Java JDBC – Practical Assignment

Objective: Gain hands-on experience with Java JDBC for database connectivity, CRUD operations, and real-world backend scenarios using MySQL/Oracle.

Assignment 1: Student Management System (JDBC)

1 Create STUDENT table (id, name, age, marks)
2 Insert minimum 5 students using JDBC
3 Fetch and display all students
4 Fetch students with marks > 75
5 Update student marks by id
6 Delete students with marks < 40
7 Use PreparedStatement for all queries

Assignment 2: Duplicate Email Handling (JDBC)

1 Create EMAIL table
2 Insert duplicate email records
3 Fetch unique emails using SQL DISTINCT
4 Remove duplicate emails using SQL query
5 Explain database-level vs collection-level duplicate handling

Assignment 3: Employee Salary Tracker (JDBC)

1 Create EMPLOYEE table (id, name, salary)
2 Insert employee records
3 Update salary of a given employee
4 Fetch employees with salary > 50000
5 Find highest paid employee using SQL
6 Sort employees by salary descending

Assignment 4: Word Frequency Counter (JDBC)

1 Create WORD_COUNT table
2 Read a sentence from user input
3 Store word frequency in database
4 Update frequency if word already exists
5 Fetch most frequent word

Assignment 5: Transaction Management (JDBC)

1 Create ACCOUNT table (acc_no, balance)
2 Implement money transfer between two accounts
3 Use commit and rollback
4 Handle transaction failure scenarios
5 Explain auto-commit mode

Assignment 6: Batch Processing using JDBC

1 Insert multiple records using batch processing
2 Use addBatch() and executeBatch()
3 Measure performance improvement
4 Explain batch processing advantages

Assignment 7: JDBC Best Practices & Exceptions

1 Handle SQLException properly
2 Use try-with-resources
3 Explain DriverManager vs DataSource
4 Explain SQL Injection and prevention
5 Explain connection pooling

Viva / Interview Questions

1 What is JDBC and its architecture?
2 Difference between Statement and PreparedStatement?
3 What is ResultSet?
4 What is transaction management in JDBC?
5 How does JDBC prevent SQL Injection?
6 Difference between executeQuery() and executeUpdate()?
7 What is connection pooling and why is it used?