Implement a Java application that creates multiple threads, with each thread responsible for fetching data from a different table in a PostgreSQL database using JDBC. The application should concurrently retrieve and print the data from the tables.

Requirements:

Create a PostgreSQL database with multiple tables (e.g., employees, departments, projects).

Implement a thread class that connects to the database and fetches data from a specified table.

Start multiple threads, each fetching data from a different table.

Use JDBC to connect to the PostgreSQL database and retrieve the data.

Implementation of Thread Class:

MultiThreadedDatabaseFetcher > src > main > java > com > example > DataFetcher.java > ...

```java
package com.example;

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

public class DataFetcher implements Runnable {
    private String tableName;

    public DataFetcher(String tableName) {
        this.tableName = tableName;
    }

    @Override
    public void run() {
        String url = "jdbc:postgresql://localhost:5432/company_db";
        String user = "postgres";
        String password = "swetha12@";

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

        try {
            conn = DriverManager.getConnection(url, user, password);
            stmt = conn.createStatement();
            String query = "SELECT * FROM " + tableName;
            rs = stmt.executeQuery(query);

            System.out.println("Data from table: " + tableName);
            while (rs.next()) {
                int columns = rs.getMetaData().getColumnCount();
                for (int i = 1; i <= columns; i++) {
                    System.out.print(rs.getString(i) + "\t");
                }
                System.out.println();
            }
```

```
40              } catch (SQLException e) {
41                  e.printStackTrace();
42              } finally {
43                  try {
44                      if (rs != null) rs.close();
45                      if (stmt != null) stmt.close();
46                      if (conn != null) conn.close();
47                  } catch (SQLException e) {
48                      e.printStackTrace();
49                  }
50              }
51          }
52      }
```

Implementation of Main Class:

MultiThreadedDatabaseFetcher > src > main > java > com > example > MultiThreadedDatabaseFetcher.java > ...

```
1   package com.example;
2
3   import java.util.concurrent.ExecutorService;
4   import java.util.concurrent.Executors;
5
6   public class MultiThreadedDatabaseFetcher {
        Run | Debug
7       public static void main(String[] args) {
8           String[] tables = {"employees", "departments", "projects"};
9           ExecutorService executorService = Executors.newFixedThreadPool(tables.length);
10
11          for (String table : tables) {
12              DataFetcher fetcher = new DataFetcher(table);
13              executorService.execute(fetcher);
14          }
15
16          executorService.shutdown();
17      }
18  }
```

pom.xml:

MultiThreadedDatabaseFetcher > pom.xml

```xml
<project xmlns="http://maven.apache.org/POM/4.0.0"
         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <groupId>com.example</groupId>
    <artifactId>MultiThreadedDatabaseFetcher</artifactId>
    <version>1.0-SNAPSHOT</version>
    <build>
        <plugins>
            <plugin>
                <groupId>org.codehaus.mojo</groupId>
                <artifactId>exec-maven-plugin</artifactId>
                <version>3.3.0</version>
                <configuration>
                    <mainClass>com.example.MultiThreadedDatabaseFetcher</mainClass>
                </configuration>
            </plugin>
        </plugins>
    </build>


    <dependencies>
    <dependency>
        <groupId>org.postgresql</groupId>
        <artifactId>postgresql</artifactId>
        <version>42.2.20</version>
    </dependency>
</dependencies>
</project>

```

Output:

```
PS C:\Users\SWETHA BENNY\Documents\javaProject\MultiThreadedDatabaseFetcher> mvn exec:java
>>
[INFO] Scanning for projects...
[INFO]
[INFO] -------------< com.example:MultiThreadedDatabaseFetcher >-------------
[INFO] Building MultiThreadedDatabaseFetcher 1.0-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- exec:3.3.0:java (default-cli) @ MultiThreadedDatabaseFetcher ---
Data from table: projects
Data from table: employees
Data from table: projects
Data from table: projects
Data from table: projects
Data from table: employees
Data from table: departments
1       1       John Doe        1       Software Engineer       Project Alpha
Engineering     New York
2       100000.00
Jane Smith      2       Project Manager
2       3       Marketing       Alice Johnson   Project Beta    Data Analyst
Data from table: projects
Data from table: employees
Data from table: departments
1       1       John Doe        1       Software Engineer       Project Alpha
Engineering     New York
2       100000.00
Jane Smith      2       Project Manager
2       3       Marketing       Alice Johnson   Project Beta    Data Analyst
San Francisco
Data from table: projects
Data from table: employees
Data from table: departments
1       1       John Doe        1       Software Engineer       Project Alpha
Engineering     New York
2       100000.00
Jane Smith      2       Project Manager
2       3       Marketing       Alice Johnson   Project Beta    Data Analyst
1       1       John Doe        1       Software Engineer       Project Alpha
Engineering     New York
```

```
2       100000.00
Jane Smith      2       Project Manager
2       3       Marketing       Alice Johnson   Project Beta    Data Analyst
Engineering     New York
2       100000.00
Jane Smith      2       Project Manager
2       3       Marketing       Alice Johnson   Project Beta    Data Analyst
San Francisco
200000.00
3       HR      3       Project Gamma   Los Angeles
2       3       Marketing       Alice Johnson   Project Beta    Data Analyst
San Francisco
200000.00
3       HR      3       Project Gamma   Los Angeles
San Francisco
200000.00
3       HR      3       Project Gamma   Los Angeles
150000.00
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
3       HR      3       Project Gamma   Los Angeles
150000.00
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.676 s
150000.00
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.676 s
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.676 s
[INFO] Total time:  0.676 s
[INFO] Finished at: 2024-08-05T14:12:02+05:30
[INFO] ------------------------------------------------------------------------
PS C:\Users\SWETHA BENNY\Documents\javaProject\MultiThreadedDatabaseFetcher>
```