Introduction to DBMS and SQL

SQL is Mandotary in the world of Data Science. There is no exception in using SQL.

DBMS (Data Base Management Systems).

SQL (Structured Query Language).

ETL - (export,transform,load) tools.

----What is Database?

In [35]:
```
# Database in nothing but which helps us in stroing the Data in form of a table.
# A table is something that consists of different columns and we can store the data in the form of rows.
# We can store this data in form of multiple tables.
# "Management systems" is nothing but the managing the data in Data base either by:
   #--creating the tables.
   #--insert data in to table.
   #--update the data.
# "Data Manaagement" is done with the help of "SQL".
```

In [36]:
```
# In any organization depending on the functionality of the organization the data is stored in form of multiple tables.
# When there is need of data from different tables;
      # we can build a relation between tables and extract the information.
      # This can be done with the help of "Joins".
      # "Joins" help us build the relationship between the tables.
```

Dimension table.

In [37]:
```
# Dimension tables are the ones which have the actual data (for ex - customer id, customer and customer adress etc;)
```

Fact table.

In [38]:
```
# Fact tables are something which have a relation with the dimesnion tables(for ex - Tranactions made by customers).
```

ER diagram.

In [39]:
```
# "Entity Relationship" diagram.
# ER diagram is the architecture of the data set provided.(different tables,relation between the tables,how to join tables etc;)
# called "Er" because it have different entities related to data.
```

In [40]:
```
# If there is a null value in the data. It means there is no data present.
# If there is an empty space. It means data is present in form of something and data is occupied.
```

Schema

In [41]:
```
# Schema describes the structure and organization of data in a database system.
```

Data tyes

In [42]:
```
# String , Numerical, Date and time, char, varchar, int, bool etc;
```

--------Keys--------

Primary key

In [43]:
```
# A primary key is something that is used to identify a unique value. Primary key do not have duplicate values.
# We cannot enter duplicate values in to a column that is called a primary key.
# Examples are Aadhar card, ssn, pan card number etc;
```

Foreign key

In [44]:
```
# Foriegn key is something that is created in a table which refers to primary key of another table.
# This key allows the values that are only present in the primary key table.
# Foriegn key can have duplicates. only constarint is it should be present in the primary key table.
# we can have multiple foriegn keys referring to primary keys in different tables each.
# Foreign key is the reference of primary key in a different table.
```

Composite key

In [45]:
```
# Multiple primary keys together is called a composite key.
```

super key

In [46]:
```
# when a primary key is not available, there will be attributes to identify a unique value.
# That unique value is called a super key.
```

Candidate key

In [55]:
```
# The minimum number of columns that help to identify a unique value is a candiate key.
```

Meanings of symbols in Er diagram.

In [48]:
```
# See the video for clear understanding. bookmarked as symbol meanings in ER diagrams.
```

SQL Commands

In [49]:
```
# DDL - Data Definition language.
# DML - Data manipulation language.
# DCL - Data control language
# TCL - Transaction control language.
# DQL - Data query language.
```

In SQL always use the column names in the queries rather than the (*) symbol.

In [50]:
```
# The following concepts are very important from interview point of view.
```

In [51]:
```
# Every DBMS systems should maintain the ACID properties
# A - Atomocity
# C - Consistency
# I - Isolation
# D - Durability.
```

In [53]:
```
# Rdbms systems can only handle certain limit of data. So the "Big data systems" came in to picture.
# Rdbms are for OLTP (Online Transactional purposes).
# Big data systems are not meant for Transactional purposes.
# Big data systems are only restricted for OLAP (Online analysis process).
```

In [54]:
```
# Watch SQL-1 from 2:12 for 20 minutes for the above.
```

In [ ]:
```

```

In [ ]:
```

```