BIRMINGHAM CITY
University

BIRMINGHAM CITY UNIVERSITY

COMPUTER SCIENCE MSc

CMP7243 SOFTWARE ANALYSIS & DESIGN

D2 ASSESSMENT

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Contents

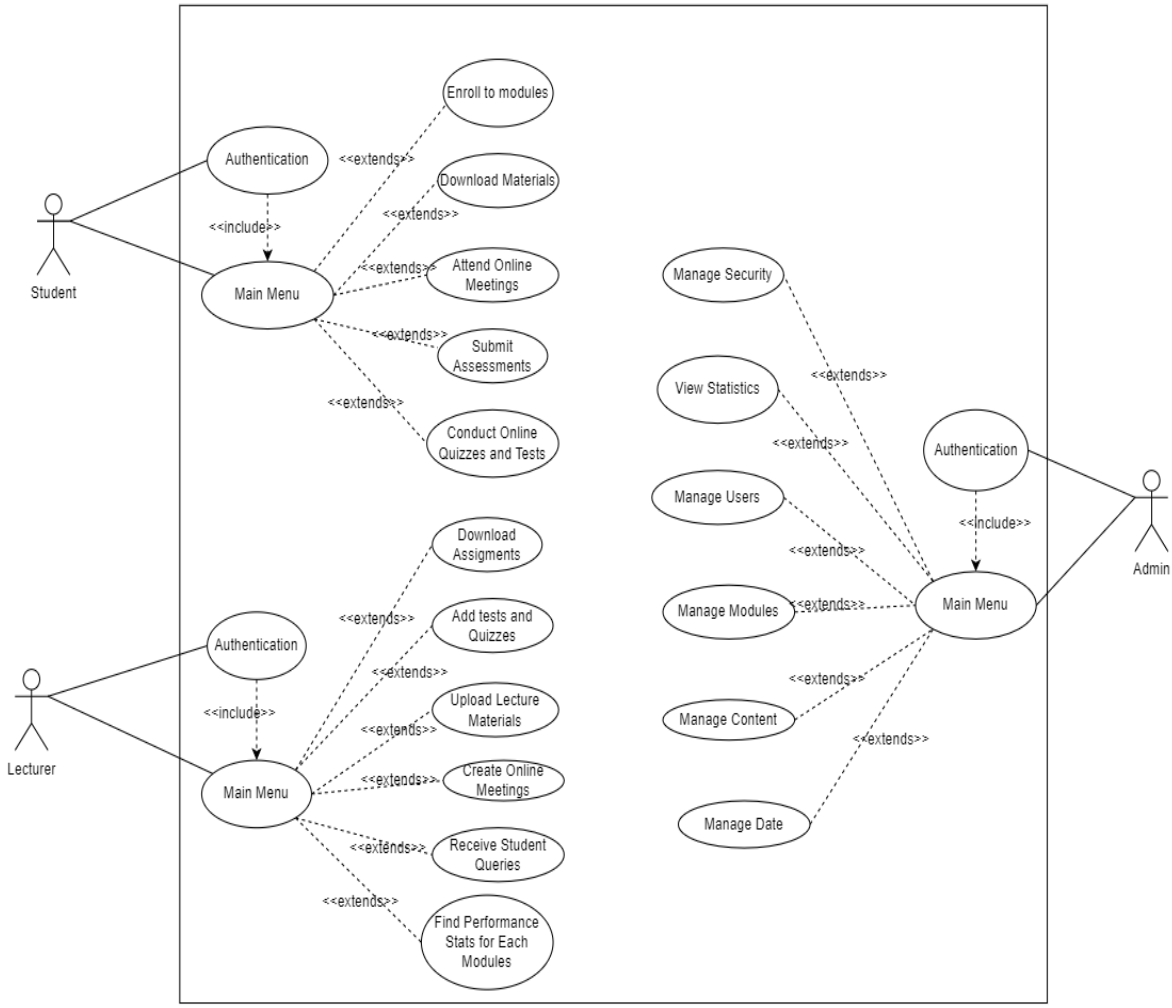
Interactive E-Learning System

Part-1

1- Drawing the UML Use Cases diagrams for an application.

o A UML-use case diagram (UCD) containing 10-15 use cases from your requirements table. The UCD is to take a holistic perspective and not discriminate between the system.

UML Use Case Diagram



Picture 1

This UCD containing 17 use cases from requirenment table.

2- Describe the details of the Use Cases (Tables).

o Choose 5-10 of the use cases in the UCD and provide its use case specifications (in table format).

Use Cases Tables

Use case tables document the use cases for each use case in the system. These templates are documented step by step and show how to achieve the stated purpose.

1. Use Case Table : **Enroll to Module Use Case:**

Name	Enroll to Module
Purpose	Student enroll in a module
Actor	Student
Pre-conditions	Student is registered in the system
Post-conditions	Student is enrolled in the module
Description	1.Student selects module to enroll 2.System displays module details 3.Students clicks entoll button 4.System adds student to module
Triggering event	When user want to enroll module they need to click to enroll button
Trigger type	External
Assumption	Student has a browser and a valid user id and password
Priority	High

2. Use Case Table: **Download Materials**

Name	Download Materials
Purpose	Student downloads materials for a module
Actor	Student
Pre-conditions	Student enrolled in the module
Post-conditions	Student has downloaded the materials
Description	1.Student selects module to download materials 2.System displays available materials 3.Students selects materials to download 4.System downloads materials
Triggering event	When user want to download materials they need to select download materials
Trigger type	External
Assumption	Student enrolled in the module
Priority	High

3. Use Case Table: **Attend Online Meeting**

Name	Attend Online Meeting
Purpose	Student or Lecturer is attends an online meeting for a module
Actor	Student, Lecturer
Pre-conditions	Student or Lecturer is enrolled in the module
Post-conditions	Student or Lecturer has attended the online meeting
Description	1.Student or Lecturer selects module to attend online meeting 2.System displays available online meetings 3.Student or Lecturer selects online meeting to attend 4.System connects to online meeting
Triggering event	When user want to enroll module they need to select online meeting
Trigger type	External
Assumption	Student enrolled in the module
Priority	High

4. Use Case Table: **Add Test/Quiz**

Name	Add Test/Quiz
Purpose	Lecturer adds a test or quiz to a module for students
Actor	Lecturer
Pre-conditions	Lecturer is assigned to the module
Post-conditions	Test or quiz is added to the module
Description	1.Lecturer selects module to add test/quiz 2.System displays available options 3.Lecturer selects test or quiz to add 4.System adds tets or quiz to module
Triggering event	When lecturer want to add test/quiz they need to select addtest/quiz
Trigger type	External
Assumption	Lecturer has a browser and a valid user id and password
Priority	High

5. Use Case Table: **Add Assignment**

Name	Add Assignment
Purpose	Lecturer adds an assignment to a module for students
Actor	Lecturer
Pre-conditions	Lecturer is assigned to the module
Post-conditions	Assignment is added to the module
Description	1.Lecturer selects module to add assignment 2.System displays available options 3.Lecturer selects assignment to add 4.System adds assignment to module
Triggering event	When lecturer want to add assignment they need to select add assignment
Trigger type	External
Assumption	Lecturer has a browser and a valid user id and password
Priority	High

6. Use Case Table: **Upload Lecture Material**

Name	Upload Lecture Material
Purpose	Lecturer uploads lecture material to a module for students
Actor	Lecturer
Pre-conditions	Lecturer is assigned to the module
Post-conditions	Lecture material is uploaded to the module
Description	1.Lecturer selects module to upload lecture material 2.System displays available options 3.Lecturer selects 4.System adds lecture material to module
Triggering event	When lecturer want to upload material they need to select upload lecture material
Trigger type	External
Assumption	Lecturer has a browser and a valid user id and password
Priority	High

7. Use Case Table: **Manage User Account**

Name	Manage User Account
Purpose	Allows an admin to manage user accounts by creating, modifiying and deleting them
Actor	Admin
Pre-conditions	The admin must be logged in
Description	1. The admin selects the manage user account option from the main menu 2. The system displays a list of user account 3. The admin selects a user account to modifiy or delete, or clicks the add user button to create a new user account 4. The system prompts the admin fort he necessary information(name, email, password,user role e.g) 5. The admin enters the information and saves the changes 6. The system updates the user account and returns the admin to the list of user accounts
Triggering event	When admin want to manage users they need to select manage user account
Assumption	Admin has browser and a valid id and password
Priority	High

8. Use Case Table: **Manage Modules**

Name	Manage Modules
Purpose	Allows an admmin to manage modules by creating, modifying and deleting them
Actor	Admin
Pre-conditions	The admin must be logged in
Description	1. The admin selects the manage modules option from main menu 2. The system displayys a list of modules 3. The admin selects a module to modify or delete or create new module 4. The system prompts the admin for necessary information (module name, module code, description, course association e.g.) 5. The admin enters the information and sava the changes 6. The system updates module and return to the list of modules
Triggering event	When admin want to manage module they need to select manage module
Trigger type	Internal
Assumption	Admin has browser and a valid id and password
Priority	High

3- Draw the main sequence diagrams for this system (at least 5 diagrams for the main functions).

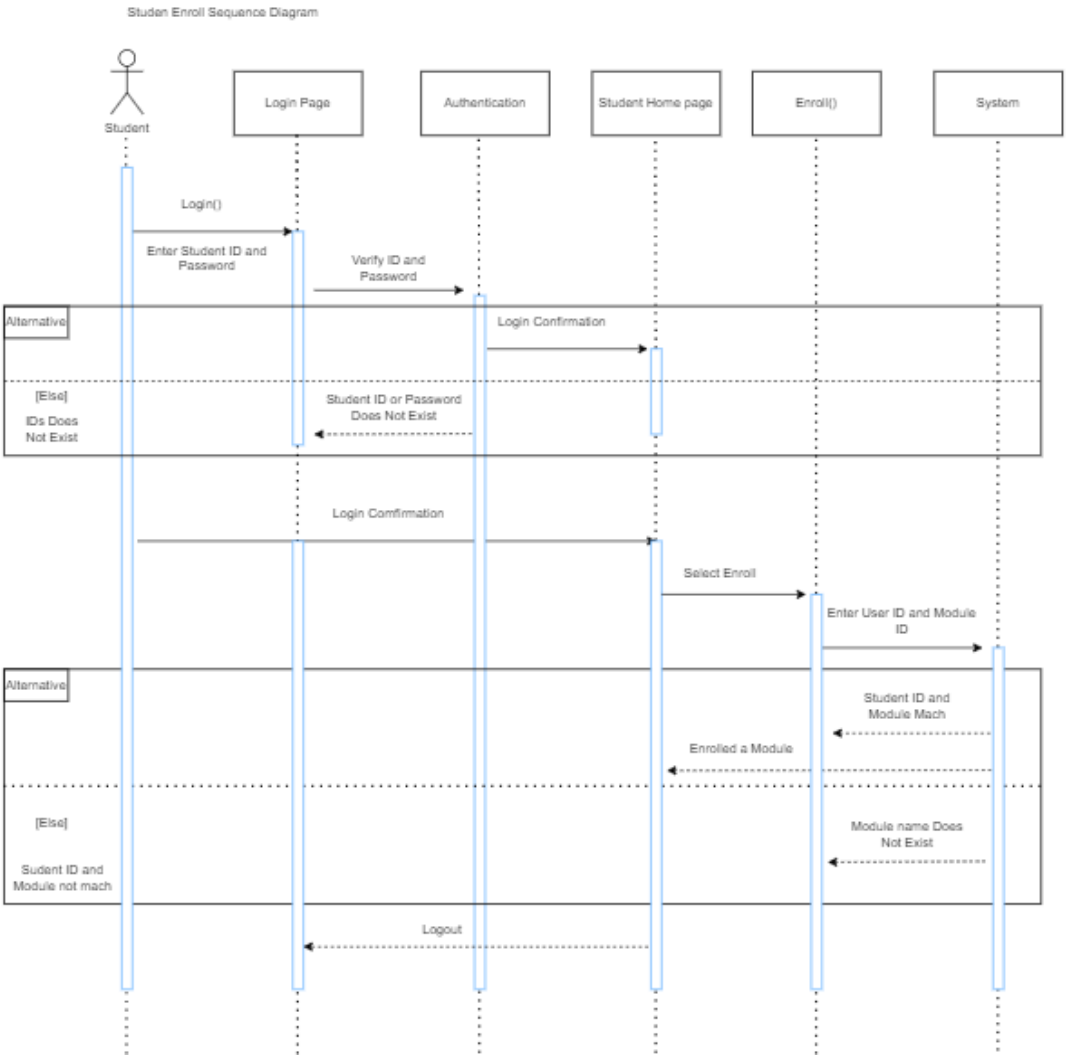
Main Sequence Diagrams fort the E-Learning System

Sequence Diagrams are frequently used to explain the relationship and timing of the sequential actions that characterise how a group of things work together to produce a certain result.

They are also employed to graphically represent the use cases.

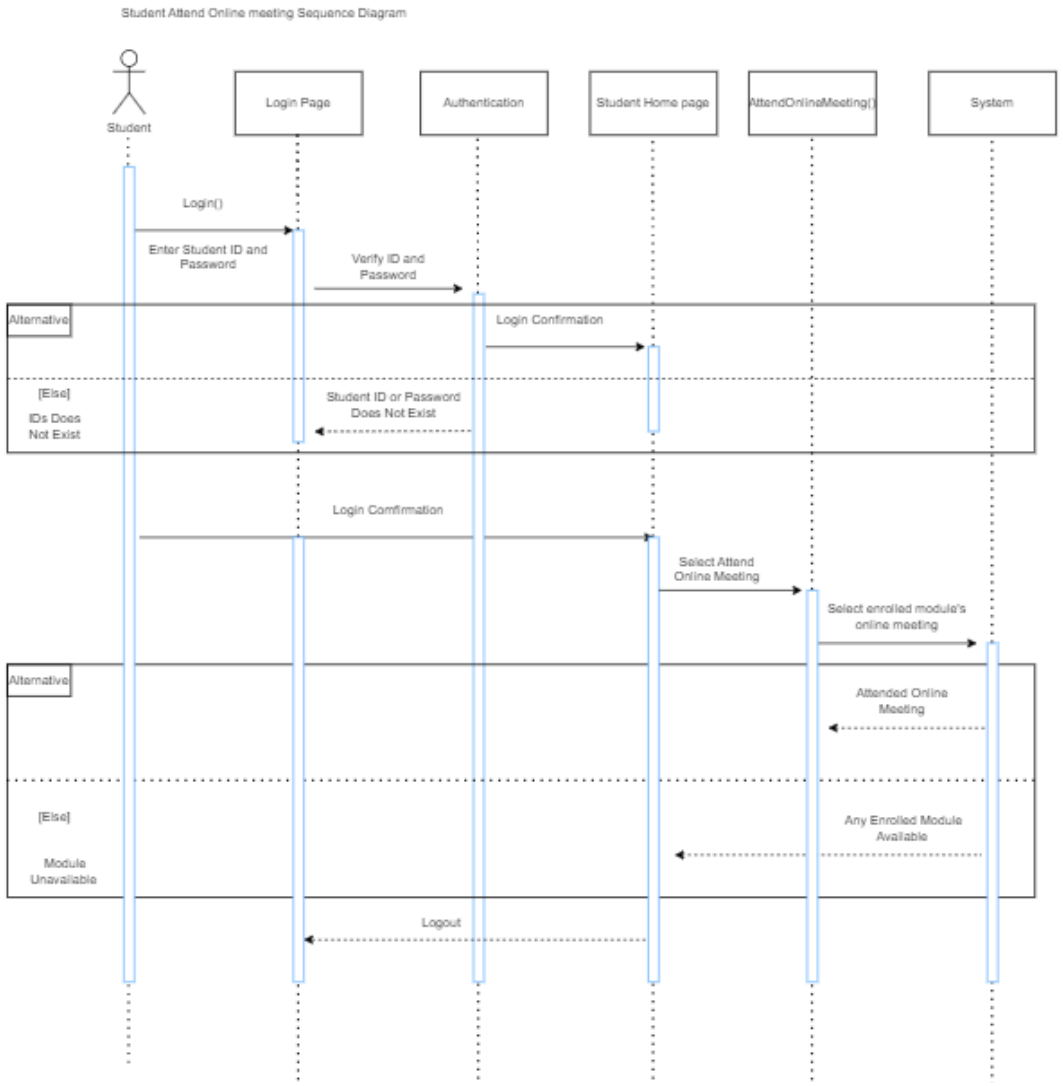
The horizontal axis represents the object or components involved in the interaction, vertical axis indicates time.

Diagram 1: Student Enroll Module



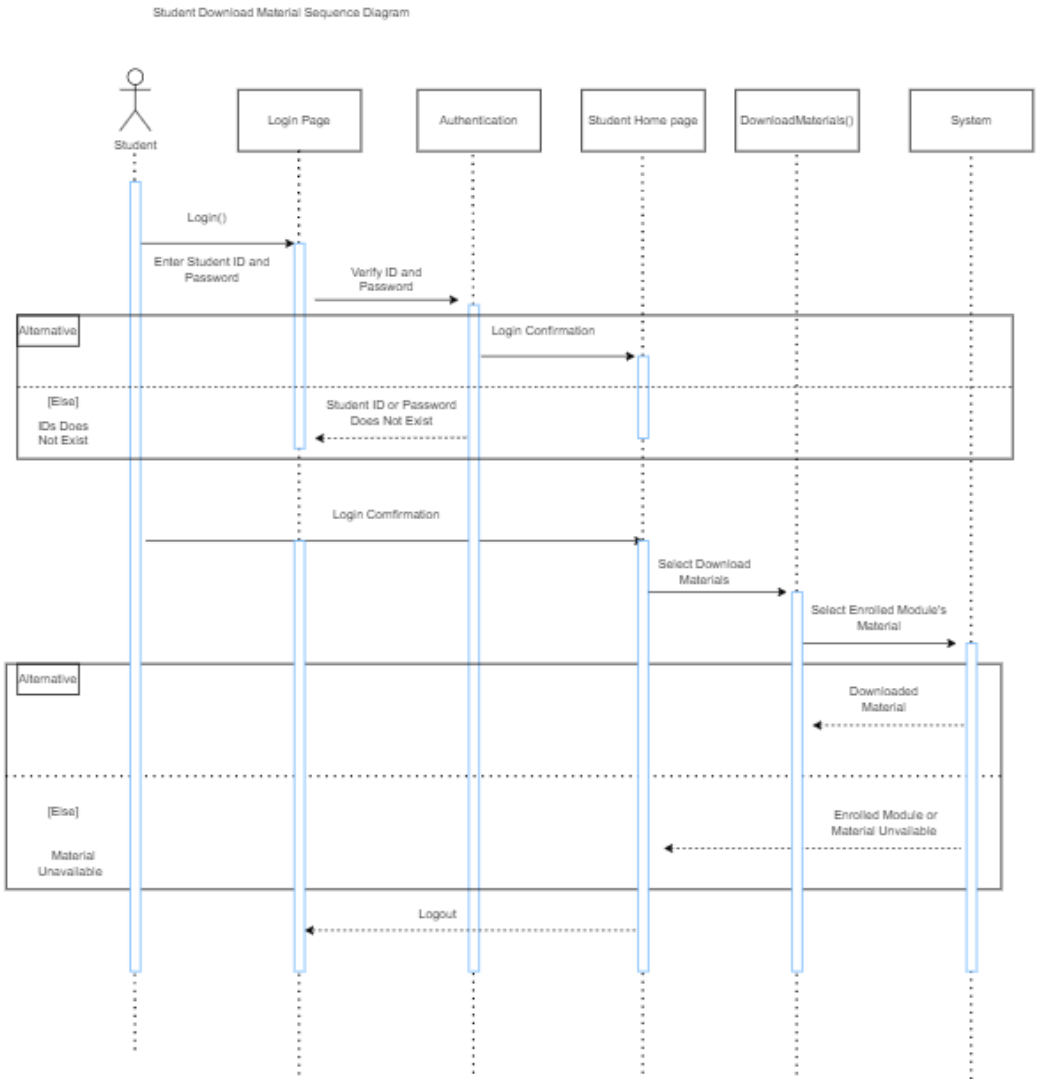
Picture 2

Diagram 2: Student Attend Online Meeting



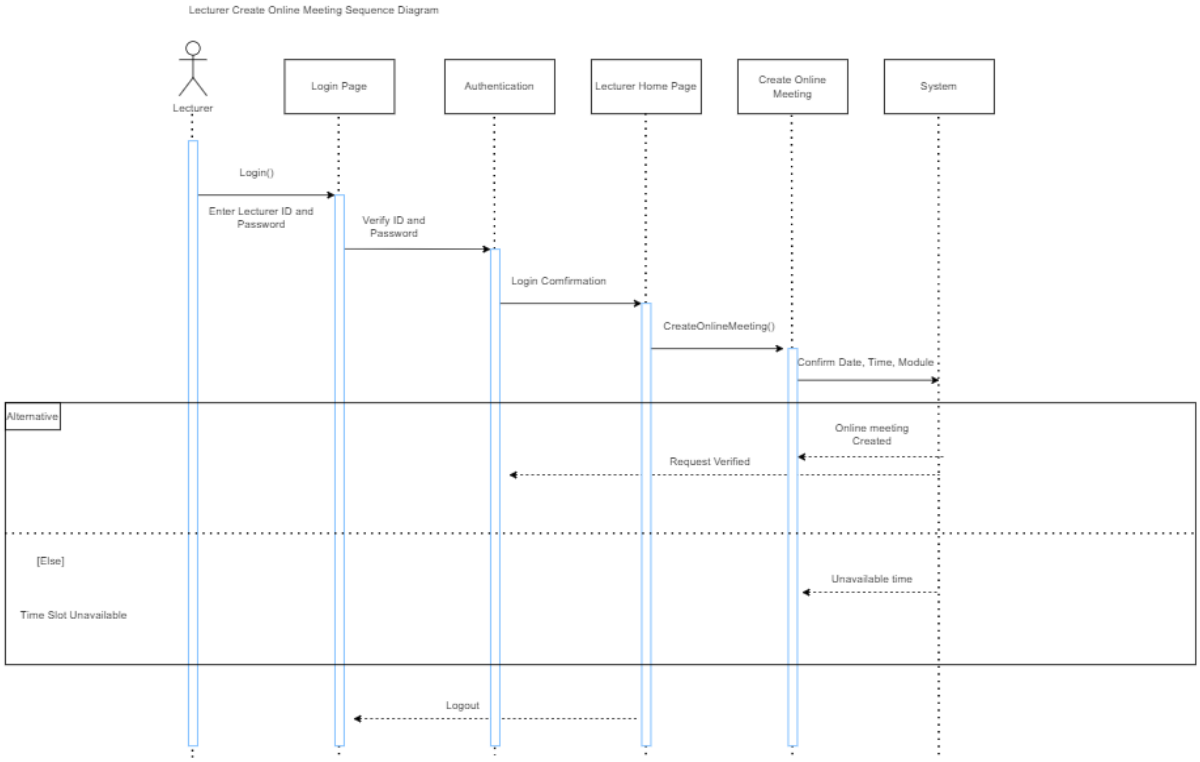
Picture 3

Diagram 3: Student Download Material



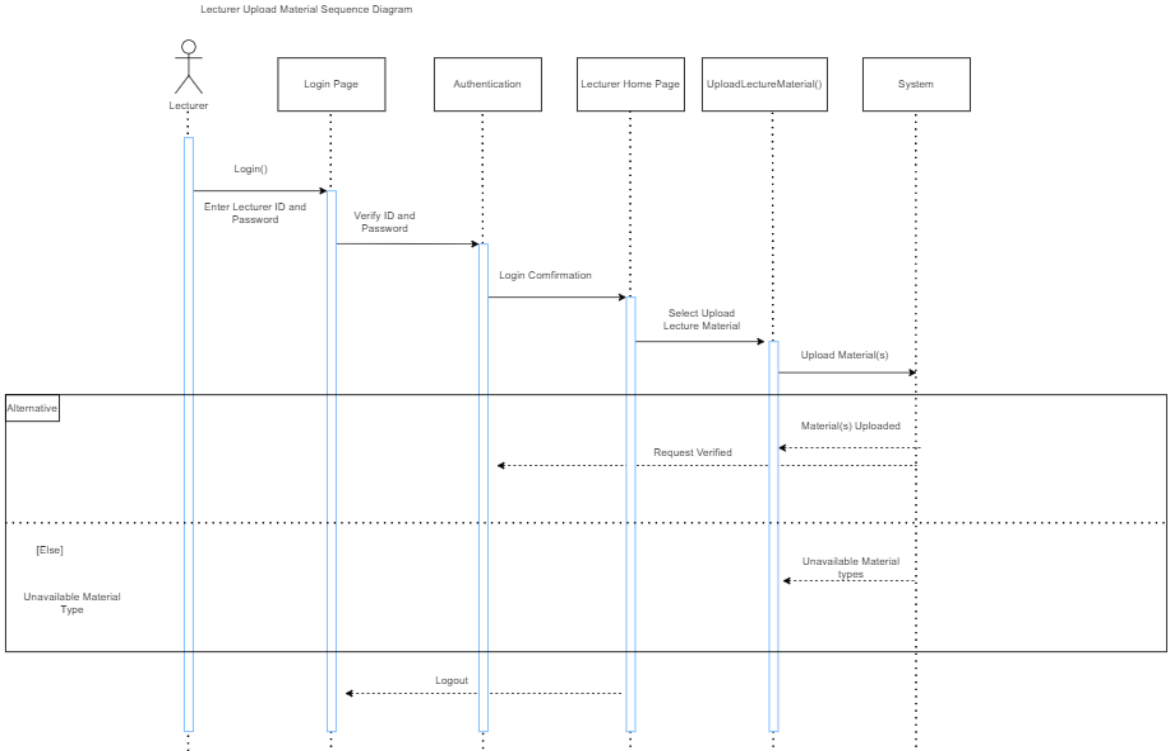
Picture 4

Diagram 4: Lecturer Create Online Meeting



Picture 5

Diagram 5: Lecturer Upload Material



Picture 6

Part-2

1- Enriching a given analysis and design for your system:

o Review the requirements table and the use cases to revise and enrich them.

Requirement table used in D1 has been completely revised and enriched.

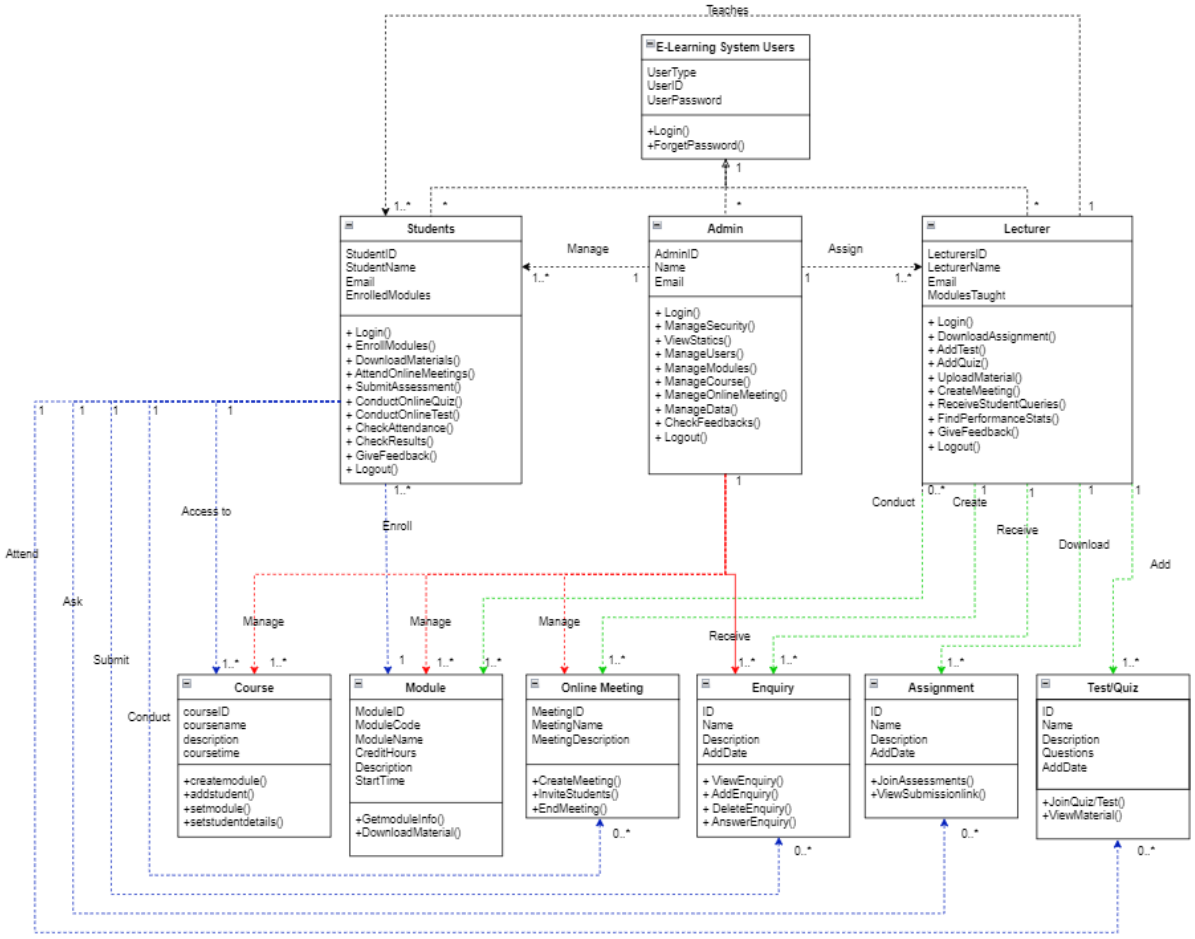
Requiremets Table

ID	Requirement Description	Severity
R1	The system must allow **students** for enroll to modules.	Serious
R2	The system must allow **students** for download materials.	Serious
R3	The system must allow **students** to attend lectures and online meetings.	Serious
R4	The system must allow **students** to ask enquiries and receive responses from lecturers and admin.	Serious
R5	The system must allow **students** to submit assessments and conduct online quizzes and tests.	Serious
R6	The system must allow **lecturers** to download students assessment which submitted and view statistics for each module about students.	Serious
R7	The system must allow **lecturers** to uploadmaterials about lectures and upload new quizzes/tests.	Serious
R8	The system must allow **lecturers** to create meetings which online and invite students.	Serious
R9	The system must allow **admin** to view statistics for everyone in this system.	Serious
R10	The system must ensure **security** and reliability in term of students data and login.	Serious
R11	The system have to provide a basic and usefull interface for every users.	Moderate
R12	The system have to allow for easy scalability to support a growing number of students and modules.	Moderate
R13	The system have to provide technical support and maintenance to ensure continuous operation and system updates.	Moderate

2- Drawing the UML class diagrams for this system

For designing the structure of a software system, class diagrams are helpful. Class diagrams are schematics that show a thoroughta static depiction of the system's constituent parts. Class diagrams also display the relationship between the objects, in addition to their function and their services.

UML Class Diagram for the E-Learning System

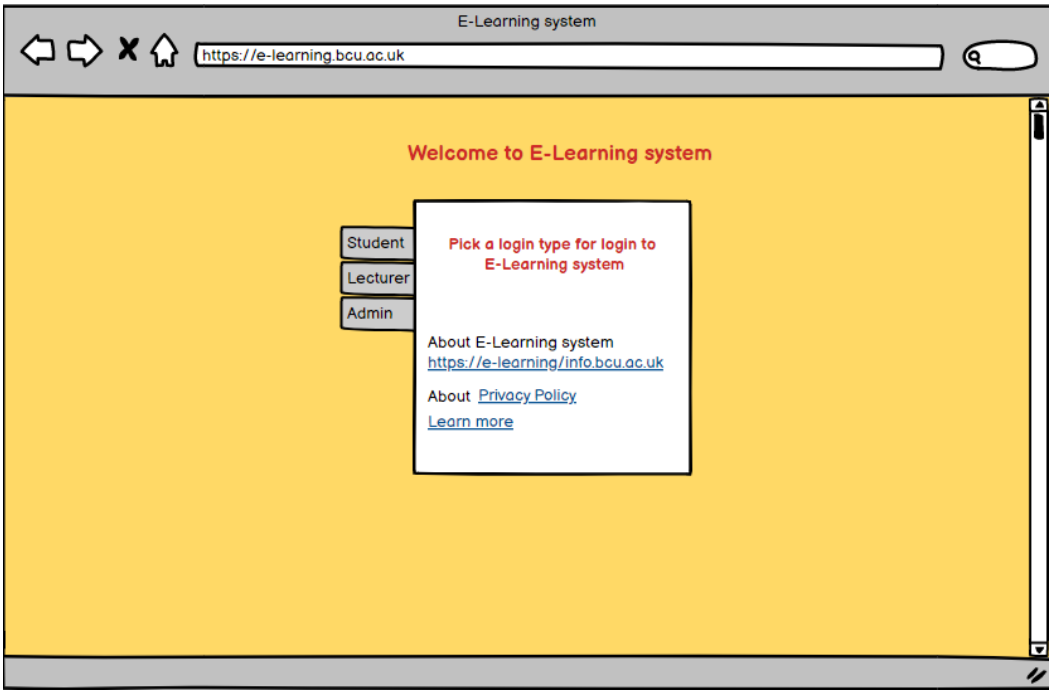


Picture 7

3- Designing the interfaces (prototyping) for this system

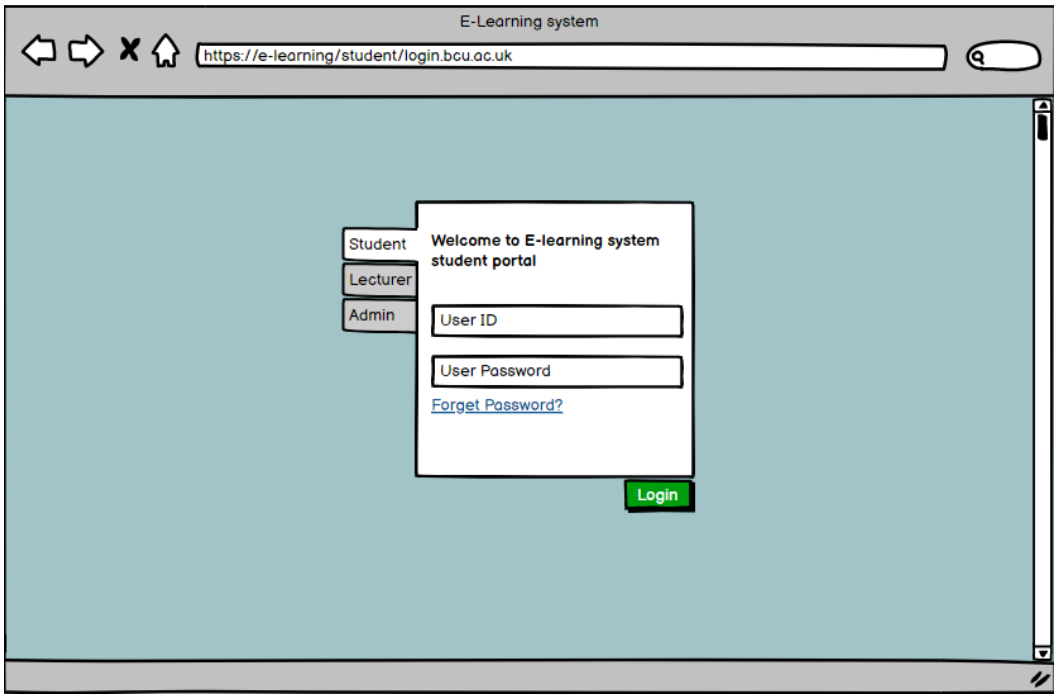
By developing and building user interfaces, prototyping is utilised to investigate the system's potential solutions. Interfaces play a crucial role in specifying a system's boundaries and identifying its dependencies.

Welcome Page/Home Page



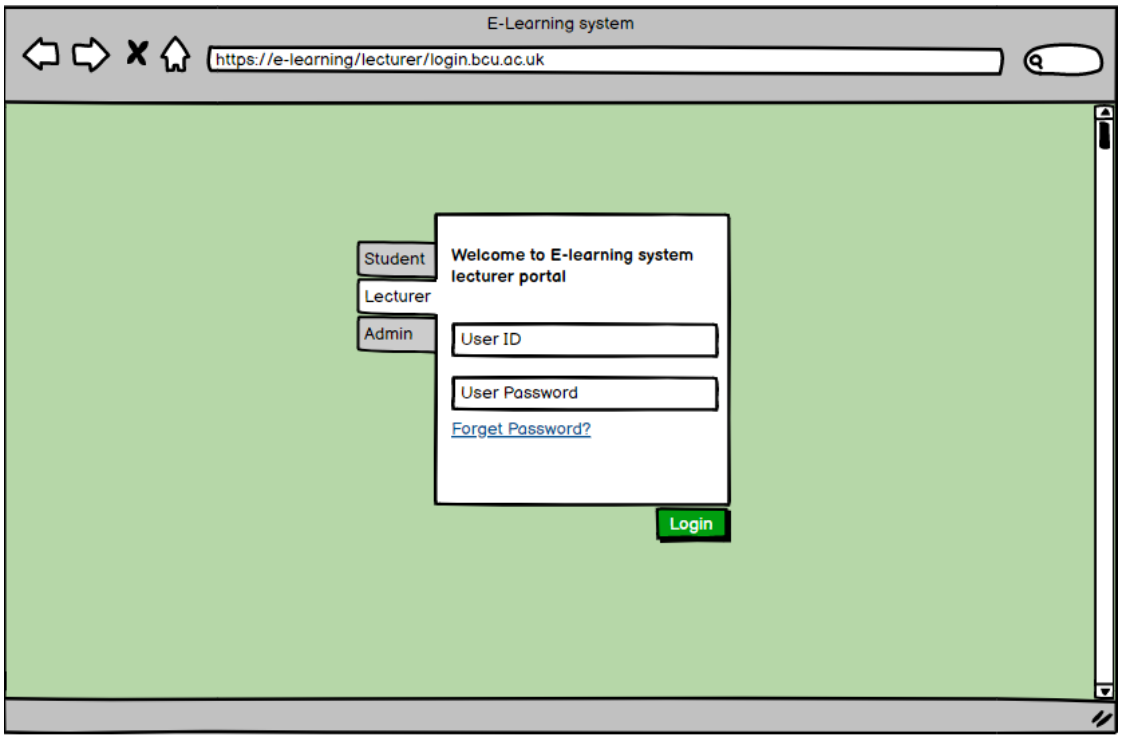
Picture 8

Login Portal for Student



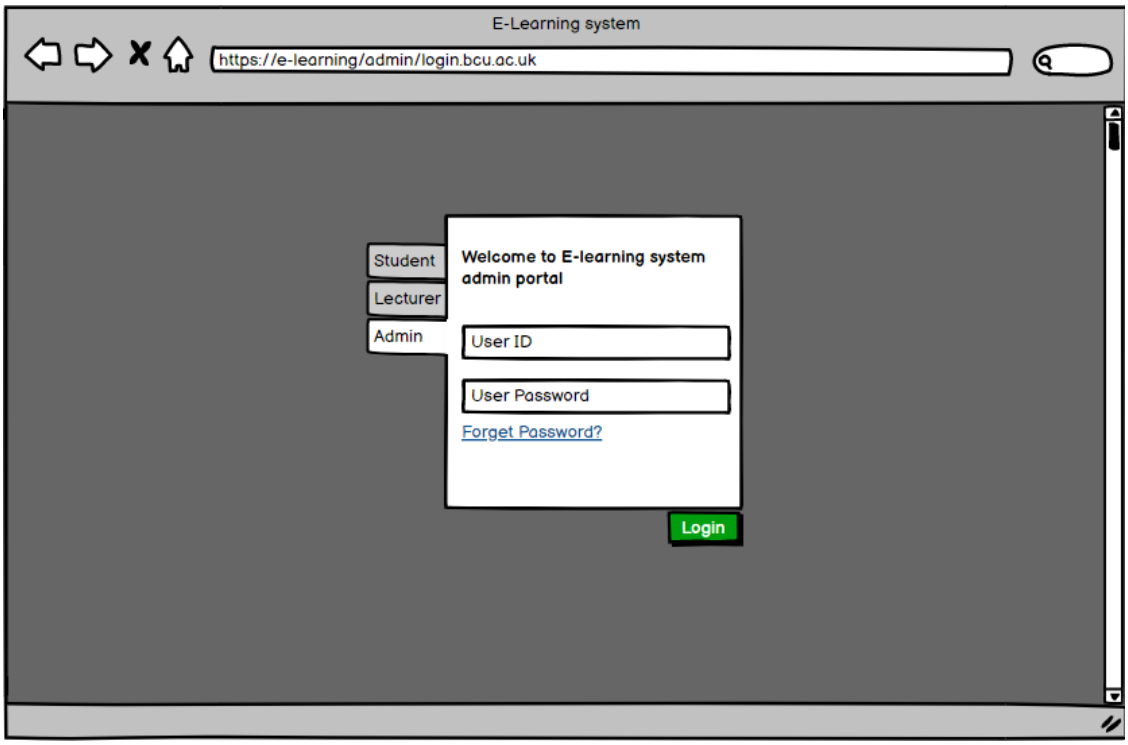
Picture 9

Login Portal for Lecturer



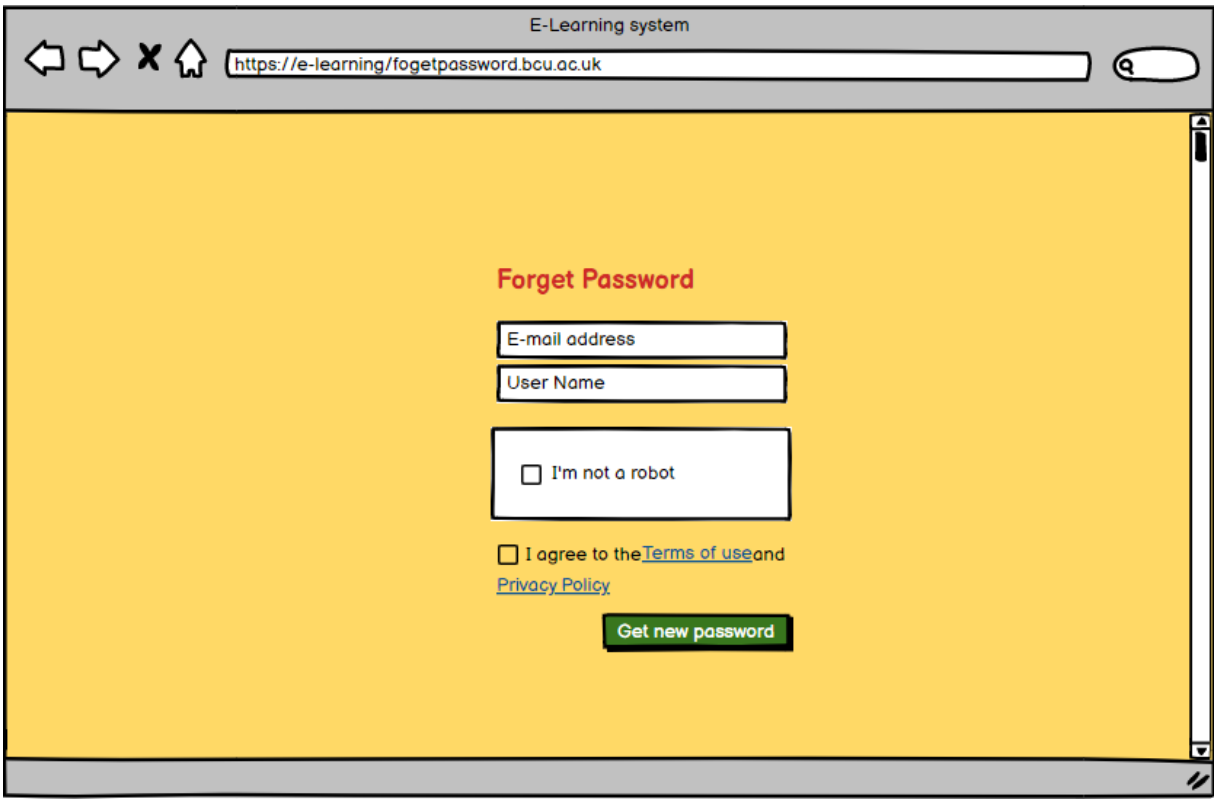
Picture 10

Login Portal for Admin



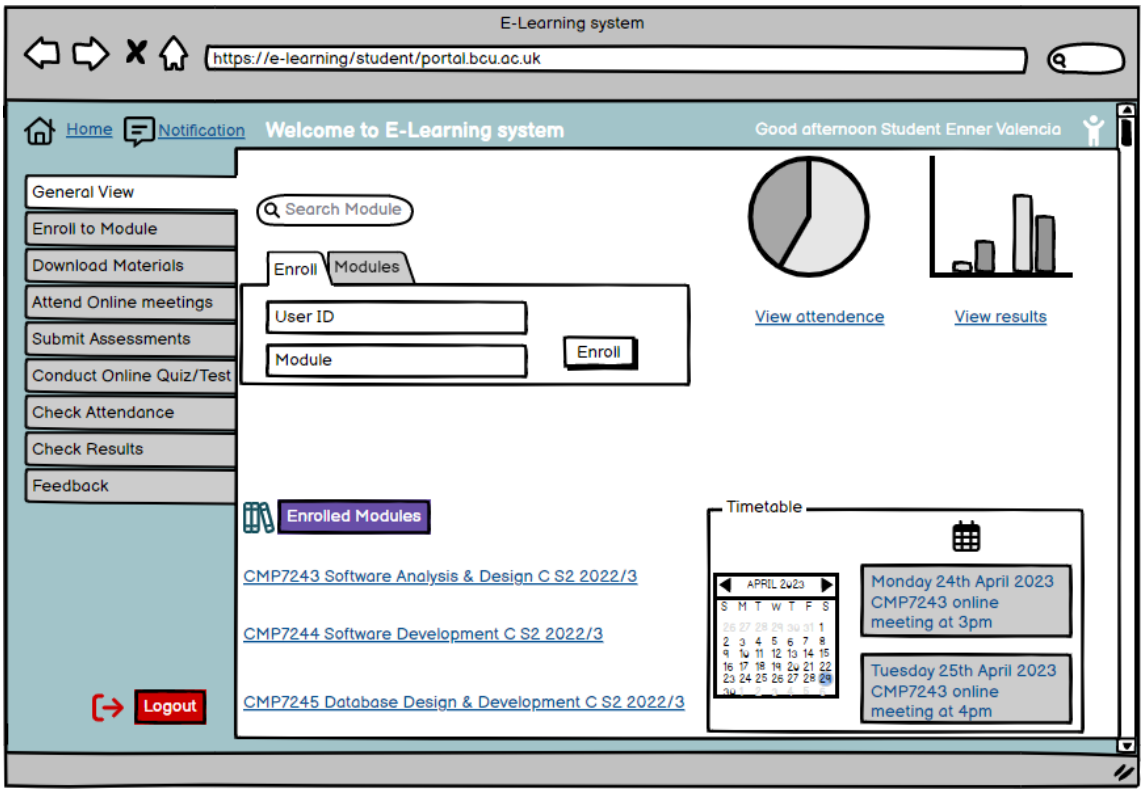
Picture 11

Forget Password



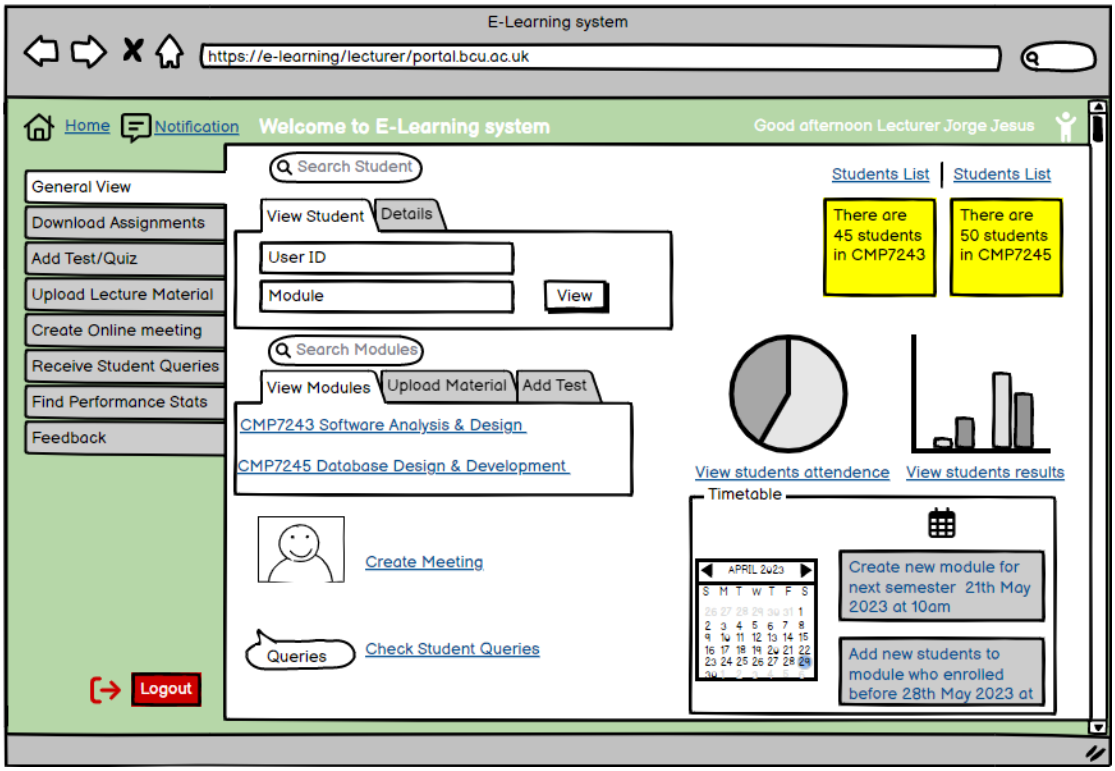
Picture 12

Student Homepage/Dashboard



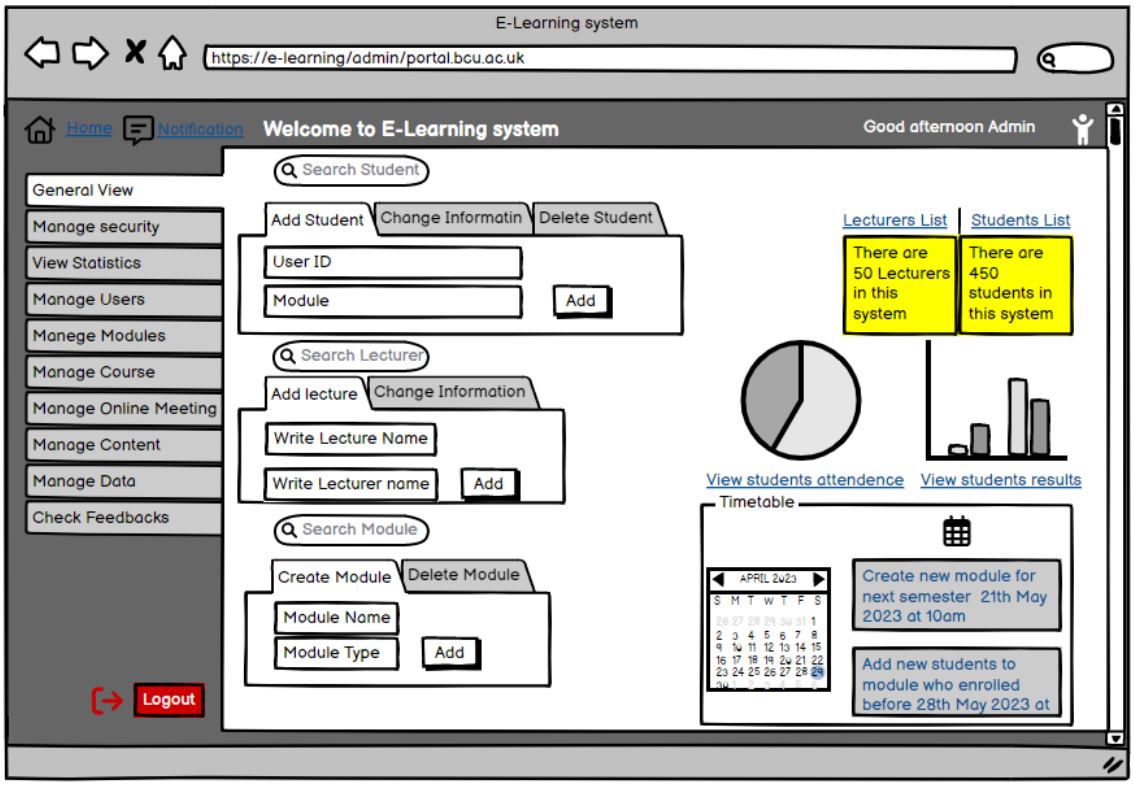
Picture 13

Lecturer Homepage/Dashboard



Picture 14

Admin Homepage/Dashboard



Picture 15