SQL

DataBase - System to store information – organized and structured data.

**Popular Database’s (RDBMS):**

**Oracle**

**Oracle MySQL**

Microsoft SQL Server

IBM DB2

MS Access

SQLite

**MongoDB - NoSQL DB**

**Purpose of Database:**

**Store the data**

**organize and structure data**

**perform CRUD Operations – Create , Read , Update and delete the data.**

**eg:**

**Amazon:**

**Register with Amazon- Create the customer record in DB.**

**SignIn – Retrieve/Read data based on Cutomer ID used for registration**

**Update the profile – update**

**Delete the account – delete**

**Create Order - order id**

**track order id – order id**

**update order**

**Cancel order – delete**

**DBMS – Data base management system – system software that helps to interact with User, applications and Database itself for managing**

**the data.**

**stores data in the form of flat files- xml/ excel/ word .**

**It do not have normalization and ACID properties..**

**There is no relation between the files.**

**RDBMS – Relational Database management system**

**We store data in tables – used to store data in the form of rows and columns.**

**There wil be relation between the tables.**

**It follows Normalization and ACID properties.**

**Normalization: Avoid data redundancy and maintain data integrity**

**ER Diagram – Entity relation ship diagram – pictorial representation of tables, columns and relation between tables.**

**RelationShips:**

**One-One relationship**

**One-many relationship**

**many-many relationship**

**DataBase- is a organized collection of data**

**purpose of database:**

**store data**

**provide organizational structure for data -**

**to provide mechanism for create, retrieve, update and delete data.**

**popular db's:**

**Oracle**

**MySQL**

**MIcrosoft SQLServer**

**PostgreSQL**

**MongoDB**

**MS Access**

**SQLite etc**

**DBMS- is a system software that interactes with User, applications and database itself for creating and managing databases**

**rdbms:stores data in form of tables which are related**

**normalization, ACID properties exist in rdbms**

**dbms- stores data as file**

**Normalization- Database Normalization is a technique of organizing the data in the database.**

**Anomalies are problems that can occur in poorly planned, un-normalised databases where all the data is stored in one table (a flat-file database).**

**eg: Insertion Anomaly - The nature of a database may be such that it is not possible to add a required piece of data unless another piece of unavailable data is also added.**

**Normalization is used for mainly two purpose:**

**Eliminating reduntant(useless) data.**

**Ensuring data dependencies make sense i.e data is logically stored.**

**PK-A table typically has a column or combination of columns that contain values that uniquely identify each row in the table.**

**A primary key cannot exceed 16 columns and a total key length of 900 bytes.**

**FK-A foreign key (FK) is a column or combination of columns that is used to establish and enforce a link between the data in two tables to control the data that can be stored in the foreign key table.**

**In a foreign key reference, a link is created between two tables when the column or columns that hold the primary key value for one table are referenced by the column or columns in another table.**

**This column becomes a foreign key in the second table.**

**SQL – Structured Query Language - is a standard language for storing, manipulating and retrieving data in databases.**

**MySQL :**

**practice queries without local setup:**

[**http://sqlfiddle.com**](http://sqlfiddle.com)

[**https://livesql.oracle.com/apex/livesql/file/index.html**](https://livesql.oracle.com/apex/livesql/file/index.html)

**local DB setup:**

**download-mysql:**

**Create oracle account:**

**https://profile.oracle.com/myprofile/account/create-account.jspx**

**https://dev.mysql.com/downloads/mysql/**

**Give one example each for:**

**one-one**

**one-many**

**many-many**

**SQL Course-**

**select**

**oprators, datatypes**

**functions**

**joins**

**subqueries**

**group by**

**ordery by**

**ddl- create, alter, drop, truncate**

**dml- insert, update, select**

**tcl- comit, rollback**

**dcl-grant , revoke**

**DB objects -procedure, trigger, function**

**MongoDB- stores data in the form of JSON- javascript object notation**

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