

Course Management Service – Part 1

ABC Education Centre needs an application which will help to enroll student for a course. Create a web application to fulfill their requirement.

- Implement the application using Spring MVC with JPA

Database Design:

Create the following database: db_cms

Tables:

Create the following tables in MYSQL database and insert records.

Name: course

Column Name	Data Type	Constraints
coursecode	varchar(5)	Primary Key
coursename	varchar(20)	
coursefees	integer(20)	
coursetype	varchar(20)	

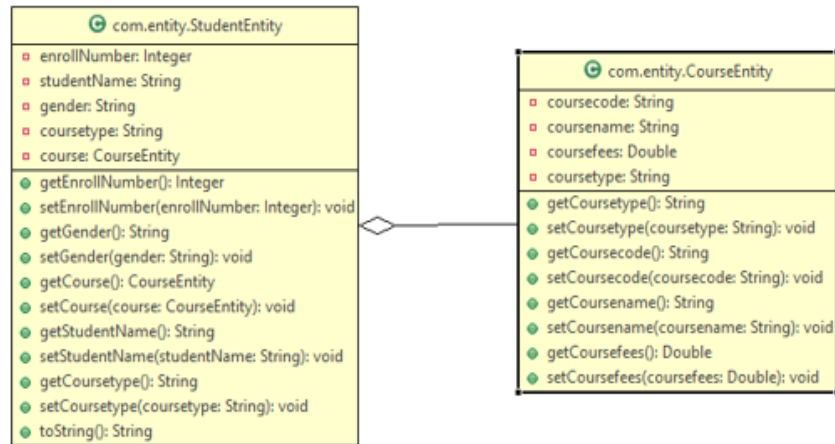
coursecode	coursename	coursefees	coursetype
C1	Java	20000	elearning
C2	.Net	10000	Both
C3	Oracle	15000	Both
C4	Cloud	30000	classroom
C5	AI	40000	classroom

Name: enrollStudent

Column Name	Data Type	Constraints
enrollnumber	integer(11)	Primary Key (Auto increment)
coursetype	varchar(20)	
gender	varchar(6)	
studentName	varchar(25)	
coursecode	varchar(5)	Foreign Key referring to coursecode of course table

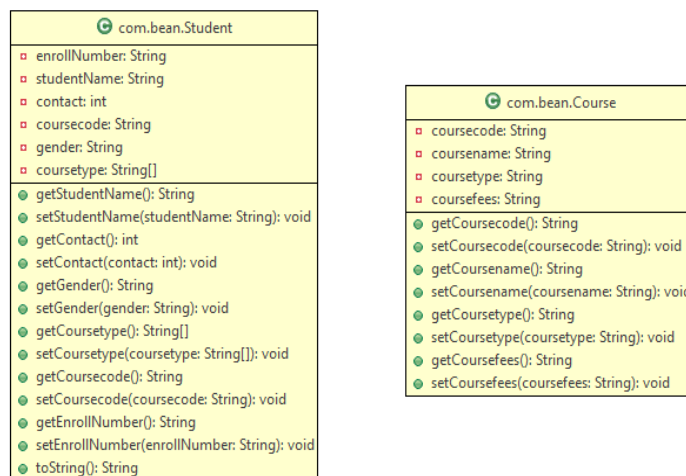
ENTITY BEAN CLASSES:

- Create **CourseEntity** and **StudentEntity** classes and map it to **course** and **enrollstudent** tables respectively.
- There is a **Many to One** mapping from **StudentEntity** to **CourseEntity**. Joining column is **coursecode**.



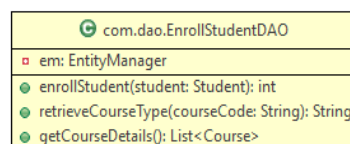
BEAN CLASSES:

- Create bean classes **Student** and **Course**. These bean classes can be used for form creation, form submission and data transfer.



DAO CLASSES:

- Create a class **EnrollStudentDAO** as per the class diagram given below:

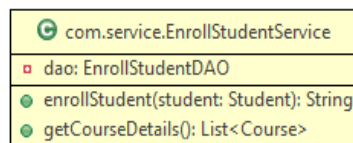


Method Name	Description
enrollStudent	<ul style="list-style-type: none"> This method saves the student enrollment data in enrollStudent table and return the enrollment number

retrieveCourseType	<ul style="list-style-type: none"> This method retrieves and returns the course type for the given course code from the course table
getCourseDetails	<ul style="list-style-type: none"> This method retrieves details of all courses from the course table.

SERVICE CLASSES:

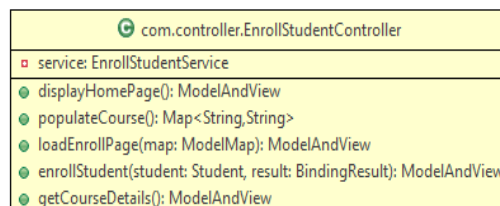
- Create a class **EnrollStudentService** as per the class diagram given below:



Method Name	Description
enrollStudent	<p>The course type selected by the student for a course should be available for that particular course. Use appropriate DAO class method to get the coursetype for the selected course.</p> <ul style="list-style-type: none"> If the courseType is 'Both' for a particular course, then student can select elearning alone or classroom alone or both elearning and classroom If the coursetype is elearning or classroom alone for particular course, then student can select only elearning or classroom If the coursetype selected by the student and the coursetype of the course are not matching then throw an exception StudentEnrollmentException and generate a message "Selected coursetype is not available for the given course" On successful validation invoke the appropriate DAO class method to enroll the student and return the generated enroll number
getCourseDetails	<ul style="list-style-type: none"> This method invokes appropriate DAO class method to retrieve the entire course information and return to the controller.

CONTROLLER CLASSES:

- Create a class **EnrollStudentController** as per the class diagram given below:

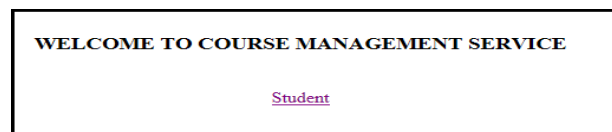


Method Name	Description
displayHomePage	<ul style="list-style-type: none"> This method redirects to the home.jsp page
populateCourse	<ul style="list-style-type: none"> This method is used to populate the course name dynamically (this is used to populate the dropdown list in courseenrollment.jsp). Invoke appropriate DAO class method to get the details of available courses.
loadEnrollPage	<ul style="list-style-type: none"> This method initializes the form bean(Student) and redirect to courseenrollment.jsp page.
enrollStudent	<ul style="list-style-type: none"> This method invokes appropriate service class method to save enrollment details. And display the appropriate success or failure message.
getCourseDetails	<ul style="list-style-type: none"> This method invokes appropriate Service class method to retrieve the entire course information and return to the controller

JSP PAGES:

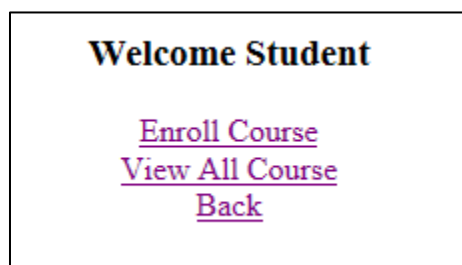
home.jsp

- Create a **home.jsp** page to display hyperlinks as shown in the screen shot.
- While clicking on hyperlink **Student**, it should redirect to student.jsp page.



student.jsp

- Create a **student.jsp** page to display a page as shown in the screen shot.
- While clicking on hyperlinks Enroll Course and View All Course, it should redirect to courseenrollment.jsp and viewallcourse.jsp page respectively.



courseenrollment.jsp

- Create a page **courseenrollment.jsp** to display a form as shown in the screen shot.
 - The course name will be auto populated from the database
 - Gender and Course Type are populated statically

Course Enrollment

Student Name:

Course Name:

Gender: ☒ Male ☐ Female

Course Type: ☐ e-learning ☐ classroom

[Back](#)

- All fields are mandatory. Use Java Script validation. Display the Java Script message as follows

Course Enrollment

Student Name:

Course Name:

Gender: ☐ Male ☐ Female

Course Type: ☐ e-learning ☐ classroom

[Back](#)

Message from webpage

Select gender

Course Enrollment

Student Name:

Course Name:

Gender: ☒ Male ☐ Female

Course Type: ☐ e-learning ☐ classroom

[Back](#)

Message from webpage

Student Name is mandatory

- If the course type is not available for the selected course, then display error message as follows.

Course Enrollment

Student Name:

Course Name:

Gender: ☒ Male ☐ Female

Course Type: ☐ e-learning ☒ classroom

Selected coursetype is not available for the given course

[Back](#)

Success.jsp

- Create a success.jsp page to display the enrollment number as shown in the screen shot

Thank you for Registration. You enrollment number is 6

[Back](#)

- On clicking Back hyperlink, it should redirect to courseenrollment.jsp

viewallcourse.jsp

- Create a page **viewallcourse.jsp** to display all courses information as shown in the screen shot.

All Courses

Course Name	Course Fees	Course Type
.Net	10000.0	Both
Oracle	11000.0	Both
Cloud	8000.0	classroom
AI	80000.0	classroom

[Enroll Course](#)

- On clicking Enroll Course hyperlink it should redirect to **courseenrollment.jsp**.