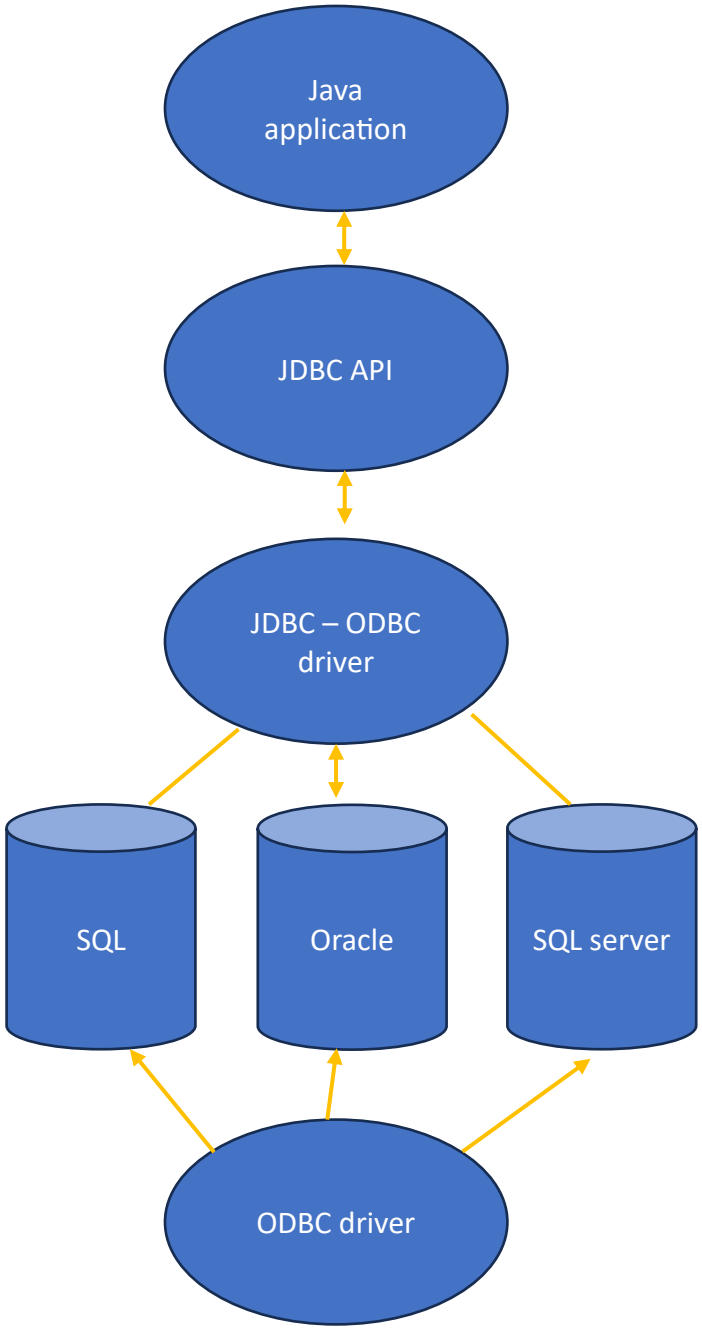
Unit-5

Database Connectivity with Java

JDBC

Java database connectivity is a java based API that provides a standard method for java application to interact with relational database. This allows java application to establish database connection send SQL queries to the database, retrieve data from the database and update the database records. Some key features of JDBC are as follows:

1. Database selectivity
2. Platform independence
3. SQL Query execution
4. Result Processing
5. Transaction Management
6. Exception Handling
7. Resource Management
8. Batch Processing
9. Database Meta Data



Architecture of JDBC

From the above figure, the important component of JDBC are:

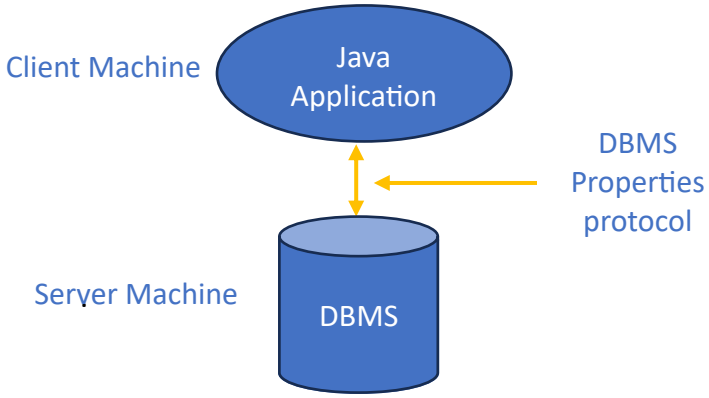
1. Java Application: These are java applications such as circulate
2. JDBC API: It is an API that is used to create database. It uses interfaces and classes to connect with database. Some of the essential class and interface defined in JDBC architecture in Java are the connection interface and driver manager class.
3. Driver Manager Class: This is used to create a connection between database and java application. A connection is established between java application and data source using the gate connection method of this class.
4. Data Source: These are the data sources that we can connect with this API (JDBC). These are the sources where the data is kept and stored by java applications. JDBC API helps in connecting various databases such as MySQL, Oracle, MS-Excel.
5. JDBC driver: These are used to connect with the data source. All databases such as MySQL, Oracle, MS-Excel have their driver. We must load their specific fibers to connect with these databases. Java class used for loading driver is class. Its method is class.forName() is used to load drivers in JDBC architecture.

Types of JDBC Architecture

On the basis of processing model, the JDBC architecture can be classified into 2 types. They are :

1. Two type architecture
2. Three type architecture

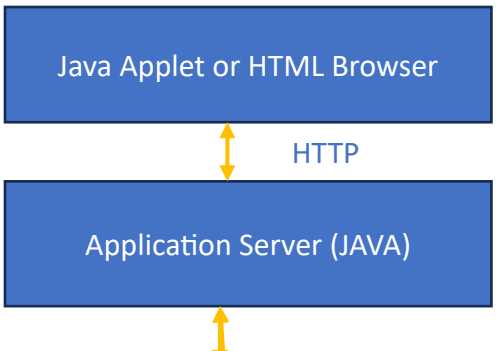
Two type architecture

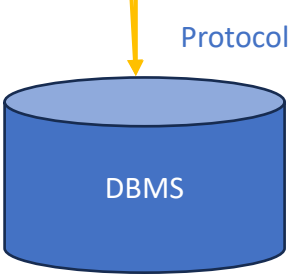


It is the basic model. In this model a java applications and java applet communicate directly with the data source. JDBC driver is used to create a communication between java source and application. When a java application is required to interact with database, a query is executed directly on the data source and the output of the query is sent back to the user.

This model is also known as client-server configuration. This data source can be formed on different machine that is connected to the same network.

Three type architecture





This model is more secure and complex model of JDBC architecture in java. The user queries are sent to the middle way tier and then execute on the data source. In this model, the java applications is treated as one time connection to the third tier i.e. data source use in middle tier service. The result receive in the database are again sent to the middle tier and then to the applications or users.

JAVA FX 3 PROGRAM (PRACTICAL)