ECAP615

Programming in Java

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Learning Outcomes

After this lecture, you will be able to

- learn the basic concept of JDBC and its use
- understand the different types of JDBC drivers
- know the working of various components of JDBC
- analyze the different architectural components and their use

JDBC

- Java Database Connectivity(JDBC) is an Application Programming Interface(API) used to connect Java application with Database.
- It is used to interact with various type of Database.
- It can also be defined as the platform-independent interface between a relational database and Java programming.

JDBC

- 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 in the database.

Use of JDBC

- Enterprise applications that are created using the JAVA EE technology need to interact with databases to store application-specific information.
- Before JDBC, the ODBC API was the database API to connect and execute queries with the database.
- But, the ODBC API uses the ODBC driver, which is written in the C language.

Use of JDBC

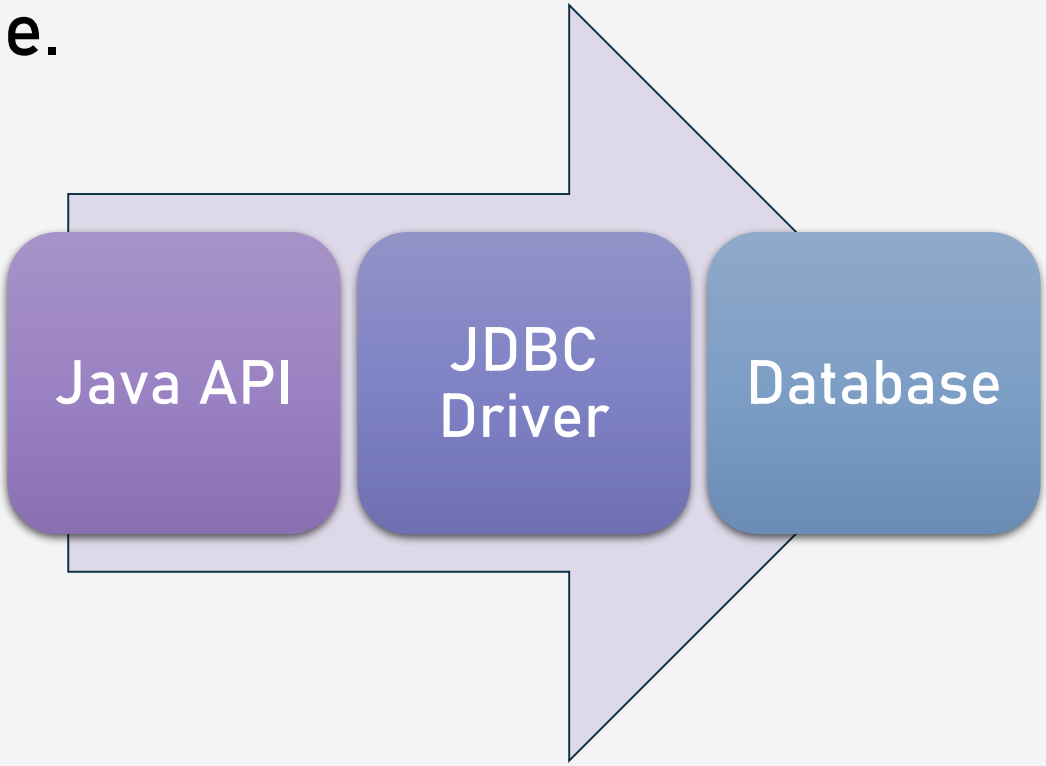
- That is why Java has defined its own API (JDBC API) that uses JDBC drivers (written in the Java language).
- This driver is used with JDBC to interact or communicate with various kinds of databases.

Use of JDBC

- We can use JDBC API to handle database using Java program and can perform the following activities:
  - Connect to the database.
  - Execute queries and update statements to the database.
  - Retrieve the result received from the database.

JDBC Driver

- JDBC Driver is a software component that enables java application to interact with the database.



Types of JDBC Drivers

There are 4 types of JDBC drivers

- ✓JDBC-ODBC bridge driver
- ✓Native-API driver (partially java driver)
- ✓Network Protocol driver (fully java driver)
- ✓Thin driver (fully java driver)

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Which Driver should be Used?

- If you are accessing one type of database, the preferred driver type is 4.
- If your Java application is accessing multiple types of databases at the same time, type 3 is the preferred driver.
- Type 2 drivers are useful in situations, where a type 3 or type 4 driver is not available yet for your database.

Which Driver should be Used?

- The type 1 driver is not considered a deployment-level driver, and is typically used for development and testing purposes only.

Components of JDBC

- DriverManager
- Driver
- Connection
- Statement
- ResultSet
- SQLException

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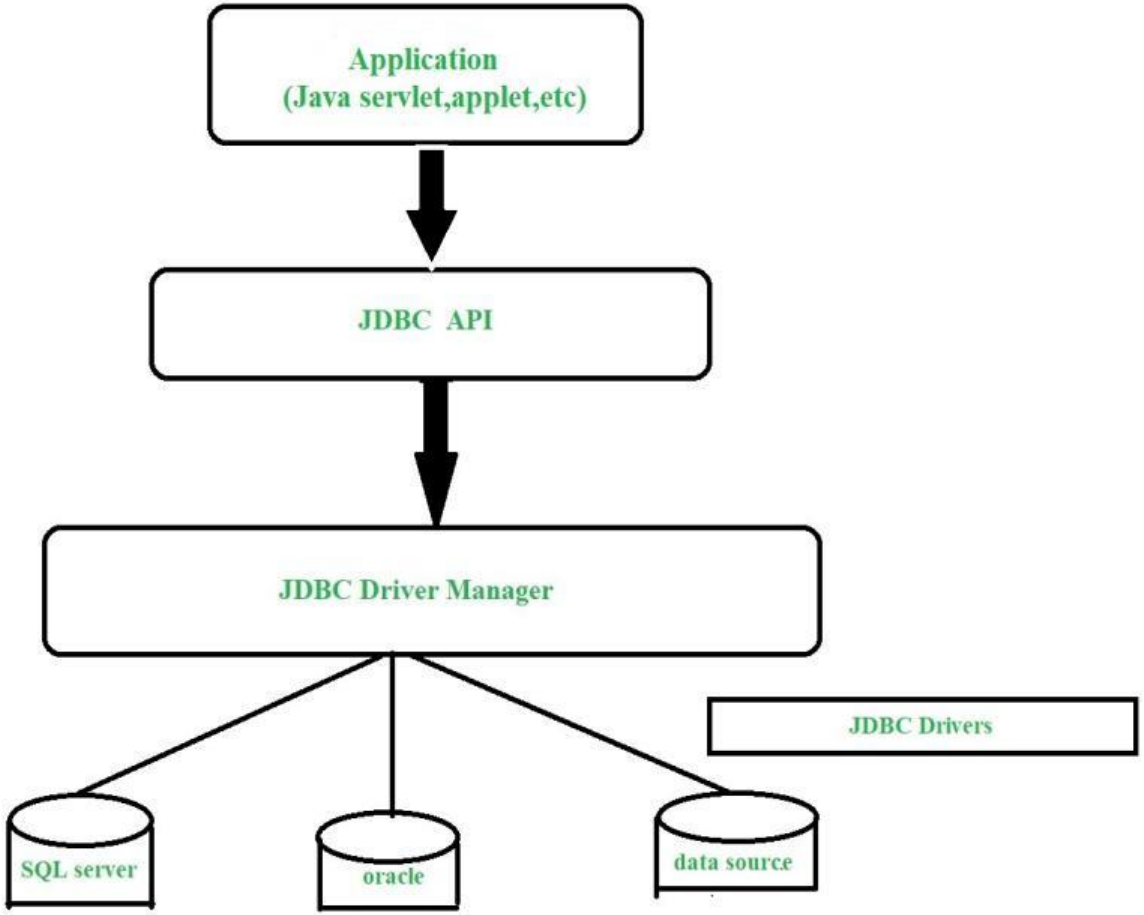
Architecture of JDBC



Architecture of JDBC

- Application
- The JDBC API
- DriverManager
- JDBC drivers

Types of JDBC Architecture

- The JDBC architecture consists of two-tier and three-tier processing models to access a database.
  - ✓Two-tier model
  - ✓Three-tier model


That’s all for now…