

Group 2: University Management System

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1. Introduction

This project aims to deliver a solution for University Management system where we have mainly three roles, Admin, Faculty and Student. All the roles have their different privileges.

1. **Admin:** After login, admin will be able to add, delete or edit the information of a Student and Faculty.
2. **Student:** Student will be able to see his profile, including the courses he has taken each semester. He will also be able to edit his profile ex: update his address, edit phone number etc. At the same time, he can enroll for the courses of his choosing.
3. **Faculty:** After login, faculty will be able to see the courses he is teaching, classes under each course and the number of students who are taking each course. At the same time, he will be able to grade his students.

The design inherits from the design of blackboard with our own unique perspective on how this project should be implemented.

2. Plans/Requirement Analysis

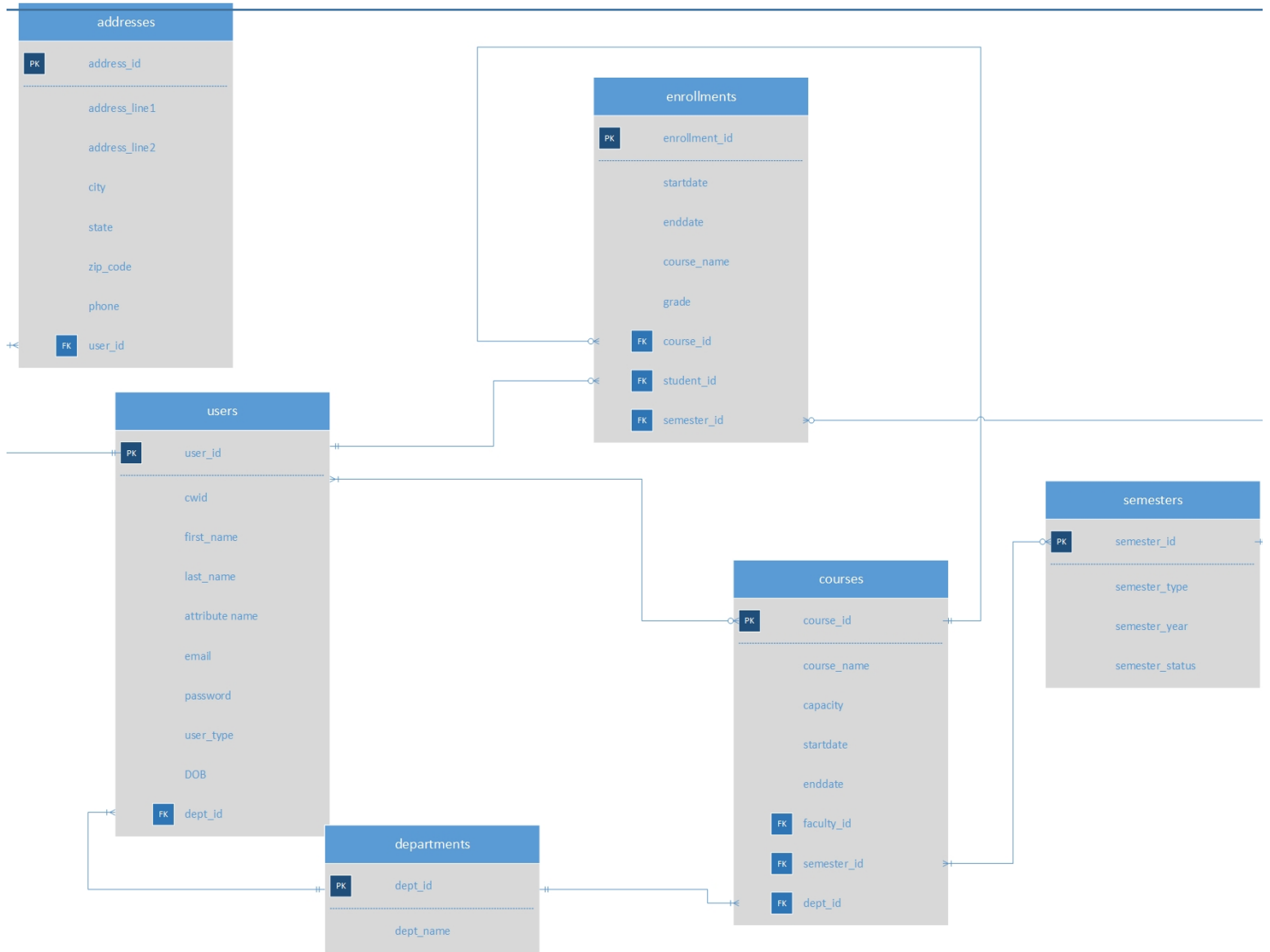
The project is designed making use of JAVA for connection purpose and MySQL for designing the database. The UI was designed making use of JSP, HTML, BOOTSTRAP Libraries and at the same time making use JAVA for designing the servlets. The plan of the project is to achieve the goals as follows:

- Design the database that would follow all the normalization rules and at the same time will be instrumental in providing the UI with all the functionalities it requires.
- Implement the CRUD operations for all the tables existing in the database.
- Provide a clean and functional User Interface to the User/Admin/Faculty through which he or she can access the Application and perform all the necessary operations.

The requirements for achieving the plan are as follows:

- The data tables that are needed to be designed are to follow the normalization rules.
- All the required UI need to be implemented with minimum errors.

4. Database Design

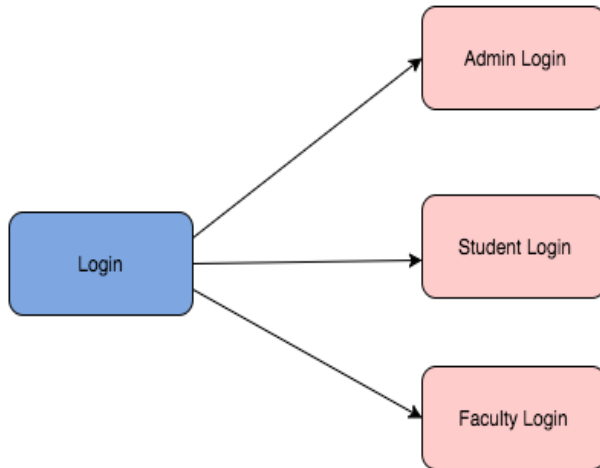


The database for our project was designed with considering the requirements of our project. The components of the database are as follows along with the relationship that was assumed for the same:

- **Users:** This table consists of all the information for all the user roles that is ADMIN, STUDENT and FACULTY and are differentiated by making use of the user_type parameter. This table also consists the information about the department.
- **Departments:** The departments table consists of the department names and can be edited by admin.
- **Courses:** This table was designed under the assumption that every course will only have one class and hence to reduce the complexity of the program. This table hence contains all the information relating to the course like the department it belongs to and the faculty teaching it.
- **Semesters:** This table contains the information about the different semesters in the university and contains a status so that this table can also contain values that do not need to be used right now.
- **Enrollment:** This table consists the information about the enrollment of the student in different courses and hence contain all the information relating to the same which would be utilized by the UI.

4. Application Design

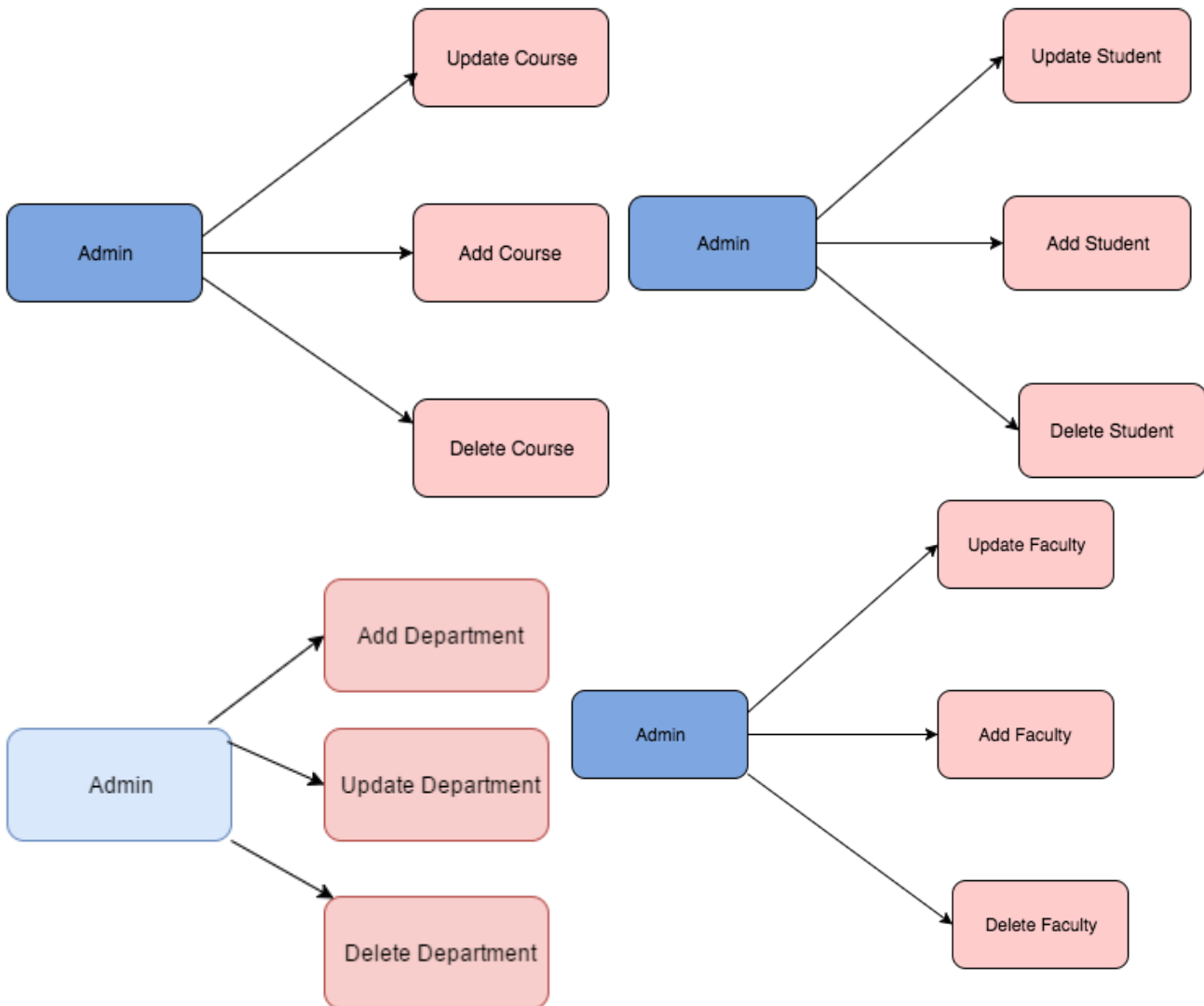
LOGIN:



The first page to open is the Login page and here a per the email id the user will be presented with all the different views. The Servlet that was designed for the same made use of the models to implement the same. The front JSP page made use of bootstrap libraries in the JSP pages to design the page accordingly.

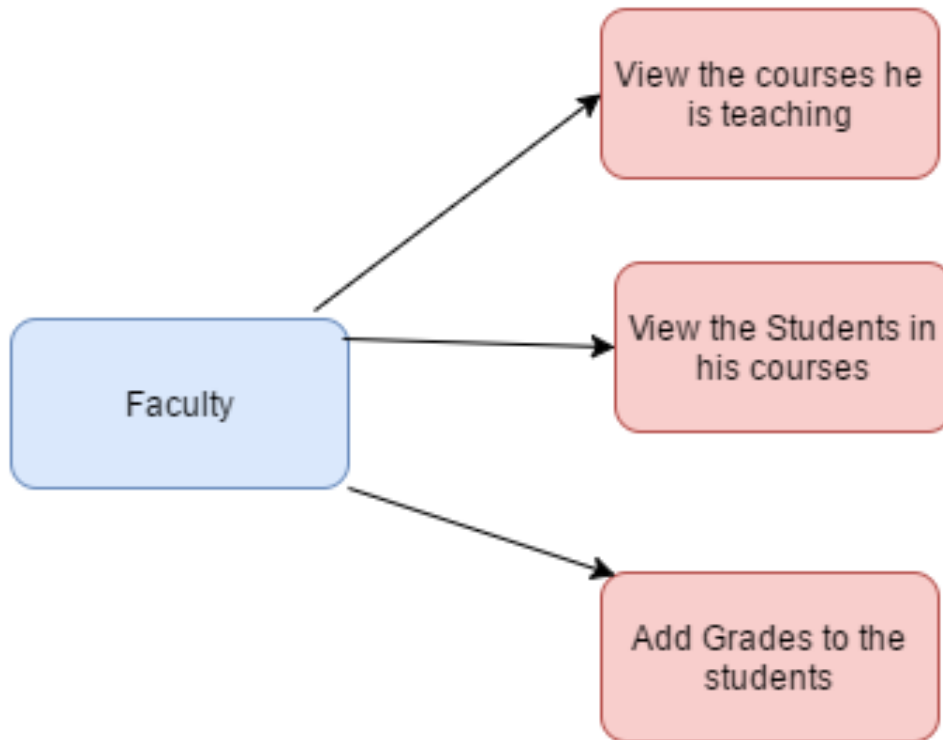
P.T.O

Admin Roles:



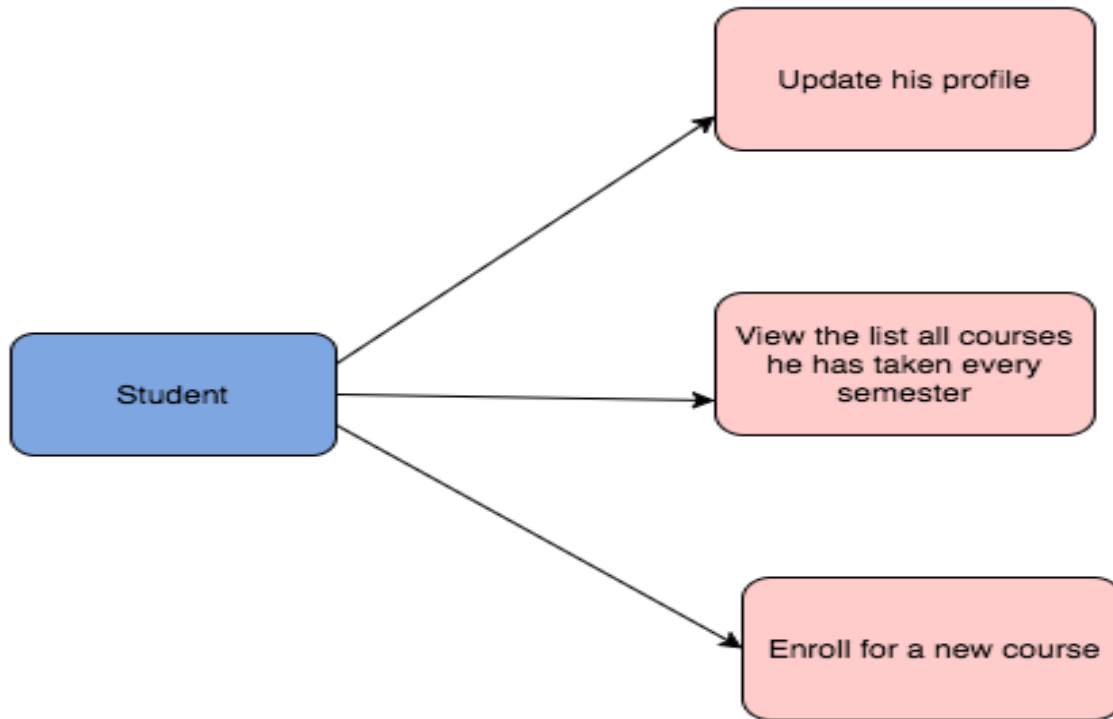
After the user logs in as login he will have five different options to how the admin wants to make changes or add to the different options. Only for enrollment will the admin user have the access to only view the enrollments. For this too the UI was designed making use of JSP in conjunction with bootstrap to provide the users with the most functional user interface.

Faculty:



The faculty will be presented with a view where he will see the list of all the courses that he is currently teaching and when he clicks on a course he will see the listing of all the students that are enrolled in his course and he will be able to provide the grades to the students. These grades will hence get reflected in the student's portal. The design was also done making use of bootstrap in conjunction with JAVA and MySQL to provide for the project.

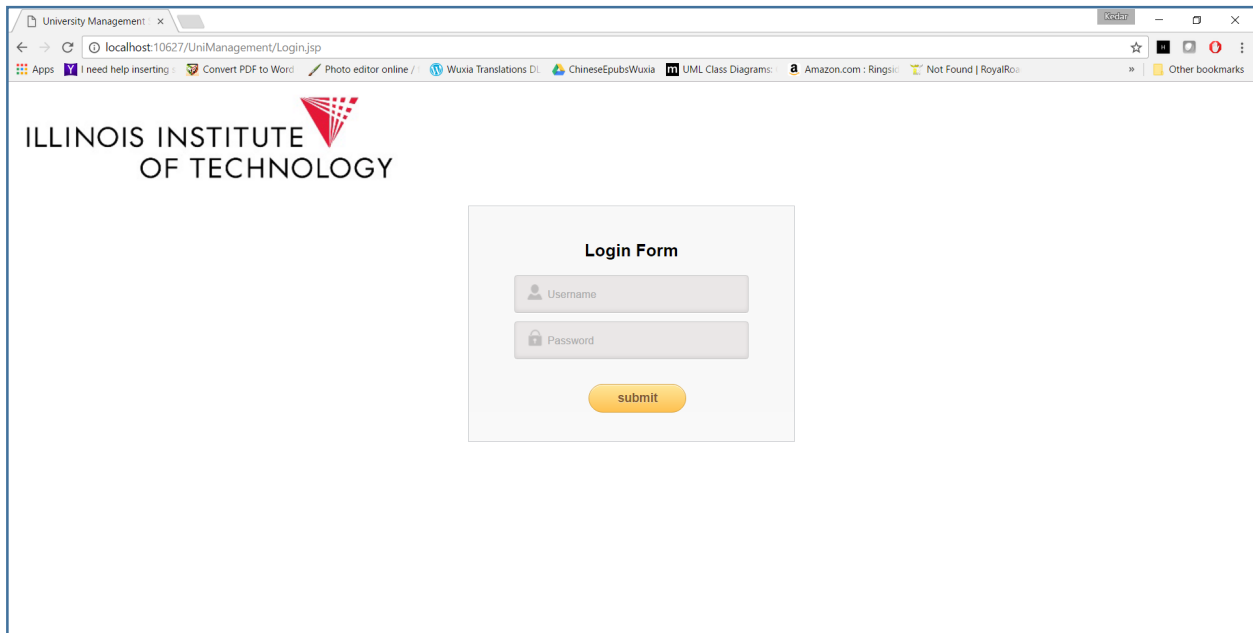
Student:



When the student logs into his portal he will be presented with the view where he can see the courses he is enrolled in and when he clicks on the course he goes into the course where he can see the grades for the subject. Also at the same time the student can enroll into subjects of his choosing and hence view the same functionality for all the others. The design was similarly made making use of bootstrap libraries and JAVA and JDBC to handle the inflow and outflow of data.

5. Demos

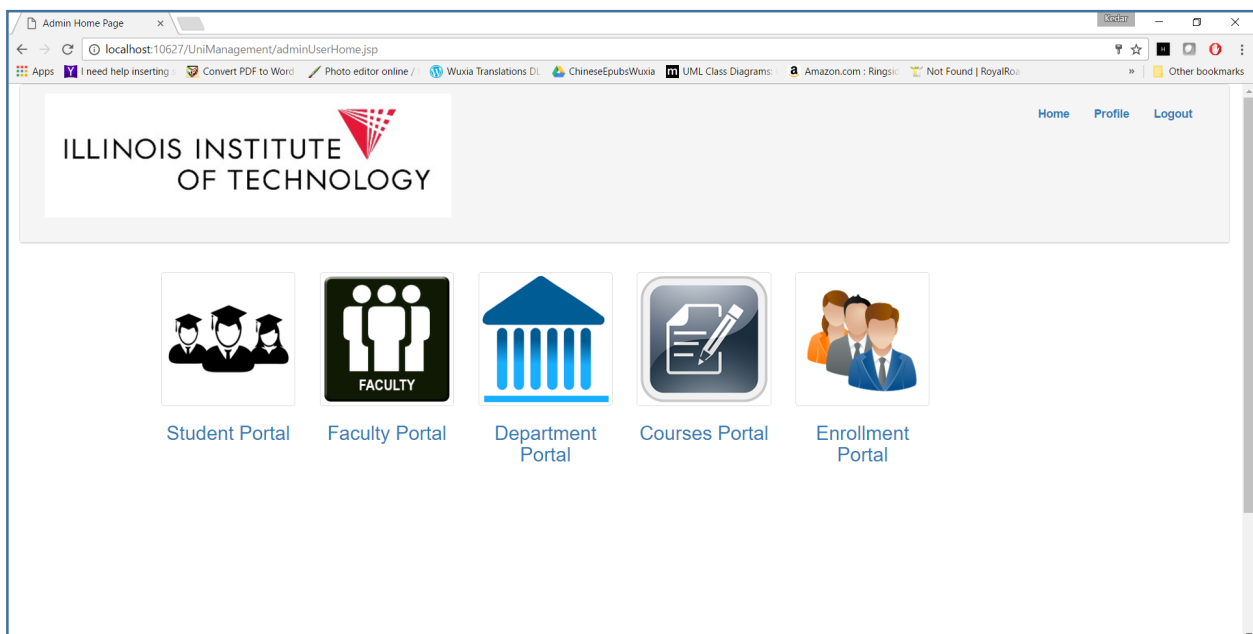
Login Page:



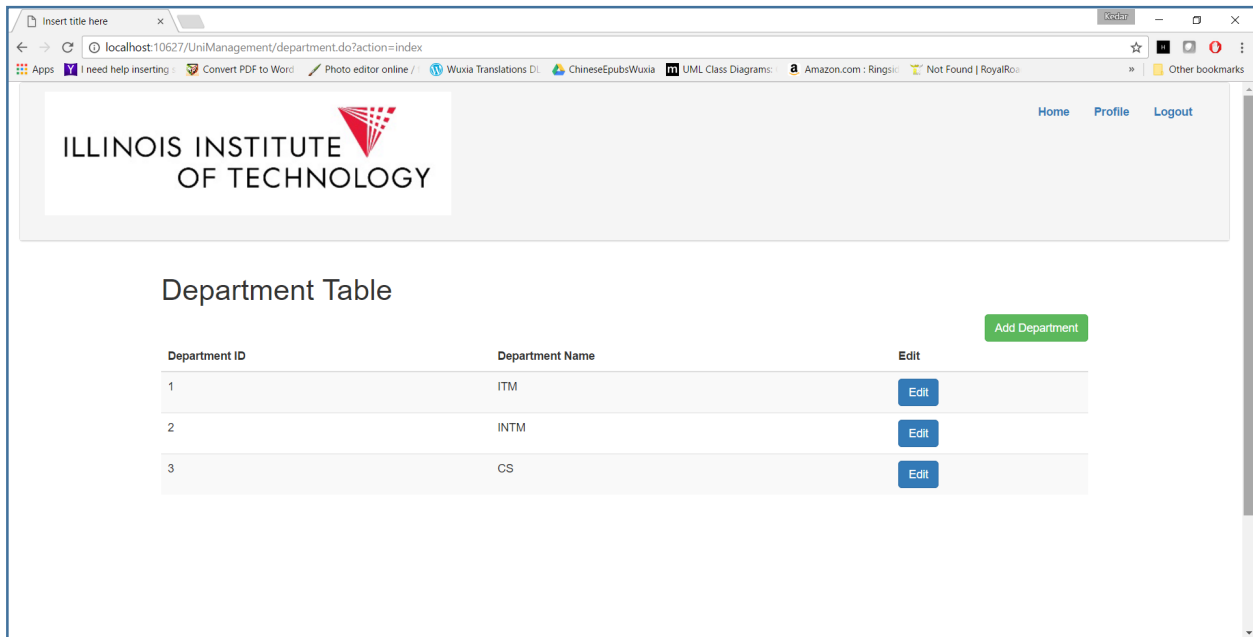
The screenshot shows a web browser window with the address bar displaying 'localhost:10627/UniManagement/Login.jsp'. The page features the 'ILLINOIS INSTITUTE OF TECHNOLOGY' logo at the top left. In the center, there is a 'Login Form' with two input fields: 'Username' and 'Password', each with a corresponding icon (a person for username and a lock for password). Below these fields is a yellow 'submit' button. The browser's bookmark bar is visible at the top, showing various links like 'I need help inserting', 'Convert PDF to Word', 'Photo editor online', 'Wuxia Translations D...', 'ChineseEpubsWuxia', 'UML Class Diagrams', 'Amazon.com : Rings...', and 'Not Found | RoyalRo...'. The browser window title is 'University Management'.

Admin:

Home Page: -

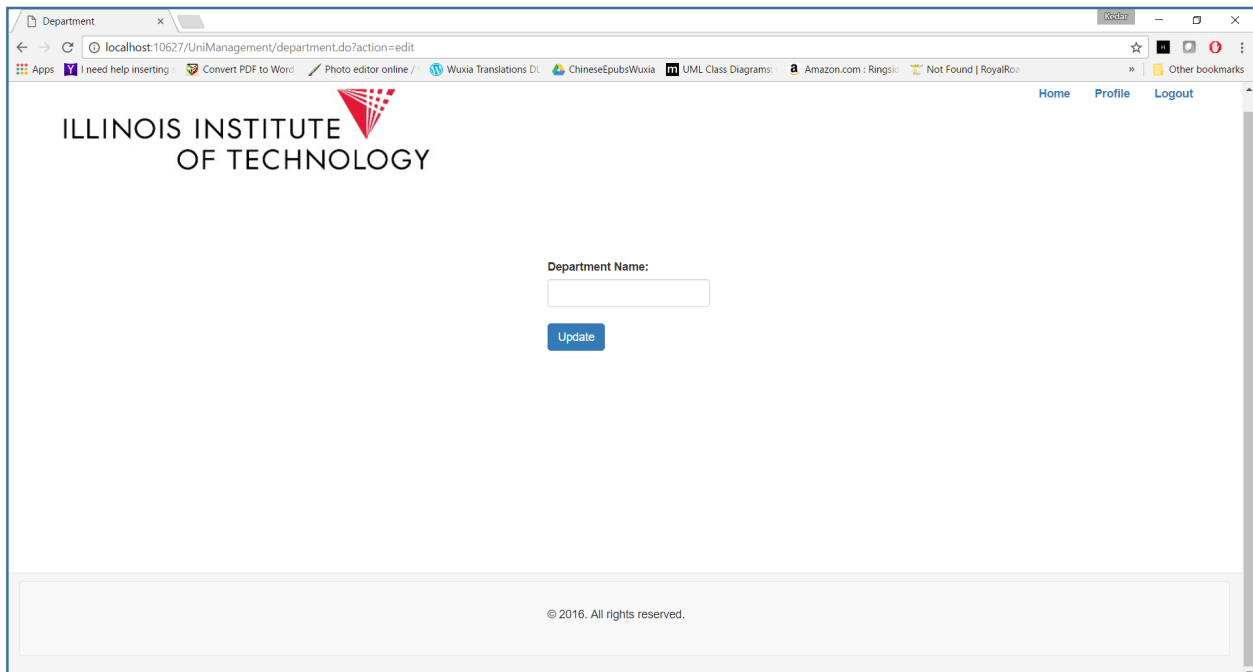


Admin(Department):



The screenshot shows a web browser window with the URL `localhost:10627/UniManagement/department.do?action=index`. The page header features the Illinois Institute of Technology logo and navigation links: Home, Profile, and Logout. The main content area is titled "Department Table" and contains a table with three columns: Department ID, Department Name, and Edit. There are three rows of data, each with an "Edit" button. A green "Add Department" button is located to the right of the table.

Department ID	Department Name	Edit
1	ITM	Edit
2	INTM	Edit
3	CS	Edit



The screenshot shows the same web browser window, but the URL is `localhost:10627/UniManagement/department.do?action=edit`. The page header is identical. The main content area is titled "Department Name:" and contains a text input field and an "Update" button. The footer of the page displays the copyright notice: © 2016. All rights reserved.

Department Name:

[Update](#)

Admin(Faculty):

The screenshot shows a web browser window with the URL `localhost:10627/UniManagement/faculty.do?action=index`. The page features the Illinois Institute of Technology logo and navigation links: Home, Profile, and Logout. The main heading is "Faculty Edit Form". Below it is a table with two rows of faculty data. To the right of the table is a green "Add Faculty" button. Each row in the table has "Edit" and "Delete" buttons.

First Name	Last Name	Email	Password	Date of Birth	Phone	Department	Edit	Delete
Yong	Zhen	yzheng66@gmail.com	password	1983-02-16	3122541234	ITM	Edit	Delete
James	Papademas	jpapa@iit.edu	password	1987-11-11	3122541235	ITM	Edit	Delete

The screenshot shows the same web browser window with the URL `localhost:10627/UniManagement/faculty.do?action=edit`. The page layout is identical to the index page, but the "Faculty Edit Form" section contains a form for editing a faculty member's details. The form includes input fields for CWID, FirstName, Last Name, Email, Password, DOB, and Phone No., and a dropdown menu for Department Name (currently set to ITM). An "Update" button is located at the bottom left of the form.

Faculty Edit Form

CWID:

FirstName:

Last Name:

Email:

Password:

DOB:

Phone No:

Department Name:

P.T.O

Admin(Courses):

The screenshot shows a web browser window with the URL `localhost:10627/UniManagement/course.do`. The page header includes the Illinois Institute of Technology logo and navigation links for Home, Profile, and Logout. Below the header, the text "List of Courses:" is displayed. A table lists three courses, each with an "Add Course" button and a "Delete" button. The table has columns for Course Name, Department Name, Start Date, End Date, Semester, Faculty, Capacity, Edit, and Delete.

Course Name	Department Name	Start Date	End Date	Semester	Faculty	Capacity	Edit	Delete
Java	ITM	2017-01-12	2017-05-18	Spring 2017	Yong Zhen	30	Edit	Delete
Advanced DataBase	ITM	2017-01-11	2017-05-17	Spring 2017	Yong Zhen	30	Edit	Delete
Java	ITM	2017-08-19	2017-12-13	Fall 2017	James Papademas	30	Edit	Delete

The screenshot shows a web browser window with the URL `localhost:10627/UniManagement/course.do?action=edit`. The page header includes the Illinois Institute of Technology logo and navigation links for Home, Profile, and Logout. Below the header, the text "Course View" is displayed. A form allows editing course details, including Course Name, Course Capacity, Department Name, Faculty Name, Semester, Start Date, and End Date. An "Update" button is at the bottom of the form.

Course View

Course Name:

Course Capacity:

Department Name:

Faculty Name:

Semester:

Start Date:

End Date:

[Update](#)

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Admin(Student):

Student Details

localhost:10627/UniManagement/student.do?action=index

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Home Profile Logout

Student Edit Form

Add student

CWID	First Name	Last Name	Email	Password	Date of Birth	Phone	Department		
A20389661	Shrija	Chavan	shrija@gmail.com	password	1994-07-13	3122345678	ITM		
A20389660	Kedar	Naik	kedamaik16@gmail.com	password	1994-12-19	9004297000	ITM		
A20389663	Jyoti	Shukla	jshukla@gmail.com	password	1994-06-15	9987304463	CS		

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Student form

localhost:10627/UniManagement/student.do?action=edit

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Home Profile Logout

Student Edit Form

CWID:

First Name:

Last Name:

Email:

Password:

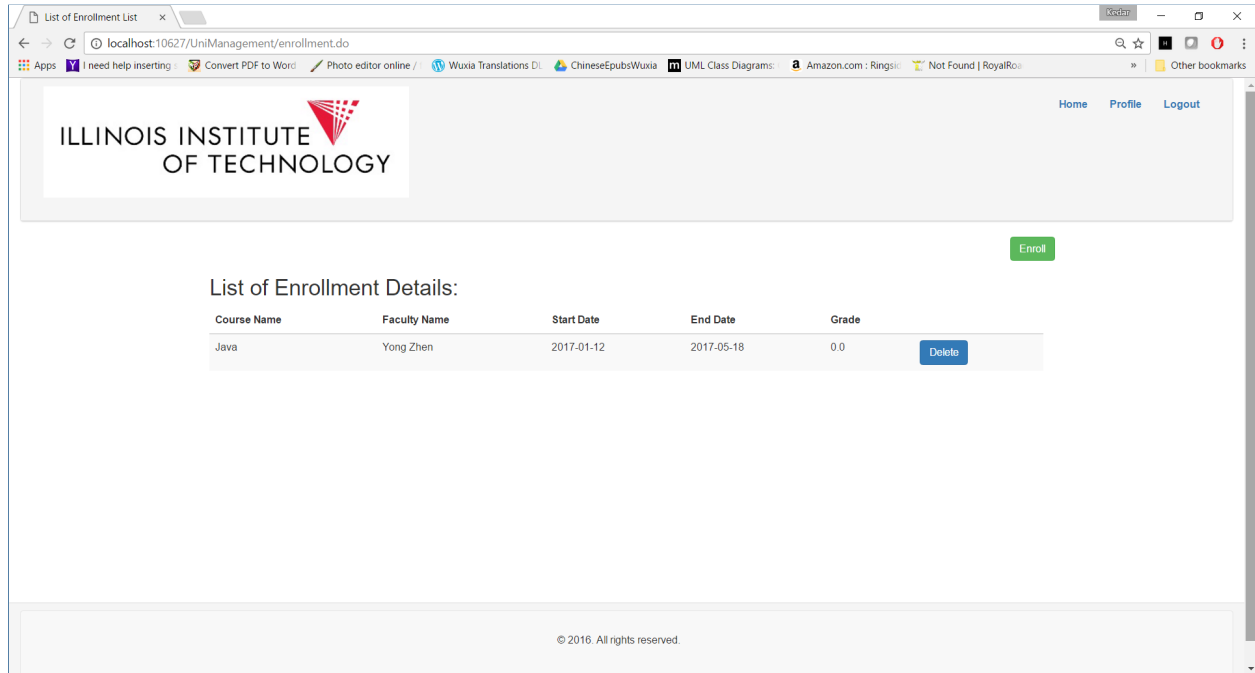
DOB:

Phone No:

Department Name:

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Student:



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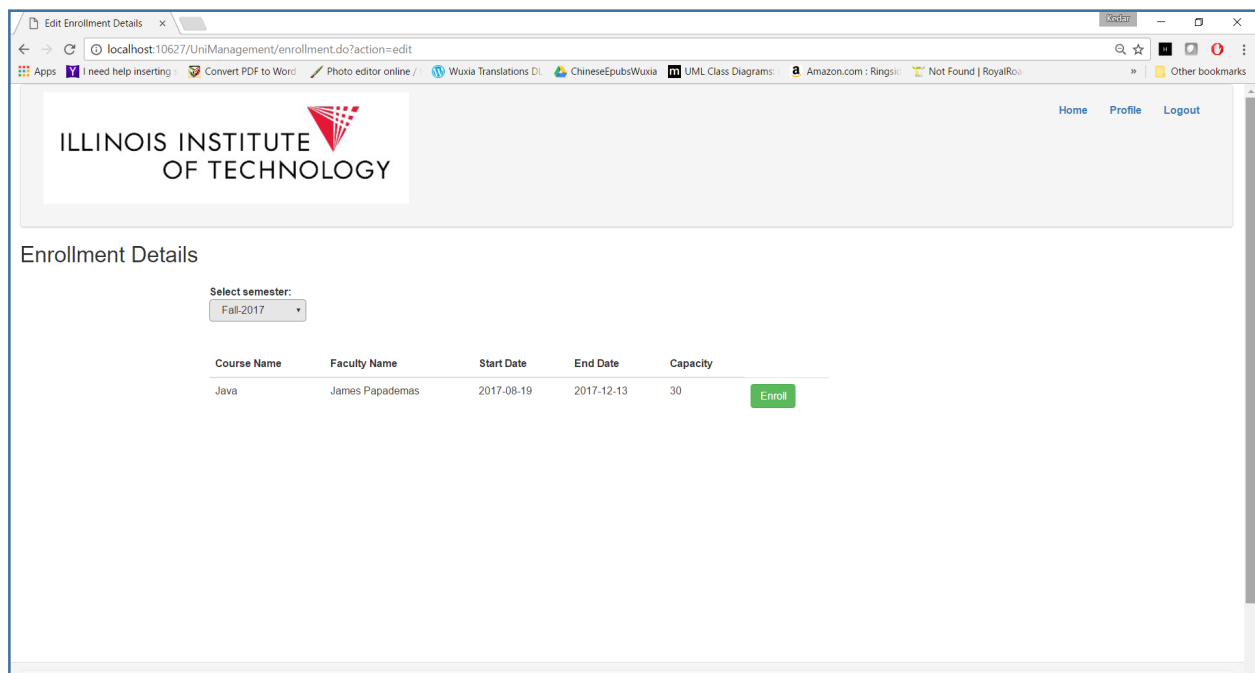
Home Profile Logout

Enroll

List of Enrollment Details:

Course Name	Faculty Name	Start Date	End Date	Grade	
Java	Yong Zhen	2017-01-12	2017-05-18	0.0	Delete

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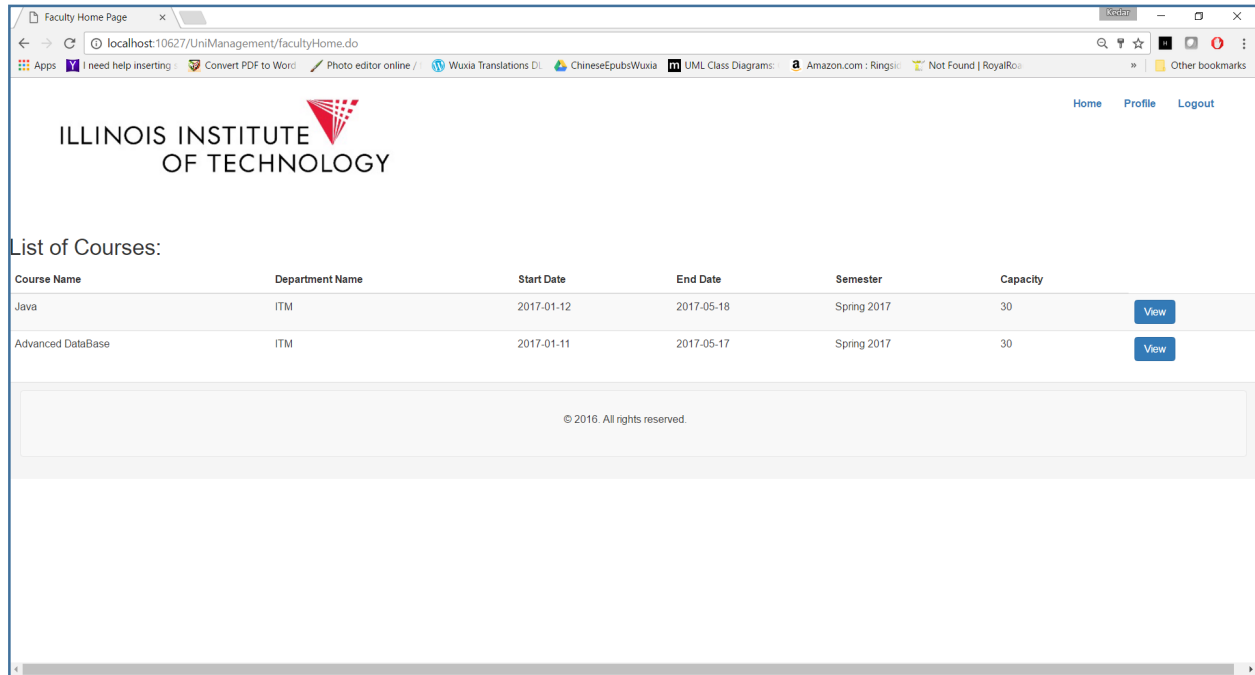
Home Profile Logout

Enrollment Details

Select semester:
Fall-2017

Course Name	Faculty Name	Start Date	End Date	Capacity	
Java	James Papademas	2017-08-19	2017-12-13	30	Enroll

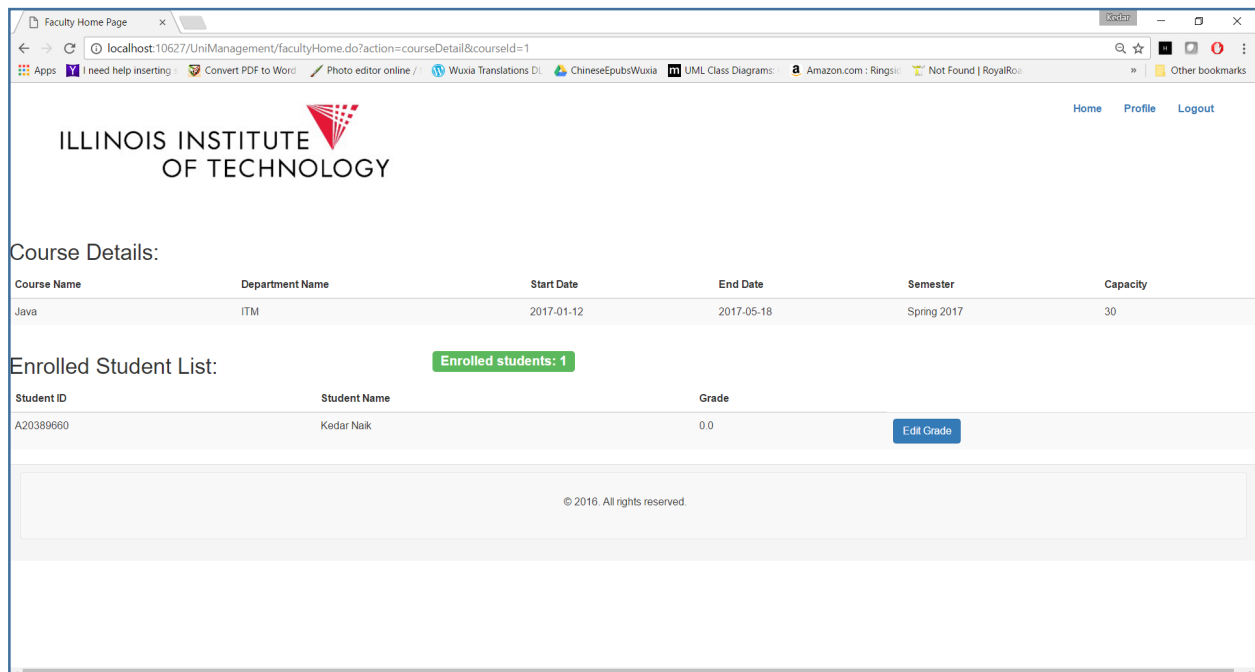
Faculty:



The screenshot shows a web browser window with the URL `localhost:10627/UniManagement/facultyHome.do`. The page features the Illinois Institute of Technology logo and navigation links: Home, Profile, and Logout. Below the logo, the text "List of Courses:" is displayed. A table lists the available courses:

Course Name	Department Name	Start Date	End Date	Semester	Capacity	
Java	ITM	2017-01-12	2017-05-18	Spring 2017	30	View
Advanced DataBase	ITM	2017-01-11	2017-05-17	Spring 2017	30	View

At the bottom of the page, a copyright notice states: © 2016. All rights reserved.



The screenshot shows the same web browser window, but the URL is `localhost:10627/UniManagement/facultyHome.do?action=courseDetail&courseId=1`. The page displays the "Course Details:" for the Java course. A table shows the course information:

Course Name	Department Name	Start Date	End Date	Semester	Capacity
Java	ITM	2017-01-12	2017-05-18	Spring 2017	30

Below the course details, the text "Enrolled Student List:" is shown, followed by a green badge indicating "Enrolled students: 1". A table lists the enrolled student:

Student ID	Student Name	Grade	
A20389660	Kedar Naik	0.0	Edit Grade

At the bottom of the page, a copyright notice states: © 2016. All rights reserved.

Faculty Home Page

localhost:10627/UniManagement/facultyHome.do?action=edit&enrollmentId=1

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Home Profile Logout

Faculty Edit Form

CWID: A20389660

Student Name: Kedar Naik

Grade: 95.0

Update

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6. Conclusions and Future Work

6.1. Conclusions:

We have successfully designed the University management system where we have demonstrated the roles of a Admin, faculty and a Student with their privileges and limitations. We have made use of the following technologies to make our project efficient and effective.

Front End: HTML, Bootstrap, Ajax.

Back End: Java, Jsp, servlet.

Git hub: As this was a group project we have made use of git hub application to submit our individual work without any conflicts.

6.2. Limitations:

1. Due to the time constraint we couldn't show the class time, start date and end date of every course offered every semester.
2. This project can only be implemented to a small management system as the data here is stored locally and we do not have a different server to store big data.

6.3. Potential Improvements or Future Work

- 1.Password fields is taken as string and is visible in database in our project which can be made encrypted in future to make it more secure.
- 2.Notifications to students and faculty can be send via email or text message.
3. Current events are important banner displays can be shown once the students log in to the portal.
- 4.Booking an appointment with the professor or the advisor can also be a convenience to the student through the portal.

7. Appendix

If you are working on implementing projects, you should introduce how to deploy and use your products at this section

1. Get a tomcat instance running on your production server.
2. Create a was file of your application with all the depend jar files.
3. Deploy war file on tomcat server by following the below path.
\$TOMCAT_HOME/webapps.