

## **1 Introduction**

Digital Workplace is an online platform for FAST National University that is designed to minimize the manual work and shift towards digitalization to manage the university's data efficiently. We are solving a real-life issue faced by the Quality Enhancement Cell of our university. Manual file keeping is a cumbersome practice. A bulk of paper is required for it, leading to several issues. To solve this issue, we will develop a website.

### **1.1 Purpose**

The purpose of this document is to build an online website. Users can upload documents from anywhere. This automated system processes data and creates reports much faster than doing manually.

The purpose of this document is to describe the overall behavior of Digital Workplace with the release number 1.0. This includes our project's vision, Software Requirements Specification and Unified Model Language Diagrams.

### **1.2 Definition, Acronyms, and Abbreviation**

- SRS: Software Requirements Specification
- UML: Unified Modeling Language
- OCR: Optical Character Recognition
- QEC: Quality Enhancement Cell (QEC will have the access to view or download course folder, and faculty profile).
- Admin: Admin will assign courses to every teacher.
- HOD/Director: HOD/Director will have access to view all the information, that is course folder and faculty profile.
- Faculty: Faculty members will maintain their portfolio (both academic and research) and course folder.

### **1.3 Motivation**

This is twenty first century-a shift to digital content. It's an age of information technologies. People need to switch from the physical tasks to digital so that instead of wasting time on reiterating the same

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task, they could do more for their organization and have a positive effect on the organization in achieving their goals.

## 2 Vision Document

### 2.1 Problem Statement

Twenty-first-century learning is a shift to digital content. Manual processing can be a very tricky and mind-numbing process. Manual tasks, managing every minute detail in the course folders, a bulk of paperwork is something no one would opt today since we have android apps, and websites to free us from exhaustive tedious and repetitive tasks. A lot of paperwork is very time-consuming, and with increasing population, the probability of human error has somehow increased drastically over a few years. Misinterpretation is also an issue associated with this system. This means that because the entries are being conducted by humans there is always room for misunderstanding. Everyone's mind thinks differently and interprets things in different ways. Increasing population density implies a large space to store them, which means we need a large storeroom to store our files. This could be very risky as we must keep in mind the possibility of a natural disaster or incidents like fire, that can take place, resulting in documents being destroyed. In case of any updates, retrieving data is a very prolonged task which affects the efficiency of the system. Moreover, to manage this voluminous data, we would need more people. More people mean there would be data redundancy. Managing a big team is quite a task. Security measures are difficult to implement in such situations and the errors are bound to creep in while carrying out in-house manual data entry.

Our website will neutralize all the above-mentioned issues associated with manual work. Automating the data entry will help us to reduce costs and save a lot of time.

### 2.2 Business Opportunity

Digital Workplace will help your business go paperless. It will cut costs and decrease the processing time by making all your paper-based content and processes digital. It will also automate your business workflows to help your team be more productive, such as providing the view and download documents option to different users based on the user type. So, Digital Workplace will not only help in keeping the data at a safe and easily accessible place but it will also remove the hassle of updating, retrieving or sharing documents within an organization.

### 2.3 Objectives

Following are the objectives of our project.

- Maintain Faculty's portfolio

- In this section, Academic and Research portfolio of Faculty will be maintained. Academic Portfolio section will include an organized collection of documents illustrating the accomplishments. It will include information related to the awards, working experience, funded projects, and conferences attended. It will have updated list and description of the awards.
- Research Portfolio section will contain all the publications or contributions and a representative selection of their research writing.
- Maintain Faculty's course folder.
  - This section will be populated with the information regarding the courses assigned to a faculty member. It will have the entire record of assignments, quizzes, class activities, mid-term exams, and final exam.
- This system will support the following files format. Faculty can upload the files in the following format.
  - PDF
  - Microsoft Word documents
  - Microsoft PowerPoint
  - JPEG
- After completing the course folder, it can be downloaded as a compressed folder.
- This system is designed for Quality Enhancement Cell of the university.
- HOD or the Director of university would have access to all the information.

## 2.4 Scope

Digital Workplace is an online web platform. The system is made to resolve the issue of managing documents in an organization by shifting the process to digitalization. Digital Workplace will ensure that you are able to easily create, edit, manage, and organize your documents. Also, you don't have to look into a lot of files and folders as in the case of paper documents.

## 2.5 Stakeholder and User Description

Digital Workplace helps users upload documents from anywhere with an internet connection. This automated system processes data and creates reports much faster than doing manually.

The stakeholder of this system is FAST-NUCES, QEC, Team Digital Workplace, Faculty, Supervisor, Co-supervisor, HOD/Director, and Admin.

### 2.5.1 Market Demographics

Our basic target is the FAST-NUCES Faculty, Admin, QEC, HOD/Director and all the campuses of FAST.

### 2.5.2 Stakeholder Summary

Table 1 Stakeholder Summary

Type of Stakeholders	Name	Description	Responsibility
Technical	Supervisor	Supervisor and Co-supervisor will be directing and overseeing our project's development	<ul style="list-style-type: none"> <li>○ Lead the development team.</li> <li>○ Will ensure the maintainability of our project.</li> </ul>
Technical	Digital Workplace- Developers	It involves the entire team responsible for developing the project. It includes the requirement engineers, development team, and testing team.	<ul style="list-style-type: none"> <li>○ They are responsible for the design and development of frontend and backend according to user needs.</li> <li>○ They will design test cases against each use case or application functionality to find bugs and failure points.</li> </ul>
End users	HOD/Director	HOD and Director are the users of our application who will get the benefit.	<ul style="list-style-type: none"> <li>○ They should have a sound knowledge of running a website.</li> </ul>
End users	Faculty	Faculty is a user of our application who will be able to take advantage of the benefits provided by the digital workplace.	<ul style="list-style-type: none"> <li>○ They should have a sound knowledge of running a website.</li> </ul>

## Vision Document

### End users

#### QEC

- QEC is a user of our application who will be able to take advantage of the benefits provided by the digital workplace.
- They should have a sound knowledge of running a website.

### 2.5.3 User Environment

Users must have knowledge of operating website. All the users must have an internet access to use this system. Faculty must a sound knowledge of using the system from scanning the documents to uploading and maintaining them. Director, HOD, and QEC must have basic knowledge of operating the system.

## 3 System Requirement Specification

### 3.1 Product Perspective

This product will be the sole property of FAST-Chiniot Faisalabad Campus. It is a web that will facilitate the Quality Enhancement Cell of the university. It will also allow the faculty to maintain his/her academic and research portfolio. Faculty can also maintain course folder against every course assigned to them for all the sections they are teaching. Admin will be responsible for creating the accounts, and assigning the courses to the faculty. While Director and Head of Department have access to view the faculty portfolio and course folders.

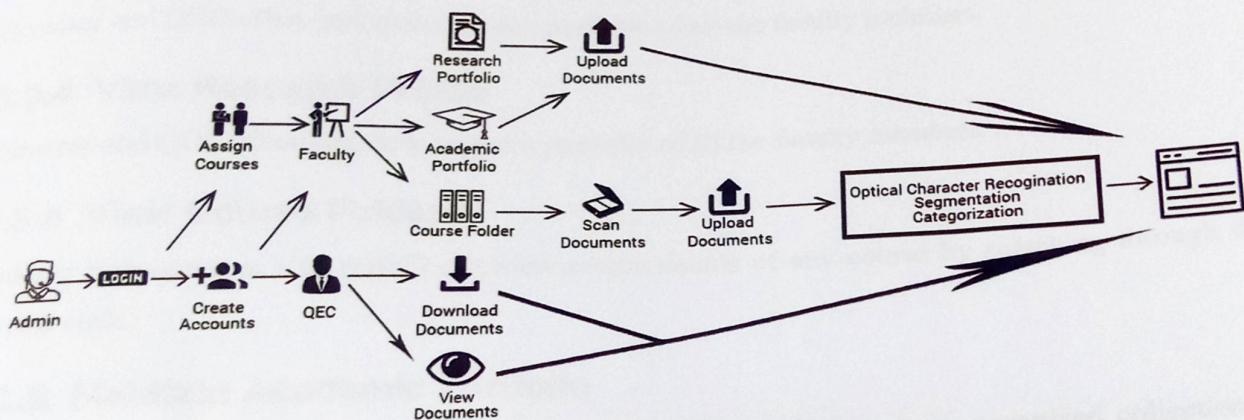


Figure 1 Architectural Diagram

### 3.2 System Features

- Login
- Create Faculty Accounts
- Assign course to Faculty
- View/Search Course Folder
- View/Search Faculty Profile
- Maintain Course Folder
- Maintain Academic Portfolio
- Maintain Research Portfolio
- Generate Report
- Download Documents

### **3.3 Functional Requirements**

#### **3.3.1 Login**

All the primary users such as Admin, Quality Enhancement Cell (QEC), Faculty, and Director can sign in using login id and password, provided by the admin, to perform any activity.

#### **3.3.2 Create Faculty Accounts**

Admin office is responsible for creating faculty accounts and giving credentials to them. The faculty can then login to their accounts and proceed with other formalities.

#### **3.3.3 View Academic Profile**

Director and QEC office can view research portfolio of all the faculty members.

#### **3.3.4 View Research Profile**

Director and QEC office can view research portfolio of all the faculty members.

#### **3.3.5 View Course Folder**

Quality Enhancement Cell (QEC) can view course details of any course by searching through the course code.

#### **3.3.6 Maintain Academic Portfolio**

Faculty can maintain his/her personal profile. This section will include an organized collection of documents illustrating any awards received by the teacher, past working experience seminars attended or delivered, and any conference attended.

#### **3.3.7 Maintain Research Portfolio**

Faculty can maintain his/her research profile. All the publications, and research paper will be uploaded here. Data will also be crawled from DOI (digital object identifier).

#### **3.3.8 Download documents**

QEC can download the files or the entire course Folder. They can also download faculty's academic and research portfolio documents.

#### **3.3.9 Maintain Course Folder**

Faculty can maintain his/her course folder for the assigned course. All the information regarding the course such as course outline, assignment, quizzes, mid-term, and final will be maintained here.

## **3.4 Non-Functional Requirements**

### **3.4.1 Maintainability**

The System would be designed for ease of maintenance.

### **3.4.2 Usability**

The interface of the system would be easily understandable such that the user doesn't require a manual to understand it.

### **3.4.3 Availability**

The system shall be available for twenty-four hours. Application failure would be minimal.

## Unified Modelling Language

# 4 Unified Modelling Language

## 4.1 Behavioral Diagrams

### 4.1.1 Use Case Diagram

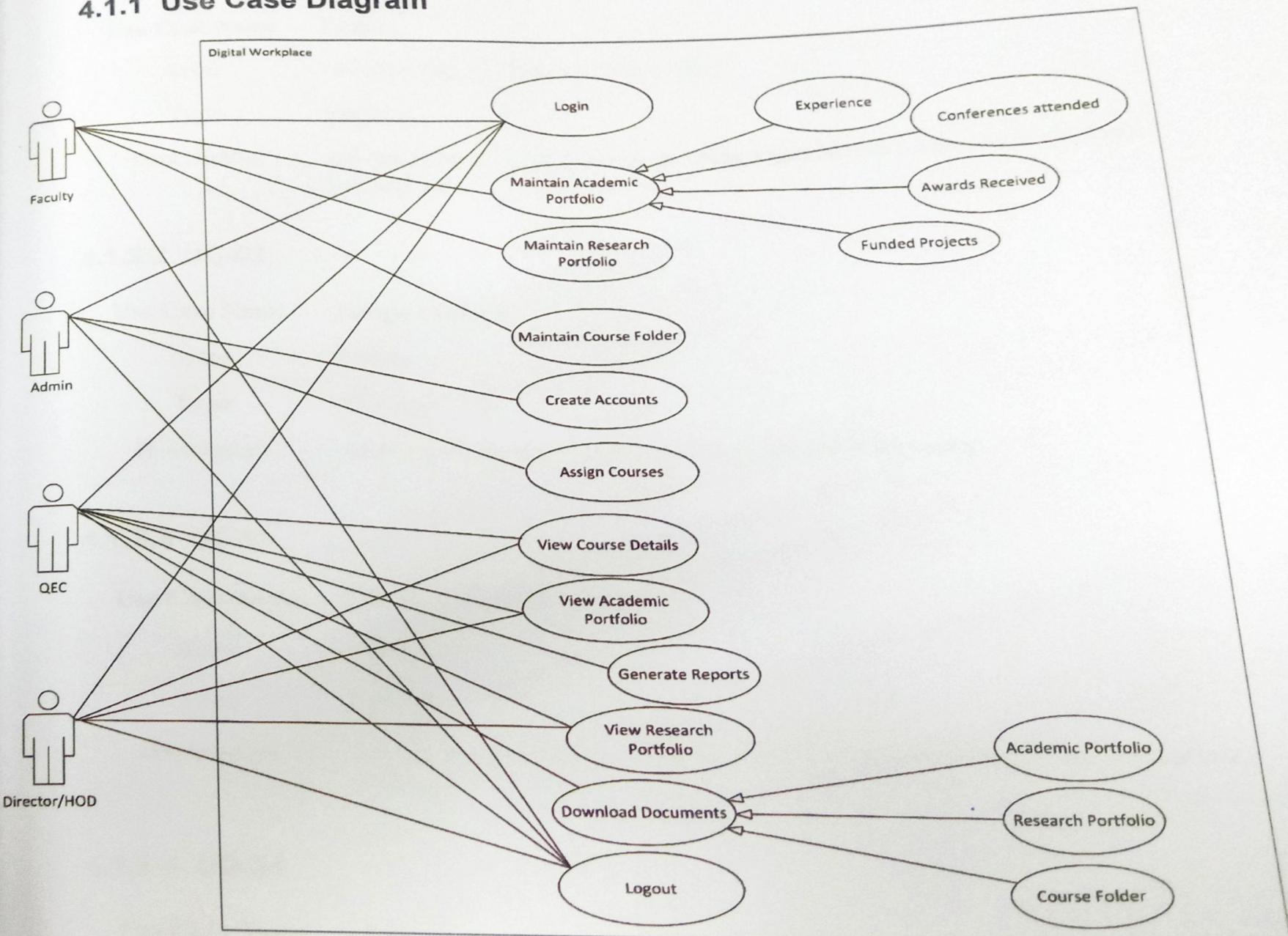


Figure 2 Use Case Diagram

**4.1.2 High Level Use Cases****4.1.2.1 UC-01**

<b>Use Case Name</b>	<b>Login</b>
<b>Actor</b>	Faculty, Admin, Director, QEC office
<b>Type</b>	Primary
<b>Description</b>	All the primary users will sign in using login id and password to perform any activity.

**4.1.2.2 UC-02**

<b>Use Case Name</b>	<b>Assign Courses</b>
<b>Actor</b>	Admin
<b>Type</b>	Primary
<b>Description</b>	Admin will assign courses to the faculty every semester.

**4.1.2.3 US-03**

<b>Use Case Name</b>	<b>Create Accounts</b>
<b>Actor</b>	Admin
<b>Type</b>	Primary
<b>Description</b>	Admin is responsible for creating faculty accounts and giving credentials to them.

**4.1.2.4 US-04**

<b>Use Case Name</b>	<b>Logout</b>
<b>Actor</b>	Faculty, Admin, Director, QEC office
<b>Type</b>	Primary
<b>Description</b>	All the users can sign out from their accounts.

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### 4.1.2.1 US-05

<b>Use Case Name</b>	Download documents
<b>Actor</b>	QEC office
<b>Type</b>	Primary
<b>Description</b>	QEC can download the files or the entire course Folder. They can also download faculty's academic and research portfolio documents.

### 4.1.2.1 US-06

<b>Use Case Name</b>	Generate Reports
<b>Actor</b>	QEC office
<b>Type</b>	Primary
<b>Description</b>	QEC can generate report to evaluate the performance of class.

### 4.1.2.1 US-07

<b>Use Case Name</b>	View Course Details
<b>Actor</b>	QEC Office, Director, HOD
<b>Type</b>	Primary
<b>Description</b>	Director, HOD, and QEC office can view course details of any course by searching through the course code.

### 4.1.2.1 US-08

<b>Use Case Name</b>	View Academic Portfolio
<b>Actor</b>	Director, HOD, QEC Office
<b>Type</b>	Primary
<b>Description</b>	Director and QEC office can view academic portfolio of all the faculty members.

### 4.1.2.2 US-09

<b>Use Case Name</b>	View Research Portfolio
<b>Actor</b>	Director, HOD, QEC Office

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Type	Primary
Description	Director and QEC office can view research portfolio of all the faculty members.

## Unified Modelling Language

### **4.1.3 Expanded Use Cases**

#### **4.1.3.1 US-01**

<b>Use Case Name</b>	Maintain Academic portfolio
<b>Actor</b>	Faculty
<b>Description</b>	<p>Faculty can maintain his/her academic portfolio. This section will include an organized collection of documents illustrating</p> <ul style="list-style-type: none"> <li>• Any awards received by the faculty member.</li> <li>• His/her past working experience.</li> <li>• Any Funded projects done.</li> <li>• Any conference attended</li> </ul>
<b>Trigger</b>	Faculty has to add/update his/her academic portfolio.
<b>Pre-condition</b>	Faculty is logged in.
<b>Post-condition</b>	Faculty's academic portfolio updated.
<b>Normal Flow</b>	<ul style="list-style-type: none"> <li>• Faculty member will login to his/her account.</li> <li>• He/she then has to select Faculty Profile option.</li> <li>• After that, he/she has to go to the Academic portfolio.</li> <li>• Now, he/she can further select any option available according to the information he/she is going to populate.</li> <li>• Faculty can add, update or delete academic information.</li> <li>• Academic portfolio successfully maintained.</li> </ul>
<b>Alternate Flow</b>	Faculty couldn't maintain academic portfolio, refresh the page.
<b>Special Requirement</b>	<ul style="list-style-type: none"> <li>• Internet should be available.</li> <li>• Faculty account must exist.</li> </ul>
<b>Frequency of use</b>	Normal
<b>Assumptions</b>	Faculty member is maintaining his/her academic portfolio in an organized way.

#### **4.1.3.2 US-02**

**Use Case Name**      **Maintain Research Portfolio**

Unified Modelling Language

<b>Actor</b>	Faculty
<b>Description</b>	<p>Faculty can maintain his/her research portfolio.</p> <ul style="list-style-type: none"> <li>• Publications and research paper will be uploaded on the site.</li> <li>• The research paper details are as follows:           <ul style="list-style-type: none"> <li>◦ Year</li> <li>◦ Status (published, accepted, under review)</li> <li>◦ Type (conference, journal)</li> </ul> </li> </ul>
<b>Trigger</b>	Faculty has to add/update his/her research portfolio.
<b>Pre-condition</b>	Faculty is logged in.
<b>Post-condition</b>	Faculty's research portfolio updated.
<b>Normal Flow</b>	<ul style="list-style-type: none"> <li>• Faculty member will login to his/her account.</li> <li>• He/she then has to select Faculty Profile option.</li> <li>• After that, he/she has to go to the Research portfolio.</li> <li>• Faculty can now add, update or delete research portfolio information.</li> <li>• Research portfolio successfully maintained.</li> </ul>
<b>Alternate Flow</b>	Faculty couldn't maintain research portfolio, refresh the page.
<b>Special Requirement</b>	<ul style="list-style-type: none"> <li>• Internet should be available.</li> <li>• Faculty account must exist.</li> </ul>
<b>Frequency of use</b>	Normal
<b>Assumptions</b>	Faculty member is maintaining his/her research portfolio in an organized way.

### 4.1.3.3 US-03

<b>Use Case Name</b>	<b>Maintain Course Folder</b>
<b>Actor</b>	Faculty
<b>Description</b>	<p>This section will be populated with the information regarding the courses assigned to a faculty. It will have the entire record of</p> <ul style="list-style-type: none"> <li>• Assignments</li> <li>• Quizzes</li> <li>• Class activities</li> <li>• Mid-term exams, and Final exam.</li> </ul> <p>Faculty has to update the details of the assigned course.</p>
<b>Pre-condition</b>	Course must be assigned to the faculty.
<b>Post-condition</b>	Faculty successfully updated the course details. Course folder would be maintained at the end of semester.
<b>Normal Flow</b>	<ul style="list-style-type: none"> <li>• Faculty member will login to his/her account.</li> <li>• He/she then has to select Faculty Course folder option.</li> <li>• Faculty can now set the tentative course folder details.</li> <li>• He/she can also add, update and delete any information regarding the course folder.</li> </ul>
<b>Alternate Flow</b>	Faculty couldn't maintain course folder, refresh the page.
<b>Special Requirement</b>	<ul style="list-style-type: none"> <li>• Internet should be available.</li> <li>• Faculty account must exist.</li> </ul>
<b>Frequency of use</b>	Normal
<b>Assumptions</b>	<p>Faculty member is maintaining his/her respective course folder in an organized way.</p> <p>The Faculty member intends to maintain his/her respective course folder.</p>

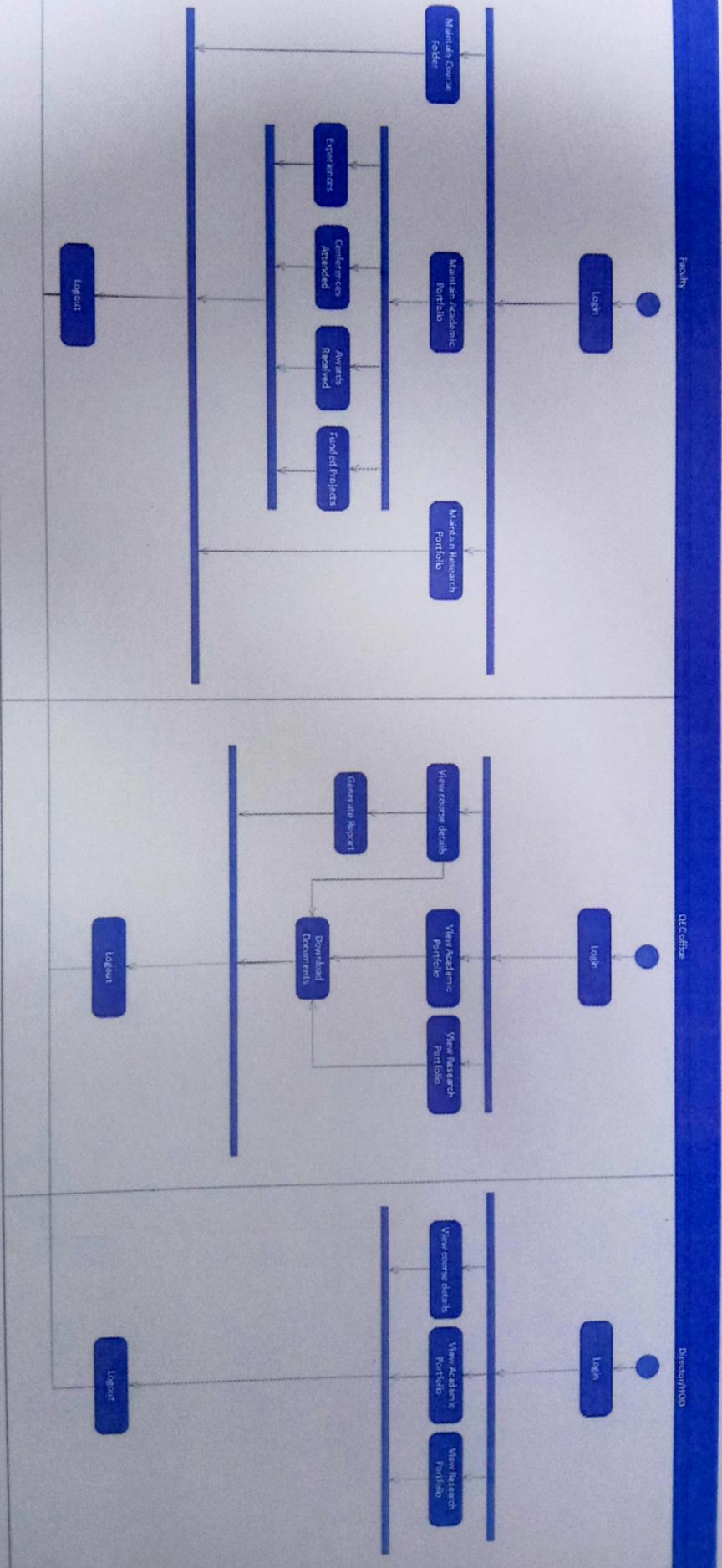
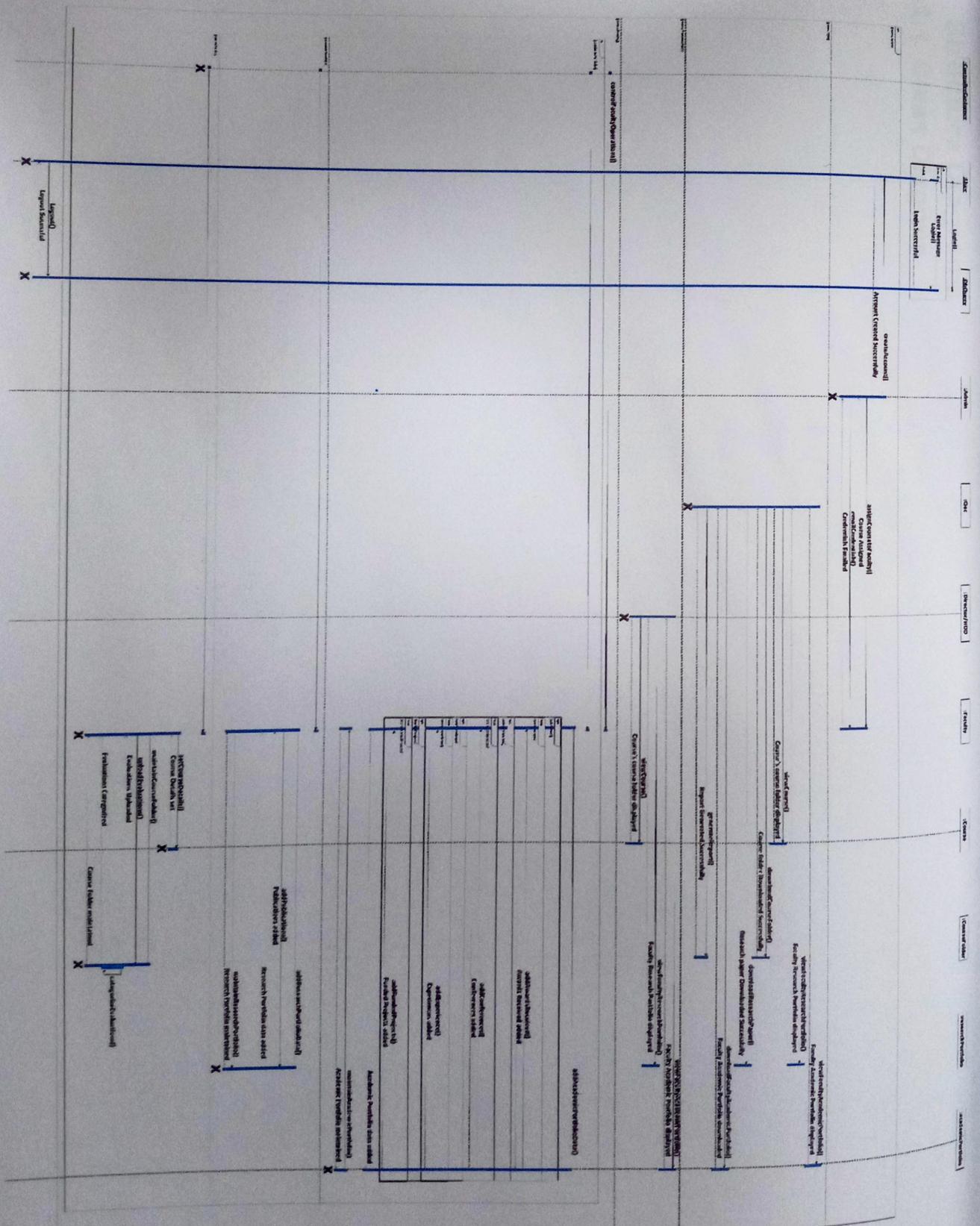
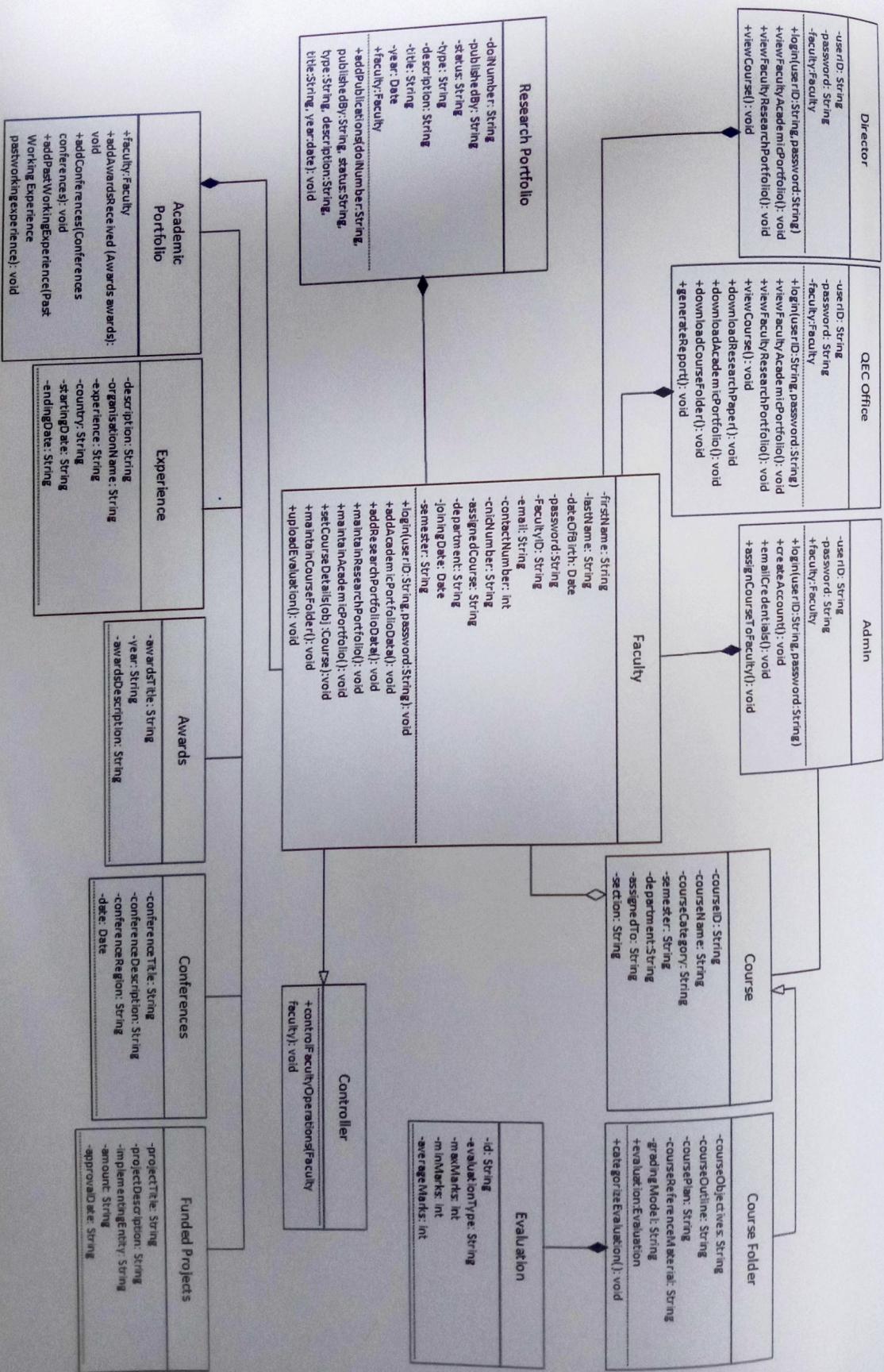
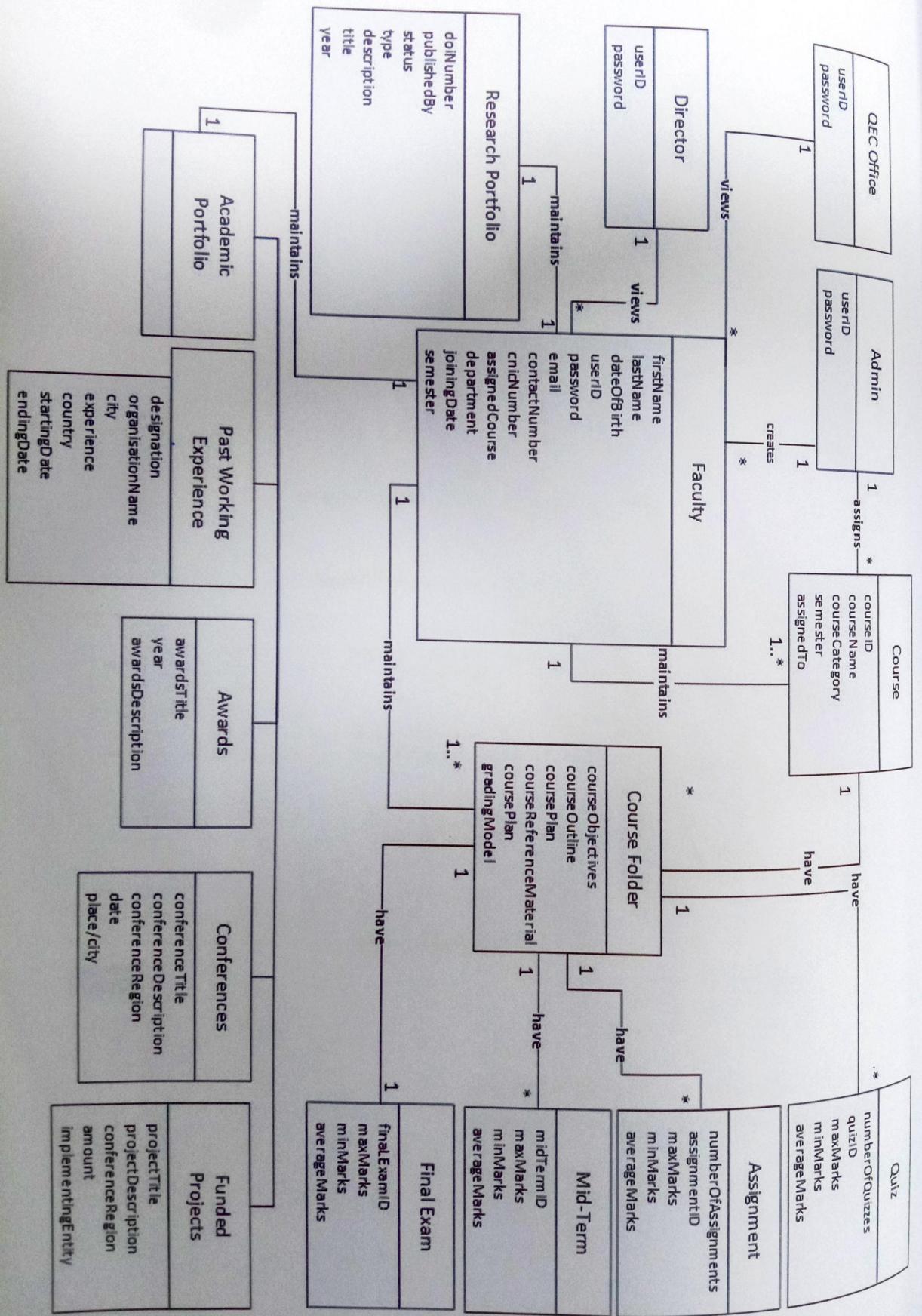


Figure 3 Activity Diagram







### 4.2.3 System Sequence Diagram

#### 4.2.3.1 Maintain Academic Portfolio

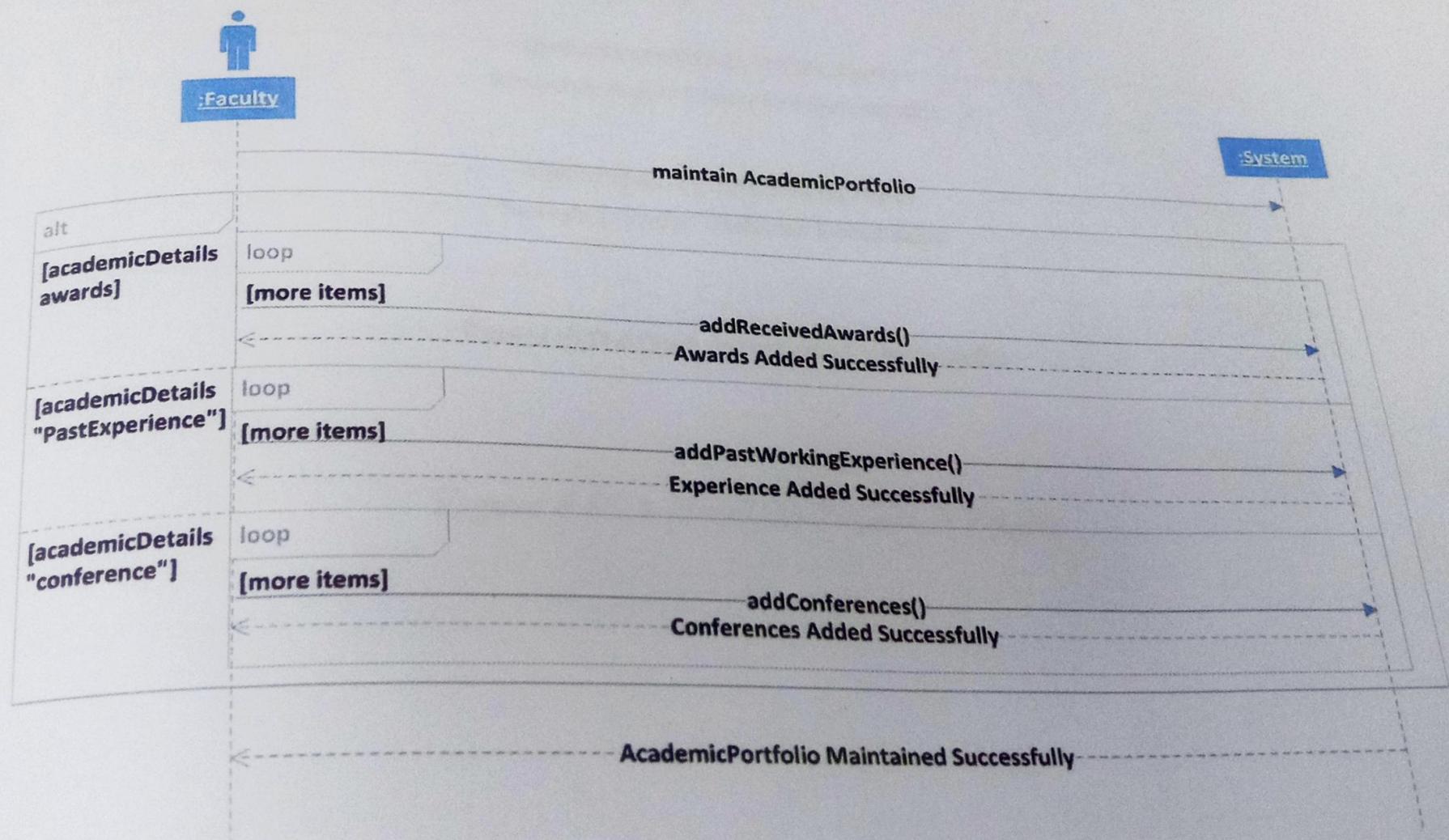


Figure 7 SSD-Maintain Academic Report

#### 4.2.3.2 Maintain Research Portfolio

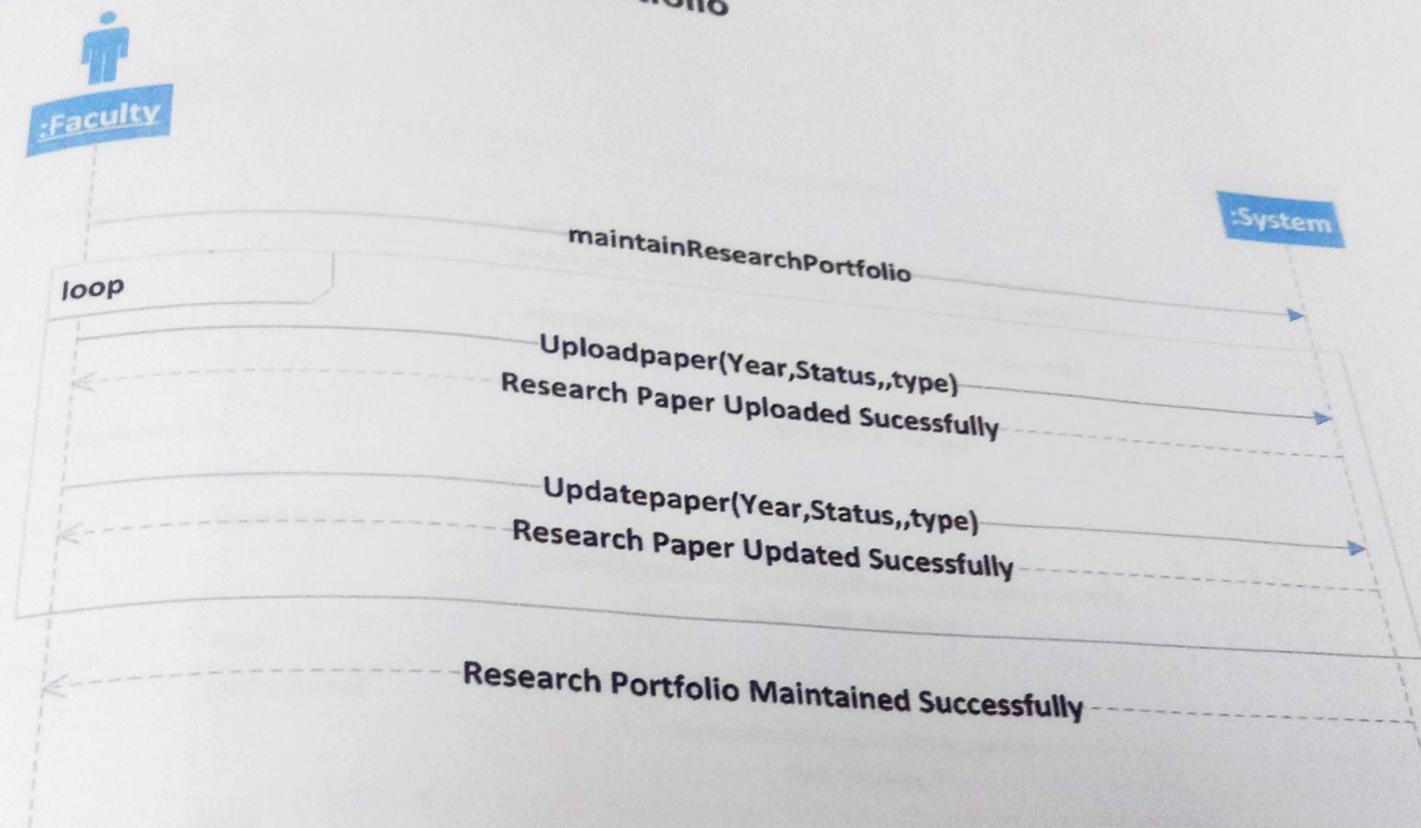


Figure 8 SSD-Maintain Research Profile

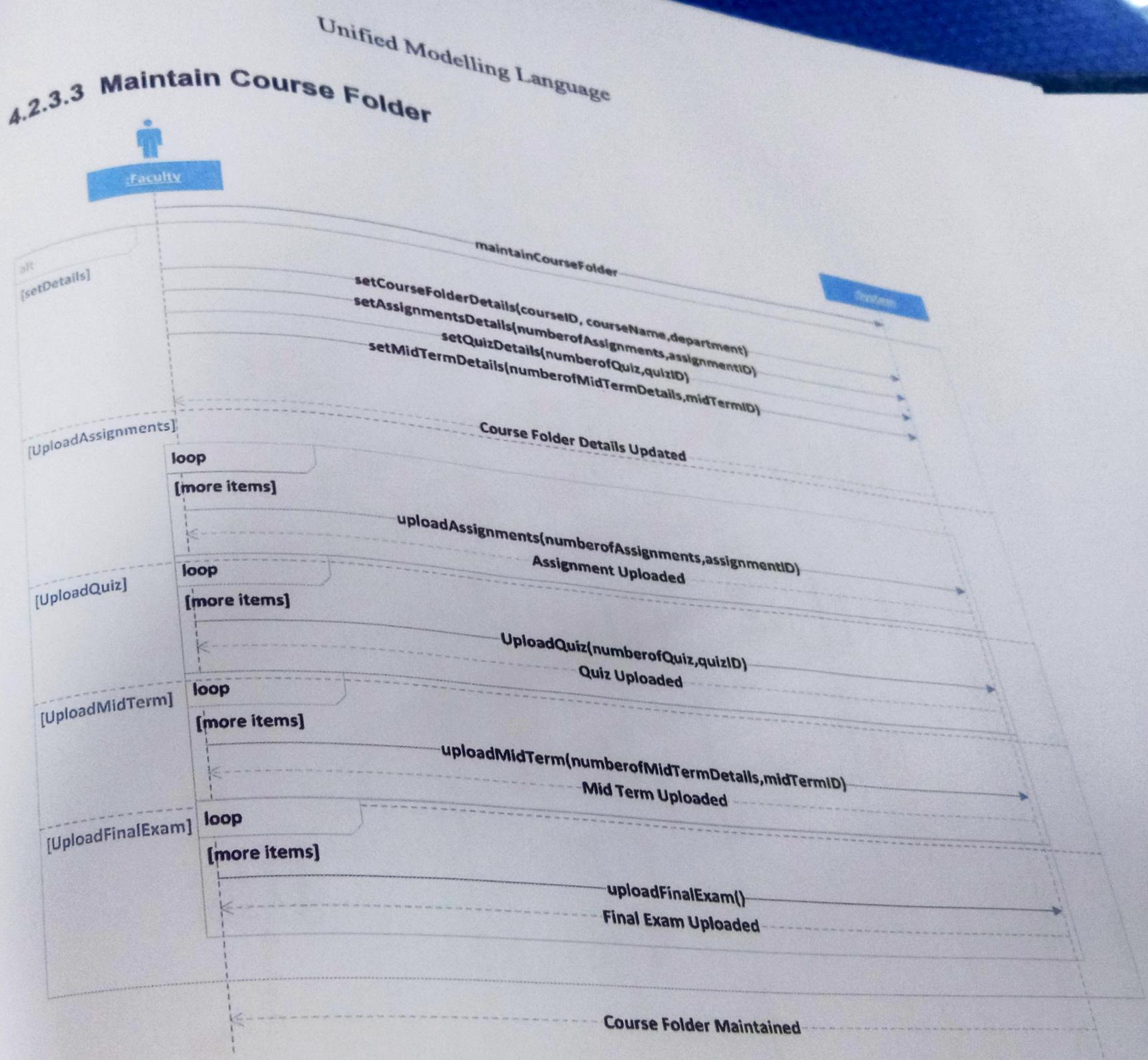


Figure 9 SSD-Maintain Course Folder

## Entity Relationship Diagram

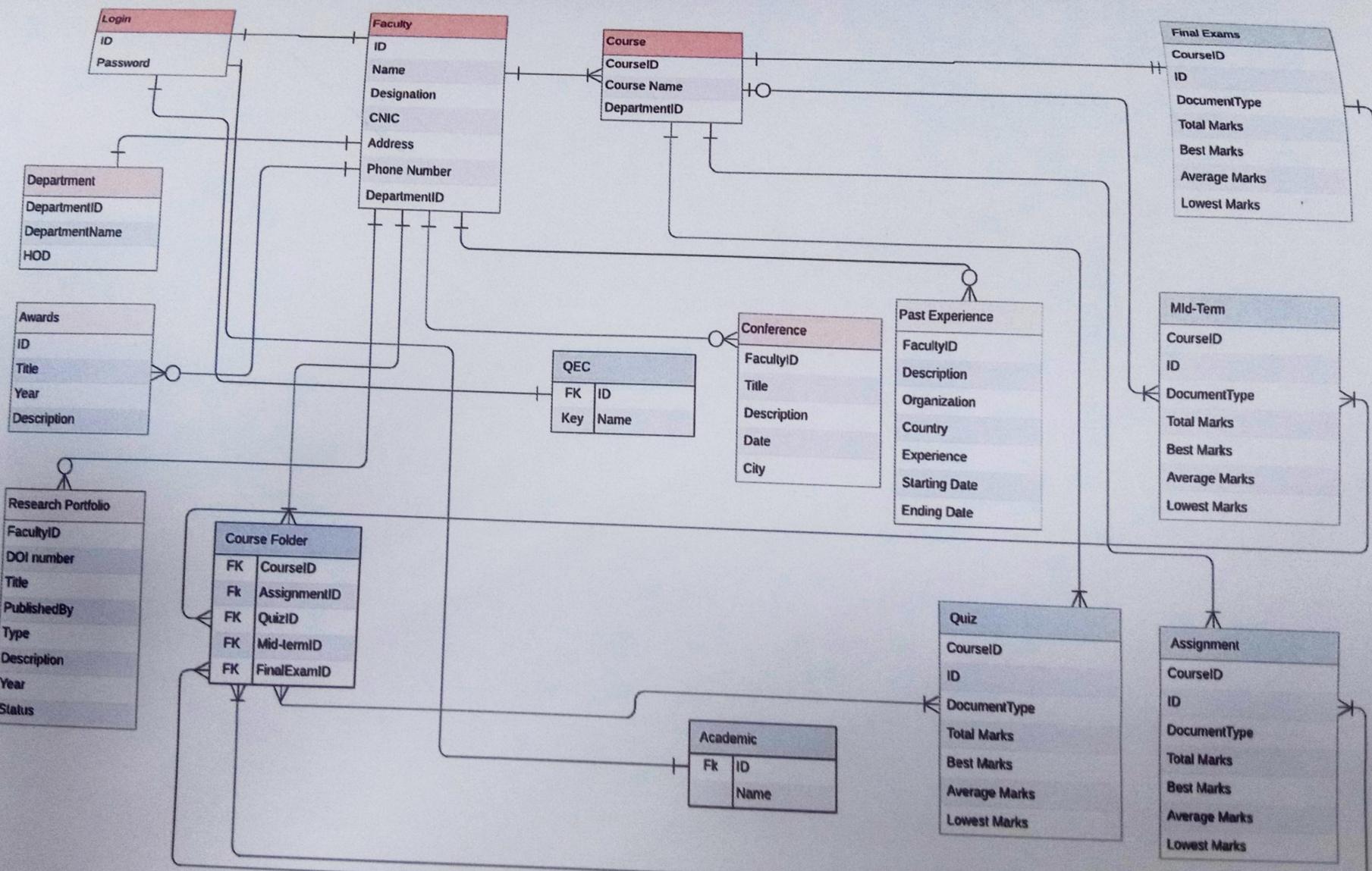


Figure 10 Entity Relationship Diagram