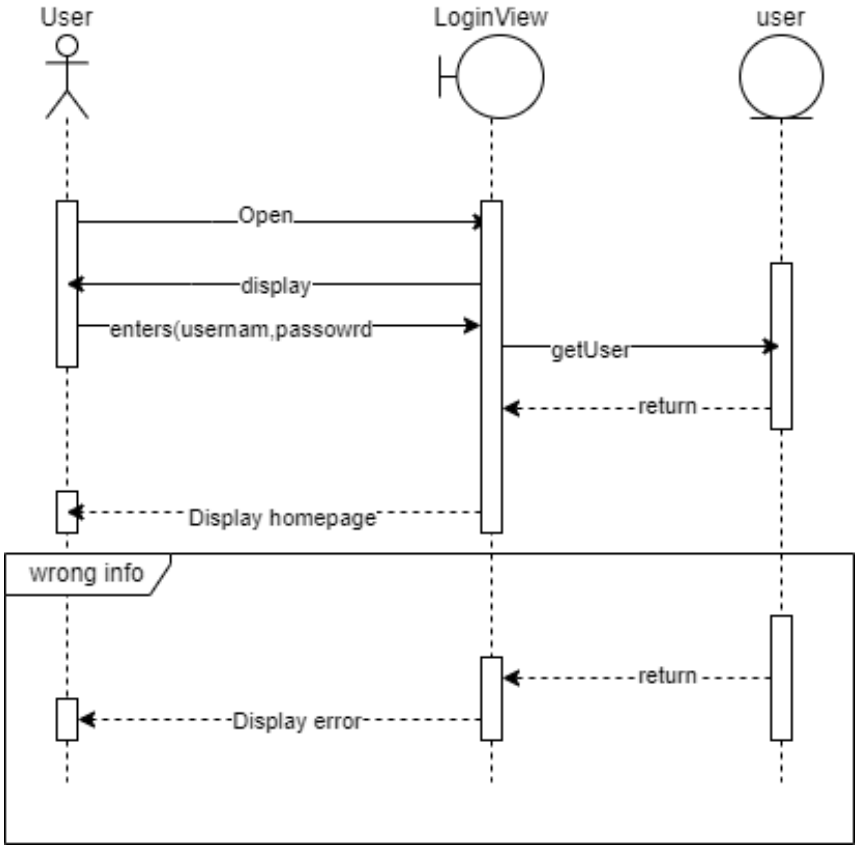

Figure 3.4: Sequence diagram of <Login to the system>

2) SD002: Sequence diagram of <Register as new user>

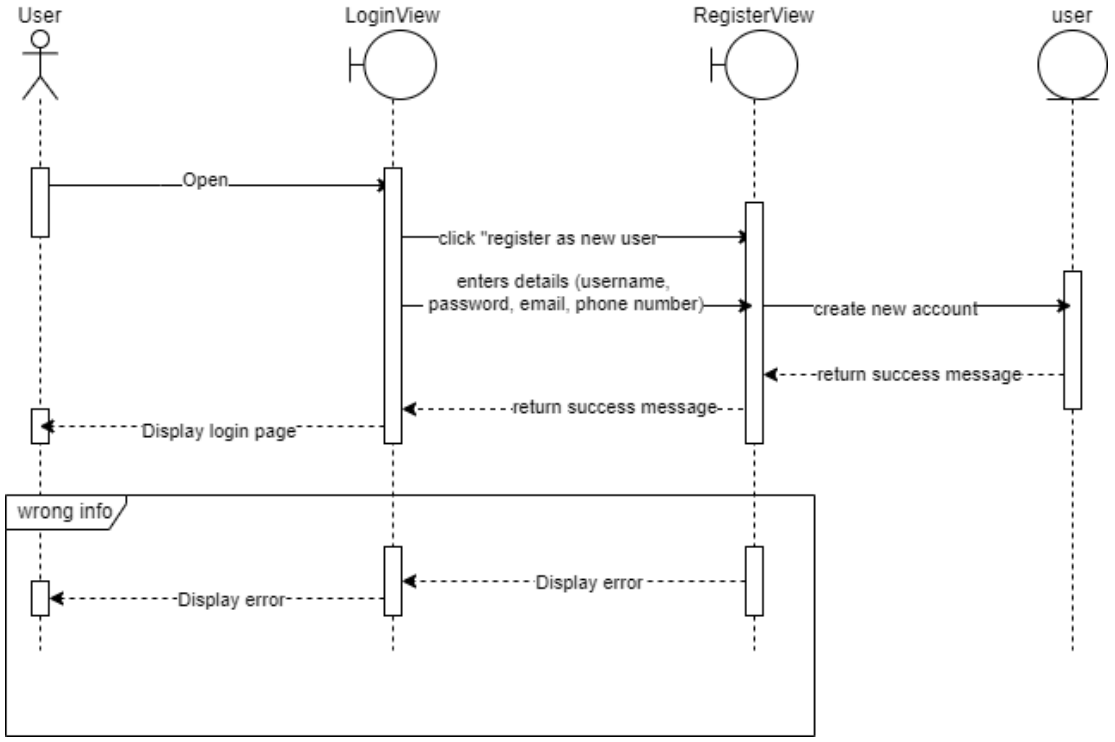

Figure 3.5: Sequence diagram of <Register as new user>

3) SD007: Sequence diagram of <Logout>

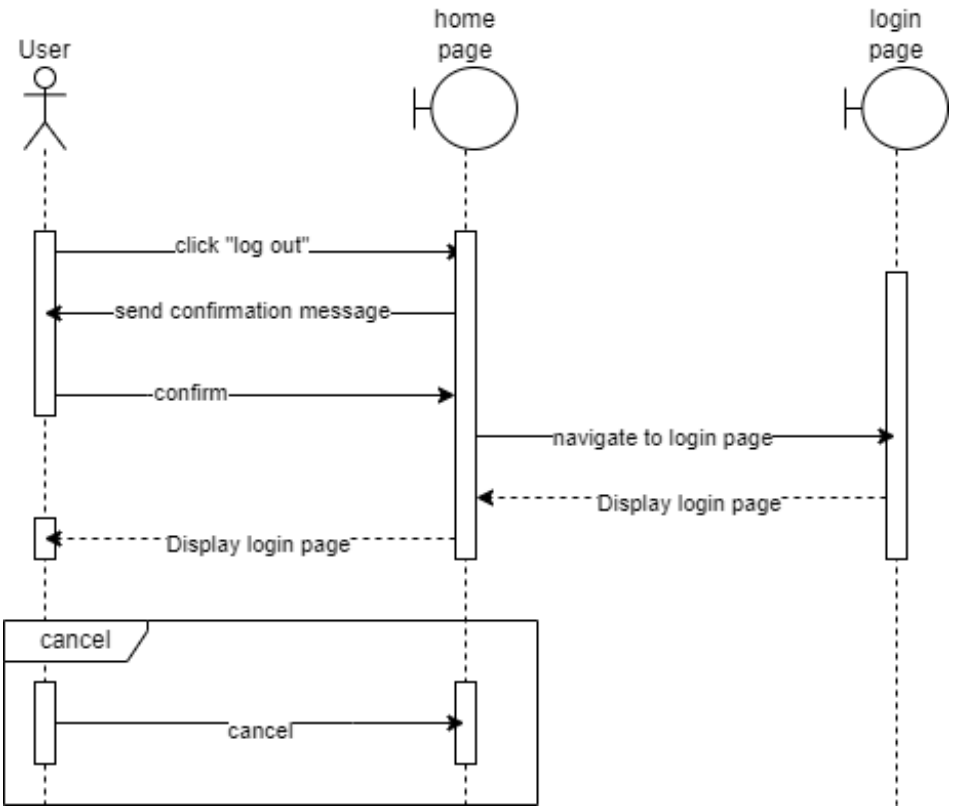

Figure 3.6: Sequence diagram of <Logou>

4) SD008: Sequence diagram of <Manage users>

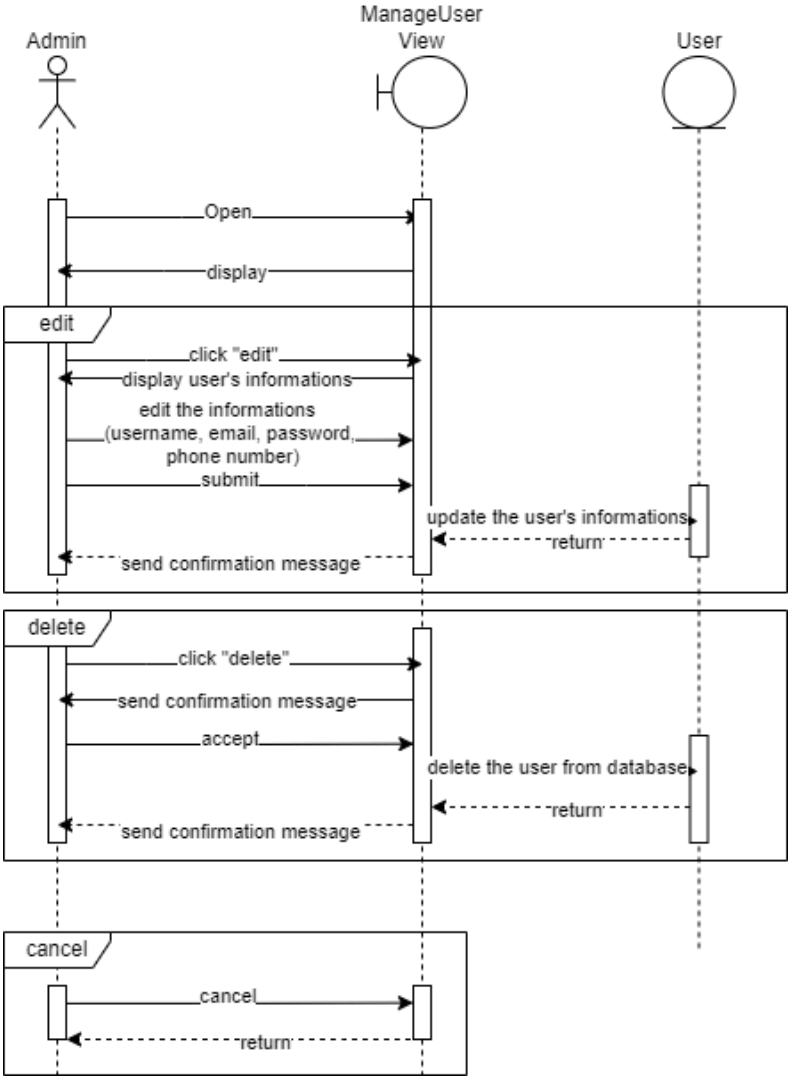

Figure 3.7: Sequence diagram of <Manage users>

3.3 Module <course material management module>

3.3.1 P002: Package <course material package>

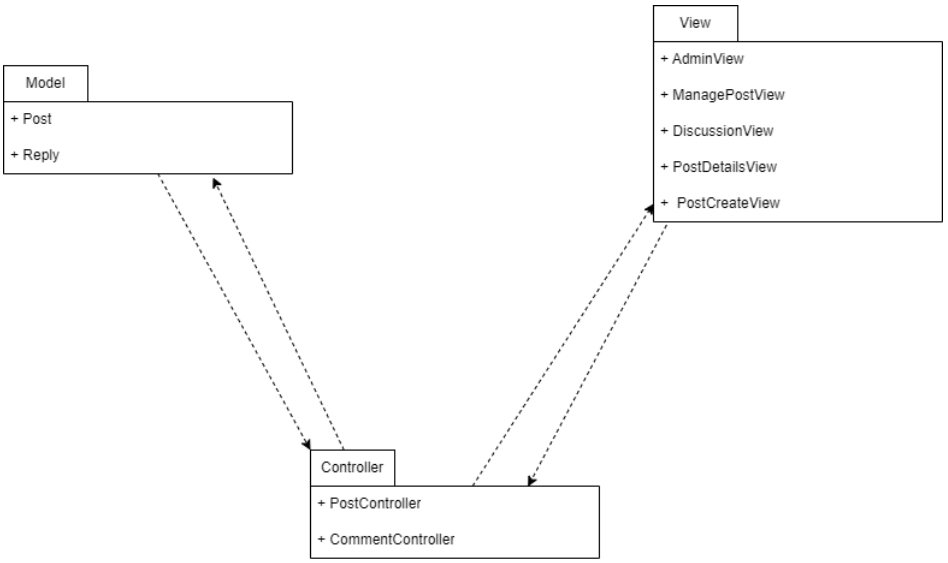

Figure 3.8: Package Diagram of <material management package>

3.3.2 Sequence Diagrams

1) SD003: Sequence diagram of <Upload course material>

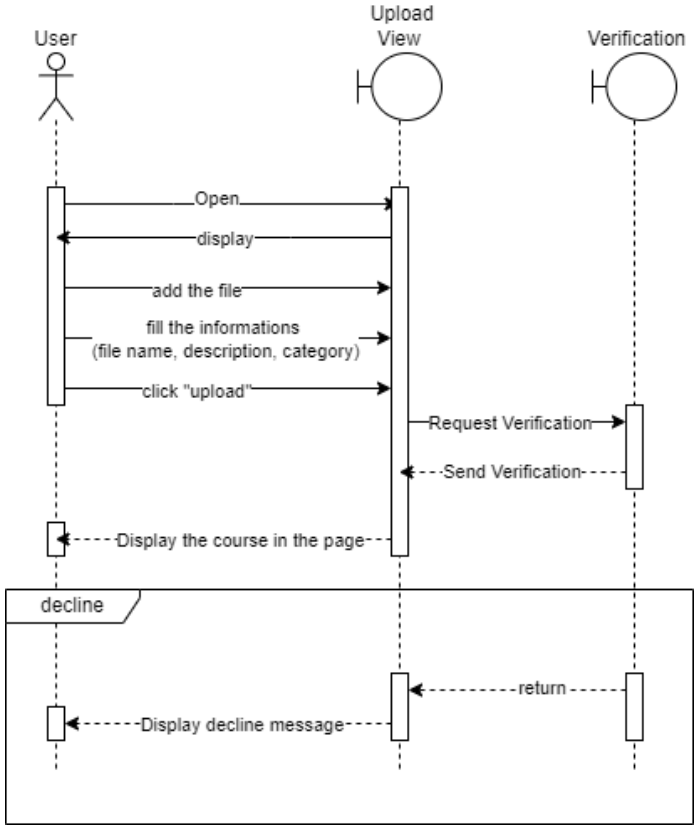

Figure 3.9: Sequence diagram of <Upload course material>

2) SD004: Sequence diagram of <Download course material>

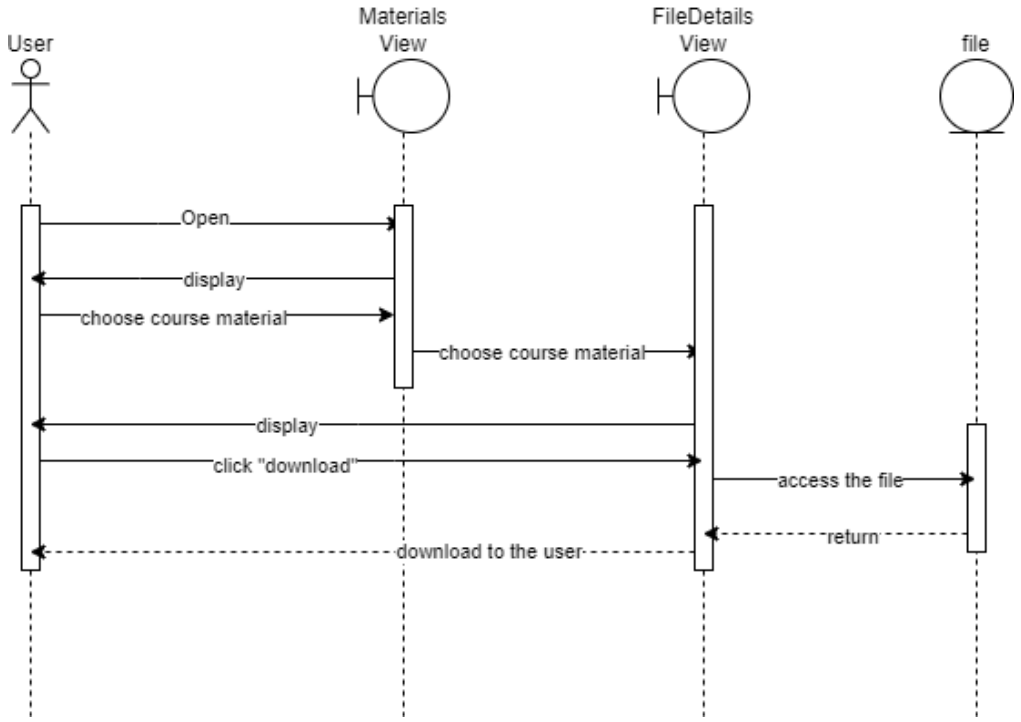

Figure 3.10: Sequence diagram of <Download course material>

3) SD005: Sequence diagram of <Delete course material>

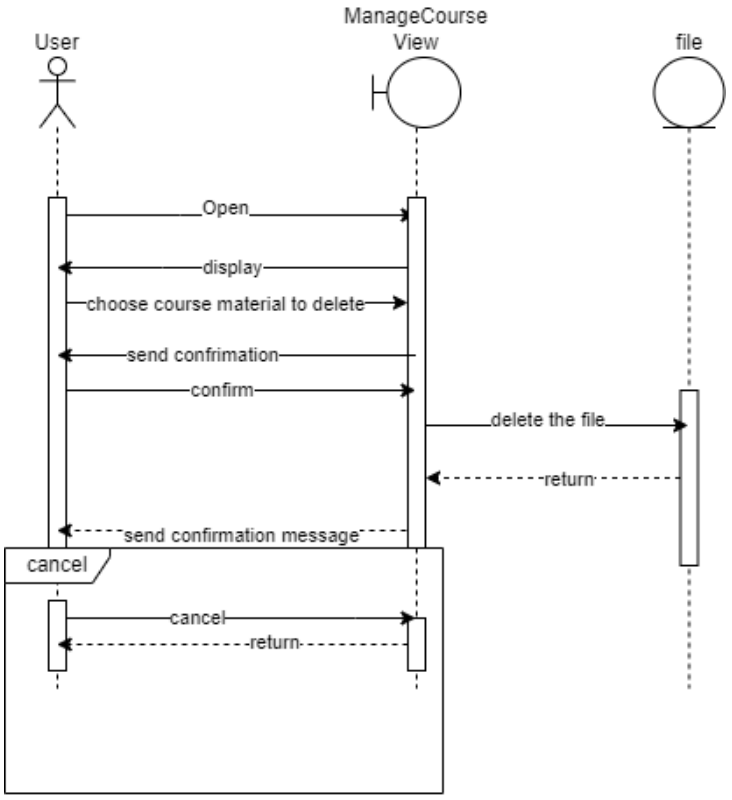

Figure 3.11: Sequence diagram of <Delete course material>

4) SD006: Sequence diagram of <Edit course material details>

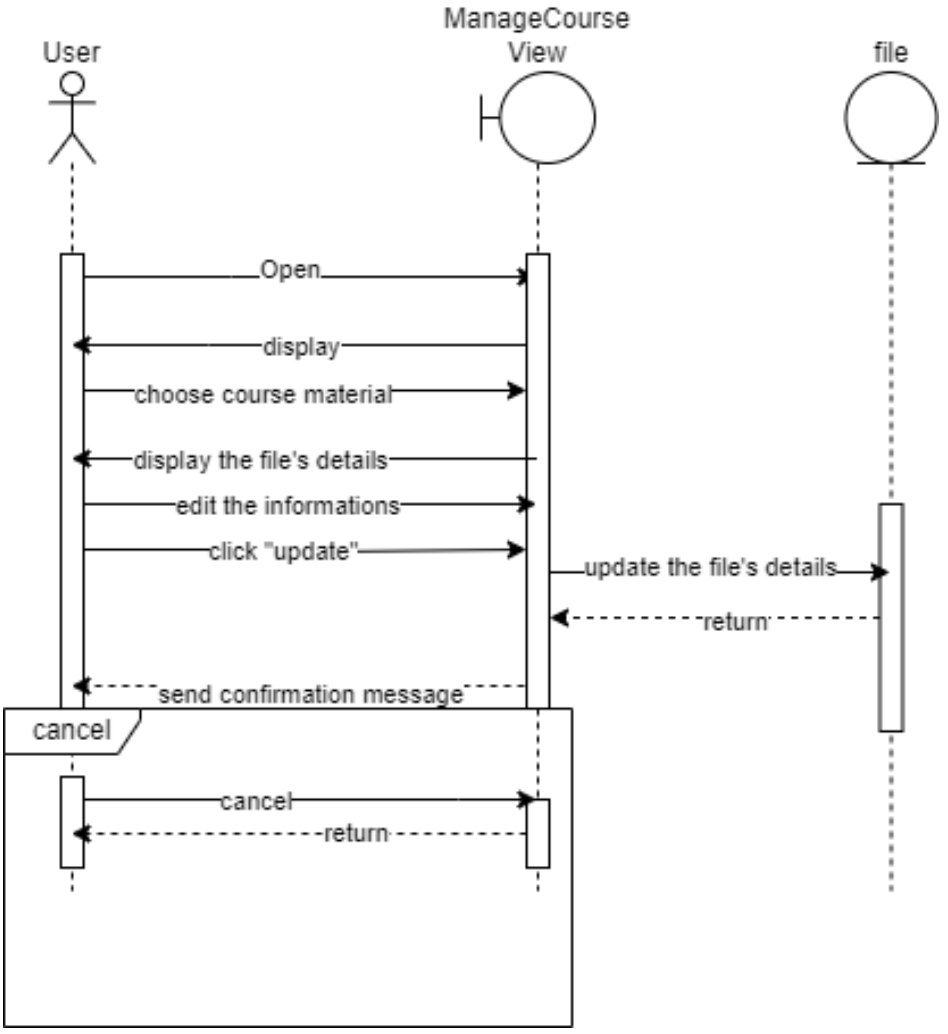

Figure 3.12: Sequence diagram of <Edit course material details>

5) SD009: Sequence diagram of <Edit categories>

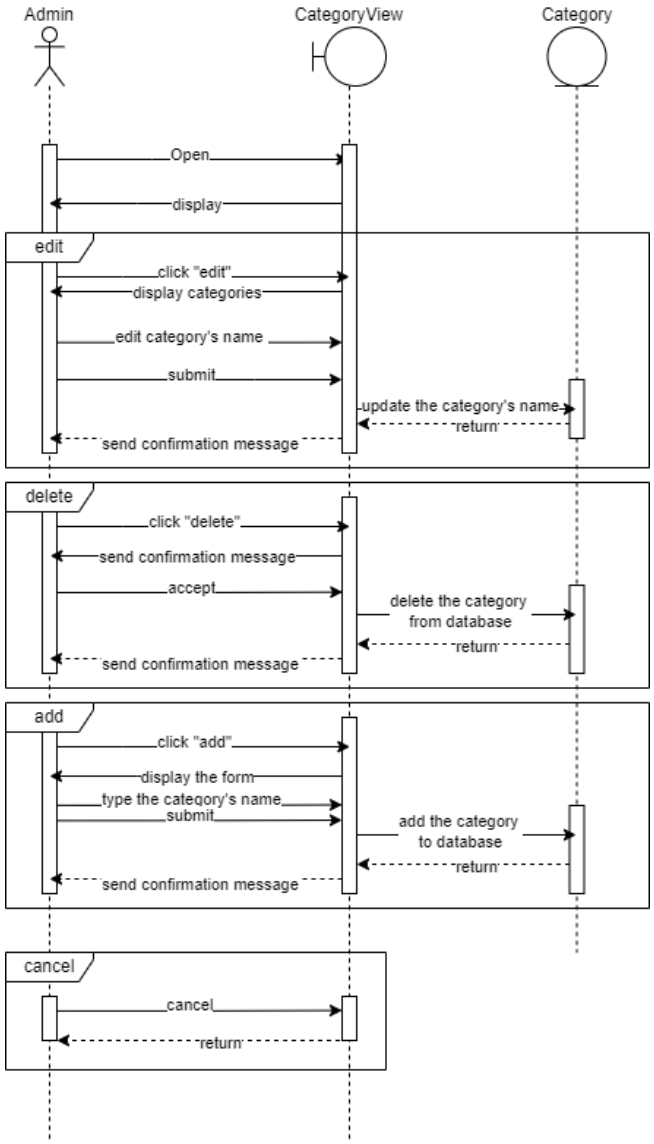

Figure 3.13: Sequence diagram of <Edit categories>

6) SD010: Sequence diagram of <Control course material>

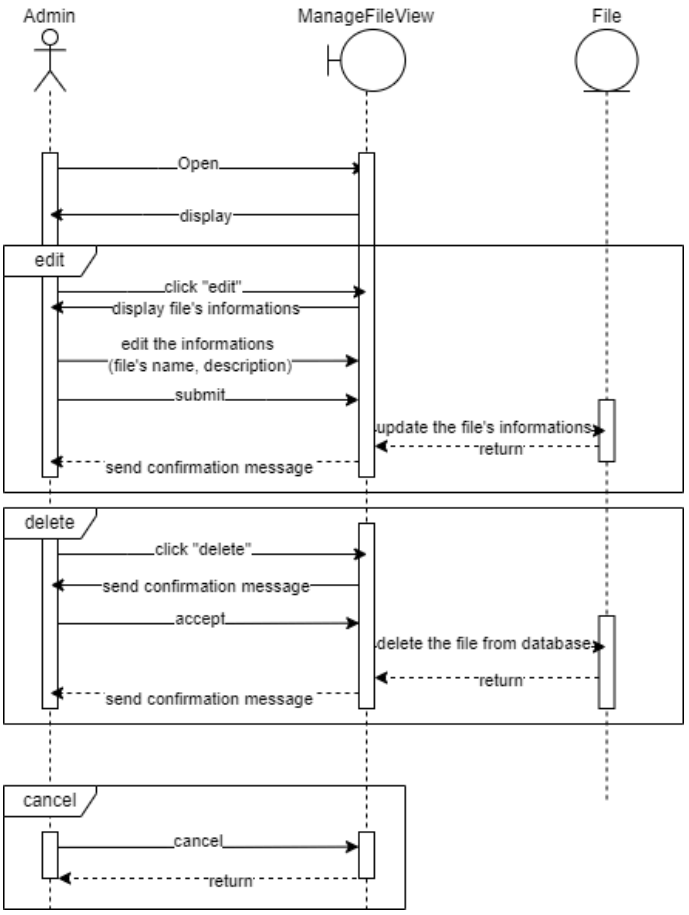

Figure 3.14: Sequence diagram of <Control course material>

7) SD011: Sequence diagram of <Search course material>

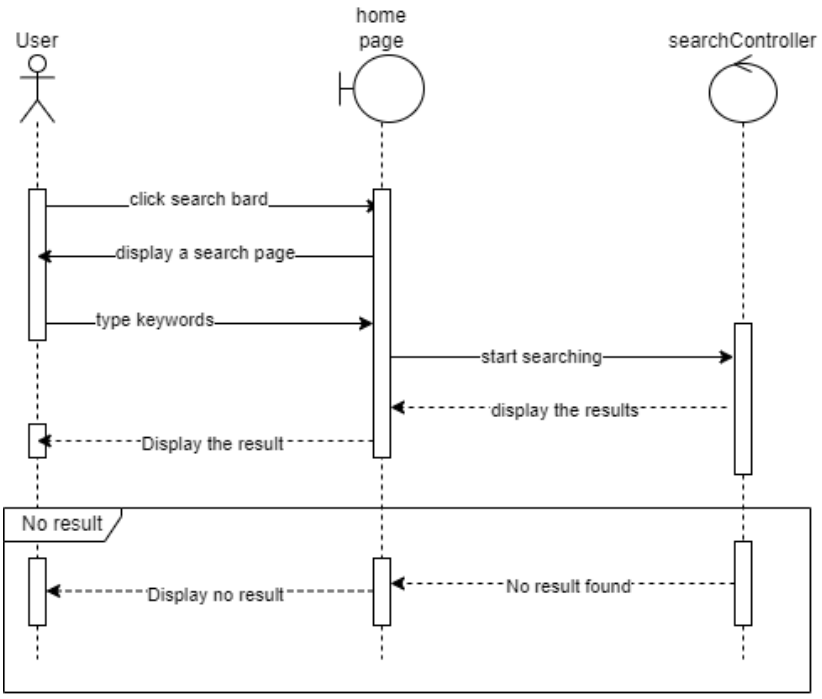

Figure 3.15: Sequence diagram of <Search course material>

8) SD012: Sequence diagram of <Select categories>

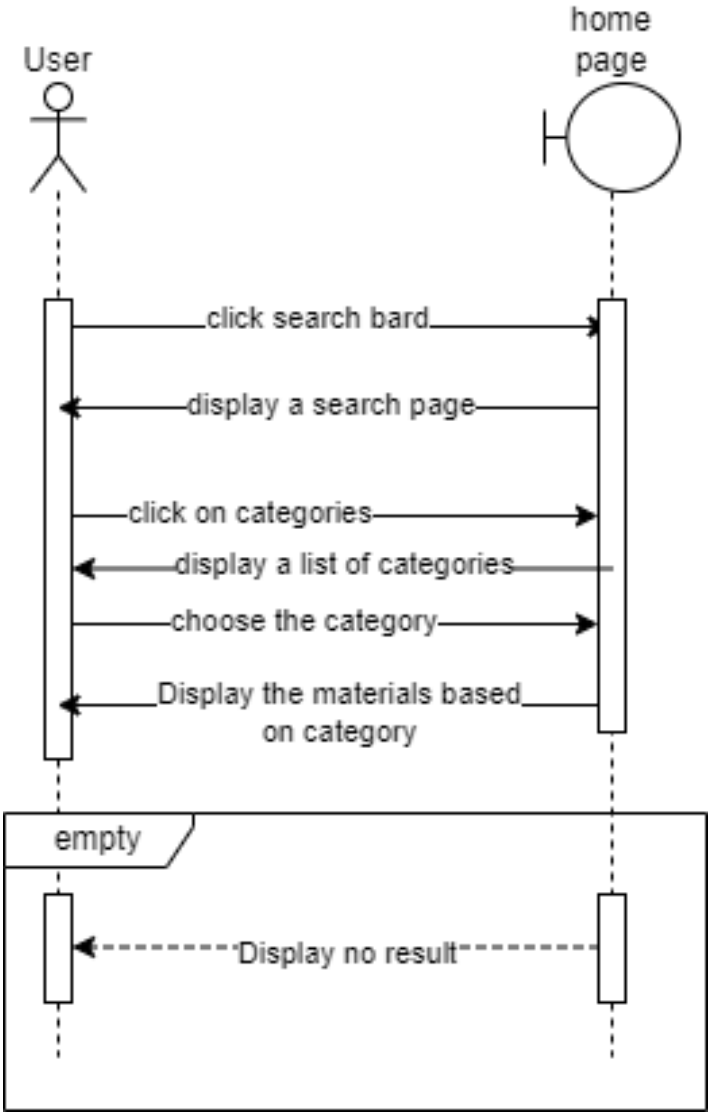

Figure 3.16: Sequence diagram of <Select categories>

9) SD016: Sequence diagram of <Verify the course material>

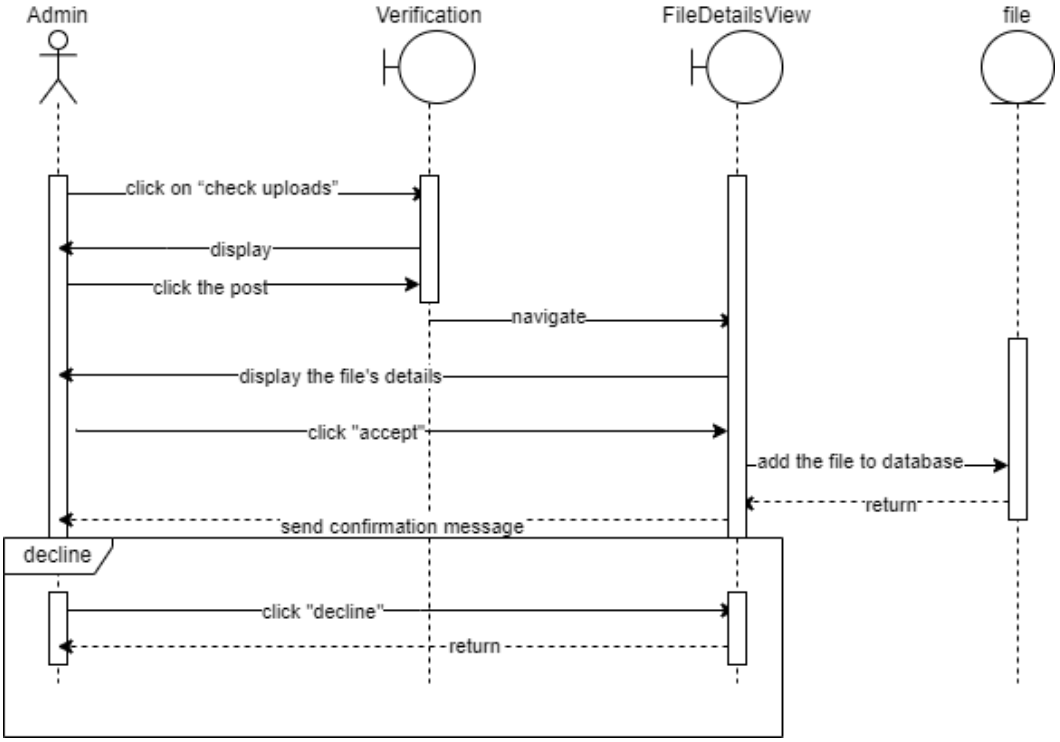

Figure 3.17: Sequence diagram of <Verify the course material>

3.4 Module <discussion management module>

3.4.1 P003: Package <discussion management package>

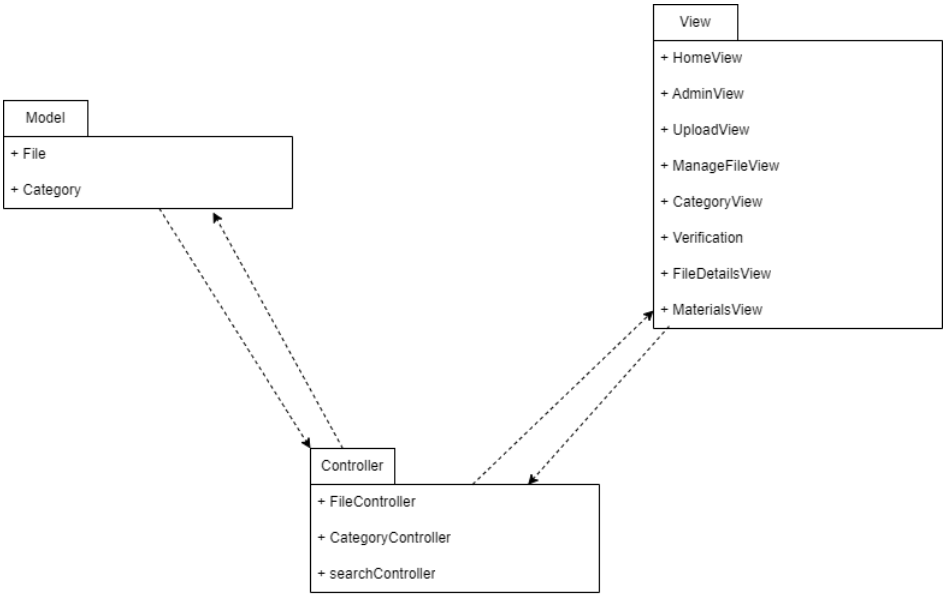

Figure 3.18: Package Diagram of <discussion management package>

3.4.2 Sequence Diagrams

1) SD013: Sequence diagram of <Create discussion room>

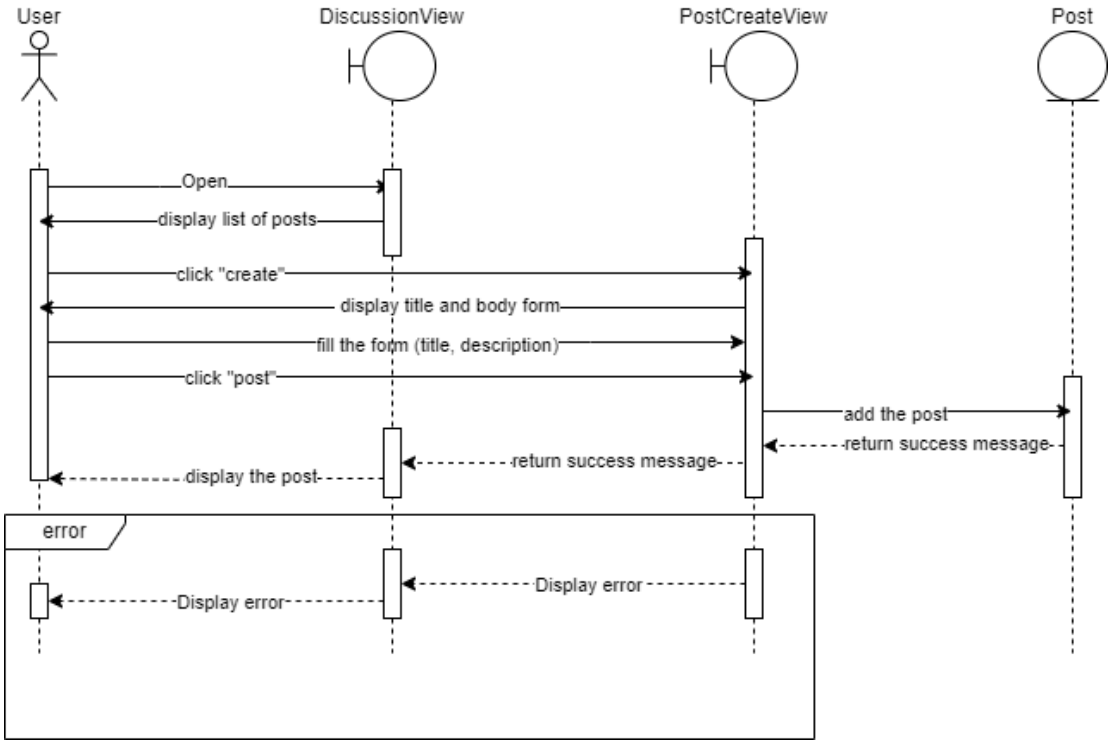

Figure 3.19: Sequence diagram of <Create discussion room>

2) SD014: Sequence diagram of <Response in the discussion room>

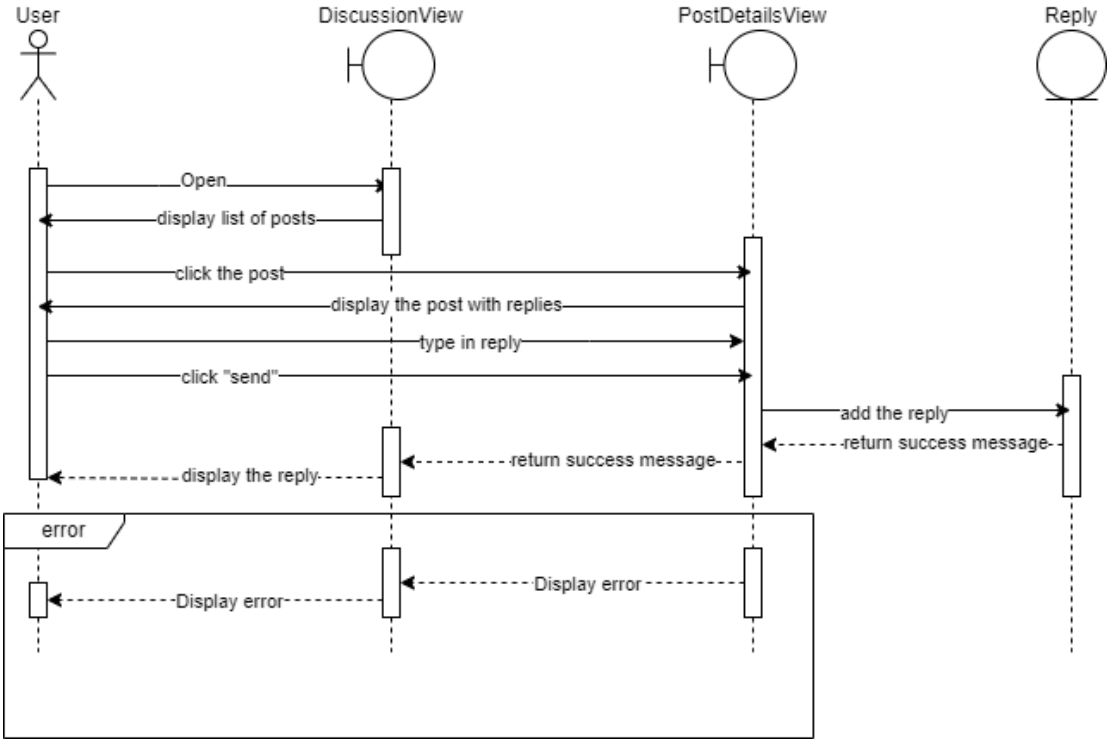

Figure 3.20: Sequence diagram of <Response in the discussion room>

3) SD015: Sequence diagram of <Manage discussion rooms>

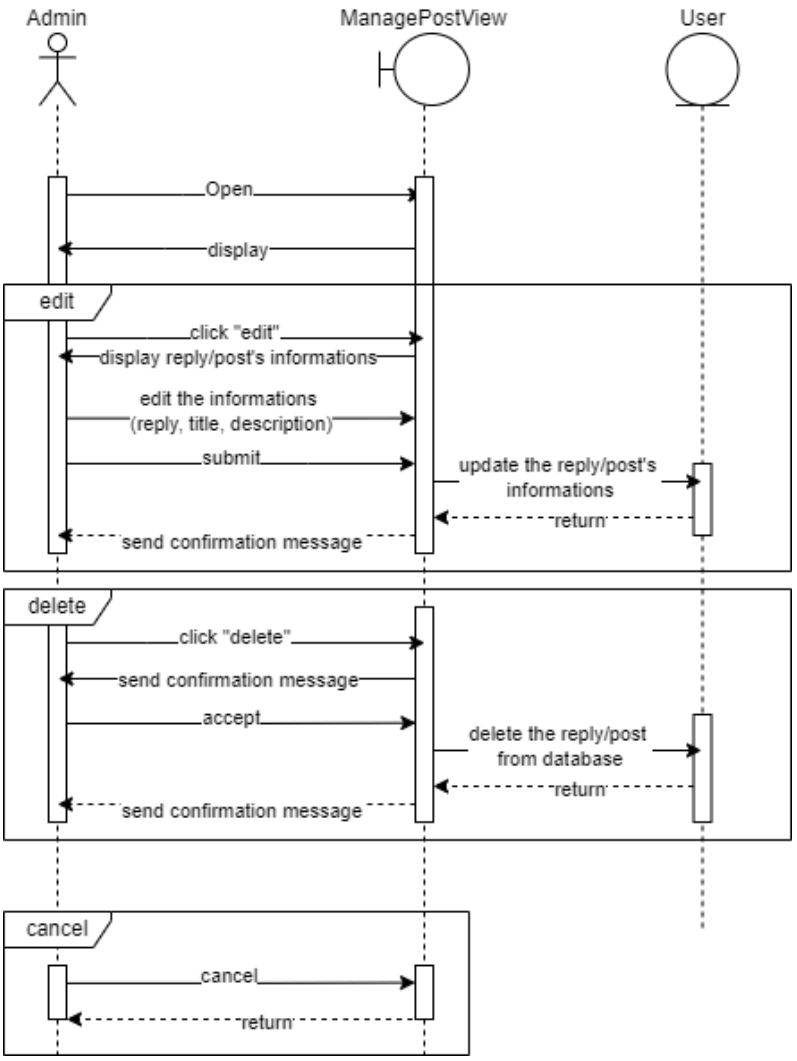

Figure 3.21: Sequence diagram of <Manage discussion rooms>

4. Data Design

4.1 Data Description

The figure 4.1 below shows the entity relationship diagram (ERD) in the system.

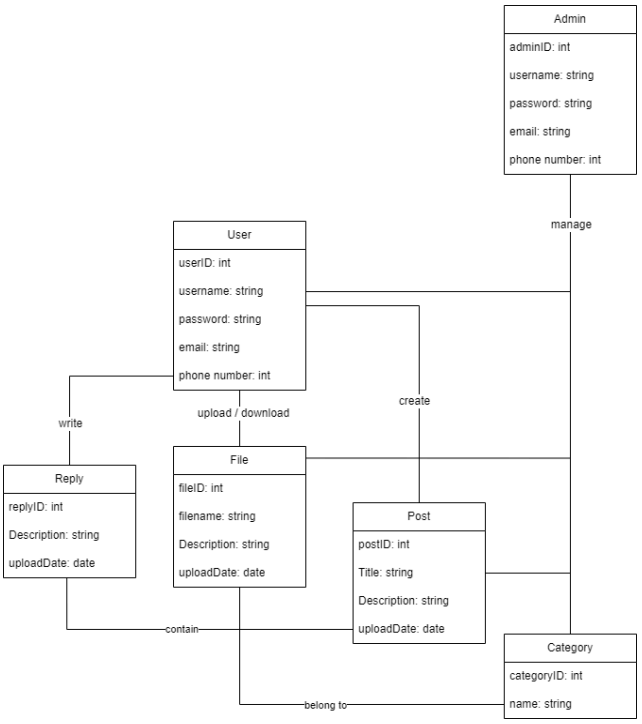

Figure 2.2: ERD of ERMAD system

The table below shows the name of the entities and their description.

Entity Name	Description
Admin	Is the actor who will take control of the system and is the manager.
User	User is the account that contains datas about the person who is using the system.
File	The files that are gonna be uploaded to the system by the user and can be pdf, doc, png,...etc.
Post	String data added by user in discussion room which contain title and description.
Category	Categories in the system that acts as groups to organise files in correct content.

Reply	Is the comments typed by the user in the discussion room under the post.

Table 4.1: Data Description table of ERMAD system

4.2 Data Dictionary

Below are tables that describe the datas inside each entity with their type and description.

Entity: Admin

Attribute Name	Type	Description
adminID	INT	Unique ID of the admin
username	STRING	the name of the admin
password	STRING	security code of the admin
email	STRING	email of the admin
phone_number	INT	phone number of the admin

Table 4.2: Admin Entity Table

Entity: User

Attribute Name	Type	Description
userID	INT	Unique ID of the user
username	STRING	the name of the user
password	STRING	security code of the user
email	STRING	email of the user
phone_number	INT	phone number of the user

Table 4.3: User Entity Table

Entity: File

Attribute Name	Type	Description
fileID	INT	Unique ID of the file
filename	STRING	name of the file
description	STRING	details about the file
uplaodDate	DATE	upload date in the system

Table 4.4:File Entity Table

Entity: Post

Attribute Name	Type	Description
postID	INT	Unique ID of the post
title	STRING	main title of the post
description	STRING	details of the post
uploadDate	DATE	upload date in the system

Table 4.5: Post Entity Table

Entity: Category

Attribute Name	Type	Description
categoryID	INT	Unique ID of the category
name	STRING	name of the category

Table 4.6: Category Entity Table

Entity: Reply

Attribute Name	Type	Description
replyID	INT	Unique ID of the reply
description	STRING	details of the reply
uploadDate	DATE	upload date in the system

Table 4.7: Reply Entity Table

5. User Interface Design

5.1 Overview of User Interface

For the interface design, the design will focus on size of desktop that are around 1080|1890 or similar to that ratio. The actors of the system is two which each of them have different navigation, The user interface contain upload courses, create discussion room, and search bar, while the admin interface will contain all control tools to the system and datas, figures below shows the navigation of admin and user.

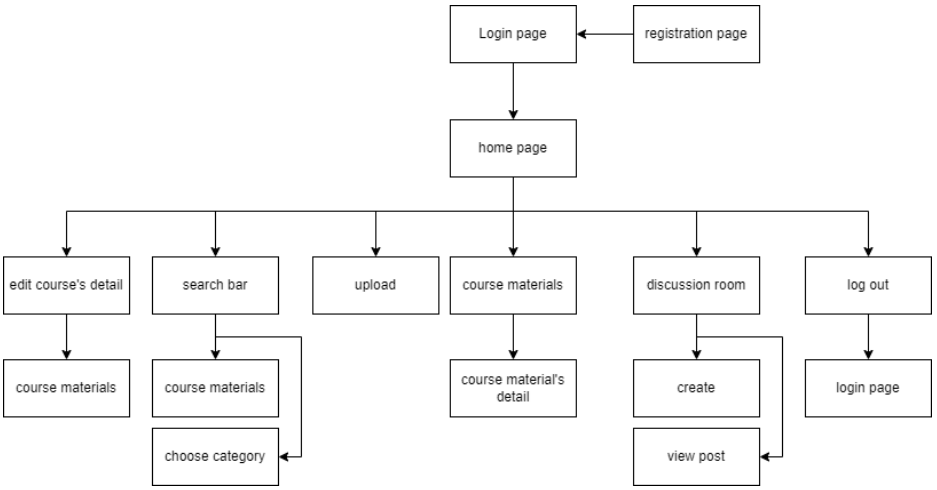

Figure 5.1: navigation diagram of user

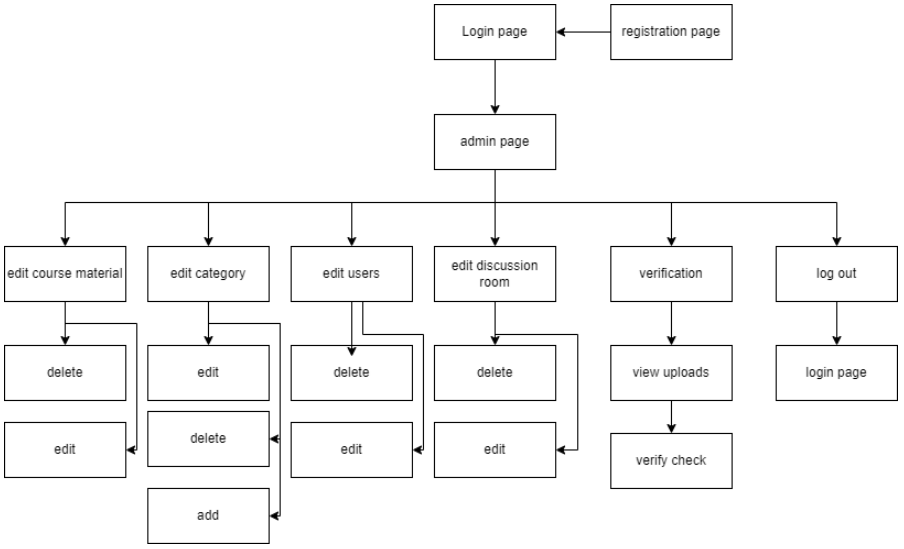

Figure 5.2: navigation diagram of admin

5.2 Screen Images

Figma used to create a simple interface to understand how the system will look, below are screenshots of all simple interfaces that the system will have.

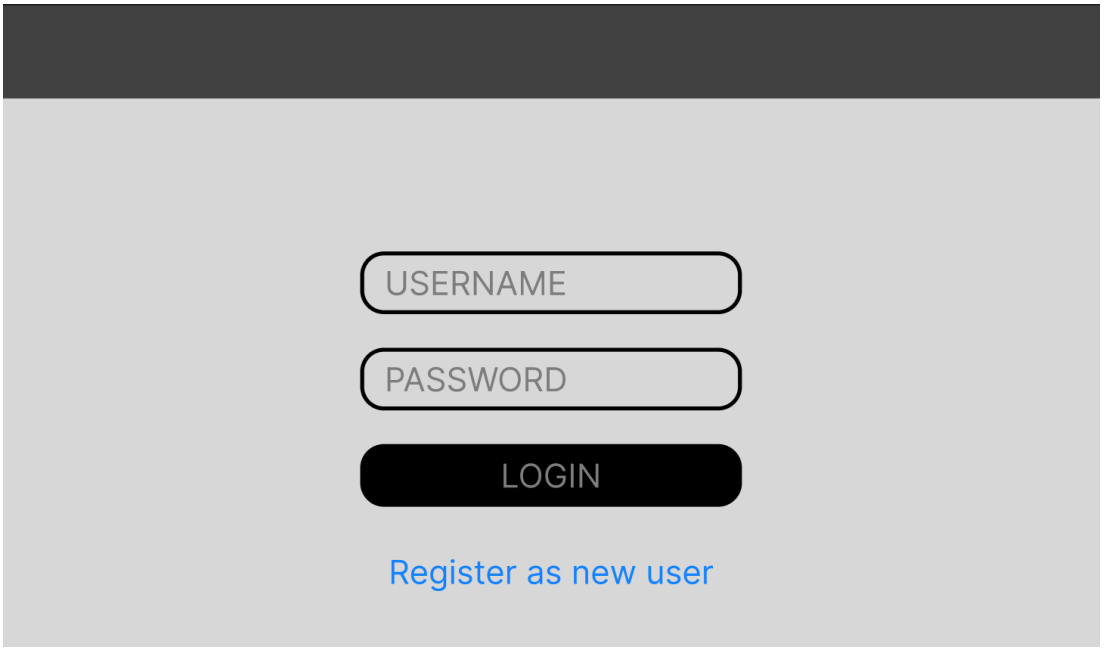

Figure 5.2: login

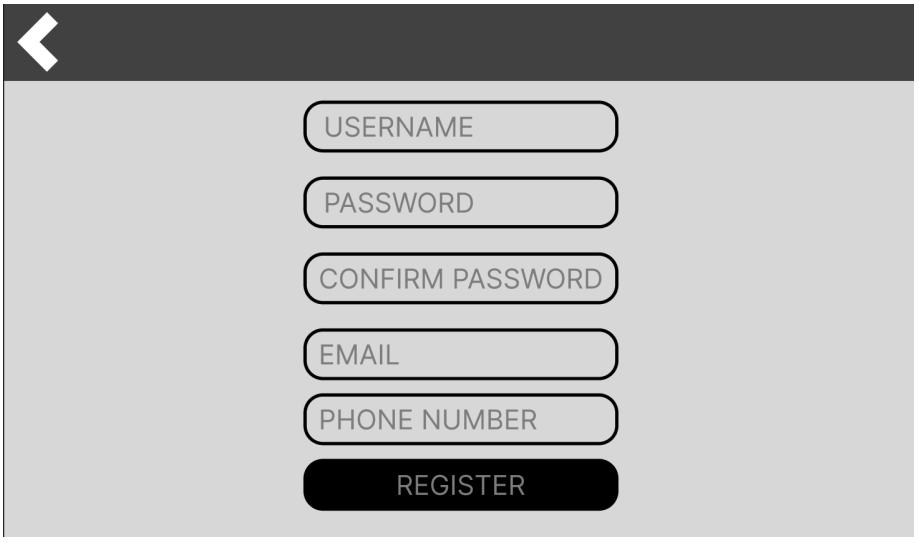

Figure 5.2: register

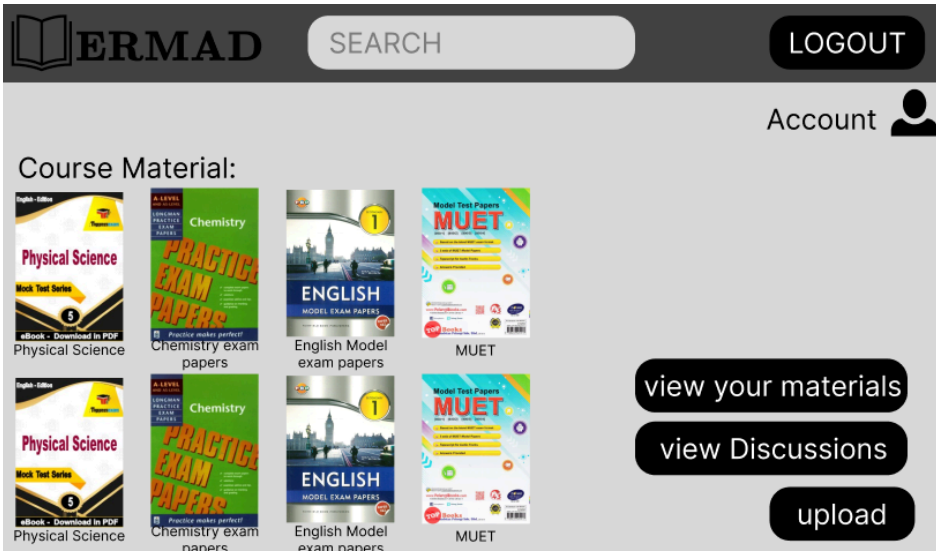

Figure 5.2: homepage

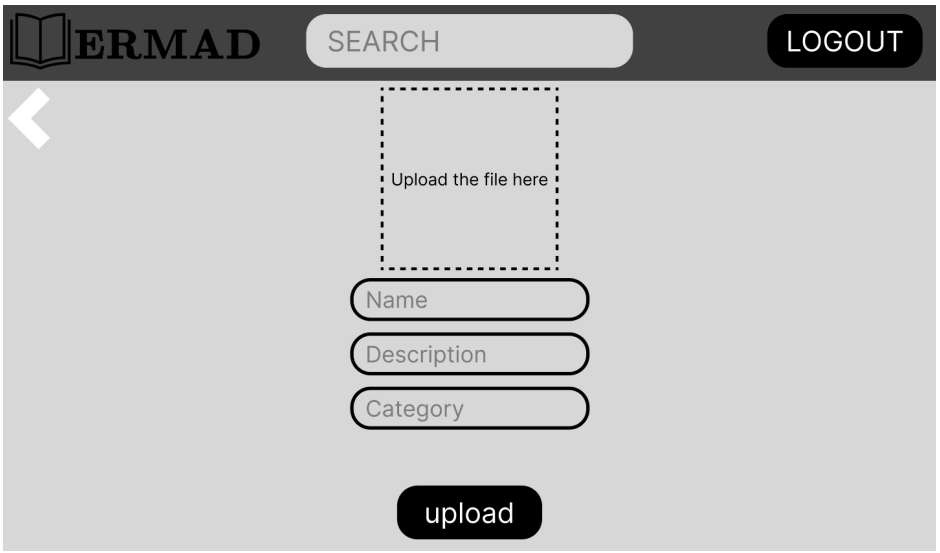

Figure 5.2: upload

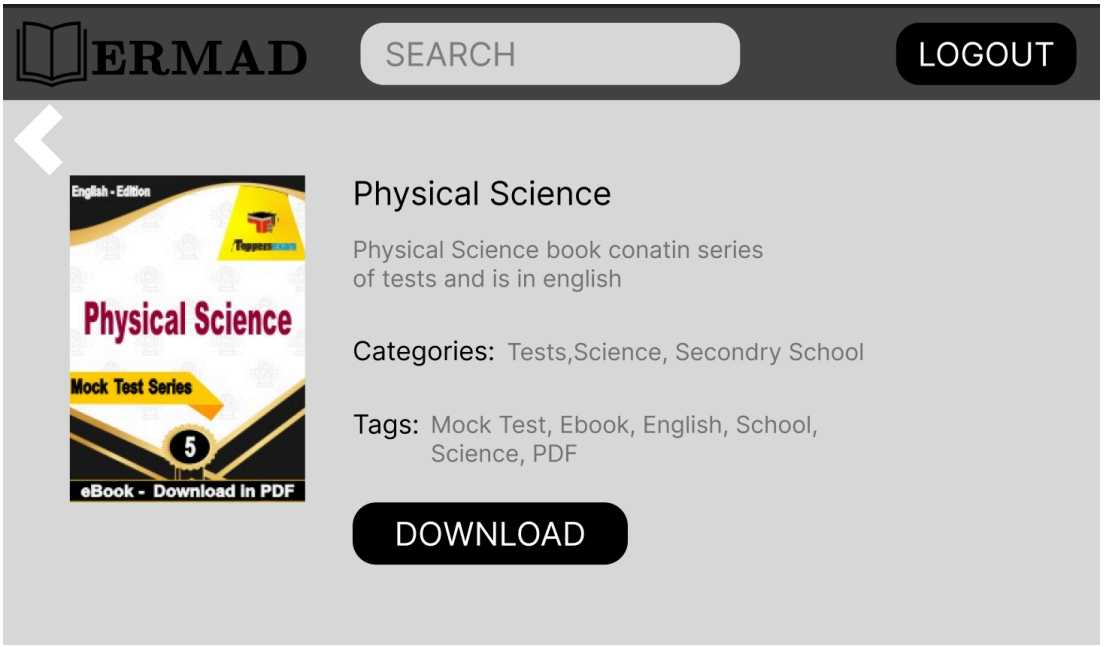

Figure 5.2: download and view

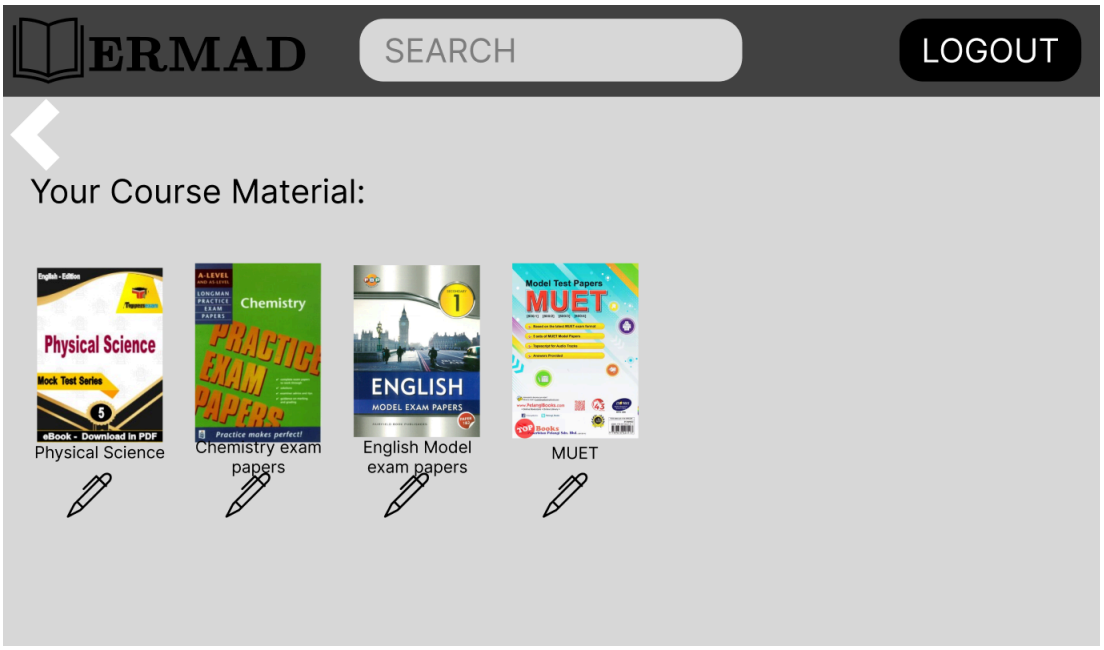

Figure 5.2: edit course materials

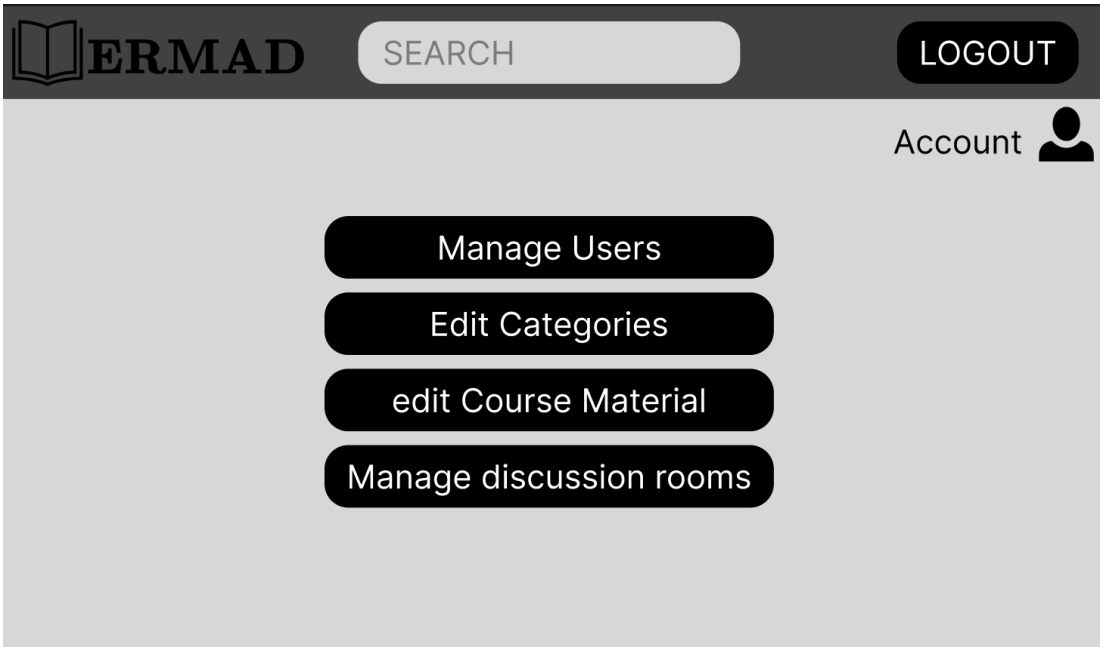

Figure 5.2: adminpage

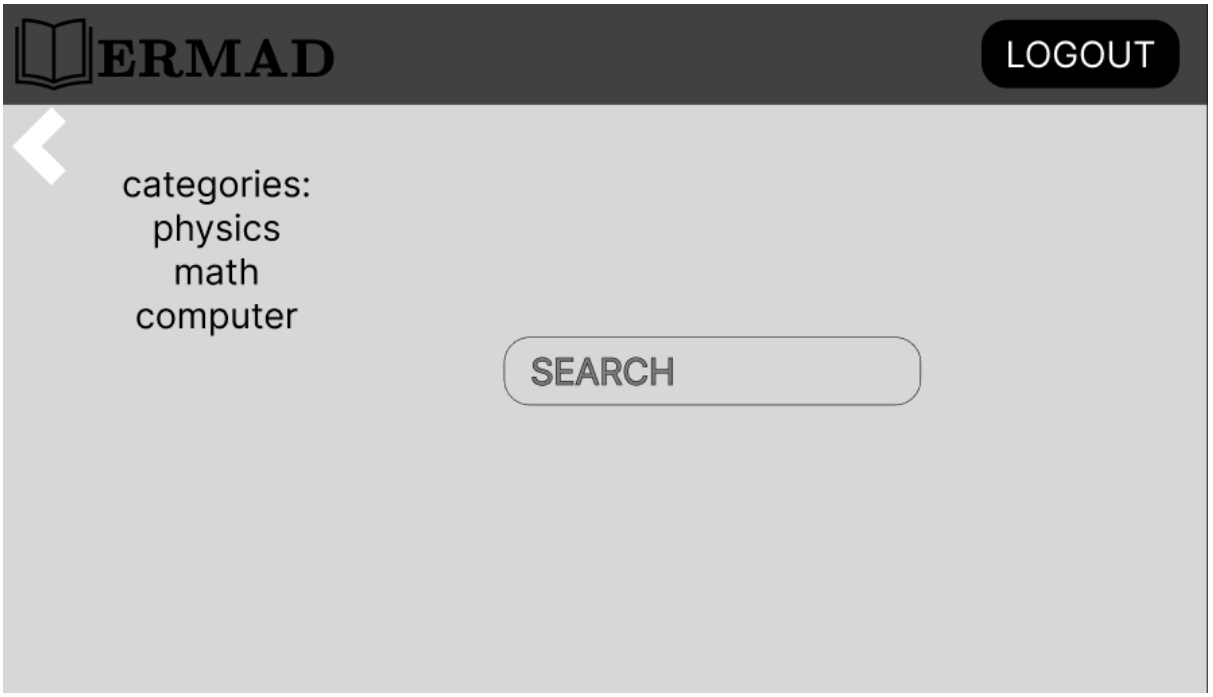

Figure 5.2: search

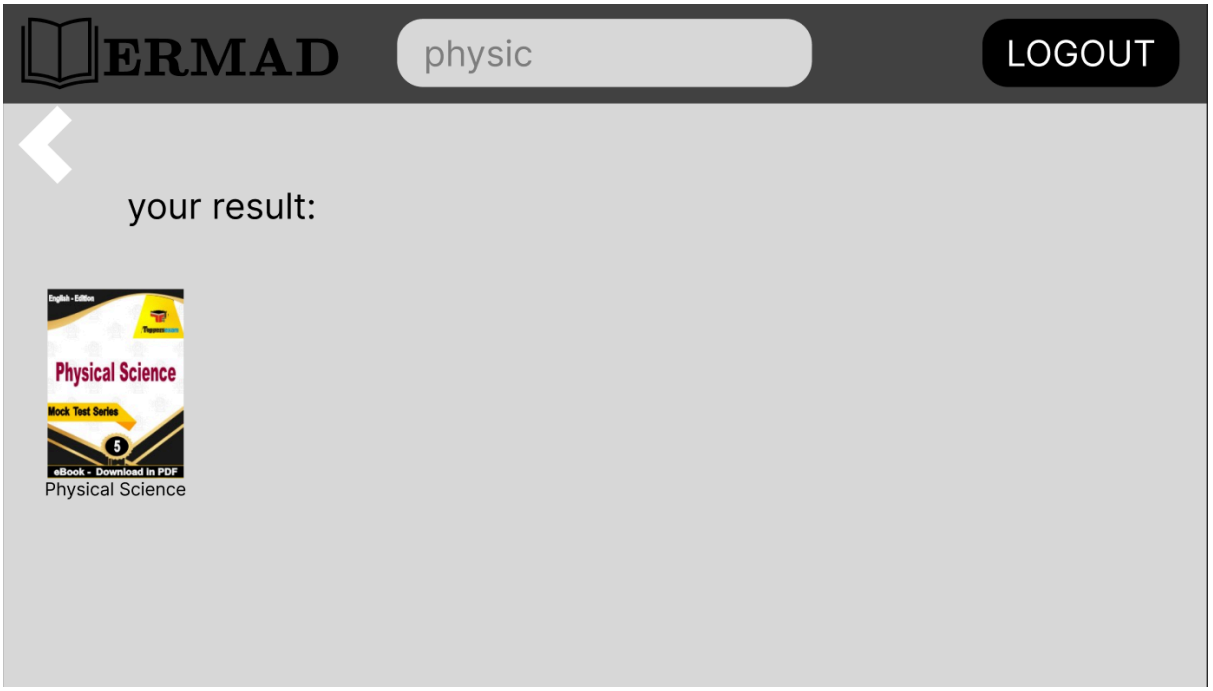

Figure 5.2: search result

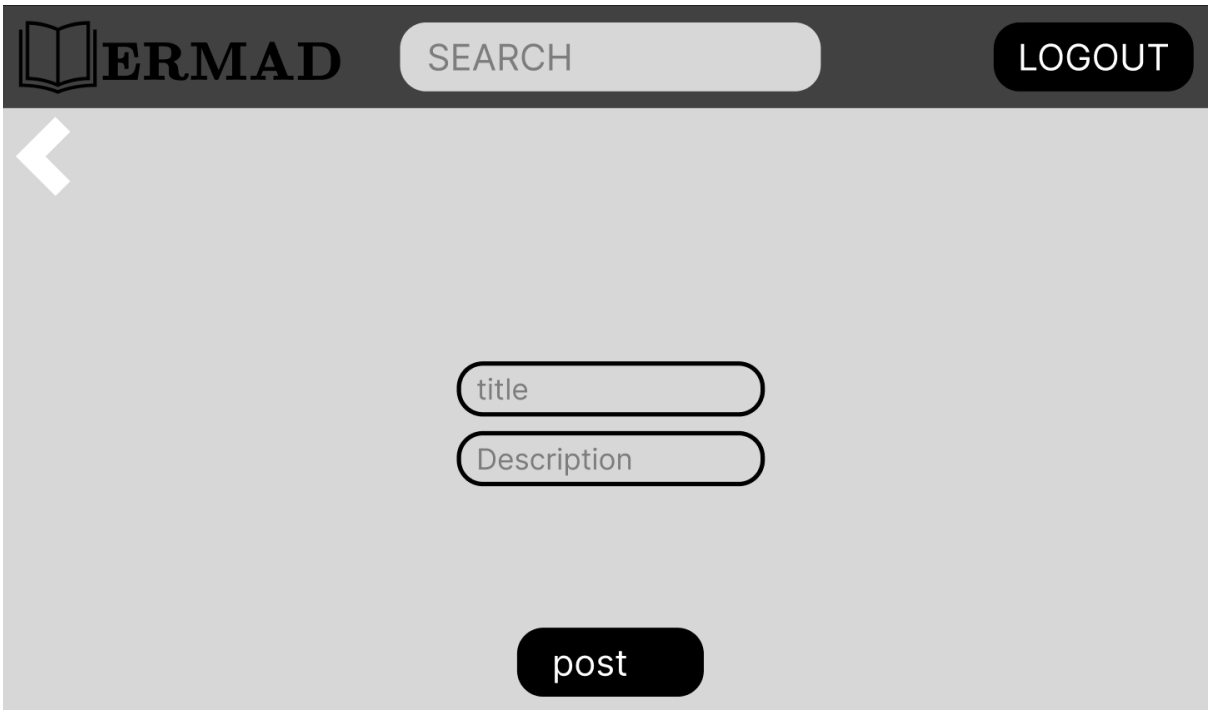

Figure 5.2: create post

Figure 5.2: manage users

APPENDIX D

Software Test Description