Experiment 7

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Branch: CSE **Section: 22BCS_KRG_IOT_3B**
Semester: 6th **Date of Performance: 12/03/25**
Subject: Project Based Learning In Java **Subject Code: 22CSH-359**

Aim: Create Java applications with JDBC for database connectivity, CRUD operations, and MVC architecture.

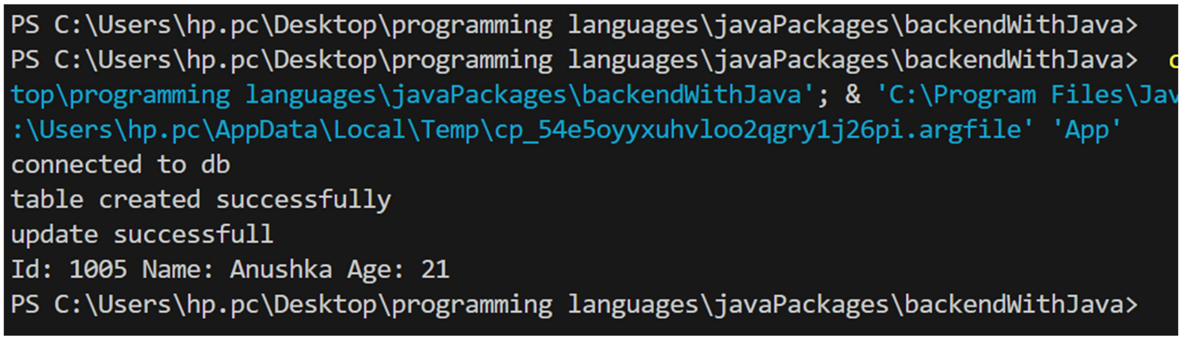
Objective: To develop Java applications that integrate with databases using JDBC, implement CRUD (Create, Read, Update, Delete) operations, and follow the MVC (Model-View-Controller) architecture for structured application development.

Code:

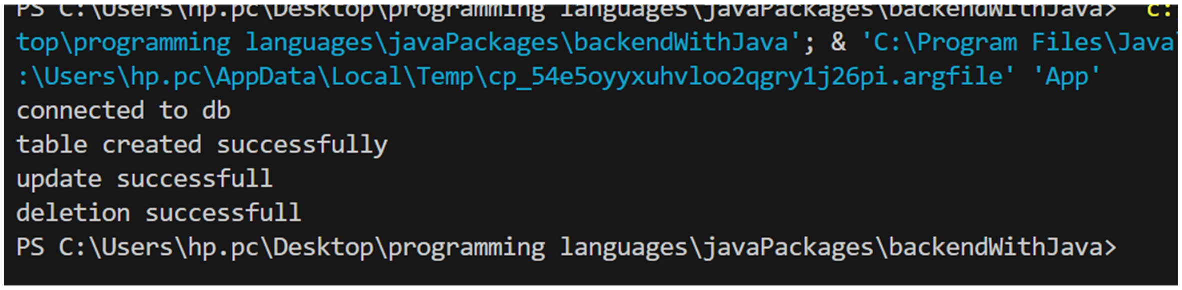
```
import java.sql.*;
public class App {
    public static void main(String[] args) {
        String url =
"jdbc:sqlserver://localhost:1433;databaseName=jdbc;encrypt=true;trustServerCertificate=true;integratedS
ecurity=true";
        String username = "ANUSHKA\\anu.pc";
        String password = "Anushka@7";
        try{
            //connection
           Connection conn=DriverManager.getConnection(url, username, password);
           System.out.println("connected to db");
          // statement
          Statement stmt=conn.createStatement();
           String newTable = "IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES
 WHERE TABLE_NAME = 'students') "
                + "BEGIN "
                + "CREATE TABLE students ("
                + "id INT PRIMARY KEY IDENTITY(1,1), "
                + "name VARCHAR(20), "
                + "age INT"
                + "); "
                + "END;";

            stmt.executeUpdate(newTable);
            System.out.println("table created successfully");
    stmt.executeUpdate(insertQuery);
    String updateQuery="update students set age=21 where name='Anushka'";
    stmt.executeUpdate(updateQuery);
    System.out.println("update successfull");
    String deleteQuery="delete from students where name='Anushka'";
    stmt.executeUpdate(deleteQuery);
    System.out.println("deletion successfull");
    String selectQuery="select * from students";
    ResultSet rs=stmt.executeQuery(selectQuery);
    while(rs.next()){
       System.out.println("Id: "+rs.getInt("id")
       +" Name: "+rs.getString("name")+" Age: "
       + rs.getInt("age"));
    }
        }catch(SQLException e){
        System.out.println(e);
      }
   }
}
```

Output:



```
PS C:\Users\hp.pc\Desktop\programming languages\javaPackages\backendWithJava>
PS C:\Users\hp.pc\Desktop\programming languages\javaPackages\backendWithJava>  c
top\programming languages\javaPackages\backendWithJava'; & 'C:\Program Files\Jav
:\Users\hp.pc\AppData\Local\Temp\cp_54e5oyyxuhvloo2qgry1j26pi.argfile' 'App'
connected to db
table created successfully
update successfull
Id: 1005 Name: Anushka Age: 21
PS C:\Users\hp.pc\Desktop\programming languages\javaPackages\backendWithJava>
```



```
PS C:\Users\hp.pc\Desktop\programming languages\javaPackages\backendWithJava>  c:
top\programming languages\javaPackages\backendWithJava'; & 'C:\Program Files\Java'
:\Users\hp.pc\AppData\Local\Temp\cp_54e5oyyxuhvloo2qgry1j26pi.argfile' 'App'
connected to db
table created successfully
update successfull
deletion successfull
PS C:\Users\hp.pc\Desktop\programming languages\javaPackages\backendWithJava>
```

Learning Outcomes:

By the end of this course/module, learners will be able to:

1. **Understand JDBC Fundamentals** – Explain the purpose of JDBC and set up database connectivity in Java applications.
2. **Perform CRUD Operations** – Implement Create, Read, Update, and Delete functionalities using JDBC.
3. **Apply MVC Architecture** – Design Java applications following the Model-View-Controller pattern for better modularity and maintainability.
4. **Handle Database Connections Efficiently** – Use connection pooling and manage database resources properly to optimize performance.