JDBC Interview Questions and answers

-By SivaReddy

1) What is JDBC?
   - ➤ java.sql (Provides the API for accessing and processing data stored in a data source (usually a relational database) using the Java TM programming language), The JDBC 4.0 API
2) What are different types of drivers available to connect to database?
   - ➤ Type 1(JDBC-ODBC Bridge Driver)
   - ➤ Type 2(JDBC API calls are converted into native C/C++ API calls)
   - ➤ Type 3 (The JDBC clients use standard network sockets to communicate with a middleware application server)
   - ➤ Type 4(Pure Java-based driver communicates directly with the vendor's database through socket connection)
3) Steps involved in working with JDBC?
   - ➤ Load the Driver Class
   - ➤ Establishing a connection.
   - ➤ Create a statement.
   - ➤ Execute the query.
   - ➤ Process the ResultSet object.
   - ➤ Close the connection.
4) What is Statement and different types of Statements available to work JDBC?
   - ➤ Statement
   - ➤ PreparedStatement
   - ➤ CallableStatement
5) What is resultSet and resultset Types, Result Concurrency?
   - ➤ TYPE_FORWARD_ONLY
   - ➤ TYPE_SCROLL_INSENSITIVE
   - ➤ TYPE_SCROLL_SENSITIVE
   - ➤ CONCUR_READ_ONLY: The ResultSet object cannot be updated using the ResultSet interface.
   - ➤ CONCUR_UPDATABLE: The ResultSet object can be updated using the ResultSet interface.

6) How to handle DB exception handling while working with JDBC?
   - ➤ Try with Catch
   - ➤ Try with resource Statement
   - ➤ SQLException (SQLException, SQLState, SQL error code, Cause)
   - ➤ SQLTransientException, SQLNonTransientException, SQLRecoverableException
7) What is Transaction Management in JDBC?
   - ➤ Connection.setAutoCommit(false);
   - ➤ Connection.setAutoCommit(true);
   - ➤ Connection.Commit()
   - ➤ Connection.rollback()
   - ➤ Savepoint save1 = con.setSavepoint(); Connection.rollback(save1)

8) How do you get metadata about table using JDBC?
   ResultsetMetaData from the ResultSet Object
9) How do you get metadata about the database using JDBC?
   DatabaseMetaData from the Connection Object
10) What is SQL Warning and how to handling them in JDBC?
   ➢ SQLWarning (A warning can be reported on a Connection object, a Statement object
      (including PreparedStatement and CallableStatement objects), or a ResultSet object)
11) How to execute procedure and functions using JDBC?

```
CallableStatement cs = con.prepareCall("{call ProcedureName(?,
?)}");
 cs.setString(1, parameter1);
 cs.registerOutParameter(2, Types.VARCHAR);  cs.executeQuery();
```

12) How to upload/download image from database using the JDBC?
```
//To upload image into database table
PreparedStatement
ps=con.prepareStatement("insert into ATTACHMENT_TABLE values(?,?)
");
ps.setString(1,"nature.jpg");
FileInputStream fin=new FileInputStream("D:\\attachment\\nature.j
pg");
ps.setBinaryStream(2,fin,fin.available());
int i=ps.executeUpdate();

//To download image from database table
PreparedStatement ps=con.prepareStatement("select * from
ATTACHMENT_TABLE where filename=?");
ps.setString(1, "nature.jpg");
ResultSet rs=ps.executeQuery();
if(rs.next()){//now on 1st row
Blob b=rs.getBlob(1);
byte barr[]=b.getBytes(1,(int)b.length());//1 means first image
```

13) What is different between Statement, PreparedStatement and CallableStatement?
14) Does it possible to connect more than one database for the single application?
15) What happens if developer close already closed connection/statement/resultset object?
16) Does it mandatory to load the driver class before execute the queries in JDBC?
17) Does it mandatory close resources if so, How do you close resources (Connection, Statement,
   ResultSet objects) in JDBC?
18) What is SQL injection and how to fix SQL Injection?
   String query = "select * from emp where empId = " + empId + " and
   empName='"+empName+"'";
   Statement stmt = connection.createStatement();
   stmt.executeQuery(query);
   //below is the code to fix the sql injections
   String query = "select * from emp where empId =? and empName=?";

PreparedStatement pstmt = connection.preparedStatement(query);
Pstmt.executeQuery();

19) What is memory leak and how to avoid memory leaking in working with JDBC?
   - Use try and finally block to close Connection, Statement and ResultSet objects or try-with-resources

20) What is Clob and how to handle clob data type in JDBC?
   //writing clob data into database

```
Clob myClob = connection.createClob();
        myClob.setString(1,<FileContent>);
  String sql = "INSERT INTO FILE_DATE VALUES(?,?)";
  PreparedStatement pstmt = connection.prepareStatement(sql);
  pstmt.setString(1, fileName);
  pstmt.setClob(2, myClob);
  pstmt.executeUpdate();
  myClob.free();

 //Read clob data from the table


  String sql = "SELECT FILE_NAME, CONTENT FROM FILE_DATE WHERE FILE_NAME=?";
  PreparedStatement pstmt = connection.prepareStatement(sql);
  pstmt.setString(1, fileName);
  ResultSet rs = pstmt.executeQuery();
 if(rs.next()) {
 String fileContent = rs.getClob(2);
 }
```