Assignment-3

Q. Implement JDBC connectivity using java

To implement JDBC (Java Database Connectivity) connectivity in Java, you'll need to follow these steps:

1. Set up the JDBC Driver:
   - Download the appropriate JDBC driver for your database. Most databases have official JDBC drivers available for download.
   - Add the downloaded driver JAR file to your Java project's classpath.

2. Import Necessary Libraries:
   - Import the required Java libraries to work with JDBC.

3. Establish a Connection:
   - Use the `DriverManager.getConnection()` method to establish a connection to your database.

4. Execute Queries:
   - Use the `Connection` object to create `Statement` or `PreparedStatement` objects for executing SQL queries.

5. Process Results:
   - Retrieve and process the results obtained from executing the SQL queries.

6. Close the Connection:
   - Always close the database connection after you are done working with the database.

Here's a simple example of how to connect to a MySQL database using JDBC:

```
import java.sql.*;

public class JdbcExample {
    public static void main(String[] args) {
        // JDBC connection parameters
        String url = "jdbc:mysql://localhost:3306/mydatabase";
        String username = "your_username";
        String password = "your_password";

        try {
            // Step 1: Load and register the JDBC driver
            Class.forName("com.mysql.cj.jdbc.Driver");

            // Step 2: Establish a connection
            Connection connection = DriverManager.getConnection(url, username,
password);

            // Step 3: Create a statement
            Statement statement = connection.createStatement();

            // Step 4: Execute a query
            String sqlQuery = "SELECT * FROM employees";
            ResultSet resultSet = statement.executeQuery(sqlQuery);

            // Step 5: Process the results
            while (resultSet.next()) {
                int empId = resultSet.getInt("emp_id");
                String empName = resultSet.getString("emp_name");
                int empAge = resultSet.getInt("emp_age");
                String empEmail = resultSet.getString("email");

                System.out.println("Employee ID: " + empId);
                System.out.println("Employee Name: " + empName);
                System.out.println("Employee Age: " + empAge);
                System.out.println("Employee Email: " + empEmail);
            }

            // Step 6: Close the resources
            resultSet.close();
            statement.close();
            connection.close();
        } catch (ClassNotFoundException e) {
            System.err.println("JDBC Driver not found!");
            e.printStackTrace();
        } catch (SQLException e) {
            System.err.println("Error executing SQL query!");
            e.printStackTrace();
        }
    }
}
```

Make sure to replace `your_username`, `your_password`, `mydatabase`, and the SQL query with appropriate values according to your database setup. Additionally, if you are using a different database other than MySQL, you will need to change the JDBC driver and connection URL accordingly.