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Lab Assessment 3

B.Tech in Computer Science and Engineering **(CSE)**, **Winter** Semester **2020-21**

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Slot:	L43+L44
Date:	28/04/2021

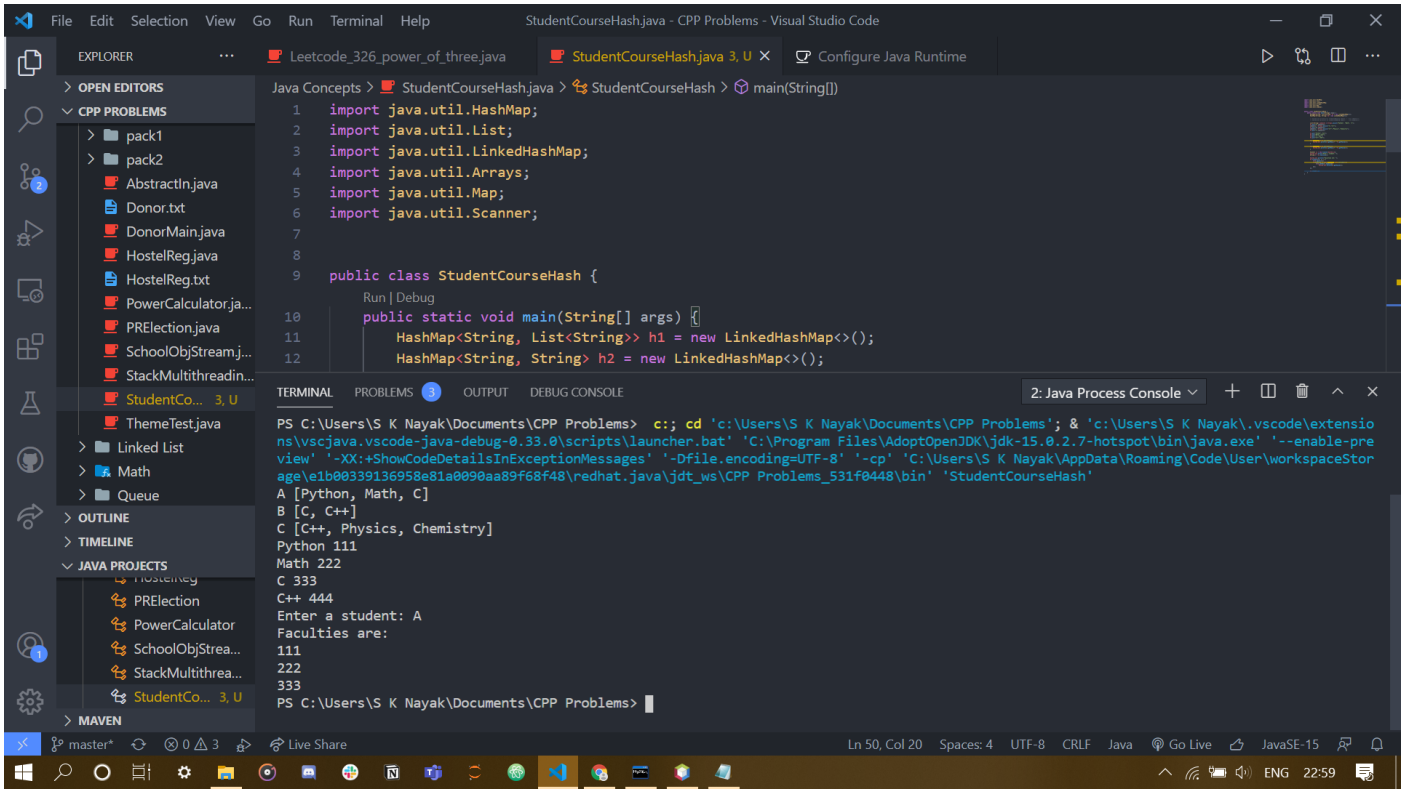
Q1. Java Collections Framework knowledge:-

Source Code:

```
import java.util.HashMap;
import java.util.List;
import java.util.LinkedHashMap;
import java.util.Arrays;
import java.util.Map;
import java.util.Scanner;


public class StudentCourseHash {
    public static void main(String[] args) {
        HashMap<String, List<String>> h1 = new LinkedHashMap<>();
        HashMap<String, String> h2 = new LinkedHashMap<>();

        List<String> subjects = Arrays.asList("Python", "Math", "C");
        h1.put("A",subjects);
        subjects = Arrays.asList("C","C++");
        h1.put("B",subjects);
        subjects = Arrays.asList("C++","Physics","Chemistry");
        h1.put("C",subjects);

        h2.put("Python","111");
        h2.put("Math","222");
        h2.put("C","333");
        h2.put("C++","444");

        for(Map.Entry m:h1.entrySet()){
            System.out.println(m.getKey()+" "+m.getValue());
        }

        for(Map.Entry m:h2.entrySet()){
            System.out.println(m.getKey()+" "+m.getValue());
        }

        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a student: ");
        String s = sc.nextLine();
```

```
        System.out.println("Faculties are: ");
        h1.forEach((k, v) -> {
            if(k.equals(s))
            v.forEach(w -> {for(Map.Entry m:h2.entrySet()){
                if(m.getKey().equals(w))
                    System.out.println(m.getValue());
            }});
        });

        sc.close();
    }
}
```

Output:



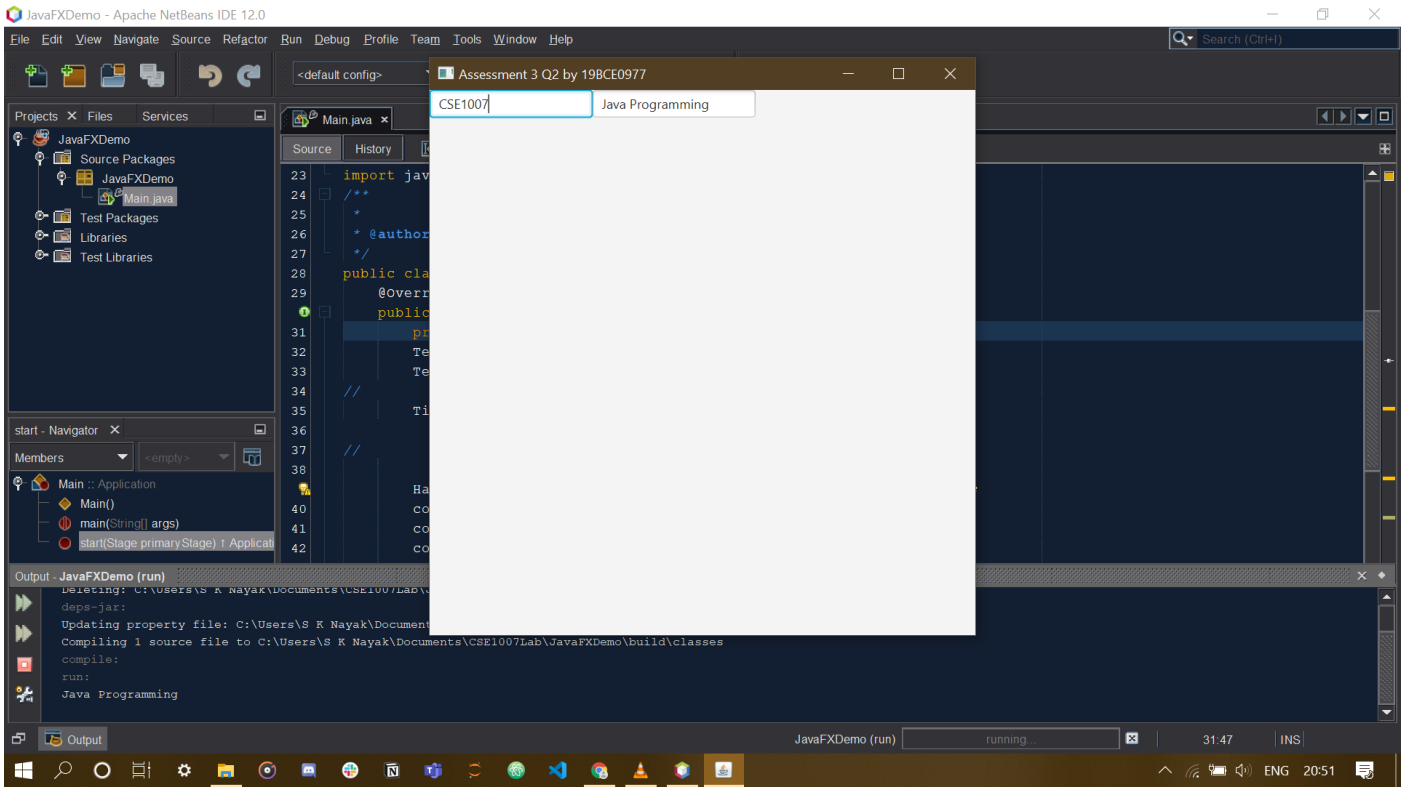
Q2. Write a Java program using JavaFX, when the user enters a course code in one text field, the course title should be displayed in another text field with an action event.

Source Code:

```
/*
  * To change this license header, choose License Headers in Project
Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package JavaFXDemo;

import java.util.HashMap;
import javafx.application.Application;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.scene.Scene;
//import javafx.scene.control.Button;
//import javafx.scene.control.Label;
//import javafx.scene.control.Menu;
//import javafx.scene.control.MenuBar;
//import javafx.scene.control.MenuItem;
import javafx.scene.control.TextField;
//import javafx.scene.layout.FlowPane;
//import javafx.scene.layout.StackPane;
import javafx.scene.layout.TilePane;
//import javafx.scene.layout.VBox;
import javafx.stage.Stage;
/**
 *
 * @author sn
 */
public class Main extends Application {
    @Override
    public void start(Stage primaryStage) {
        primaryStage.setTitle("Assessment 3 Q2 by 19BCE0977");
        TextField b = new TextField();
        TextField c = new TextField();
        TilePane tile = new TilePane();

        HashMap <String, String> courses = new HashMap<String, String>();
        courses.put("CSE1003", "Digital Logic and Design");
        courses.put("CSE1004", "Network and Communication");
        courses.put("CSE1007", "Java Programming");
        courses.put("MAT2001", "Statistics for Engineers");
        courses.put("MAT2002", "Application of Differential Calculus");
        courses.put("CSE2003", "Data Structures and Algorithms");
        courses.put("CSE2004", "Database Management System");
        courses.put("CSE2005", "Operating Systems");
        courses.put("CSE3001", "Software Engineering");
```

```
        courses.put("CSE3002", "Internet and Web Programming");
        EventHandler <ActionEvent> event = new EventHandler <ActionEvent>(){
            @Override
            public void handle(ActionEvent e) {
                if(courses.containsKey(b.getText())){
                    System.out.println(courses.get(b.getText()));
                    c.setText(courses.get(b.getText()));
                } else {
                    c.setText("This course is not available!");
                }
            }
        };

        b.setOnAction(event);
        tile.getChildren().add(b);
        tile.getChildren().add(c);
        Scene sc = new Scene(tile, 500, 500);
        primaryStage.setScene(sc);
        primaryStage.show();

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

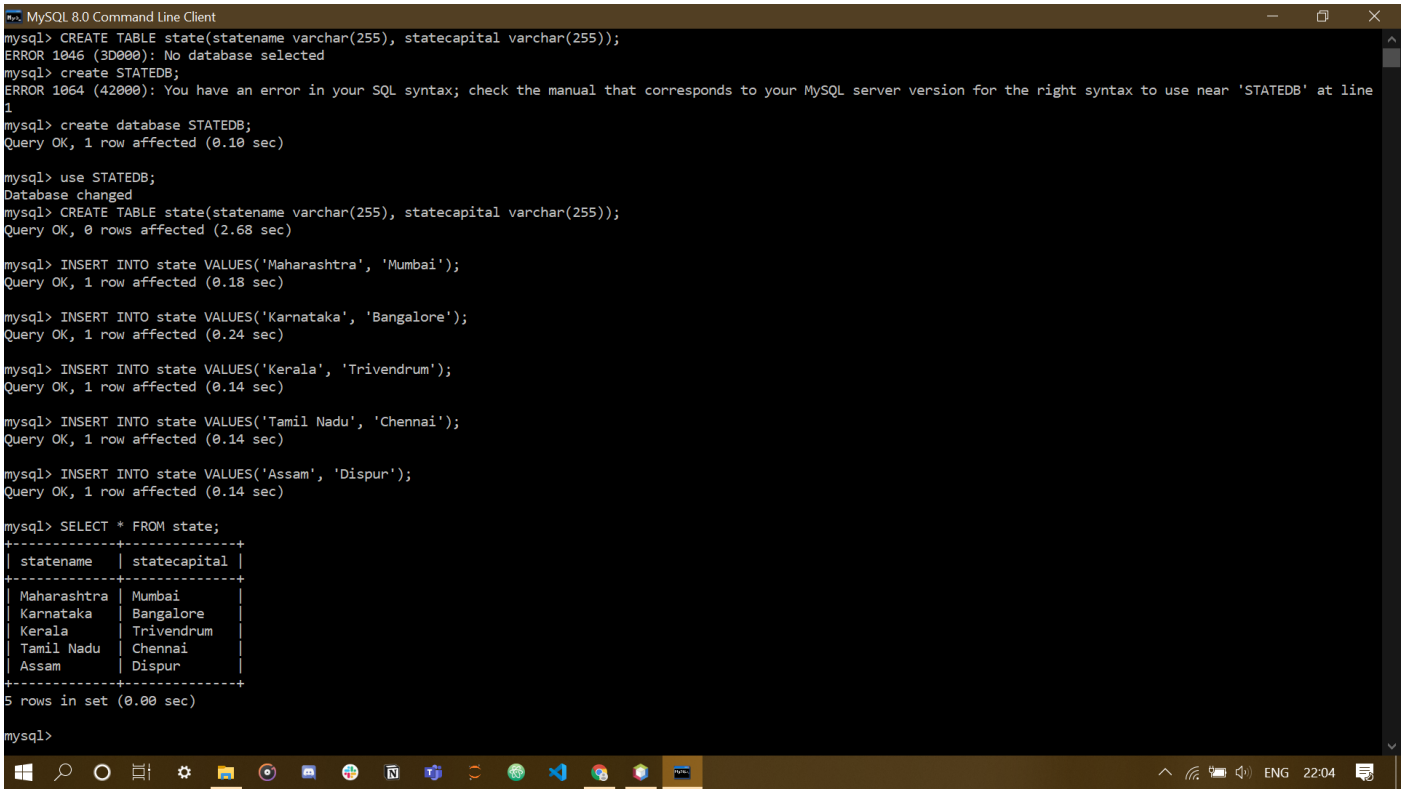
Output:



Q3. Using JDBC, create a state table with statename, statecapital as data fields. Perform CRUD operations on the state table using JDBC.

- **Creating the table:**

```
mysql> create database STATEDB;
Query OK, 1 row affected (0.10 sec)

mysql> use STATEDB;
Database changed
mysql>   CREATE   TABLE   state(statename   varchar(255),   statecapital
varchar(255));
Query OK, 0 rows affected (2.68 sec)

mysql> INSERT INTO state VALUES('Maharashtra', 'Mumbai');
Query OK, 1 row affected (0.18 sec)

mysql> INSERT INTO state VALUES('Karnataka', 'Bangalore');
Query OK, 1 row affected (0.24 sec)

mysql> INSERT INTO state VALUES('Kerala', 'Trivendrum');
Query OK, 1 row affected (0.14 sec)

mysql> INSERT INTO state VALUES('Tamil Nadu', 'Chennai');
Query OK, 1 row affected (0.14 sec)

mysql> INSERT INTO state VALUES('Assam', 'Dispur');
Query OK, 1 row affected (0.14 sec)

mysql> SELECT * FROM state;
+-------------+--------------+
| statename   | statecapital |
+-------------+--------------+
| Maharashtra | Mumbai       |
| Karnataka   | Bangalore    |
| Kerala      | Trivendrum   |
| Tamil Nadu  | Chennai      |
| Assam       | Dispur       |
+-------------+--------------+
5 rows in set (0.00 sec)
```



Source Code:

```
/*
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 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

package jdbcdemo;

import java.sql.*;

/**
 *
 * @author sn
 */
public class JDBCdemo {

    /**
     * @param args the command line arguments
     */

    static final String JDBC_DRIVER = "com.mysql.jdbc.Driver";
    static final String DB_URL = "jdbc:mysql://localhost/STATEDB";

    static final String USER = "root";
```
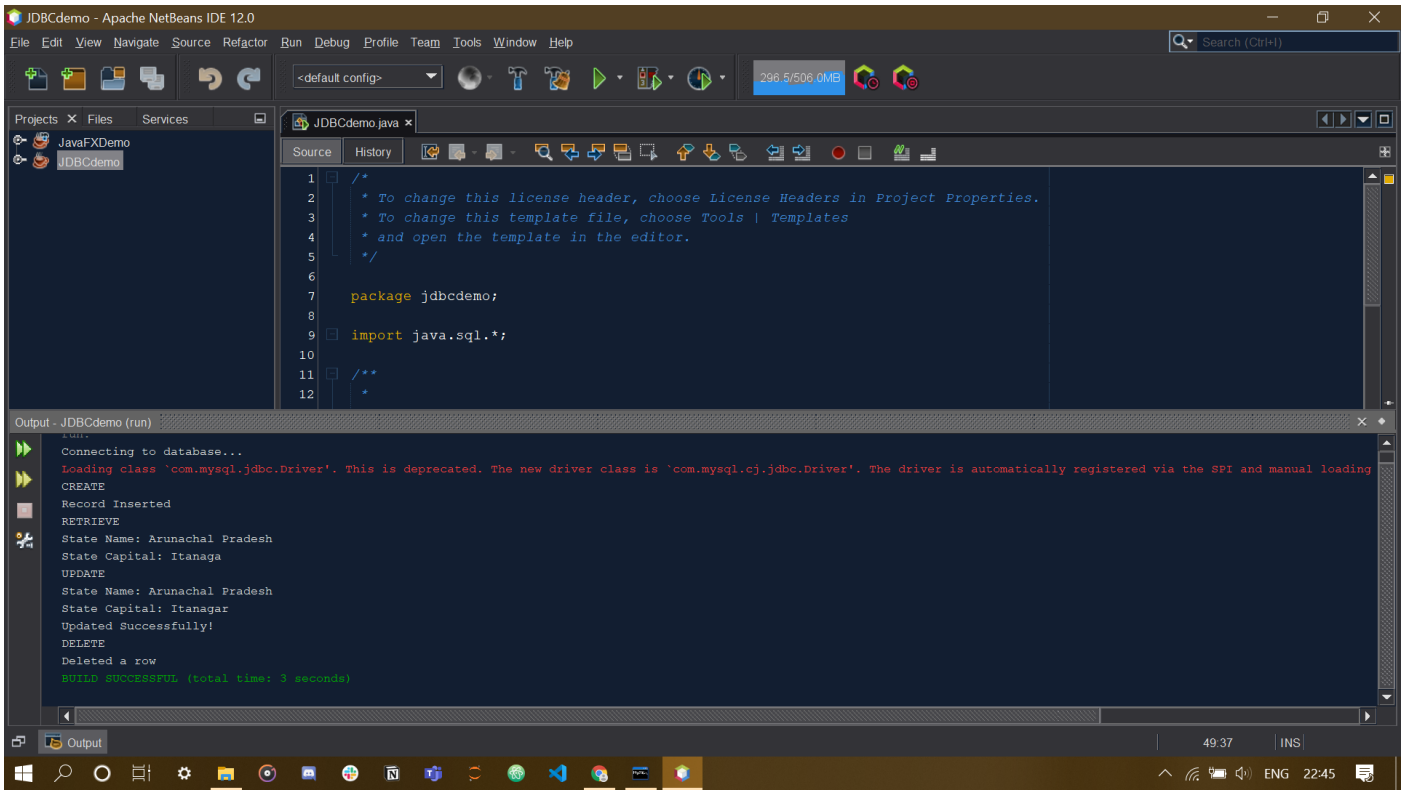
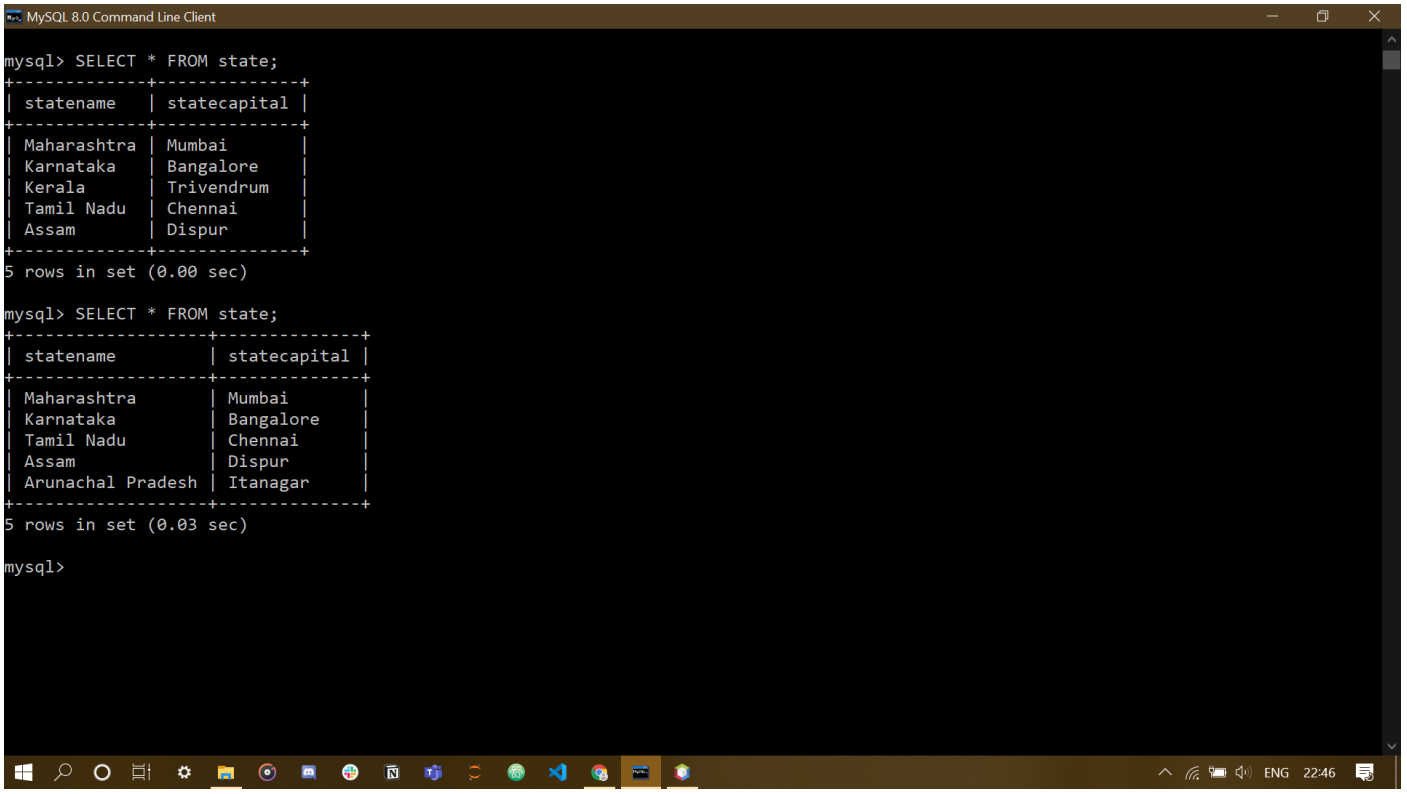

```
    static final String PASS = "";

    public static void main(String[] args) {
        // TODO code application logic here

        Connection conn = null;
        Statement stmt = null;
        String sql;
        ResultSet rs;

        try {
            Class.forName("com.mysql.jdbc.Driver");

            System.out.println("Connecting to database...");
            conn = DriverManager.getConnection(DB_URL, USER, PASS);

            System.out.println("CREATE");
            stmt = conn.createStatement();
                  sql = "INSERT INTO state VALUES('Arunachal Pradesh',
'Itanaga')";
            stmt.executeUpdate(sql);
            System.out.println("Record Inserted");

            System.out.println("RETRIEVE");
            stmt = conn.createStatement();
                sql = "SELECT * FROM state WHERE statename = 'Arunachal
Pradesh'";
            rs = stmt.executeQuery(sql);
            while (rs.next()) {
                                    System.out.println("State Name: " +
rs.getString("statename"));
                                  System.out.println("State Capital: " +
rs.getString("statecapital"));
            }

            System.out.println("UPDATE");
            stmt = conn.createStatement();
                 sql = "UPDATE state SET statecapital='Itanagar' WHERE
statename='Arunachal Pradesh'";
            stmt.executeUpdate(sql);

            stmt = conn.createStatement();
                sql = "SELECT * FROM state WHERE statename = 'Arunachal
Pradesh'";
            rs = stmt.executeQuery(sql);
            while (rs.next()) {
                                    System.out.println("State Name: " +
rs.getString("statename"));
```

```
                                System.out.println("State  Capital:  "  +
rs.getString("statecapital"));
            }

            System.out.println("Updated Successfully!");

            System.out.println("DELETE");
            stmt = conn.createStatement();
            sql = "DELETE FROM state WHERE statename = 'Kerala'";
            stmt.executeUpdate(sql);
            System.out.println("Deleted a row");

            rs.close();

        }catch(SQLException se){

            //Handle errors for JDBC
            se.printStackTrace();
        }catch(Exception e){

            //Handle errors for Class.forName
            e.printStackTrace();
        }finally{

            //finally block used to close resources
            try{
               if(stmt!=null)
                  conn.close();
            }catch(SQLException se){

            }// do nothing

          try{
               if(conn!=null)
                  conn.close();
            }catch(SQLException se){
               se.printStackTrace();
            }//end finally try

          }//end try

    }

}
```

Output:


JDBCdemo - Apache NetBeans IDE 12.0
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services
JavaFXDemo
JDBCdemo
JDBCdemo.java
Source History
/*
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
package jdbcdemo;
import java.sql.*;
/**
*
Output - JDBCdemo (run)
Connecting to database...
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading
CREATE
Record Inserted
RETRIEVE
State Name: Arunachal Pradesh
State Capital: Itanaga
UPDATE
State Name: Arunachal Pradesh
State Capital: Itanagar
Updated Successfully!
DELETE
Deleted a row
BUILD SUCCESSFUL (total time: 3 seconds)
Output
49:37
INS
ENG 22:45


MySQL 8.0 Command Line Client
mysql> SELECT * FROM state;
+-------------+--------------+
| statename | statecapital |
+-------------+--------------+
Maharashtra	Mumbai
Karnataka	Bangalore
Kerala	Trivendrum
Tamil Nadu	Chennai
Assam	Dispur
+-------------+--------------+
5 rows in set (0.00 sec)
mysql> SELECT * FROM state;
+-------------------+--------------+
| statename | statecapital |
+-------------------+--------------+
Maharashtra	Mumbai
Karnataka	Bangalore
Tamil Nadu	Chennai
Assam	Dispur
Arunachal Pradesh	Itanagar
+-------------------+--------------+
5 rows in set (0.03 sec)
mysql>
ENG 22:46