JAC444 - Lecture 13

Java DataBase Connectivity

Segment 1 - Introduction to JDBC

JDBC

In this lesson you will be learning about:

- What JDBC Technology is and how you can use it

- Basic steps in working with database

- Connection URL with the database

JDBC Goals

JDBC (Java Database Connectivity)
 is a standard SQL database access interface

- The JDBC API defines classes to represent constructs such as database connections, SQL statements, result sets, and database metadata

- JDBC allows a Java program to issue SQL statements and process the results

  - To provide Java programmers with a uniform, simple interface to a wide range of relational databases DB independence.
  - It can replace underlying database with minimal code impact.

JDBC Definitions

- JDBC is a Java API for executing SQL statements.

- It consists of a set of classes and interfaces written in the Java programming language.

- The combination of Java and JDBC lets a programmer write it once and run it anywhere.

JDBC technology

Four steps required to design apps with JDBC

1 Connect to the database

2 Create a statement and execute the query

3 Look at the result set

4 Close connection

Basic Steps

1

```
Connection con = DriverManager.getConnection (
    jdbc:odbc:seneca", "user", "password");


Statement stmt = con.createStatement();
```
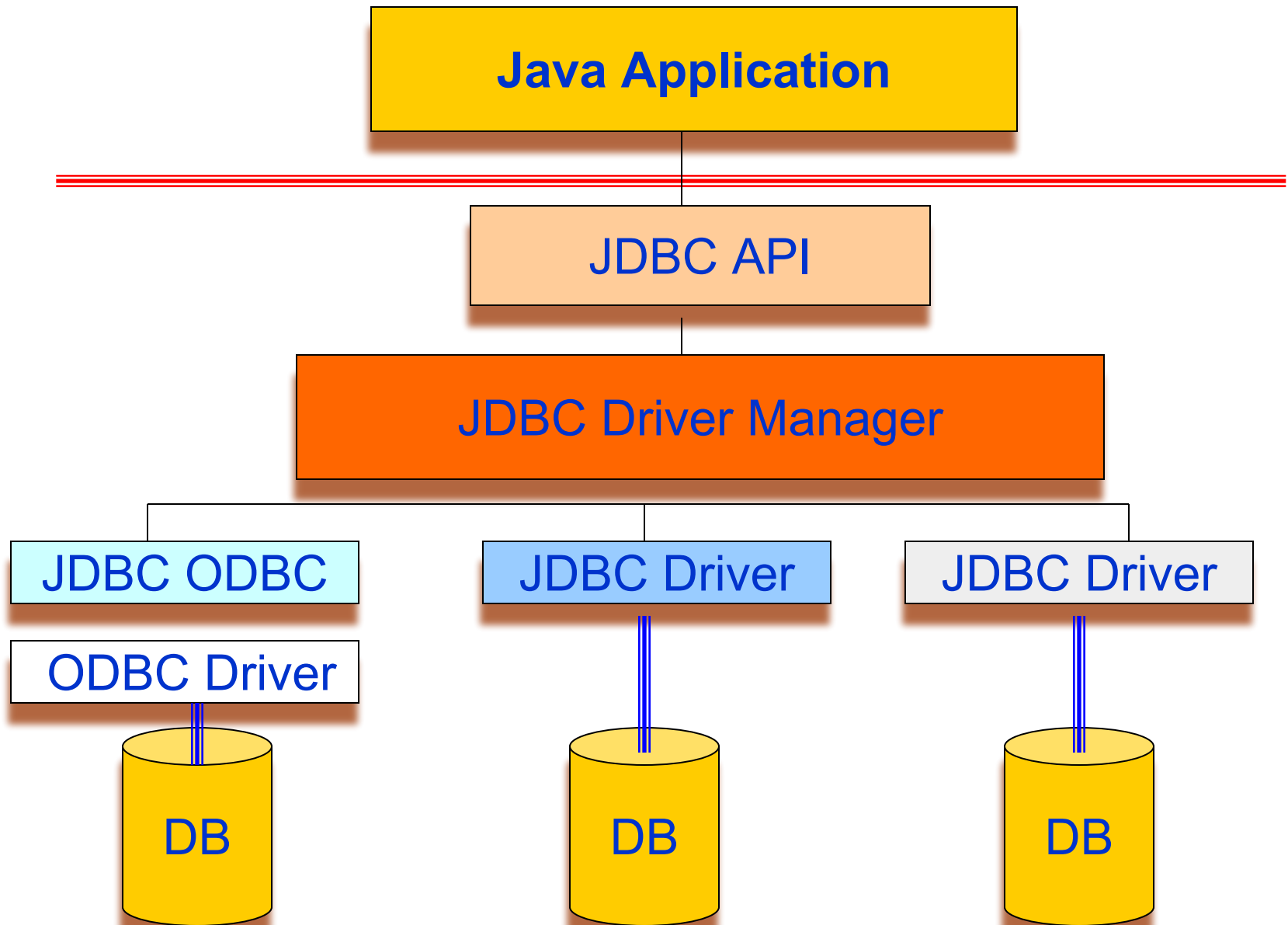
2

3

```
ResultSet rs =
    stmt.executeQuery("SELECT a, b, c FROM TableX");
while (rs.next()) {
    int x = rs.getInt("a");
    String s = rs.getString("b");
    float f = rs.getFloat("c");
 }


 con.close();
```

4

Driver Manager

Java Application

JDBC API

JDBC Driver Manager

JDBC ODBC

JDBC Driver

JDBC Driver

ODBC Driver

DB

DB

DB

Load the Driver Manager

- The driver manager is the piece of software that knows how to talk to the actual database server

- To load the driver one should load the appropriate class.

```
try {
    Class.forName("oracle.jdbc.driver.OracleDriver");
} catch (ClassNotFoundException e) {
    System.out.println("Error loading the driver" + e);
}
```

Most drivers are distributed as JAR files.

Include the path to your JAR file to your CLASSPATH settings.

Connection URL

The structure of URL for accessing databases

`protocol:subprotocol:datasourcename`

- *protocol* :   jdbc
- *subprotocol*:   vendor specific format
- *datasourcename*:   your database name

- Example:
  ```
  String host = "dbhost.companyname.com";
  String db = "databaseName";
  int port = 1234;
  String oracleURL =
      "jdbc:oracle:thin:@" + host + ":" + port + ":" +db;
  ```