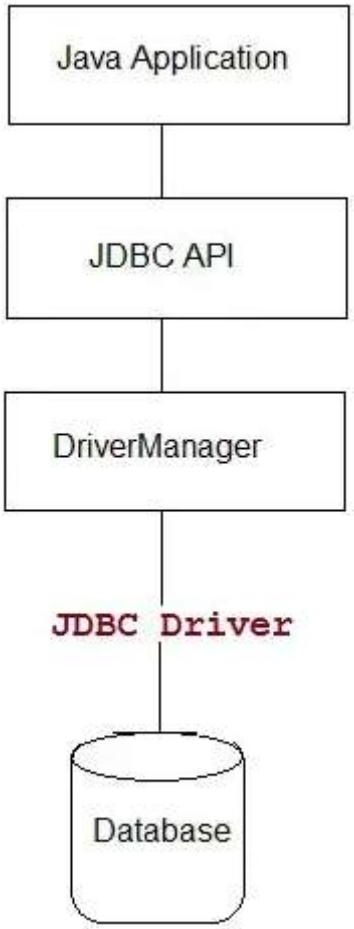
Introduction to JDBC

Java Database Connectivity(JDBC) is an Application Programming Interface(API) used to connect Java application with Database. JDBC is used to interact with various type of Database such as Oracle, MS Access, My SQL and SQL Server. JDBC can also be defined as the platform-independent interface between a relational database and Java programming. It allows java program to execute SQL statement and retrieve result from database.

The JDBC API consists of classes and methods that are used to perform various operations like: connect, read, write and store data in the database.

You can get idea of how JDBC connect Java Application to the database by following image.



- **Architecture of JDBC**

1) Application: It is the Java servlet or an applet that communicates with the data source.

2) The JDBC API: It allows the Java programs to perform the execution of the SQL statements and then get the results.

A few of the crucial interfaces and classes defined in the JDBC API are the following:

Drivers

DriverManager

Statement

Connection

CallableStatement

PreparedStatement

ResultSet

SQL data

3) DriverManager: DriverManager plays a crucial role in the architecture of JDBC.

It uses database-specific drivers to connect the enterprise applications to various databases.

4) JDBC drivers: To interact with a data source with the help of the JDBC, one needs a JDBC driver which conveniently interacts with the respective data source.

- **Different Types of Architecture of JDBC**

The architecture of the JDBC consists of two and three tiers model in order to access the given database.

Two-tier model: In this model, the application interacts directly with the source of data. The JDBC driver establishes the interaction between the data source and the application. When a query is sent by the user to the data source, the reply of those sent queries is sent directly to the user.

The source of data can be located on a different machine, and that machine is connected to the user machine following a client-server paradigm, where the machine which is sending the query is the client machine, and the machine that is sending the result of those queries is acting as the server.

Three-tier model: In this model, the queries of the user are being sent to the middle-tier services, from where the commands are sent again to the source of data. The answers to those queries are reverted to the middle tier, and from there, it is again sent to the user.