

# Day 5 Java Assignment

Case Study 1: Online Course Registration System Objective:

Allow students to register/unregister for courses and view course details. Table Structure:

```
CREATE DATABASE course db;
USE course db;
CREATE TABLE courses (
course id INT PRIMARY KEY,
course name VARCHAR(100),
faculty VARCHAR(100), credits
INT
);
```

## JDBC Operations:

Creating Table:

```
package jdbc.demo;
```

```
import java.sql.Connection; import
java.sql.DriverManager;
```

```
public class CourseManager {
```

```
    public static void main(String[] args) {
```

```
        // Connection details
```

```
        String url = "jdbc:mysql://localhost:3306/course_db";
```

```
        String user = "root";
```

```
        String password = "password@123";
```

```
        try {
```

```
            // Load MySQL JDBC driver
```

```
            Class.forName("com.mysql.cj.jdbc.Driver");
```

```
            // Connect to database
```

```
            Connection conn = DriverManager.getConnection(url, user, password);
```

```
            System.out.println(" Connected to course_db database!");
```

```
            // Close connection
```

```
            conn.close();
```

```
        } catch (Exception e) {
```

```
            System.out.println(" Connection error: " + e);
```

```
        }
```

```
    }
```

```
}
```

OUTPUT:

```
    Connected to course_db database!
```

INSERT: Add new courses.

```
package jdbc.demo;
```

```
import java.sql.Connection; import
```

```

java.sql.DriverManager; import
java.sql.PreparedStatement;

public class InsertedCourses {

    public static void main(String[] args) {

        String url="jdbc:mysql://localhost:3306/course_db";
        String user = "root";
        String password = "password@123";

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection conn = DriverManager.getConnection(url, user, password);
            System.out.println("Connected to course_db");

            String sql = "INSERT INTO courses (course_id, course_name, faculty, credits)
VALUES (?, ?, ?, ?)";
            PreparedStatement ps = conn.prepareStatement(sql);

            ps.setInt(1, 201);                //course_id
            ps.setString(2, "Java");          // course_name
            ps.setString(3, "Rakshith Gowda"); // faculty
            ps.setInt(4, 5);                  // credits

            int rowsInserted = ps.executeUpdate(); if
            (rowsInserted > 0) {
                System.out.println("Course inserted successfully.");
            }

            conn.close();

        } catch (Exception e) { System.out.println("Error: " + e);
        }
    }
}

```

#### OUTPUT:

Connected to course\_db Course  
inserted successfully.

SELECT: List available courses.  
package jdbc.demo;

```

import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.ResultSet; import
java.sql.Statement;

```

```

public class SelectCourses {

    public static void main(String[] args) {

        String url = "jdbc:mysql://localhost:3306/course_db";

```

```

String user = "root";
String password = "password@123";

try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    Connection conn = DriverManager.getConnection(url, user, password);
    System.out.println("Connected to course_db");

    String sql = "SELECT * FROM courses"; Statement stmt =
    conn.createStatement();
    ResultSet rs = stmt.executeQuery(sql);

    System.out.println("Course List:");
    System.out.println("-----");
    System.out.printf("%-10s %-20s %-15s %-10s\n", "ID", "Course Name", "Faculty",
"Credits");

    System.out.println("-----");

    while (rs.next()) {
        int id = rs.getInt("course_id");
        String name = rs.getString("course_name"); String
        faculty = rs.getString("faculty"); int credits =
        rs.getInt("credits");

        System.out.printf("%-10d %-20s %-15s %-10d\n", id, name, faculty,
credits);
    }

    conn.close();

} catch (Exception e) { System.out.println("Error: " + e);
}
}

```

OUTPUT:

Connected to course\_db

Course List:

ID	Course Name	Faculty	Credits
101	Java	Raju	5
201	Java	Rakshith Gowda	5

UPDATE: Modify faculty or credit values.

```
package jdbc.demo;
```

```
import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.PreparedStatement; import
java.util.Scanner;
```

```
public class UpdateCourse {
```

```
    public static void main(String[] args) {
```

```
        String url = "jdbc:mysql://localhost:3306/course_db";
        String user = "root";
```

```

String password = "password@123";

try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    Connection conn = DriverManager.getConnection(url, user, password);
    System.out.println("Connected to course_db");

    Scanner sc = new Scanner(System.in);

    // Get input from user
    System.out.print("Enter Course ID to update: "); int courseId
    = sc.nextInt();
    sc.nextLine(); // consume newline

    System.out.print("Enter new Faculty Name: "); String
    newFaculty = sc.nextLine();

    System.out.print("Enter new Credits: "); int
    newCredits = sc.nextInt();

    // Update query
    String sql = "UPDATE courses SET faculty = ?, credits = ? WHERE course_id =
?";

    PreparedStatement ps = conn.prepareStatement(sql);

    ps.setString(1, newFaculty);
    ps.setInt(2, newCredits); ps.setInt(3,
courseId);

    int rowsUpdated = ps.executeUpdate(); if
(rowsUpdated > 0) {
        System.out.println("Course updated successfully.");
    } else {
        System.out.println("Course ID not found.");
    }

    conn.close();
    sc.close();

} catch (Exception e) { System.out.println("Error: " + e);
}
}

```

#### OUTPUT:

```

Connected to course_db
Enter Course ID to update: 201
Enter new Faculty Name: Rana
Enter new Credits: 5
Course updated successfully.

```

DELETE: Remove obsolete courses.

```

package jdbc.demo;

```

```

import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.PreparedStatement; import
java.util.Scanner;

public class DeleteCourse {

    public static void main(String[] args) {

        String url = "jdbc:mysql://localhost:3306/course_db";
        String user = "root";
        String password = "password@123";

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection conn = DriverManager.getConnection(url, user, password);
            System.out.println("Connected to course_db");

            Scanner sc = new Scanner(System.in);

            // Get Course ID from user
            System.out.print("Enter Course ID to delete: ");
            int courseId = sc.nextInt();

            // Delete query
            String sql = "DELETE FROM courses WHERE course_id = ?";
            PreparedStatement ps = conn.prepareStatement(sql); ps.setInt(1,
            courseId);

            int rowsDeleted = ps.executeUpdate();

            if (rowsDeleted > 0) {
                System.out.println("Course deleted successfully.");
            } else {
                System.out.println("Course ID not found.");
            }

            conn.close();
            sc.close();

        } catch (Exception e) { System.out.println("Error: " + e);
        }
    }
}

```

OUTPUT:

```

Connected to course_db
Enter Course ID to delete: 201 Course
deleted successfully.

```

## Case Study 2: Product Inventory System

Table Structure:C

CREATE DATABASE

inventory\_db; USE inventory\_db;

CREATE TABLE products (product\_id INT PRIMARY KEY, product name VARCHAR(100), quantity INT, price DECIMAL(10,2));

JDBC Operations:

Creating Table:

package jdbc.demo;

import java.sql.Connection; import  
java.sql.DriverManager;

public class InventoryConnection {

public static void main(String[] args) {

String url = "jdbc:mysql://localhost:3306/inventory\_db"; String user =  
"root";  
String password = "password@123";

try {  
Class.forName("com.mysql.cj.jdbc.Driver");  
Connection conn = DriverManager.getConnection(url, user, password);  
System.out.println("Connected to inventory\_db");

conn.close();  
} catch (Exception e) { System.out.println("Error: " + e);  
}

}

OUTPUT:

Connected to inventory\_db

INSERT: Add new products to inventory. package  
jdbc.demo;

import java.sql.Connection; import  
java.sql.DriverManager; import  
java.sql.PreparedStatement;

public class InsertProduct {

public static void main(String[] args) {

String url = "jdbc:mysql://localhost:3306/inventory\_db"; String user =  
"root";  
String password = "password@123";

try {  
Class.forName("com.mysql.cj.jdbc.Driver");  
Connection conn = DriverManager.getConnection(url, user, password);  
System.out.println("Connected to inventory\_db");

String sql = "INSERT INTO products (product\_id, product\_name, quantity, price)

```
VALUES (?, ?, ?, ?)";
    PreparedStatement ps = conn.prepareStatement(sql);

    // Set product details
    ps.setInt(1, 101); // product_id
    ps.setString(2, "Phone"); // product_name
    ps.setInt(3, 1); // quantity
    ps.setDouble(4, 50000); // price

    int rowsInserted = ps.executeUpdate();

    if (rowsInserted > 0) {
        System.out.println("Product inserted successfully.");
    }

    conn.close();

} catch (Exception e) { System.out.println("Error: " + e);
}
}
```

#### OUTPUT:

Connected to inventory\_db Product  
inserted successfully.

SELECT: View stock levels and prices. package  
jdbc.demo;

```
import java.sql.Connection; import
java.sql.DriverManager;
```

```
import java.sql.ResultSet; import
java.sql.Statement;
```

```
public class SelectProducts {
```

```
    public static void main(String[] args) {
```

```
        String url = "jdbc:mysql://localhost:3306/inventory_db";
        String user = "root";
        String password = "password@123";
```

```
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection conn = DriverManager.getConnection(url, user, password);
            System.out.println("Connected to inventory_db");
```

```
            String sql = "SELECT * FROM products";
            Statement stmt = conn.createStatement();
```

```
            ResultSet rs = stmt.executeQuery(sql);
```

```
            System.out.println("Product List:");
```

```
            System.out.println("-----");
            System.out.printf("%-10s %-20s %-10s %-10s\n", "ID", "Product Name",
"Quantity", "Price");
```

```

System.out.println("-----");

        while (rs.next()) {
            int id = rs.getInt("product_id");
            String name = rs.getString("product_name");
            int qty = rs.getInt("quantity");
            double price = rs.getDouble("price");

            System.out.printf("%-10d %-20s %-10d %-10.2f%n", id, name, qty,
price);
        }

        conn.close();

    } catch (Exception e) {

        System.out.println("Error: " + e);
    }
}

```

OUTPUT:

Connected to inventory\_db

Product List:

ID	Product Name	Quantity	Price
101	Phone	1	50000

UPDATE: Update quantity after sale/purchase. package  
jdbc.demo;

```

import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.PreparedStatement; import
java.util.Scanner;

```

```

public class UpdateProductQuantity

```

```

public static void main(String[] args) {

```

```

    String url = "jdbc:mysql://localhost:3306/inventory_db";

```

```

    String user = "root";

```

```

    String password = "password@123";

```

```

    try {

```

```

        Class.forName("com.mysql.cj.jdbc.Driver");

```

```

        Connection conn = DriverManager.getConnection(url, user, password);

```

```

        System.out.println("Connected to inventory_db");

```

```

        Scanner sc = new Scanner(System.in);

```

```

        // Get product ID and quantity change from user System.out.print("Enter
Product ID to update quantity: "); int productId = sc.nextInt();

```

```

        System.out.print("Enter new quantity: "); int
newQuantity = sc.nextInt();

```



```

        // Update query
        String sql = "UPDATE products SET quantity = ? WHERE product_id
= ?";

        PreparedStatement ps = conn.prepareStatement(sql);

        ps.setInt(1, newQuantity);
        ps.setInt(2, productId);

        int rowsUpdated = ps.executeUpdate(); if
        (rowsUpdated > 0) {
            System.out.println("Product quantity updated successfully.");
        } else {
            System.out.println("Product ID not found.");
        }

        conn.close();
        sc.close();

    } catch (Exception e) { System.out.println("Error: " + e);
    }
}

```

OUTPUT:

Connected to inventory\_db

Enter Product ID to update quantity: 101

Enter new quantity: 6

Product quantity updated successfully.

DELETE: Remove discontinued products.

```
package jdbc.demo;
```

```
import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.PreparedStatement; import
java.util.Scanner;
```

```
public class DeleteProduct {
```

```
    public static void main(String[] args) {
```

```
        String url = "jdbc:mysql://localhost:3306/inventory_db";
```

```
        String user = "root";
```

```
        String password =
        "password@123";
```

```
        try {
```

```
            Class.forName("com.mysql.cj.jdbc.Driver");
```

```
            Connection conn = DriverManager.getConnection(url, user, password);
```

```
            System.out.println("Connected to inventory_db");
```

```
            Scanner sc = new Scanner(System.in);
```

```
            // Get product ID to delete System.out.print("Enter Product
            ID to delete: "); int productId = sc.nextInt();
```

```

String sql = "DELETE FROM products WHERE product_id = ?";
PreparedStatement ps = conn.prepareStatement(sql); ps.setInt(1,
productId);

int rowsDeleted=ps.executeUpdate(); if
(rowsDeleted > 0) {
    System.out.println("Product deleted successfully.");
} else {
    System.out.println("Product ID not found.");
}

conn.close();
sc.close();

} catch (Exception e) { System.out.println("Error: " + e);
}
}

```

#### OUTPUT:

```

Connected to inventory_db
Enter Product ID to delete: 101
Product deleted successfully.

```