Data – Any Kind of Information

Database –

Storing the Data

* Flat file (.txt, .rtf,.doc) – We traditionally stored data in this format. – Not organized way of storing the data.
* Storing the data in database – Organized way of storing the data (Storing the data in a proper format)

Rows also called as Records

Table is also called as tuples

Table is a combination of Row & Columns

Each Row will have many details about a particular thing.

Each column will have same information of many things.

Normalization – Avoiding Redundancy (Removing Duplicates)

DBMS – Database Management System (Software for storing and retrieving data in an organized format)

DBMS – Entity (General Term) – Table, View, Sequence, Trigger

RDBMS – Relational DBMS

* Oracle
* MySQL
* DB2
* Postgres
* MSSQL

Types of Relationships in SQL

* One to One
* One to Many
* Many to Many

SQL - Structured Query Language (DB independent Query Language)

DDL – Data Definition Lang (Create, Alter, Truncate, Rename, Drop)

DML – Data Manipulation Lang (CRUD – Insert, Update, Delete)

TCL – Transaction Control Lang (Commit, Rollback)

DCL – Data Control Lang (Grant, Revoke)

DQL – Data Query Lang (Select)

Database Software is a Client Server software. (Request & Response)

Database Server – Data base Client

MySQL – Server

Default user name is – root / root

Different ways of connecting to database server

1. Using Command Line Client (CLI) – CUI – Character User Interface (Needs to remember SQL commands to access)
2. Using GUI Client (Graphical User Interface)
3. Using any Programming Lang

Mysql

Show databases;

Use <db\_name>;

Show tables;

Create schema <schema\_name>;

Dbever – Community GUI tool for interacting with any Database (RDBMS)

Using Programming Lang

Steps

1. Loading & Registering the Driver
2. Establish the connection between Prog. Lang and RDBMS
3. Create and execute Queries
4. Store & Process the Result
5. Close all Resources

Note: DB Operation is a costlier operation (If an operation takes more time/more memory)

Connecting Printer to your laptop

1) Download & Install Drivers

2) Connecting Printer with Laptop

3) Test print

4) Actual Print

5) Power off

https://www.gmail.com

Location of MySQL Driver for Java - C:\Program Files (x86)\MySQL\Connector J 8.0

CREATE TABLE `delo`.`trainees` (

`id` INT NOT NULL AUTO\_INCREMENT,

`name` VARCHAR(45) NULL,

`email` VARCHAR(45) NULL,

`mobile` BIGINT(10) NULL,

PRIMARY KEY (`id`));

INSERT INTO `delo`.`trainees` (`name`, `email`, `mobile`) VALUES ('xyz', 'xyz@gmail.com', '9878678798');

|  |  |  |
| --- | --- | --- |
| Sl No | Database Name | Values |
| 1 | Driver Class Name | com.mysql.cj.jdbc.Driver |
| 2 | UserName & Password | root/root |
| 3 | Connection URL | Jdbc:mysql://localhost:3306/delo |

JDBC API (Specification)

JDBC – Java DataBase Connectivity

Connection(I)

Driver(I)

ResultSet(I)

DriverManager [C]

Statement(I)

PreparedStatement(I)

CallableStatement(I)

<https://docs.oracle.com/javase/8/docs/api/> -- Java 8 API Documentation URL

Database Operations

CRUD Operation

C – Create /Insert

R – Read (ReadAll & ReadOne/ReadById)

U – Update (Update All & Update By Id)

D – Delete (Delete All / Delete By Id)

Types of Classes in JAVA

* Simple Class/ Concrete Class/Complete Class
* POJO class – Plain Old Java Objects (A class which is not extending other class nor implementing any interface)
* Wrapper Class
* Starter Class (A class with main method)
* Bean Class (A Class with properties, getter/setters and constructors)
* Entity Bean Class (A Bean class representing database table)
* Parent Class /Super Class/ Base Class
* Child Class/Sub Class/Derived Class
* Abstract Class (In-complete/Non-concrete Class) – A class with abstract method
* Final Class (Can’t be extended)
* Static Class (can call methods without creating it’s object)
* DAO Class (Data Access Object)
* Service Class
* Controller Class
* DTO Class (Data Transfer Object)
* Thread Class
* Servlet Class (Generic Servlet & HttpServlet)

CRUD operation with an Entity Courses

(id, name, duration (hours), fees (float), url (varchar(125))

Servlet = Adding HTML code inside Java Code (println)

JSP = Adding Java code inside the HTML code <% %>

Action Tag <jsp:useBean> </jsp:useBean>

Scriptlet tags <% %>

<%= %> -- Expression Tags

<%@ %> --