American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

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CSC 2210 Object Oriented Analysis and Design (OOAD)

Section: D

Group No: 05

Online Course Reservation System

An Object-Oriented Analysis and Design (OOAD) project submitted
By

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CHAPTER 1: PROBLEM DOMAIN

1.1 Project Background Analysis

o **Write the background description that helps putting the project into the right context of a problem domain and gives everyone involved a common view of the project.**

Online Course Reservation System is a way for students as well as faculties to reserve their preferred courses online without the hassle of being present physically. It will help the student and also the faculties to gather information about a particular course and then they can easily register themselves in a particular course. Administration can easily see the records of the students as well as the faculties course and fees. This presentation is about the analysis of online course Registration System. Diagram's purpose is to present System clearly and completely as possible.

What is the root cause of this problem? why is this problem is so important to consider?

If the entire process of 'Issue of Course' is done in a manual manner then it would take several months for the course to reach the applicant. Considering the fact that the number of applicants for course is increasing every year, an Automated System becomes essential to meet the demand. So, this system uses several programming and database techniques to elucidate the work involved in this process.

From the above discussion, We can say that the problem of online course reservation system is important to consider.

1.2 Project Solution and Feasibility Analysis

o **What are the solutions you are going to propose to deal with the problem? why is this solution is particularly appropriate to solve the problem? Is the solution feasible to the meet the business objective?**

To deal with the problem we are going to propose some solutions which is given below:

1. The project objective will be focused on developing an online course registration to ensure the effectiveness of the flow of registration. Moreover, the system will offer a complete management system that integrated with the online course registration to help the stakeholder for maintaining the flow process of the course.
2. The registration can be done online without the need of paperwork anymore. It is also helping the student to get more information about the course process while they enrolled.
3. The administrator will get easier way to determine the seat of the courses, keep track of the registration module, and generate report for the year to help them determine the development of the courses.

This solution is particularly appropriate to solve the problem because students and faculties can do this registration process without facing any paperwork issue and it can be done easily because of technology.

Yes, the solution is feasible to meet the business objective. Because in this system student will have to be connected through the network and here the network provider will also get the business benefit.

o **Provide a short description of the software being specified and its purpose, including relevant benefits, objectives, and goals?**

Here the software which is being specified is Online system. In this project we've shown that how an online course reservation system works and its process step by step through Use Case diagram, Class diagram, Sequence diagram, State chart diagram and Activity diagram.

Now the purpose, including relevant benefits, objectives and goals is given below:

Purpose: The purpose of this project is to develop an object-oriented model for online course reservation system.

Benefits: The benefits of this project is the system will offer a complete management system that integrated with the online course registration to help the user for maintaining the flow process of the course.

1. The system provides an online interface to the user where they can fill in their personal details and submit the necessary documents.
2. The administrator concerned with the issue of course can use this system to reduce their workload and process the application in a speedy manner.
3. Provide a communication platform between the Student, Faculty and Administration.

Objectives: The main objective of creating the document about the software is to know about the list of the requirement in the software project part of the project to be developed. It specifies the requirement to develop a processing software part that completes the set of requirements. The cores of objectives of the project are followings:

1. To propose an online course registration and management system.
2. To identify the user requirement for online course registration and management system.

Goals: Online course reservation system is an interface between the Student, Faculty and Administration responsible for the issue of Course. It aims at improving the efficiency in the issue of Course and reduces the complexities involved in it to the maximum possible extent.

o **Existing studies presented in the problem area. What are the existing software solutions are available to solve the aforementioned problem?**

There are many existing software solutions are available to solve the aforementioned problem in our surroundings. If we look into some University's management system, we can see that they use one online platform where students, faculties and Administrators are connected. As American International University of Bangladesh (AIUB) uses Online Portal where students and Faculties can complete their online registration process easily. So, We can say that there are some existing software for this kind of problem.

o **What makes this project new, innovative, interesting, or otherwise distinct from other similar projects? Does the project duplicate functionality already available in the market?**

Online course reservation system is a digital and innovative project. Registration without any hassle and doing the whole registration process in an online platform with one device is kind of a blessing for both students and faculties.

The course registration project helps the students and faculties to know the procedures followed in universities to enroll students for a particular course. The limitations of the existing system are: the system is not efficient to meet the needs, the system is very slow and time consuming, not more than one choice can be given by a student, the number of seats left out and the course details can be known. The problems that are overcome are the existing system uses spreadsheet as backend now the proposed system uses access as backend, the basic requirement of the system has being improved, it has become user friendly. The proposed system is very efficient. Now a student can know the number of seats that are being allotted in a day. The person can even get the course detail. The report displays the number of students per course and the number of students allotted seat on a particular day

They don't need to go outside and have to wait for long time standing in a line. So, because of easy access they can complete their registration process staying anywhere with just one device and internet connection. Sometimes students might face some issues because of their poor network connection. Besides this sometimes server may show down because of too much traffic in the system. But we can say this issue can take into the consideration. As the issue is worth to solve so this is a good side of this project.

This kind of project might be available in the market but we can assure that we've got the best solution for the problem which can be solved easily. Finally, we can say this project is totally new, innovative, interesting, and distinct from other similar projects in the market.
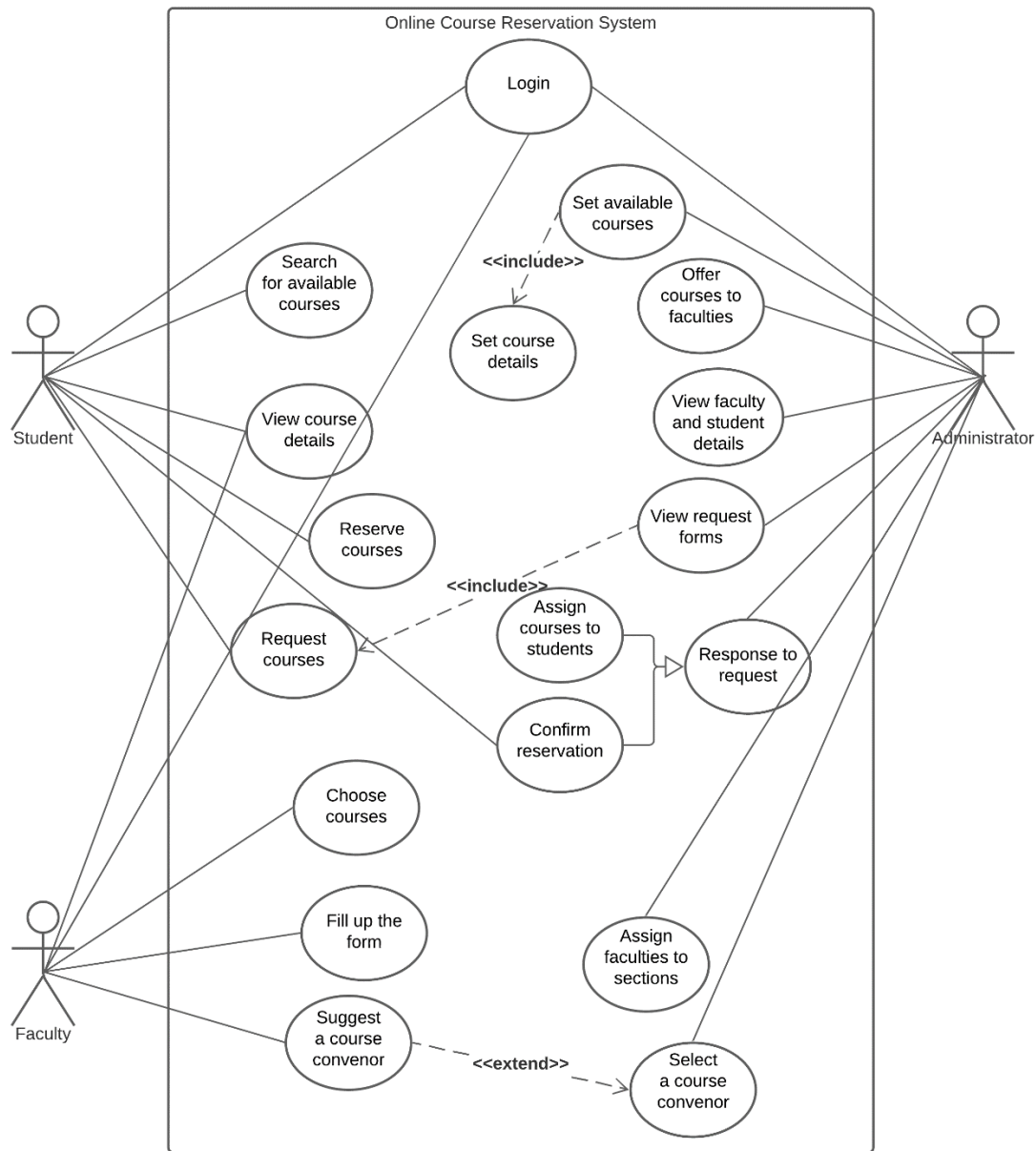
CHAPTER 2: UML DIAGRAM

1.1 Use Case Diagram

○ **Does the use case narrative represent the Scenario of the use case diagram?**

Yes, here the use case narrative represents the Scenario of the use case diagram.

○ **Does the Use Case diagram include the major use cases, actors who perform the use cases and the relationships among the use cases needed to deliver by the system?**
Yes, the Use Case diagram include the major use cases, actors who perform the use cases and the relationships among the use cases needed to deliver by the system. Here we've three actors in our project: Student, faculty and Administrator. The relationship among the use cases is clearly shown by the features.
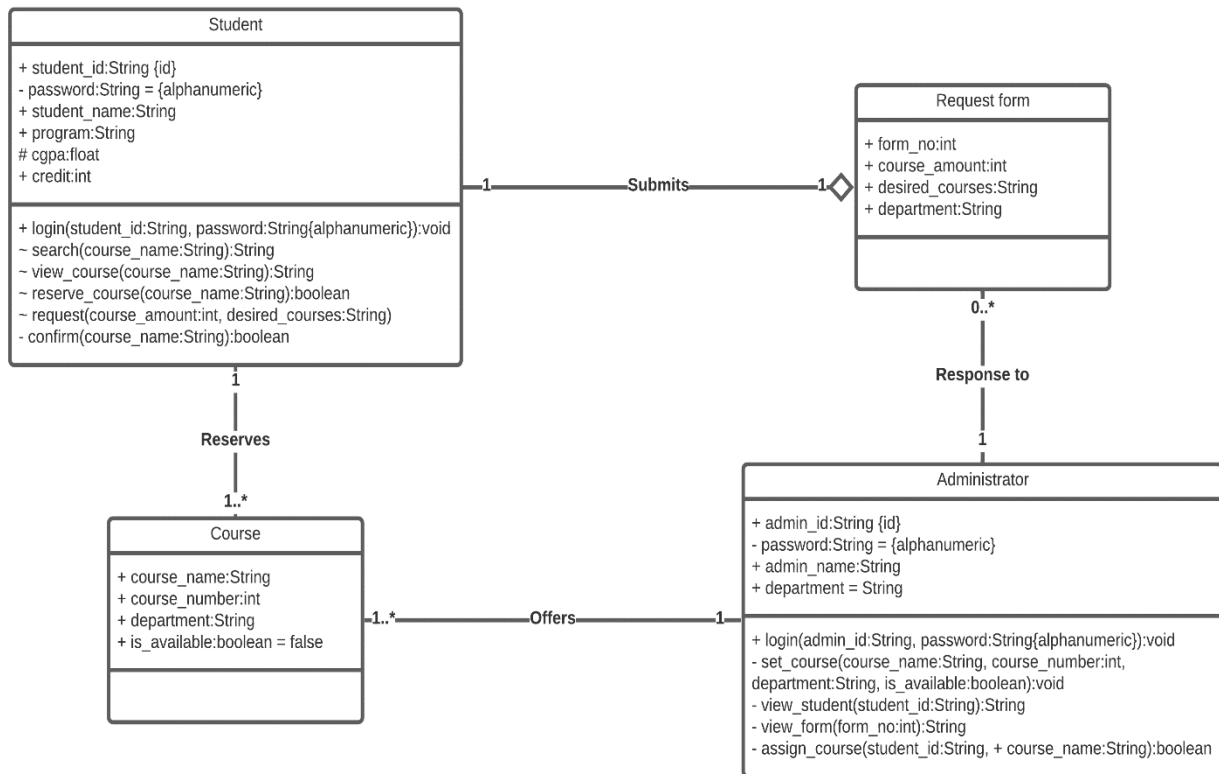
❖ **Case Study:** In online course reservation system, the primary actors are students and faculties and the secondary actor is the Administrator. Students, faculties and administrator login to their accounts. Student can search for courses, view course details, reserve their courses and confirm reservation from their account. Faculties can also view course details, choose courses for students, fill up form and also suggest a course convener to administrator. Administrators can make courses available for both students and faculties. And it is mandatory to set course details before set available courses. Administrator can offer course to faculties, view request form after some student's requests for courses. Administrator can assign courses and confirm reservation by response to request. Assign faculties to sections and select a course convener.

Online Course Reservation System

2.2 Class Diagram

- o **Does the class narrative represent the Scenario of the class diagram?**
  Yes, the class narrative represents the Scenario of the class diagram.
- o **Does the Class diagram include the major classes (attributes, operations) and the relationship among the classes needed to deliver by the system?**

Yes, the class diagram includes four major classes like Student, Request form, Administrator and Courses. Here the class diagram includes the relation among the classes needed to deliver by the system.

2.3 Sequence Diagram

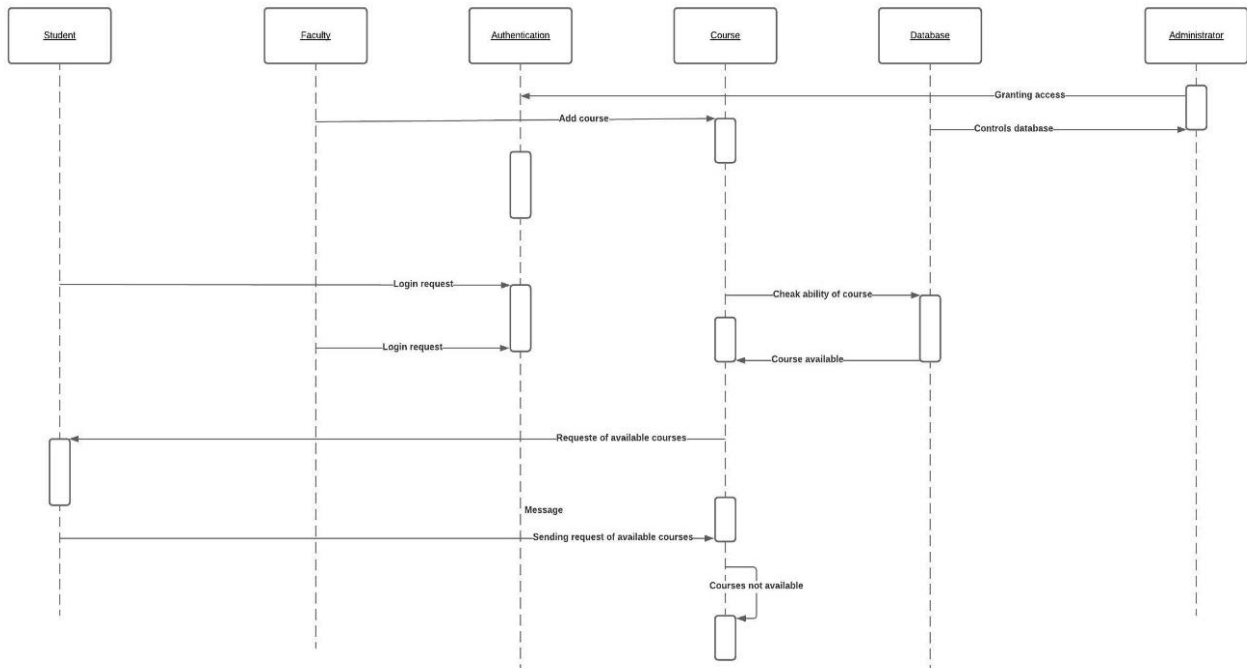- o **Does the sequence narrative represent the Scenario of the sequence diagram?**
  Yes, the sequence narrative represents the Scenario of the sequence diagram.

- o **Does the Sequence diagram include the sequence of the major activities needed to deliver by the system?**
  Yes, the sequence diagram includes the sequence of the major activities needed to deliver by the system.

- ❖ **Case Study:** In the sequence diagram, students and faculty will have to request for login with their right information which is available in the database. And the administrator controls the database. If they are valued the faculties enroll the course which is assigned in the database by administrator. After enrolling courses of faculties student request for their courses and if the course is available they enroll the course but if the course isn't

available in the database the administrator add course in the database and then students can add their course.

2.4 State chart Diagram

- o **Does the state chart narrative represent the Scenario of the state chart diagram?**
  Yes, the State chart narrative represents the scenario of the state chart diagram.
- o **Does the State chart diagram include the major states needed to deliver by the system?**
  Yes, the State chart diagram includes the major states needed to deliver by the system.

- ❖ **Case Study:** Using the Online Course Reservation System, the administrator first logs in to the system. After that he has to set different courses which in turn means that he also has to set individual course details. Then administrator offers courses to both faculties and students. If students submit request forms, administrator can view those forms. After viewing the request forms the administrator view student details to cross check. If request courses are available, administrator accepts request and assigns requested courses to student. If they are not available then administrator just ignores the request. After faculties submit their forms, administrator views those forms and assign faculties to sections accordingly. Then the faculty may suggest a course convener and the administrator will assign the suggested convener.

2.5 Activity Diagram

○ **Does the activity narrative represent the Scenario of the activity diagram?**

Yes, the activity narrative represents the scenario of the activity diagram.

○ **Does the Activity diagram include the major activities needed to deliver by the system?**

Yes, The Activity diagram includes the major activities needed to deliver by the system.

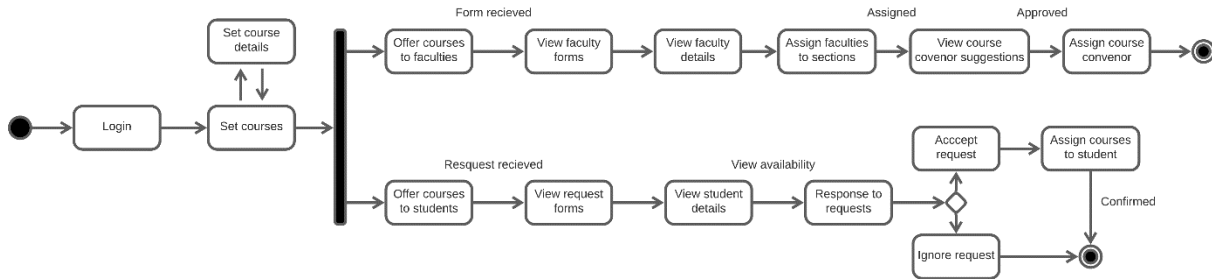❖ **Case Study:** In our Online Course Reservation System, we can see that first Administrator create the available courses for both faculties and students. Then administrator offer courses to the faculties and faculties are view the course details. After viewing the course details, they choose the courses and fill up their forms. Administrators assign the faculties to the sections and they request to faculty to suggest a course convener. Faculty suggest a course convener then administrator select that. The students search for available courses and view the course details. After this term, they reserve those courses. If the courses are available, they confirm their reservation of courses. If courses are not available, they request to administrator to assign the courses. Then administrator view their request form and assign courses to students and after that students can reserve that and confirm their reservation.

Student	Administrator	Faculty

Administrator:
- ● (start)
- Set available courses
- Set course details

(synchronization bar)

Student:
- Search for available courses
- View course details
- Reserve courses
- ◇ If available — **No** → Request courses
- **Yes** ↓

Administrator:
- Offer courses to faculties
- View request forms
- Assign courses to students

Faculty:
- View course details
- Choose course
- Fill up froms ← Form

(synchronization bar)

Student:
- Confirm reservation
- ◉ (end)

Administrator:
- Assign faculties to sections
- Select a course convenor
- ◉ (end)

Faculty:
- Suggest a course convenor