



Advance Java

Section 1 –JDBC API

- **MYSQL/MariaDB Connection**
- **Statement and Insert, Delete Operations**
- **Prepared Statement and Update Operation**
- **Select Operation and ResultSet**
- **Scrollable and Updatable ResultSet**
- **Join Queries and Result Set**
- **Callable Statement and StoredPecedures**
- **Storing and Retrieving Images and Files**
- **Transaction Management, Commit and Rollback**
- **Batch Processing**

- *1. Write a Java program to establish a connection to a MySQL database.
- *2. Write a program to insert data into a MySQL table using JDBC.
- *3. Write a program to update records in a MySQL table using a prepared statement and JDBC.
- *4. Write a program to retrieve all records from a MySQL table using JDBC.
- *5. Write a program to retrieve records from a MySQL table using a scrollable ResultSet in JDBC.
- *6. Write a program to perform an inner join between two MySQL tables using JDBC.
- *7. Write a program to store an image into a MySQL database using JDBC.
- *8. Write a program to perform a transaction using JDBC, including commit and rollback operations.
- *9. Write a program to execute a stored procedure that returns a result set using JDBC.
- *10. Write a program to execute a dynamic SQL query based on user input using JDBC.
- *11. Write a program to perform pagination on a large result set using JDBC.

- #1. Write a program to retrieve the database metadata using JDBC.
- #2. Write a program to delete records from a MySQL table based on a condition using JDBC.
- #3. Write a program to update multiple records in a MySQL table using a batch update and JDBC.
- #4. Write a program to retrieve records from a MySQL table based on a condition using JDBC.
- #5. Write a program to update records in a MySQL table using an updatable ResultSet and JDBC.
- #6. Write a program to call a stored procedure in a MySQL database using JDBC.
- #7. Write a program to store a file into a MySQL database using JDBC.
- #8. Write a program to perform batch insert operations into a MySQL table using JDBC.
- #9. Write a program to retrieve the auto-incremented value of a column after an insert operation using JDBC.
- #10. Write a program to execute a transaction that involves multiple SQL statements using JDBC.
- #11. Write a program to retrieve and display metadata information about a MySQL table using JDBC.

Section 2 – Servlet Programming

- **Html Form and Servlet Request (GET and POST)**
- **Servlet Response and redirect**
- **ServletConfig, ServletContext**
- **Session Management – url rewriting**
- **Session Management – hidden form fields**
- **Session Management – HttpSession Object**
- **Session Management – HttpSession and Login/Logout web.xml entries**
- **Servlet Event and Listeners**

- **Servlet filters**
- **Servlet HTML JDBC – CRUD**

- *1. Write a servlet program to display "Hello, World!" on a web page.
- *2. Write a servlet program to validate and process a login form submission.
- *3. Write a servlet program to handle session management using cookies.
- *4. Write a servlet program to perform CRUD operations (Create, Read, Update, Delete) on a database using JDBC.
- *5. Write a servlet program to handle servlet events and implement event listeners.

- #1. Write a servlet program to handle a GET request and display the request parameters.
- #2. Write a servlet program to display the client's IP address and user agent.
- #3. Write a servlet program to store and retrieve session information using HttpSession.
- #4. Write a servlet program to implement user registration and storing user information in a database.
- #5. Write a servlet program to display a dynamic HTML page with data retrieved from a database using JDBC.

Section 3 – Java Server Pages

- **JSP implicit Objects – Request, Response**
- **JSP implicit Objects – Session**
- **JSP implicit Objects – Application, Config, Page, Exception**
- **JSP Directives – page, include, tag lib**
- **JSP Actions – jsp:forward, jsp:include, jsp:useBean**
- **JSP- file uploading**
- **JSP JDBC MVC – CRUD example**
- **JSTL – Core tags**
- **JSTL – Function and formatting tags**
- **JSTL – SQL tags**

- *1. Write a JSP program to display "Hello, World!" on a web page.
- *2. Write a JSP program to declare and use a variable to store a message.
- *3. Write a JSP program to store and retrieve session attributes.
- *4. Write a JSP program to forward a request to another JSP page using the jsp:forward action.
- *5. Write a JSP program to perform CRUD operations (Create, Read, Update, and Delete) on a database using JDBC.
- *6. Write a JSP program to use JSTL SQL tags to execute database queries and display the results.
- *7. Write a JSP program to validate and process a login form submission using JSP and JDBC.

- #1. Write a JSP program to display the current date and time on a web page using scriptlets.
- #2. Write a JSP program to display the request parameters passed from a form.
- #3. Write a JSP program to display the context path of a web application.
- #4. Write a JSP program to use the jsp:useBean action to instantiate a JavaBean.
- #5. Write a JSP program to use JSTL function tags to perform string manipulation operations.
- #6. Write a JSP program to display a dynamic HTML table with data retrieved from a database using JSTL.
- #7. Write a JSP program to display custom error pages for different types of exceptions.

Section 4 –

- **JSON Request Processing**
- **XML Response Generation**
- **XML Request Processing**
- **RESTful Web Service with JAX-RS**
- **RESTful Web Service using NetBeans**
- **REST API Testing**

- *1. Write a program to parse and extract data from a JSON request in Java.
- *2. Write a program to generate a JSON response in Java.
- *3. Write a program to generate an XML response in Java.
- *4. Write a program to implement a RESTful web service using JAX-RS in Java.
- *5. Write a program to create a RESTful web service using NetBeans IDE.
- *6. Write a program to convert JSON data to XML format.
- *7. Write a program to test a REST API endpoint using a programming language of your choice.

- #1. Write a program to validate and process JSON input from a client application.
- #2. Write a program to parse and extract data from an XML request in Java.
- #3. Write a program to validate and process XML input from a client application.
- #4. Write a program to handle path parameters in a JAX-RS web service.
- #5. Write a program to implement authentication and authorization in a RESTful web service.
- #6. Write a program to validate JSON data against a JSON schema.
- #7. Write a program to perform pagination and filtering in REST API requests.