**SQL**

**SQL high level Course-**

select queries- where, ordery by etc

operators, datatypes

functions

joins

subqueries

group by

ddl- create, alter, drop, truncate

dml- insert, update, select

tcl- comit, rollback

dcl-grant , revoke

DB objects -procedure, trigger, functions,index, views etc

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**DataBase** is a organized collection of data

**Popular Database’s (RDBMS):**

Oracle

Oracle MySQL

Microsoft SQL Server

IBM DB2

MS Access

SQLite

MongoDB - NoSQL DB

MongoDB- stores data in the form of JSON but not tables-

JSON- javascript object notation

studentname: asha

**Purpose of database:**

To store data

To provide organizational structure for data

To provide mechanism for create, retrieve, update and delete data(CRUD operations).

eg for some day to day CRUD activities with Amazon application:

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** – **Database management system** is system software that interactes with User, applications and database itself for creating and managing databases

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 will be relation between the tables.

It follows Normalization and ACID properties.

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

**Types of Relationships:**

One-One relationship

One-many relationship

many-many relationship

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

Normalization is used for mainly two purpose:

Eliminating reduntant(useless) data.

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

**Primary Key** is a column or combination of columns in a table 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.

**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> – for oracle, MySQl etc

<https://livesql.oracle.com/apex/livesql/file/index.html> - only for oracle

**Local DB setup:**

download-mysql:

Create oracle account:

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

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

**MySQLWorkbench**- tool/IDE to connect to database, execute queries and analyze results

Other IDE tools:

SQLDeveloper, Toad

* SQL queries are not case sensitive.
* Data in database is case sensitive in oracle but not in mysql.

Give one example each for:

one-one

one-many

many-many