

# JDBC (Java Database Connectivity) – Simple Notes

## 1. What is JDBC?

JDBC stands for Java Database Connectivity. It is a Java API used to connect Java programs to databases, execute SQL queries, and process the results.

## 2. Why do we use JDBC?

Applications need to permanently store and manage data in databases like MySQL, Oracle, or PostgreSQL. JDBC allows Java applications to store, retrieve, update, and delete data.

## 3. Steps in every JDBC program

- 1) Load the JDBC driver
- 2) Create database connection
- 3) Create Statement or PreparedStatement
- 4) Execute SQL query
- 5) Process ResultSet
- 6) Close the connection

## 4. Important JDBC Interfaces and Classes

DriverManager – connects Java to database

Connection – represents a connection session

Statement – executes simple SQL queries

PreparedStatement – executes parameterized queries

ResultSet – holds the result of SELECT queries

## 5. Basic JDBC Program Example

```
import java.sql.*; public class JDBCExample { public static void main(String[] args) { try { Class.forName("com.mysql.cj.jdbc.Driver"); Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/college", "root", "password"); Statement st = con.createStatement(); ResultSet rs = st.executeQuery("SELECT * FROM students"); while(rs.next()) { System.out.println(rs.getInt(1) + " " + rs.getString(2)); } con.close(); } catch (Exception e) { e.printStackTrace(); } } }
```

## 6. PreparedStatement Example

```
String q = "INSERT INTO students VALUES (?, ?)"; PreparedStatement ps = con.prepareStatement(q); ps.setInt(1, 1); ps.setString(2, "Karthikeyan"); ps.executeUpdate();
```

## 7. Advantages of JDBC

- Platform independent
- Works with multiple databases

- Secure with PreparedStatement
- Widely used and simple

## **8. Disadvantages of JDBC**

- Requires SQL knowledge
- Manual connection handling
- Not the best choice for very large enterprise systems

## **9. One-line Summary**

JDBC is a Java technology that allows Java programs to connect to databases and execute SQL queries easily.