Java institute for Advanced Technology
Department of Examinations

COURSE(S) – (LEADING TO)	PROFESSIONAL HIGHER DIPLOMA IN SOFTWARE ENGINEERING
UNIT NAME	WEB PORGRAMMING II
UNIT ID	HF2L 04
ASSIGNMENT ID	HF2L 04/AS/04
ASSIGNMENT NAME	CRUD APPLICATION USING JERSEY MVC AND HIBERNATE FOR A GIVEN SCENARIO
DESCRIPTION	IN THIS ASSIGNMENT, STUDENTS WILL DEVELOP A CRUD (CREATE, READ, UPDATE, DELETE) APPLICATION USING JERSEY MVC AND HIBERNATE. THE APPLICATION WILL FOCUS ON MANAGING A COLLECTION OF ENTITIES, SUCH AS BOOKS, EMPLOYEES, OR ANY OTHER DOMAIN-SPECIFIC DATA. STUDENTS WILL IMPLEMENT RESTFUL API ENDPOINTS TO PERFORM CRUD OPERATIONS ON THE ENTITY DATA, AND HIBERNATE WILL HANDLE DATA PERSISTENCE TO A SUITABLE DATABASE. THE ASSIGNMENT AIMS TO EVALUATE STUDENTS' SKILLS IN BUILDING WEB APPLICATIONS, INTEGRATING JERSEY AND HIBERNATE, AND ENSURING PROPER DATA MANAGEMENT THROUGH CRUD FUNCTIONALITIES.
DURATION	ONE WEEK
SUBMISSION VIA	ONLINE (STUDENT PORTAL)
DOCUMENT FORMAT	DOCUMENT FORMAT (PDF)

GUIDE LINES FOR CANDIDATES

- Your studies will be governed by the Java Institute Academic Regulations on Assessment, Progression and Awards.
- Students are expected to use reference books, the Internet, journals and other similar sources in order to accomplish the task specified above.
- At the re-assessment attempt, the mark is capped and the maximum mark that can be achieved is 40%.

CHEATING AND PLAGIARISM

Both cheating and plagiarism are totally unacceptable and the Institute maintains a strict policy against them. It is YOUR responsibility to be aware of this policy and to act accordingly.

The basic principles are:

- Don't pass off anyone else's work as your own, including coding examples. This is plagiarism and is viewed extremely seriously by the Institute.
- Don't submit a piece of work in whole or in part that has already been submitted for assessment elsewhere. This is called duplication and, like plagiarism, is viewed extremely seriously by the Institute.
- Always acknowledge all of the sources that you have used in your assignment or project.
- If you are using the exact words of another person, always put them in quotation marks.
- Check that you know whether the assignment is to be produced individually or whether you can work with others.
- If you are doing group work, be sure about what you are supposed to do on your own.
- Never make up or falsify data to prove your point.
- Never allow others to copy your work.
- Never lend disks, memory sticks, or copies of your coursework to any other student. in the Institute; this may lead to you being accused of collusion.

Building a CRUD Application using Jersey MVC and Hibernate

Scenario:

You are tasked with building a comprehensive CRUD (Create, Read, Update, Delete) application for managing a company's employee database. The application should be built using the Jersey MVC framework for handling HTTP requests and responses, and Hibernate for data persistence. The application will allow users to perform the following operations:

1. **Create:** Users can add new employees to the database with the following information: name, position, department, hire date, and salary.
2. **Read:** Users can view the list of all employees in the database or search for employees based on name, position, department, or hire date.
3. **Update:** Users can update the information of existing employees in the database.
4. **Delete:** Users can remove employees from the database.

Requirements:

1. Use Maven as the build tool to manage dependencies and build the project.
2. Set up a MySQL or any other suitable database for storing employee information.
3. Configure Hibernate to handle the database operations.
4. Implement a data model class representing an Employee entity with appropriate annotations for Hibernate.
5. Create a RESTful API using Jersey for handling CRUD operations on the Employee entity.
6. Implement separate service classes to handle business logic and database operations.
7. Use appropriate HTTP methods (GET, POST, PUT, DELETE) and status codes for each CRUD operation.
8. Implement input validation to ensure the integrity of data.

9. Handle exceptions and errors gracefully with appropriate error messages.
10. Implement authentication and authorization mechanisms to restrict access to certain API endpoints.
11. Test the application using tools like Postman or cURL to ensure the API endpoints work as expected.

Submission Guidelines:

1. Your project should be organized in a clear and well-structured manner, with separate packages for entities, services, and resources.
2. Include a project report file with instructions on how to set up and run the application.
3. Provide a MySQL database dump or scripts to create the required tables.
4. Share the Maven project files so that the application can be easily built by others.
5. Please thoroughly document the API endpoints along with their respective functionalities in the project report.
6. Optionally, you can include additional features like pagination, sorting, or filtering for the employee list.

Evaluation Criteria:

Your assignment will be evaluated based on the following:

1. **Functionality:** The CRUD operations should work correctly, and data should be properly persisted in the database.
2. **Code Quality:** Your code should be well-organized, modular, and follow best practices. Use meaningful variable and method names, and add comments where necessary.
3. **Use of Jersey and Hibernate:** Make sure you utilize Jersey MVC and Hibernate effectively to build the application.
4. **Error Handling:** The application should handle errors gracefully with appropriate error messages.
5. **Authentication and Authorization:** Implement secure authentication and authorization mechanisms.
6. **Documentation:** Provide clear instructions in the documentation on how to set up and run the application, and include information on the API endpoints.
7. **Bonus Points:** You will earn bonus points for any additional features or improvements you implement beyond the basic requirements.

Assignment Submission Guidelines for Students

Students are advised to strictly follow the guidelines specified herein when formulating and submitting research assignments.

Important Information for Students

1. The assignment should be submitted only as a soft copy in a PDF format on or before the specified assignment due date.
2. The soft copy of the assignment should be uploaded to the student portal using the NIC.
3. The submission date provided for all assignments are the final dates on which you can hand upload the assignments. Please note that late submissions are not allowed.

4. Plagiarism is treated as a serious offence and the work you produce should be individual and original. However, note that students will have to work in groups in certain scenarios.

5. All sources of information in any assignment must be referenced using the "Harvard referencing" system, where a reference listing should be included at the end of the assignment.

6. Please contact your branch on assignments, re-submission, and related procedures.

7. Students are expected to maintain a backup of all assignments. The Java Institute for Advanced Technology retains all the rights to re-call soft copies of any assignment at any time during the course.

8. Students should use the attached assignment coversheet and declaration of authentication form to the assignment.

9. Students are expected to provide the following information in their assignment coversheet:

   - Student name
   - NIC No
   - Subject name
   - Subject code
   - Branch

10. Assignment Report Rules

   - Paper Size: A4
   - Line Spacing:1.5
   - Printing Margin:1 inch on LHS and RHS
   - Binding Margin: ½ inch
   - Header and Footer:1 inch
   - Printing: Single-sided
   - Basic Font Size:12pt
   - Heading:16pt
   - Sub-headings:14pt, Bold
   - Body:12pt, Justified Aligned
   - Font Style: Times New Roman/Calibri