Dharmsinh Desai University, Nadiad

Faculty of Technology

Department of Computer Engineering

B. Tech. CE Semester – VI

Subject: (CE – 620) **Object Oriented Software Engineering**

Project Title**: *Coursera***

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CERTIFICATE

This is to certify that Advanced Technologies project entitled "**Coursera**" is the bonafied report of work carried out by

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Of Department of Computer Engineering, Semester VI, academic year 2019-20, under our supervision and guidance.

Guide	HOD
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Overview

Coursera is the learning platform where course Tutors/Organisation from various regions can uploads courses and decide fees for that courses and provide them to the learners. The students from various regions can buy the course and learn from it. User can buy any course for certificate along with learning or he/she can only learn that course without any charge by auditing the course.

Content

Introduction

Coursera is the platform which simply connects the tutors from various regions and students from various regions who want to learn new skills and get knowledge. Coursera provides facility to tutors to upload and manage their course materials on one platform and decide fees for their content on the other end students or say learners can buy or learn various courses from one platform and manage their progress.

Coursera provides dashboard for tutors to track their courses and students progress while students can develop their profile learning from coursera. Coursera also welcomes the organizations who have many tutors for one course or say team of tutors.

Technology Used:

- Windows form application for designing the desktop application.
- MSSQL database to save data.

Platform Used:

- Visual Studio 2017 as a platform to device the whole code.

Tools Used:

- We used Github as a version control method and to manage the project.

Software Requirement Specification

Coursera

R1 Manage user/admin/tutor/organisation account

R1.1 LOGIN

Description - user enters the login credentials and user is allowed to access account if credentials are correct

Input - user credentials

Output - authentication message

R1.2 SIGNUP

Description - provided user credentials user account is created

Input - user credentials

Output - creation of user account

R1.3 Edit Profile

Description - changes in details of user credentials are given by user and respective changes are made in account by system

Input - user credential updates

Output - affirmation message

R2 Search and audit Courses

    R2.1 search by navigation

        Input - user selections

        Output - navigated courses

    R2.2 search by keyword

        Input - user entered keyword

        Output - relevant courses

    R2.3 View course

        Input - user selection

        Output - course information

    R2.4 Audit course

        Description - user audits selected course so he/she can see the content of the course

        Input - user selection

        Output - unlocked course content

R3 Buy course

    R3.1 select course

Input - filtering criteria

Output - filtered courses

R3.2 pay for course

Input - payment credentials

Output - affirmation and unlock course

R4 User History/Progress

R4.1 completed courses

Input - user selection

Output - list of inactive courses

R4.2 active courses

Input - user selection

Output - list of active courses

R4.3 owned courses

Input - user selection

Output - list of active courses

R5 Feedback

Description - give feedback and rating to the course

Input - user feedback and rating

Output - feedback submission alert

R6 Add courses

    R6.1 Review course info

        Description - review course information that consist course description, prerequisites and FAQs

        Input - course info

        Output - affirmation/rejection

    R6.2 Review course content

        Description - review course video or text content

        Input - course content

        Output - affirmation/rejection

    R6.3 Add reviewed course

        Input - admin click

        Output - Affirmation

R7 Statistics

    R7.1 View courses and its reviews

        Description - admin can watch courses and reviews provided

        Input - selection criteria

Output - filtered courses and their reviews

R7.2 View Users

Description - statistics for admin

Input - filtering criteria

Output - filtered users

R7.3 View Tutor

Description - statistics for admin

Input - filtering criteria

Output - filtered users

R7.4 View course takers

Description - statistics for tutor/organization

Input - user clicks

Output - list of course takers

R7.5 View User feedback

Description - tutor/admin/organization selects the course for which he/she wants to see the feedbacks

Input - select course

Output - User feedback

R8 Provide New Course

Description - User provides new course and it is send for review to the admin and admin accepts or rejects it.

R8.1 provide course info

    Input - course info

    Output - affirmation

R8.2 provide course content

    Input - course content

    Output - affirmation

R8.3 Send request

    Input - request for adding new course

    Output - request sent alert

R8.4 Check status

    Description - tutor clicks for checking the status of requested courses

    Input - tutor clicks

    Output - status information

R9 Request update course

    R9.1 provide updated course info

        Input - course info

        Output - affirmation

    R9.2 provide updated course content

        Input - course content

        Output - affirmation

    R9.3 Send update request

        Input - request for updating course

        Output - request sent alert

    R9.4 Status of Requested update in course

        Description - tutor clicks for checking the status of request for update courses

        Input - tutor clicks

        Output - status information of update requests

R10 Discussion forum

Description - there is discussion forum for each course where all learner can ask questions and answer the question and view Q&A

R10.1 ask question

    Input - question

    Output - question posted alert

R10.2 answer question

    Input - answer to a question

    Output - answer posted alert

R10.3 search/navigate question and answer

    Input - search/navigate answer

    Output - searched Q&A

R10.4 View Q&A

    Input - User click

    Output - Question and answer

NON FUNCTIONAL REQUIREMENTS:

SOFTWARE: Visual Studio

OS: Windows

Design Documents
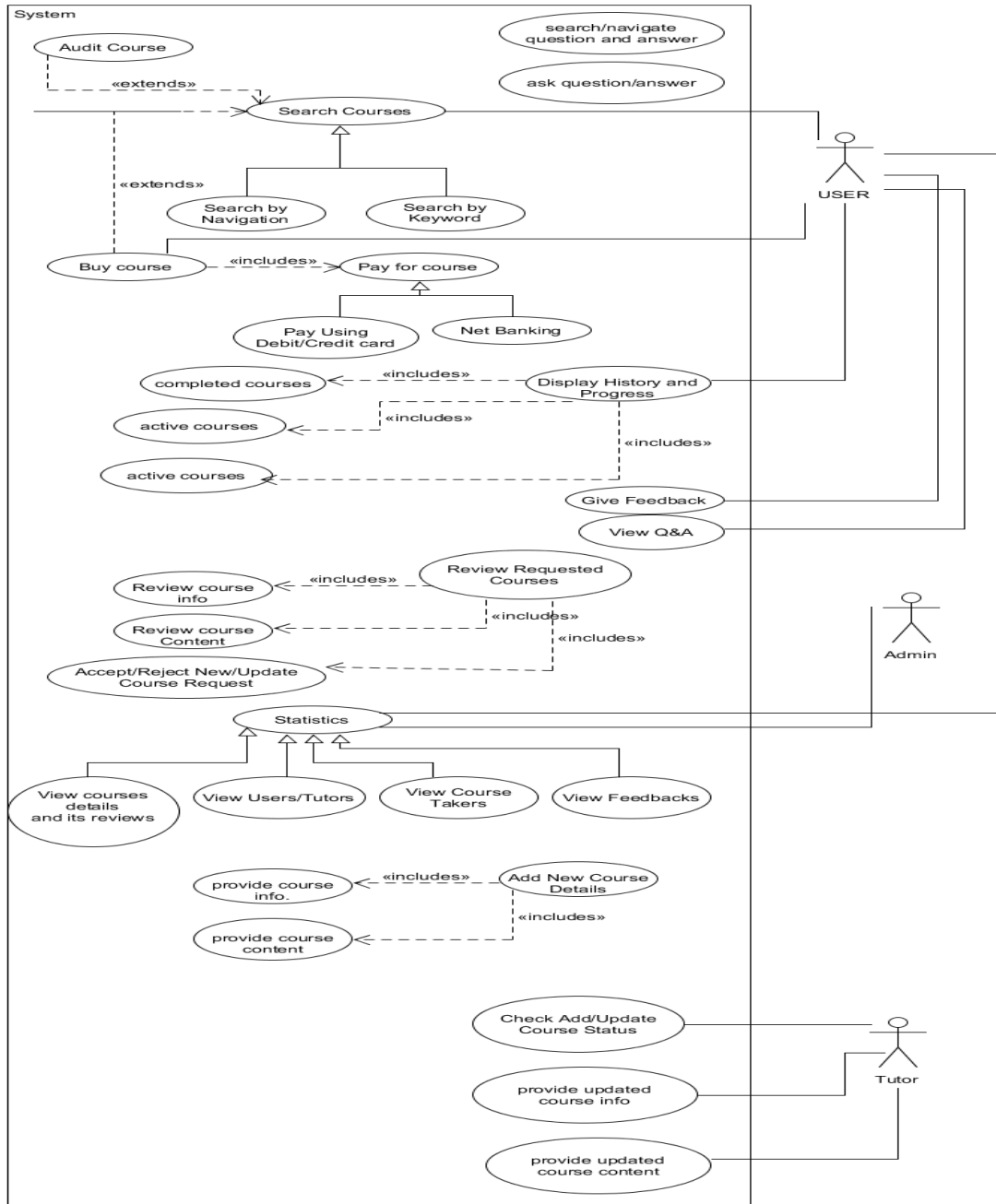
1. Use Case Diagram

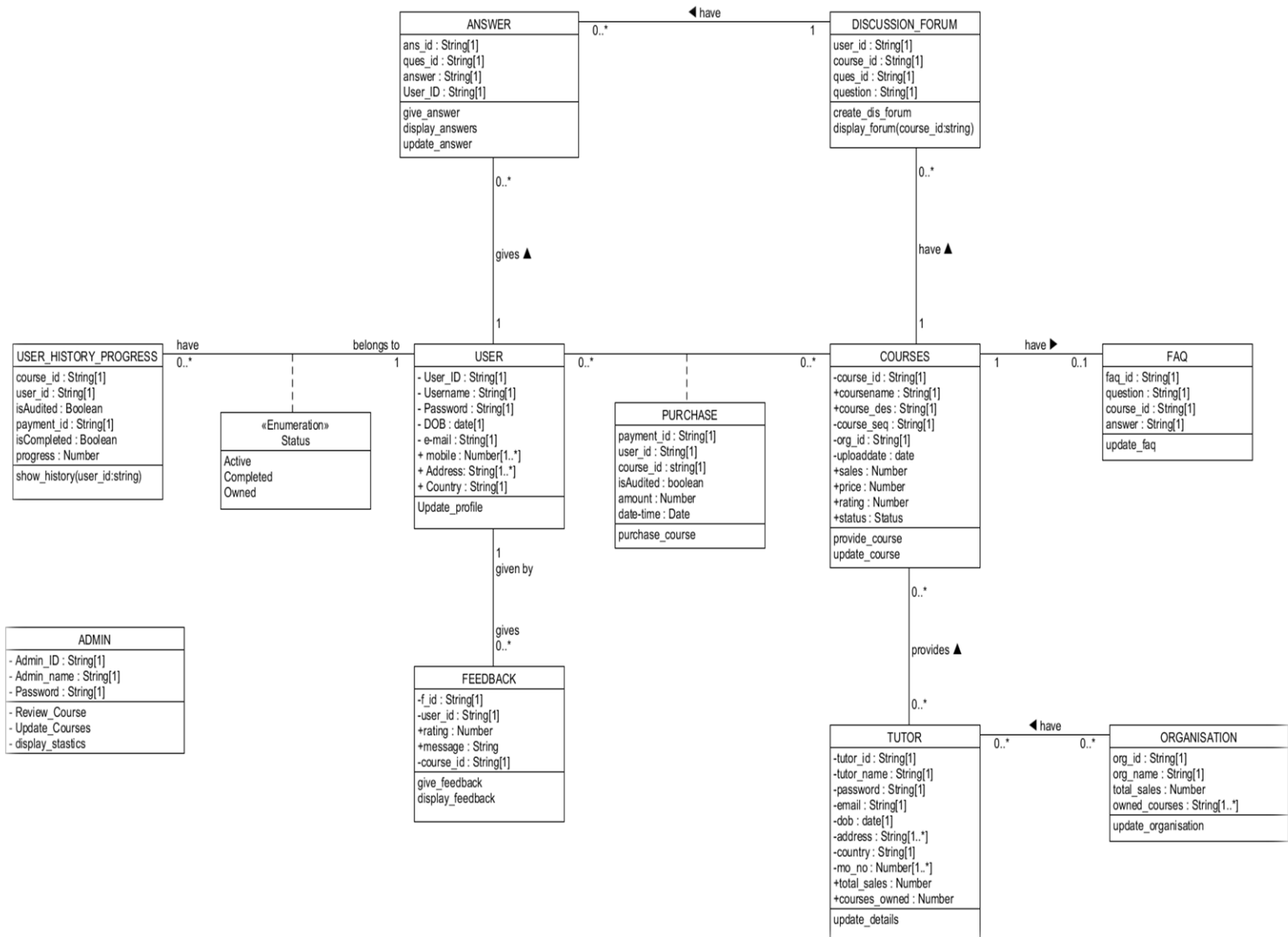

Figure 1 : Use Case Diagram

2. Class Diagram
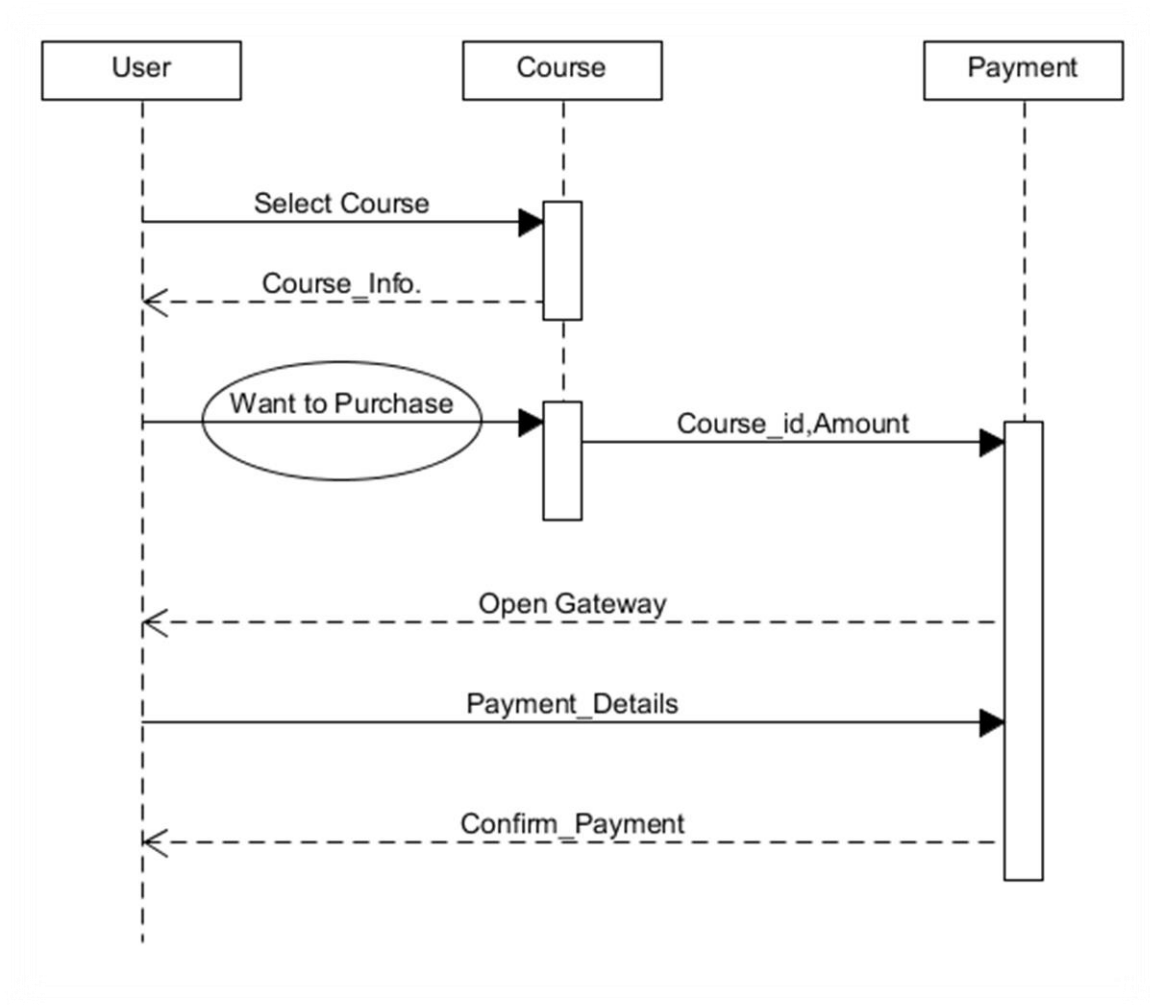

Figure 2 : Class Diagram

3. Sequence Diagrams

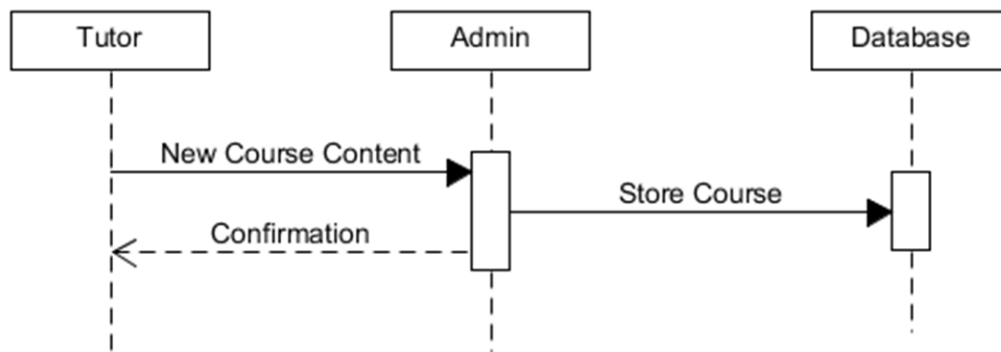Figure 3 : Course_Payment
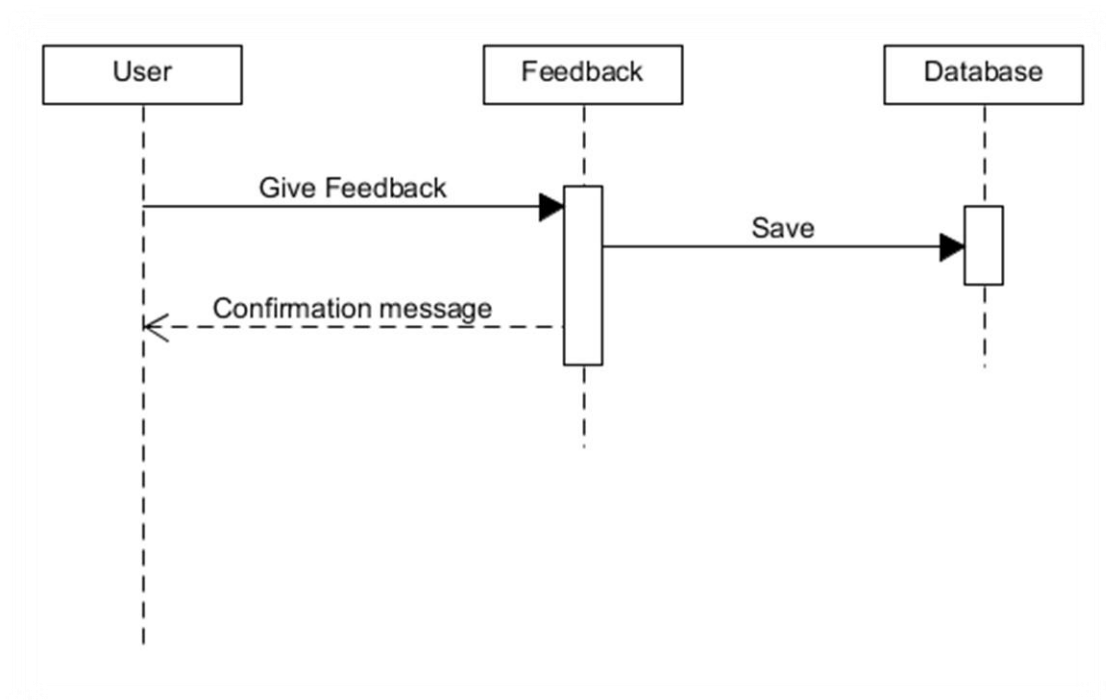
Figure 4 : Tutor_Upload_New_Course

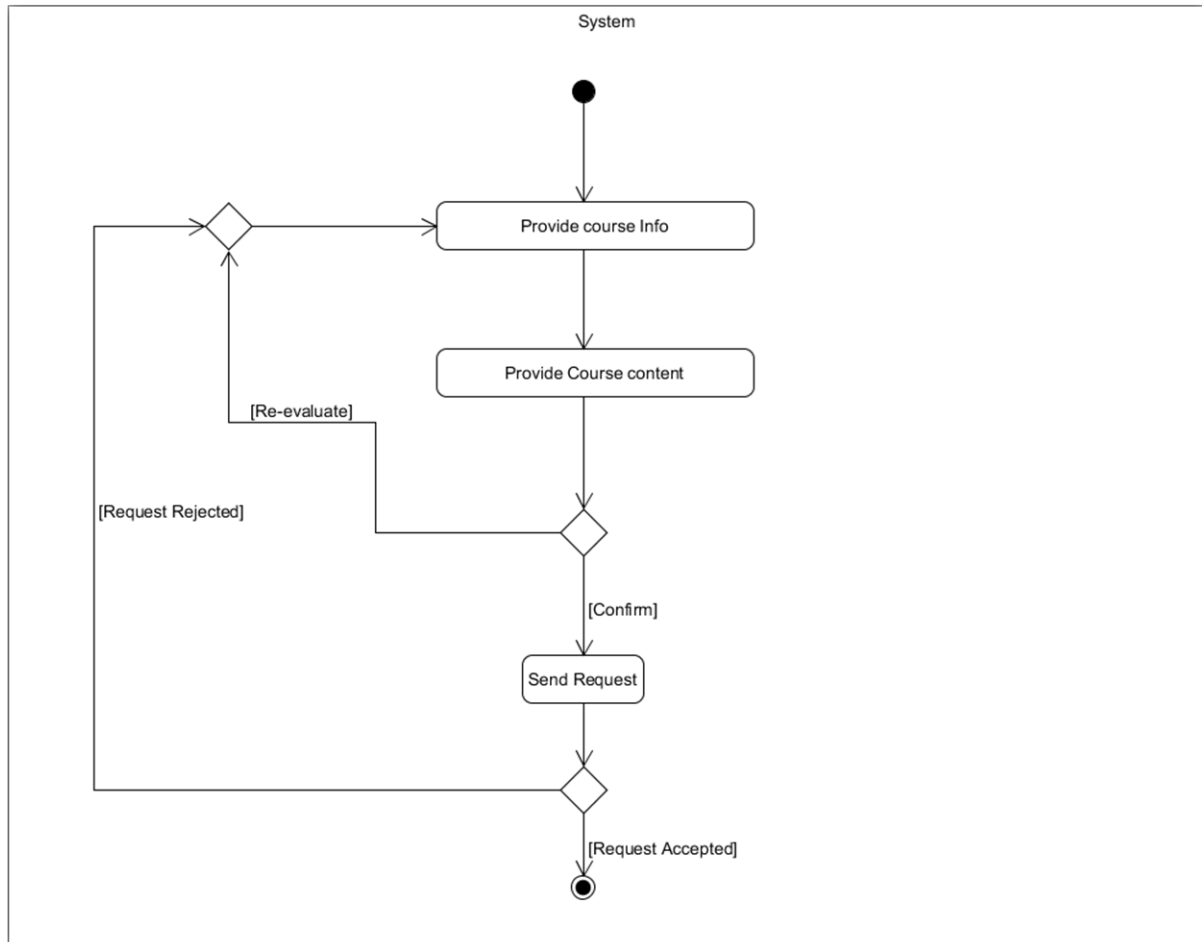**Figure 5 : User_Feedback**

4. Activity Diagrams
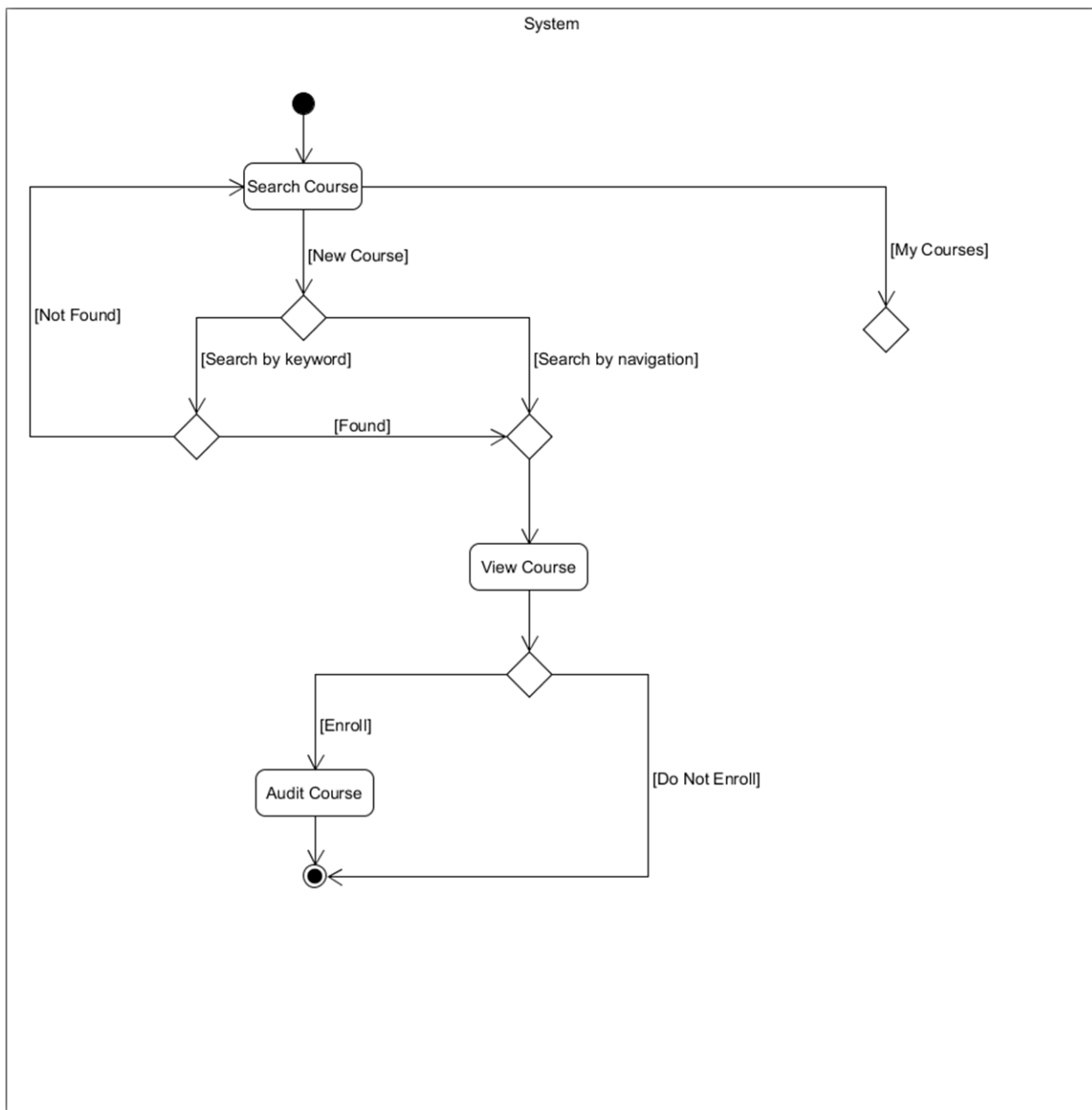

Figure 6 : Add_New_Course
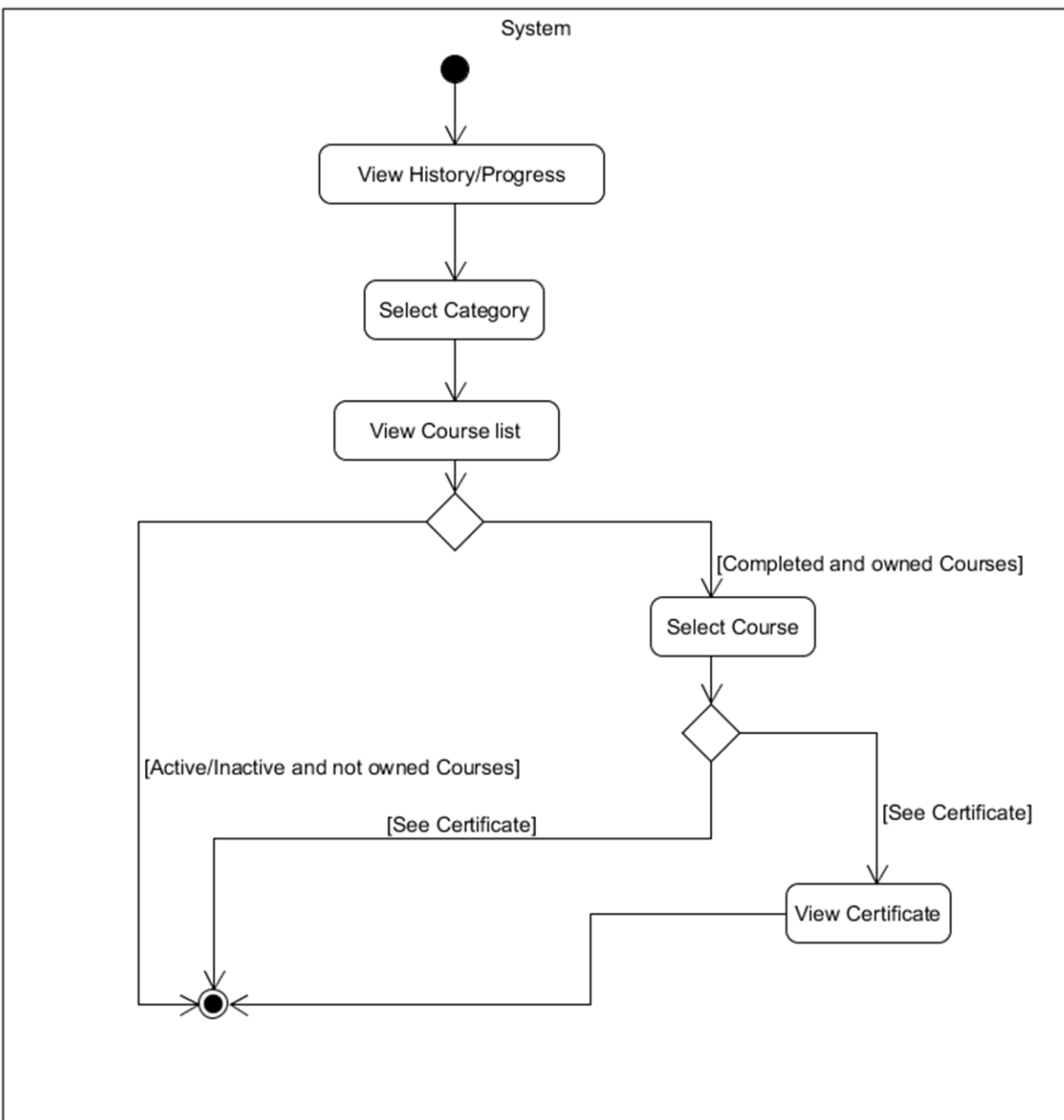
Figure 7 : Search_Audited_Course
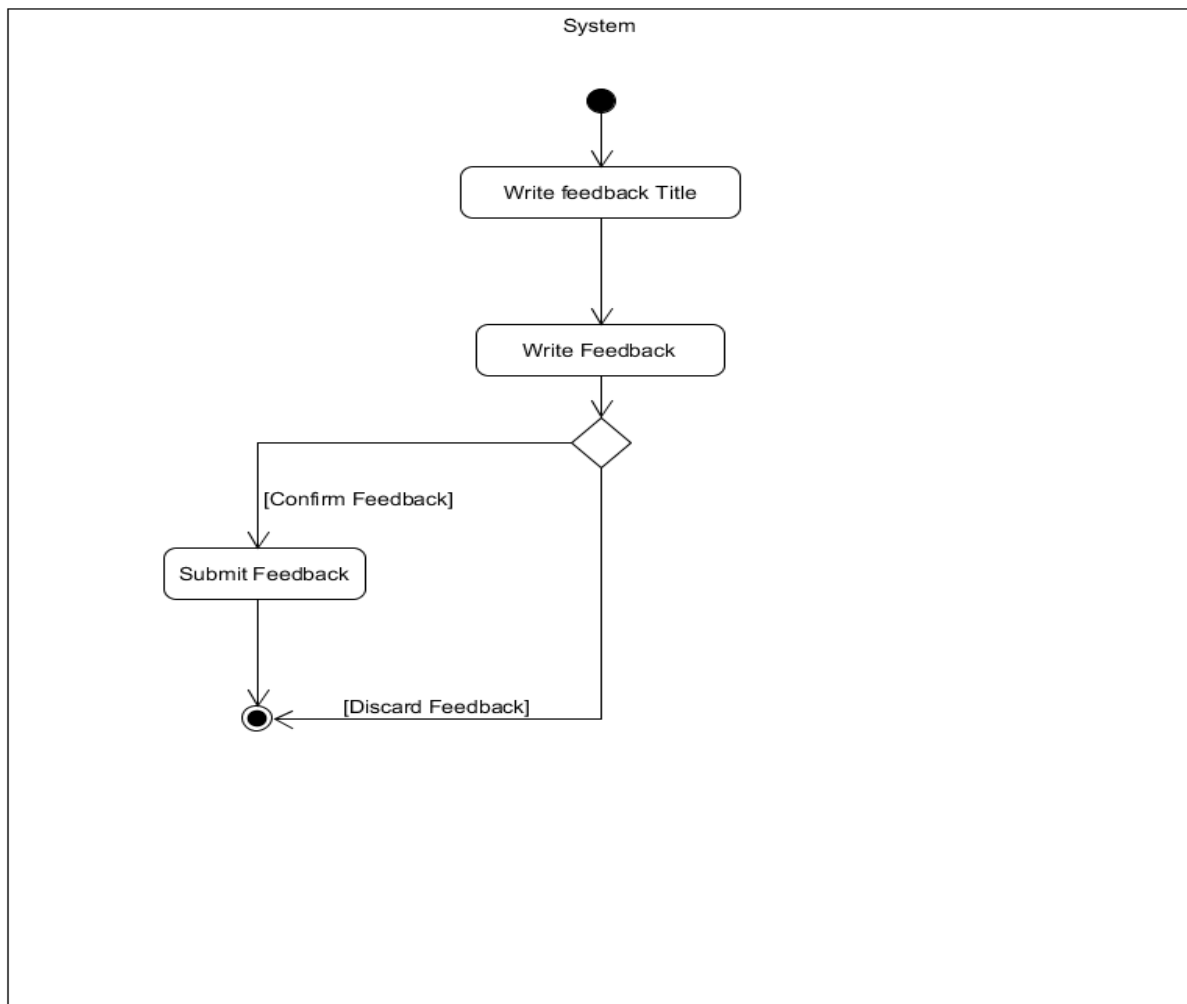
Figure 8 : User_Progress

Figure 9 : Feedback
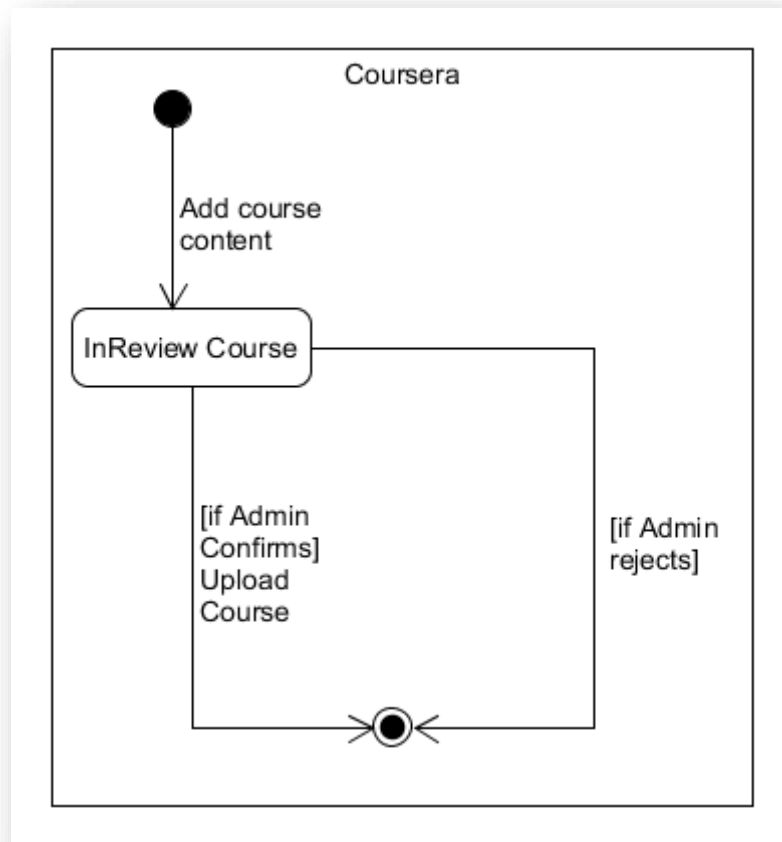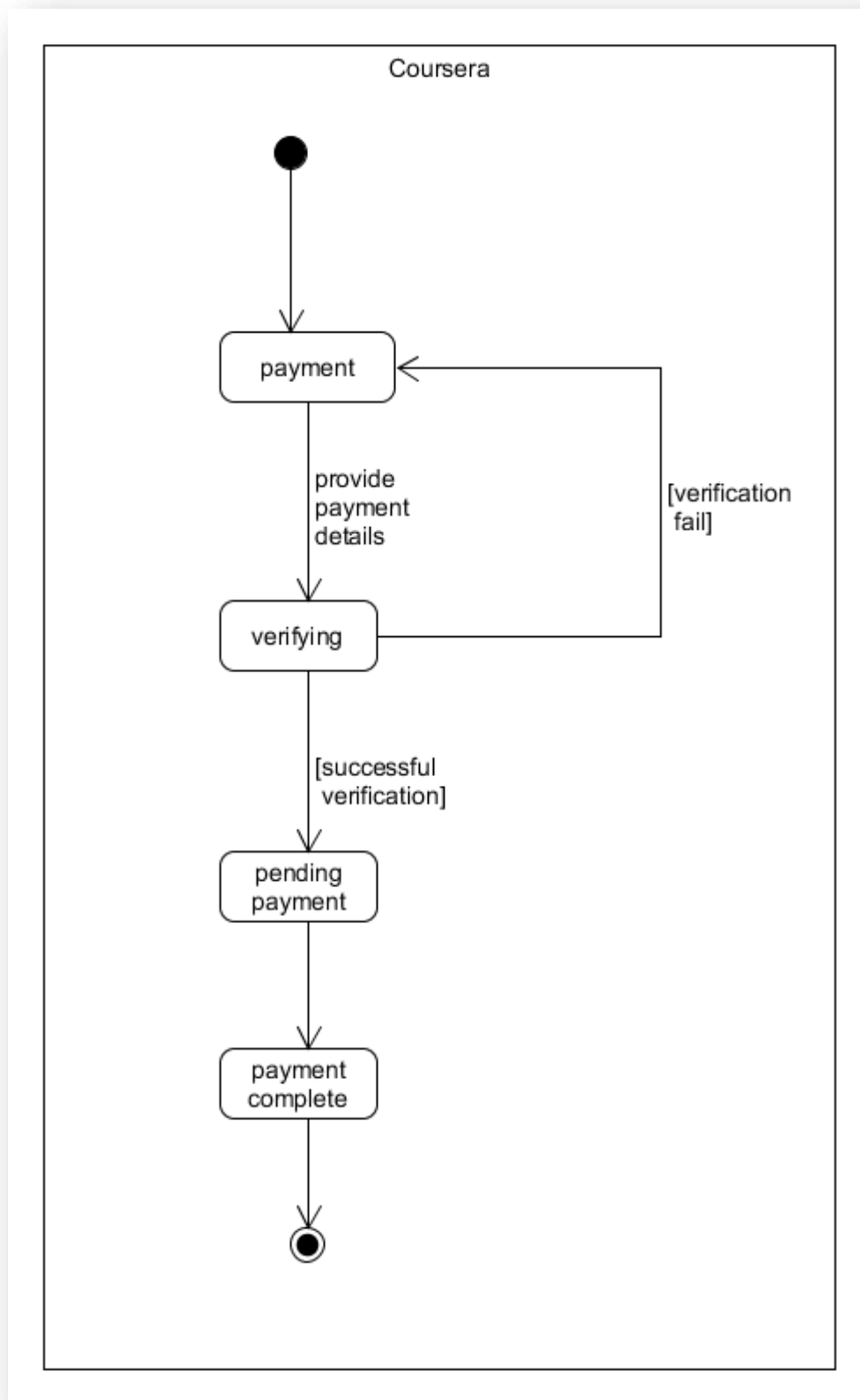
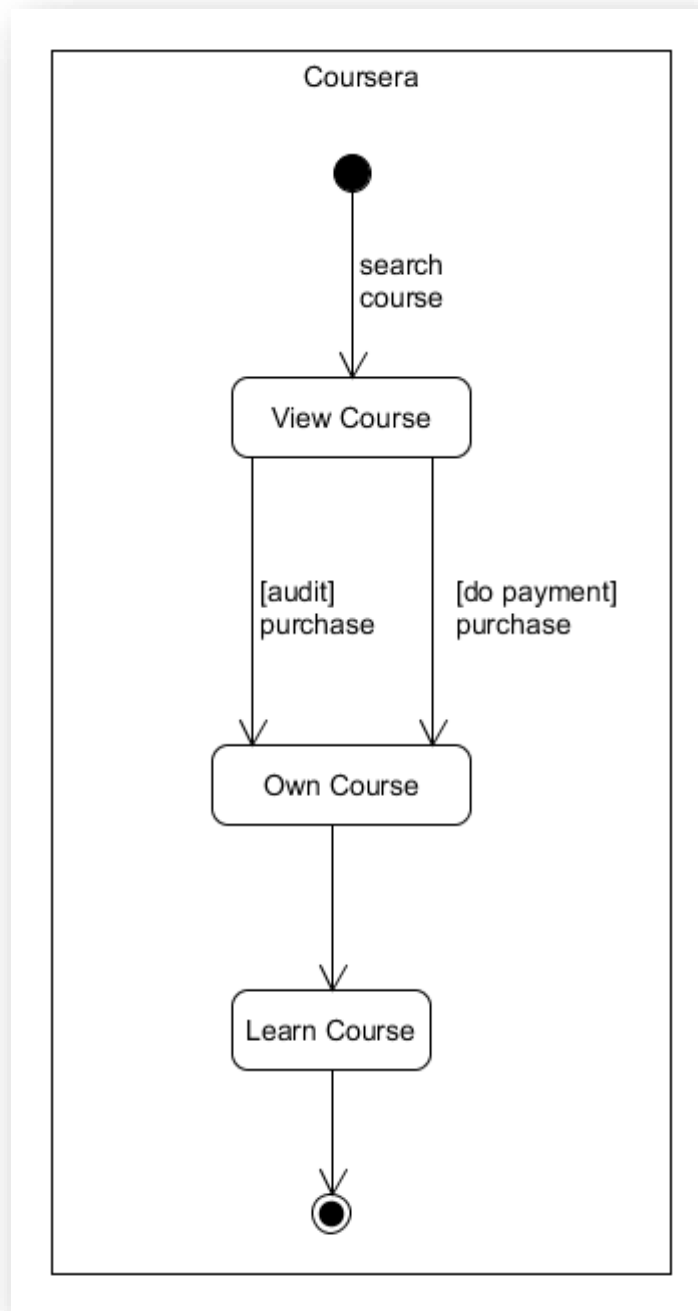# 5. State Diagrams

Figure 10 : Add_Course

Figure 11 : Payment

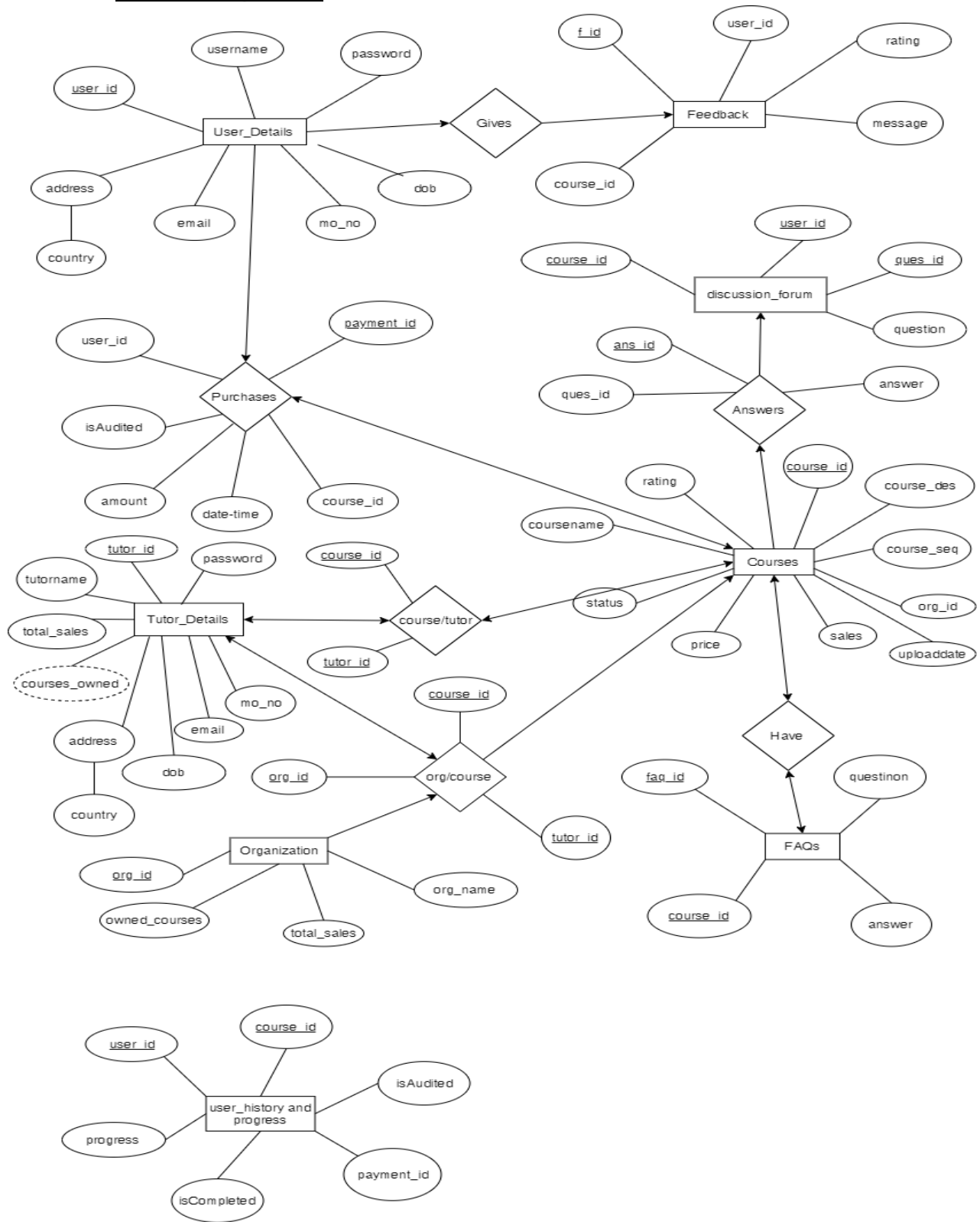**Figure 12 : Access_Course**

6. E-R Diagram

Figure 13 : E-R Diagram

7. Data Dictionary

User_Details								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1	user_id	varchar2	32	Yes	Yes	PK		
2	username	varchar2	32	Yes				
3	password	varchar2	32	Yes				
4	email	varchar2	32	Yes				
5	mo_no	Number	10	Yes				
6	address	varchar2	50					
7	country	varchar2	10					
8	dob	Date		Yes				

Tutor_Details								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1	tutor_id	varchar2	32	Yes	Yes	PK		
2	tutor_name	varchar2	32	Yes				
3	password	varchar2		Yes				
4	email	varchar2	50	Yes				
5	dob	Date		Yes				
6	address	varchar2	50					
7	country	varchar2	10					
8	mo_no	Number	10	Yes				
9	total_sales	Number	10					
10	org_id	varchar2	32			FK	Organization	

Courses								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1	course_id	varchar2	32	Yes	Yes	PK		
2	coursename	varchar2	32	Yes				
3	course_des	varchar2	500	Yes				
4	course_seq	varchar2	1000	Yes				
5	org_id	varchar2	32			FK	Organization	
6	uploaddate	Date						
7	sales	varchar2	6					
8	price	Number	6	Yes				
9	rating	Number	1					

	10	status	varchar2	32	Yes				

Organization									
Sr. No.		Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
	1	org_id	varchar2	32	Yes	Yes	PK		
	2	org_name	varchar2	32					
	3	total_sales	Number	6					

Feedback									
Sr. No.		Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
	1	f_id	varchar2	32	Yes	Yes	PK		
	2	user_id	varchar2	32			FK	User_Details	
	3	rating	Number	1					
	4	message	varchar2	1000					
	5	course_id	varchar2	32			FK	Courses	

Purchases									
Sr. No.		Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
	1	payment_id	varchar2	32	Yes	Yes	PK		
	2	user_id	varchar2	32	Yes		FK	User_Details	
	3	isAudited	bool		Yes				
	4	amount	Number	6	Yes				
	5	date-time	Date		Yes				

FAQs									
Sr. No.		Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
	1	faq_id	varchar2	32	Yes		PK		
	2	questions	varchar2	32	Yes				
	3	course_id	Number	6	Yes		PK/FK	Courses	
	4	answer	Number	4	Yes				

course/tutor									
Sr. No.		Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
	1	course_id	varchar2	32	Yes		PK /FK	Courses	
	2	tutor_id	varchar2	32	Yes		PK/FK	Tutor_Details	

discussion_forum									

Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1	user_id	varchar2	32	Yes		PK/FK	User_Details	
2	course_id	varchar2	32	Yes		PK/FK	Courses	
3	ques_id	varchar2	32	Yes		PK		
4	question	varchar2	1000	Yes				
				Answers				
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1	ans_id	varchar2	32	Yes		PK		
2	ques_id	varchar2	32	Yes		FK	discussion_forum	
3	answer	varchar2	1000	Yes				
				user_history and progress				
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1	course_id	varchar2	32	Yes		PK/FK	courses	
2	user_id	varchar2	32	Yes		PK/FK	Use_Details	
3	isAudited	bool		Yes				
4	payment_id	varchar2	32			FK	Purchases	
5	isCompleted	bool		Yes				
6	progress	Number	3					

Table 1 : Data Dictionary

Implementation Details

Sign In And Sign Up Form:

Sign In and Sign Up form is for new and existing user to enter into site created in design phase of form with simple database operations.

User Homepage:

It consists of three sub parts. First, is display the available courses which is not purchased yet. Second, it displays purchased or audited courses. Third shows the progress of user in every course.

Tutor Homepage:

Currently it shows only one option for add new course. By clicking that button tutor can add new course step by step.

Testing

Testing Methods:

- We performed smoke testing for each and every form.
- Performed integration testing

Screen-Shots

Conclusion

Windows form application is easy to create and use. We can design form as per our need. MSSQL database is much easier to use. If the users of application is limited to windows OS then windows form application is best for desktop application creation.

Limitation and Future Extension

Limitations:

- Searching is not available right now.
- Actual payment system was not performed.
- Discussion forum is currently not available.
- Feedback form not available.

Future Extension:

- Dashboard of tutors must provide deeper analysis.
- Creating a recommendation system for user for showing better course recommendation.

Bibliography

Stack Overflow: https://stackoverflow.com/