# Task 2: Database Connectivity using Java

## Objective

To build a Java application that connects to a MySQL database using **JDBC** and retrieves data from a table.

## 1. Database Setup (MySQL)

### Create Database

```
CREATE DATABASE studentdb;
```

### Create Table

```
CREATE TABLE students (
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(50),
    department VARCHAR(50)
);
```

### Insert Sample Data

```
INSERT INTO students (name, department)
VALUES ('Prasad', 'Computer Science'),
       ('Ravi', 'Mechanical'),
       ('Anita', 'Electronics');
```

## 2. Java Code (JDBC Connectivity)

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

```
public class DatabaseConnectivity {

    public static void main(String[] args) {

        String url = "jdbc:mysql://localhost:3306/studentdb";
        String username = "root";
        String password = "your_password";

        try {
            // Load MySQL JDBC Driver
            Class.forName("com.mysql.cj.jdbc.Driver");

            // Establish connection
            Connection con = DriverManager.getConnection(url,
username, password);
            System.out.println("Database connected successfully!");

            // Create statement
            Statement stmt = con.createStatement();

            // Execute query
            ResultSet rs = stmt.executeQuery("SELECT * FROM
students");

            // Display data
            while (rs.next()) {
                System.out.println(
                    rs.getInt("id") + " | " +
                    rs.getString("name") + " | " +
                    rs.getString("department")
                );
            }

            // Close connection
            con.close();

        } catch (Exception e) {
```

```
            e.printStackTrace();
        }
    }
}
```

## 3. Sample Output

```
Database connected successfully!
1 | Prasad | Computer Science
2 | Ravi | Mechanical
3 | Anita | Electronics
```

## 4. Short Explanation of the Code

- **DriverManager.getConnection()** is used to connect Java with MySQL.
- **Connection** establishes the database link.
- **Statement** executes SQL queries.
- **ResultSet** stores and retrieves data from the table.
- Data is fetched row by row using a **while loop**.
- Finally, the database connection is closed to free resources.

## 5️⃣ Tools Used

- Java IDE: Eclipse / IntelliJ / VS Code
- Database: MySQL
- Connectivity: JDBC