Backend and Database Development

Phase-End Project

Objectives

To build an application to handle data on students learning Zumba, which will manage the enrollment of students in the correct batch and provide appropriate timing for their classes

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Prerequisites

- Java
- Servlets
- JSP
- Maven
- JDBC
- MySQL

Problem Statement and Motivation

Problem Statement:

This assignment is designed to help you understand how to plan and develop the back end for a given problem, gain hands-on experience designing server-side controller structures with Servlets, and implement the database connections to perform CRUD operations.

Real-World Scenario:

Rohit is a Zumba Instructor. He takes multiple sessions during the day, dividing his participants into batches that run in the morning and evening. To manage his participants, he needs a software solution to record the details of his participants and batches. Luckily, his friend Mike runs a software company. Rohit has requested that he develop a backend solution to manage his participants and batches.

Industry Relevance

Skills used in the project and their usage in the industry are given below:

Backend:

Backend development helps manage all the functionalities of an application.

Servlets and Maven:

Maven and Servlets work together to establish a modular development scheme for the application to ease communication between different Java classes.

JDBC:

It is one of the most popular libraries in Java and helps simplify database communication and data transfer between the database and Java.

JSP:

It eases the task of converting Java data or Objects into HTML or CSS data.

Task (Activities)

1. Create a Dynamic Web Project in Eclipse and configure Maven

2. Create Java Classes for participants and batches

3. Create Servlets for participants and batches related to communication

4. Create HTML Pages for CRUD operations related to batches and participants

5. Perform CRUD operations using database methods using JDBC

6. Create JSP Pages for query parameters

7. Build and Run the Project on the Apache Tomcat web server

8. Package the project as a Jar file using Maven Package Goal

Project Reference

Tasks 1, 2, 3, and 4:

Servlets: Lesson 1

Task 5:

Servlets: Lesson 3

Task 6:

JSP: Lesson 1

Tasks 7 and 8:

Maven: Lesson 1

Submission Process

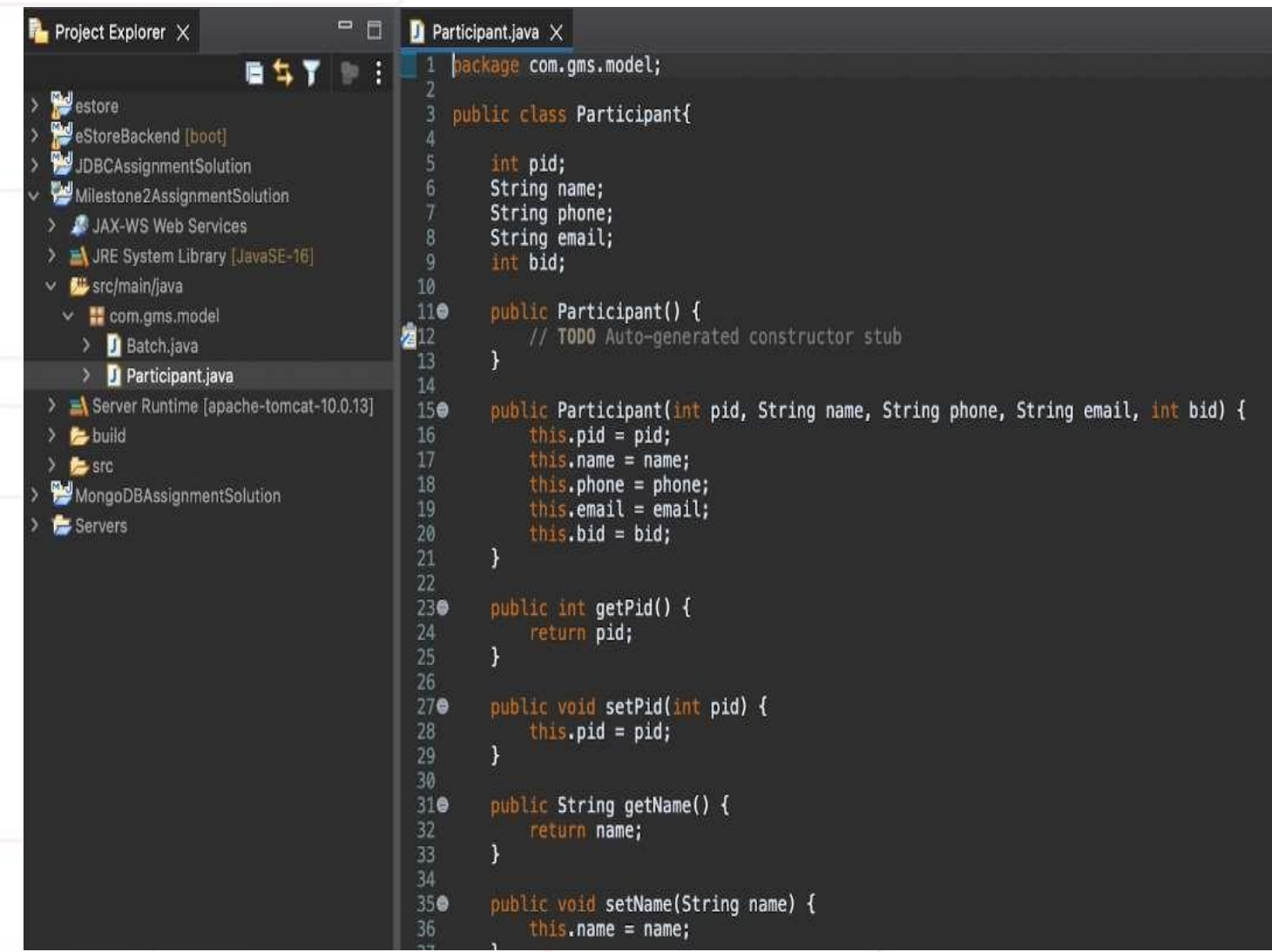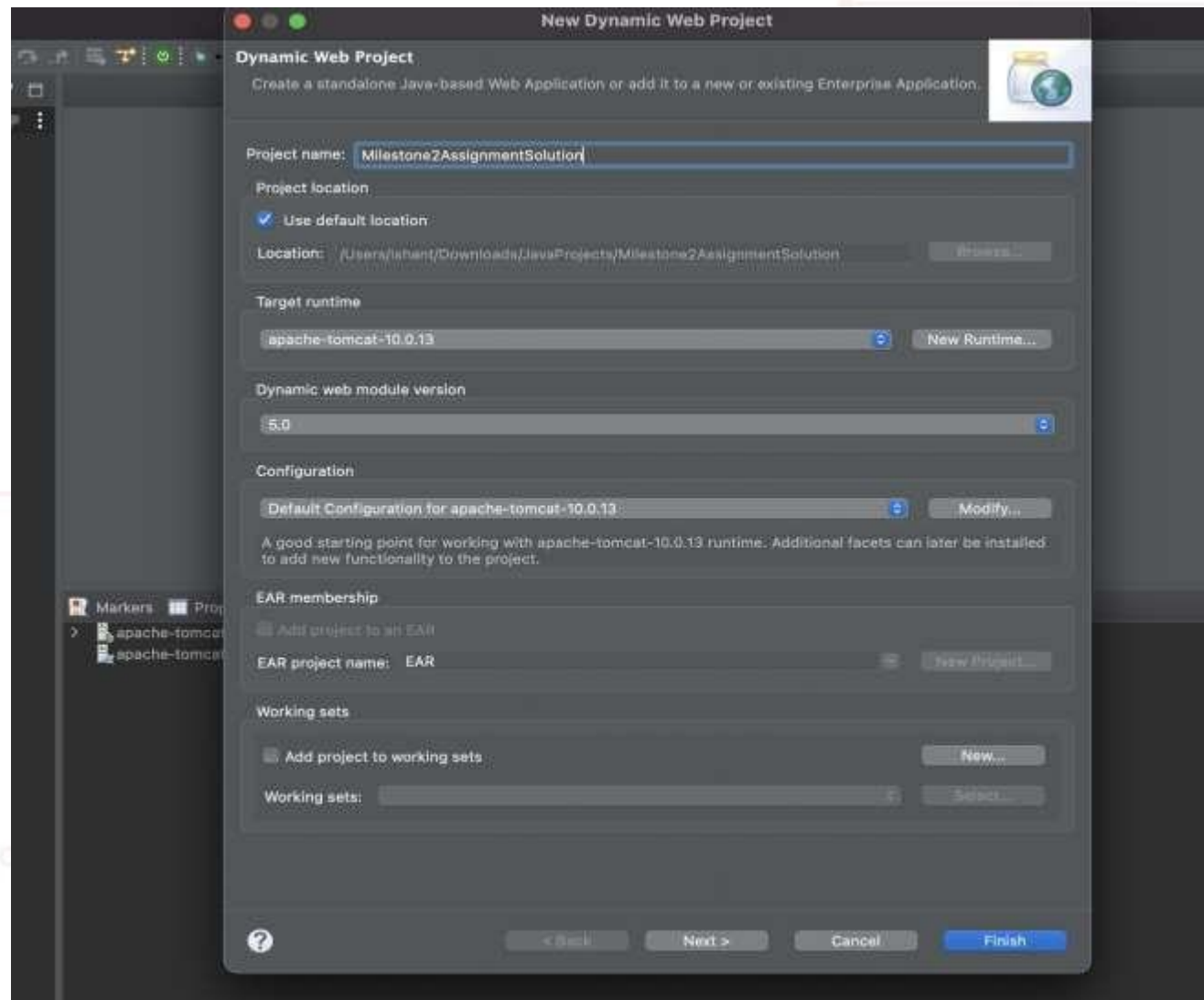You will have to submit the project in one week.

It is recommended to work on the integrated labs, as they have all the required tools available.

The project can be submitted from the assessment tab by clicking the **Submit** button.

Provide the documents mentioned below:

- Source code in zip
- Database scripts to replicate your database settings
- Screenshots of the outputs

Reference Outputs

Reference Outputs


```html
index.html ×
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <meta charset="UTF-8">
5  <title>Gym Management Solution</title>
6
7  <style>
8  .center {
9    margin: auto;
10   width: 60%;
11   border: 3px solid  #2222FF;
12   padding: 10px;
13 }
14 </style>
15
16 </head>
17 <body>
18
19 <div class="center">
20     <h3>Welcome to Gym Management Solution</h3>
21     <a href="add-batch.html"> Add Batch </a>
22     <br/>
23     <a href="add-participant.html"> Add Participant </a>
24     <br/>
25     <a href="update-batch.html"> Update Batch </a>
26     <br/>
27     <a href="update-participant.html"> Update Participant </a>
28     <br/>
29     |
30 </div>
31
32 </body>
33 </html>
```

```html
add-participant.html ×
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <meta charset="UTF-8">
5  <title>Add Participant</title>
6  <style>
7  .center {
8    margin: auto;
9    width: 60%;
10   border: 3px solid  #2222FF;
11   padding: 10px;
12 }
13 </style>
14 </head>
15 <body>
16 <div class="center">
17  <h3>Add new Participant</h3>
18  <form action="ParticipantController" method="post">
19    <label for="name">Full Name:</label><br>
20    <input type="text" id="name" name="name" placeholder="John Watson"><br>
21    <label for="phone">Phone:</label><br>
22    <input type="text" id="phone" name="phone" placeholder="+91 99999 11111"><br><br>
23    <label for="phone">Email:</label><br>
24    <input type="text" id="email" name="email" placeholder="john@example.com"><br><br>
25    <label for="bid">Batch ID:</label><br>
26    <input type="text" id="bid" name="bid" placeholder="1"><br><br>
27    <input type="submit" value="Submit">
28  </form>
29 </div>
30 </body>
31 </html>
```

Thank You