Task 7 Date :14.08.2025

1. What is JDBC?

JDBC (Java Database Connectivity) is a Java API for connecting and executing queries with relational databases.

It provides interfaces and classes for database operations.

It works with drivers to communicate with the database.

2. What is PreparedStatement?

PreparedStatement is a precompiled SQL statement in JDBC.

It allows setting parameters dynamically using placeholders (?).

It improves performance and prevents SQL injection.

3. Difference between Statement and PreparedStatement?

Statement executes static SQL without parameters.

PreparedStatement supports parameters and is precompiled for reuse.

PreparedStatement is faster and safer against SQL injection.

4. How do you handle SQL exceptions?

Use try-catch blocks to catch SQLException.

Log the exception message, SQL state, and error code.

Optionally rethrow or handle gracefully.

5. How to prevent SQL Injection?

Always use PreparedStatement or CallableStatement instead of concatenating strings.

Validate and sanitize user inputs.

Avoid executing dynamic SQL built from user data.

6. What is JDBC DriverManager?

DriverManager manages JDBC drivers.

It establishes a database connection using getConnection().

It loads the appropriate driver automatically.

7. How to close connections?

Call close() method on Connection, Statement, and ResultSet.

Close them in reverse order of creation.

Use try-with-resources for automatic closing.

8. What is a ResultSet?

ResultSet is a table of data returned by executing a query.

It allows reading rows using cursor movement methods.

Provides getter methods like getString() and getInt().

9. What is auto-commit in JDBC?

Auto-commit automatically commits every SQL statement.

It is true by default in JDBC connections.

Can be disabled using setAutoCommit(false) for transaction control.

10. How to connect Java to MySQL?

Load MySQL JDBC driver (optional for newer versions).

Use DriverManager.getConnection(url, user, password).

URL format: jdbc:mysql://host:port/database.