Day5_assignment:

Case Study 1: Online Course Registration System:

Table Structure:

```
CREATE DATABASE course_db;

USE course_db;

CREATE TABLE courses (

    course_id INT PRIMARY KEY, c

   ourse_name VARCHAR(100),

   faculty VARCHAR(100),

   credits INT );
```

Query:

```
use course_db;

 create table courses(course_id INT PRIMARY KEY, course_nameVARCHAR(100), faculty
VARCHAR(100), credits INT );

select*from courses;
```

>INSERT: Add new courses.

```
  package jdbctask;

import java.sql.Connection;

 import java.sql.DriverManager;

 public class CourseManager {

       public static void main(String[] args) {

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

        String user = "root";

        String password = "Swetha@57";

        try {

            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:

```
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 = "Swetha@57";
               String[][] courseData= {
                                    {"101","Java","Karuna","3"}, {"102","Java","Sai","4"}};
                 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, 101);
            ps.setString(2, "Java");
           ps.setString(3, "Ms.Sudha");
             ps.setInt(4, 3);
          int rowsInserted = ps.executeUpdate();
           if (rowsInserted > 0) {
                System.out.println("Course inserted successfully.");
           }
           Stmt.close();
           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 = "Swetha@57";
        try {
             Class.forName("com.mysql.cj.jdbc.Driver");
              Connection conn = DriverManager.getConnection(url, user, password);
               Statement stmt=conn.createStatement();
      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:Course_id\t\tCourse_Name\t\tFaculty\t\tCredits”);

               while (rs.next()) {
                int course_id = rs.getInt("course_id");
                String name = rs.getString("course_name");
                String faculty = rs.getString("faculty");
                int credits = rs.getInt("credits");
                System.out.println(course_id+"\t"+course_name+"\t\t"+faculty
+"\t\t"+credits);
            }
                rs.close();
                stmt.close();
                conn.close();
                } catch (Exception e) {
                      System.out.println("Error: " + e);
                   }
```

```
        }
    }
```

OUTPUT: Connected to course_db

Course List:

Course_id	Course_Name	Faculty	Credits
101	Java	Karuna	3
102	Java	Sai	3

Update: Modify faculty or credit values.

```
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 = "Swetha@57";
          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);
             System.out.print("Enter Course ID to update: ");
             int Id = sc.nextInt();
             System.out.print("Enter new Faculty Name: ");
             String faculty= sc.nextLine();
            System.out.print("Enter new Credits: ");
```

```
            int Credits = sc.nextInt();
            String query = "UPDATE courses SET faculty = ?, credits = ? WHERE course_id = ?";
PreparedStatement ps = conn.prepareStatement(sql);
            ps.setString(1, Faculty);
            ps.setInt(2, Credits);
            ps.setInt(3, Id);
            int rowsUpdated = ps.executeUpdate();
             if (rows > 0) {
                System.out.println("Course updated successfully."); }
            else {
                System.out.println("Course ID not found.");
            }
            conn.close();
            sc.close();
            }
            Sc.close();
            Ps.close()
            catch (Exception e) {
                System.out.println("Error: " + e);
             }
        }
}
```

OUTPUT: Connected to course_db

Enter Course ID to update: 301

Enter new Faculty Name:Anu

Enter new Credits: 5

Course updated successfully.

DELETE: Remove obsoleteÂ 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 = Swetha@57";

          try {

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

              Connection conn = DriverManager.getConnection(url, user, password);
System.out.println("Connected to course_db");

               System.out.print("Enter Course ID to delete: ");

               int Id = sc.nextInt();

                String query = "DELETE FROM courses WHERE course_id = ?";
PreparedStatement ps = conn.prepareStatement(sql);

               ps.setInt(1,Id);

                int rowsDeleted = ps.executeUpdate();

                if (rowsDeleted > 0) {

                    System.out.println("Course deleted successfully.");

                }

                else {

                     System.out.println("Course ID not found.");

              }
```

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

OUTPUT: Connected to course_db

Enter Course ID to delete: 301

Course deleted successfully.

Case Study 2: Product Inventory System

Objective: Track product stock in a retail store.

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) );
```

DataBase Connection : (DatabaseConnection.java)

```
Package product;
 import java.sql.Connection;
import java.sql.DriverManager;
 public class DatabaseConnection {
      public static void main(String[] args) {
// TODO Auto-generated method stub
```

```
                String      url="jdbc:mysql://localhost:3306/inventory_db";
                String user="root";
               String password="Swetha@57 ";
                try {
                   Class.forName("com.mysql.cj.jdbc.Driver");
                  Connection conn=DriverManager.getConnection(url,user,password);
System.out.println("Connected to the database");
                conn.close();
             } catch(Exception e)
                  {
                   System.out.println("Connection Error: "+e);
                    }
               }
          }
```

Output: Connected to the database

<Add New Products to Inventory :

```
Package product;
 import java.sql.Connection;
 import java.sql.DriverManager;
import java.sql.PreparedStatement;
public class AddProducts {
        public static void main(String[] args) {
           url="jdbc:mysql://localhost:3306/inventory_db";
            String user="root";
           String password="Swetha@57 ";
           String[][] productsData= { {"1","Shirts","10","100000"},
{"2","Pants","50","60000"}};
  try {
```

```
      Class.forName("com.mysql.cj.jdbc.Driver");
conn=DriverManager.getConnection(url,user,password);
String sql="INSERT INTO
products(product_id,product_name,quantity,price)VALUES(?,?,?,?)";
      PreparedStatement stmt=conn.prepareStatement(sql); for(String[]
product:productsData) {
      stmt.setInt(1, Integer.parseInt(product[0]));
      stmt.setString(2,product[1]);
      stmt.setInt(3,Integer.parseInt(product[2]));
      stmt.setDouble(4, Double.parseDouble(product[3]));
       stmt.executeUpdate();
        }
            System.out.println("All Products Inserted successfully");
             stmt.close();
              conn.close();
            } catch(Exception e) {
             System.out.println("Connection Error: "+e);
    }
  }
}
```

Output: All Products Inserted successfully

<Display Products :

```
Package product;
import java.sql.Connection;
 import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;
 public class ViewProducts {
```

```
    public static void main(String[] args) {
      url="jdbc:mysql://localhost:3306/inventory_db";
       String user="root";
        String password="Swetha@57";
       try {
          Class.forName("com.mysql.cj.jdbc.Driver");
Connection conn=DriverManager.getConnection(url,user,password);
        Statement stmt=conn.createStatement();
         String sql="SELECT * FROM products";
         ResultSet rs=stmt.executeQuery(sql);
System.out.println("product_id\t\tproduct_Name\t\tQuantity\t \tPrice");
System.out.println("-----------------------------");
        while(rs.next()){
           int product_id=rs.getInt("product_id");
           String product_name=rs.getString("product_name");
            int Quantity=rs.getInt("Quantity");
           Double Price=rs.getDouble("Price");
            System.out.println(product_id+"\t"+product_name+"\t\t"+Qua ntity+"\t\t"+Price);
} rs.close();
           stmt.close();
           conn.close();
           } catch(Exception e) {
                 System.out.println("Connection Error: "+e);
         }
        }
     }
```

Output:

product_id	product_Name	Quantity	Price

1.	Shirts	10	10000
2.	Pants	50	60000

<Updating Products Quantity and Price (UpdateProduct.java):

```
 Package product;
 import java.sql.Connection;
import java.sql.DriverManager;
 import java.sql.PreparedStatement;
 import java.util.Scanner;
public class UpdateProducts {
     public static void main(String[] args) {
           url="jdbc:mysql://localhost:3306/inventory_db";
          String user="root";
          String password="Swetha@57";
          try {
              Scanner sc=new Scanner(System.in);
              Class.forName("com.mysql.cj.jdbc.Driver");
               Connection conn=DriverManager.getConnection(url,user,password);
System.out.println("Enter Product id to Update: ");
              int id=sc.nextInt();
              System.out.println("Enter new Quantity");
              int quantity=sc.nextInt();
             System.out.println("Enter new Price: ");
             double price=sc.nextDouble();
              String query="UPDATE products set quantity=?,price=? WHERE product_id=?";
PreparedStatement ps=conn.prepareStatement(query);
              ps.setInt(1,quantity);
                ps.setDouble(2,price);
```

```
            int rows=ps.executeUpdate();
            if(rows>0) {
                System.out.println("Product Updated Successfully..."); }
            else {
                System.out.println("NO Product found with given ID.");
            }
            sc.close();
            ps.close();
            conn.close();
        }catch(Exception e) {
            System.out.println(e);
    }
  }
}
```

Output:

Enter Product id to Update:

2

Enter new Quantity

100

Enter new Price:

80000

Product Updated Successfully...

<Remove Products (RemoveProducts.java):

```
Package product;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
```

```
 import java.util.Scanner;
public class RemoveProduct {
        public static void main(String[] args) {
            String url="jdbc:mysql://localhost:3306/inventory_db";
            String user="root";
            String password="Swetha@57 ";
            try {
                Scanner sc=new Scanner(System.in);
                Class.forName("com.mysql.cj.jdbc.Driver");
                 Connection conn=DriverManager.getConnection(url,user,password);
System.out.println("Enter product id to Delete: ");
                int id=sc.nextInt();
                 String query="DELETE FROM products WHERE product_id=?";
PreparedStatement ps=conn.prepareStatement(query);
                 ps.setInt(1, id);
                 int rows=ps.executeUpdate();
                 if(rows>0) {
                 System.out.println("Product Removed Successfully...");
                }
                 else {
                     System.out.println("NO Product found with given ID.");
                  }
                   sc.close();
                     ps.close();
                     conn.close();
             }catch(Exception e) {
                 System.out.println(e);
              }
           }
```

```
}
```

Output:

```
Enter product id to Delete:
 3
 Product Removed Successfully...
```