Phase 2

Total number of session 9 session

My SQL : Self learning : Database

File system limitation

1. Data redundancy : duplicate data we can store.
2. Inconsistency : format of the file.
3. Security : read or write mode.
4. CRUD Operation : Create or insert, delete, update and retrieve more complex.

Database : Database is use to store the data in table format. If Database is RDBMS (Relational Database Management System).

DBMS is a software which help to store the data in table format.

Codd’s rules 12 rules.

DBMS Vs RDBMS

RDBMS Databases

MySQL Sun micro system / Oracle

Oracle Oracle

Db2 IBM

SQL Server micro soft

SQL (Structured Query Language)

SQL mainly divided into 5 types.

1. DRL or DQL Data Query language or Data Retrieval language
2. DDL Data Definition language
3. DML Data Manipulation language
4. TCL Transactional control language
5. DCL Data Control language

After connected database using username and password ie in terminal

show databases; this command is use to display all databases present

in your account

use databasename; it is use to switch inside existing database.

create database databasename;

use databasename;

Employee -------🡪 Table

PK

Id name salary

Create table tableName(columnName dataTypes,columnName datatype);

JDBC (Java Database Connectivity)

JDBC is API (Application programming interface) which provided set of classes and interfaces which help to connect any database like mysql , oracle, db2 , mongo db etc. Using java program we can insert, delete, update and retrieve records.

Steps to connect database ie mysql using JDBC.

1. Import the package.

JDBC provided lot of classes and interfaces and those classes and interfaces part of sql package

import java.sql.\*;

import javax.sql.\*;

1. JDBC throw checked exception ie SQLException. We need to write the code with exception handling topic using try-catch or throws exception.

May in main or user defined methods.

1. Load the Driver

Driver is a pre defined class provided by vendor whose database we are going to connect.

4 types of driver

1. Type 1 or jdbc odbc bridge driver
2. Type 2 or jdbc native api driver :database dependent. Fast in performance but database dependent.
3. Type 3 or jdbc net protocol driver : we need to server environment.
4. Type 4 or jdbc pure driver or thin driver : we need to add jar file in our project.

From java8 onward type 1 removed.

We are connecting mysql dataset using type 4 driver

Class.forName(“driverName”);

Class is a pre defined class the name itself is Class part of lang package.

Which contains forName static method which help to load the class.

Class.forName(“com.mysql.jdbc.Driver”); 5.x version

Class.forName(“com.mysql.cj.jdbc.Driver”); 8.x version

1. Now we need to establish the Connection.

Connection con = DriverManager.gettConnection(url,username,password);

Connection con = DriverManager.gettConnection(“jdbc:mysql://localhost:3306/mydb”,”root” ,”root@123”);

DriverManager is a pre defined class part of sql package. Which contains getConnection static method which takes 3 parameter

1st url

2nd username

3rd password

DriverManager.getConnection() method return type is Connection interface reference.

VM

In SQL Terminal

alter user ‘root’@’localhost’ identified with mysql\_native\_password by ‘root@123’

flush privileges

1. Create Statement or PreparedStatement

Statement is an interface which provide set of method which help to do some operation on table.

Statement stmt = con.createStatement();

1. DML Operation (insert, Delete or Update)

int result = stmt.executeUpdate(“DML Operation”);

if query executed successfully and based upon query how records effected that return type hold by result variable.

1. DRL (select query)

ResultSet rs = stmt.executeQuery(“select query”)

Statement Vs PreparedStatement

1. Statement is use to execute static query. PreparedStatement is use to execute dynamic query with parameterized query concept.
2. In Statement each time query compile in java side and send to database and execute and get the acknowledgement. But PreparedStatement is compile only once and execute n number of times. Ie Pre compiled query.

ORM (Hibernate tool)

Servlet

JSP (Java Server pages)

Section end project