DAY 11

ATTRIBUTES : Are the properties which defines the entity .

1. **Key attribute / Candidate key :** An attribute which is used to identify a record uniquely from a table is known as key attribute .
   Ex: *Phone_No , mail_id , aadhar , pan , ration , passport , dl , bank a/c*

2. **Non key attribute :** All the attributes other than key attributes .
   Ex : *Name , age , gender , dob*

3. **Prime key attribute :** Among the key attributes an attribute is chosen to be the main attribute to identify a record uniquely from the table is known as prime key attribute .
   Ex: *Phone_No* .

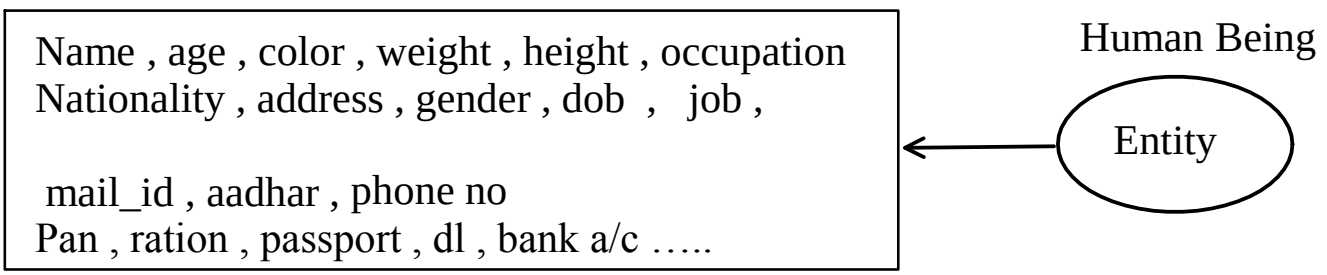
4. **Non-prime key attribute :** All the key attributes other than Prime key attributes
   Ex : *mail_id , aadhar , pan , ration , passport , dl , bank a/c* .

5. **Composite key attribute :** It is combination of two or more *non key attributes*
   which is used to identify a record uniquely from the table .
   > Composite key is found whenever there is no key attribute .
   Ex: *(name , age , dob , address)*

6. **Super key attribute :** It is a set of all key attributes .
   Ex: *{Phone_No , mail_id , aadhar , pan , ration , passport , dl , bank a/c }*

7. **Foreign key attribute :** It is an attributes which behaves as an attribute of another
   entity to represent the relationship .
   Ex: *Dno*

Attributes



mail_id , aadhar , phone no
Pan , ration , passport , dl , bank a/c …..

FUNCTIONAL DEPENDENCY :

"THERE EXISTS A DEPENECY SUCH THAT AN ATTRIBUTE IN A RELATION DETERMINES ANOTHER ATTRIBUTE ".

Example :

EMP - (EID , ENAME)

EID ----> ENAME : *functional dependency* .

TYPES OF FUNCTIONAL DEPENDENCIES :

1. TOTAL FUNCTIONAL DEPENDENCY
2. PARTIAL FUNCTIONAL DEPENDENCY
3. TRANSITIVE FUNCTIONAL DEPENDENCY

1. TOTAL FUNCTIONAL DEPENDENCY:

If an attribute in a relation determines all the other attributes it is known as TFD
OR If all the attributes are dependent on a single attribute then it is known as TFD

EMP - (EID , ENAME , SAL , DOB)

EID * KEY ATTRIBUTE

EID - > ENAME
EID - > SAL
EID - > DOB

:- **EID** ---> (ENAME , SAL , DOB) :- *total functional dependency.*

2. PARTIAL FUNCTIONAL DEPENDENCY:

There exists a dependency such that a part of composite key attributes determines
another attribute uniquely .

CUSTOMER - (CNAME , ADDRESS , MAIL_ID , PHONE_NO)

Customer

CNAME	ADDRESS	MAIL_ID	PHONE_NO
Smith	Mysore	smith@gmail.com	
Miller	Bangalore		1001
Scott	Mangalore	scott@yahoo.com	
Adams	Mysore		2002
Scott	Delhi	scott@yahoo.com	3003

(**PHONE_NO , MAIL_ID**) ---- *Composite key attribute*

PHONE_NO ---> CNAME , ADDRESS
MAIL_ID --- > CNAME , ADDRESS :- *partial functional dep .*

3. TRANSITIVE FUNCTIONAL DEPENDENCY

There exists a dependency such that an attribute is determined by a non-key attribute
, which is intern determined by a key attribute .

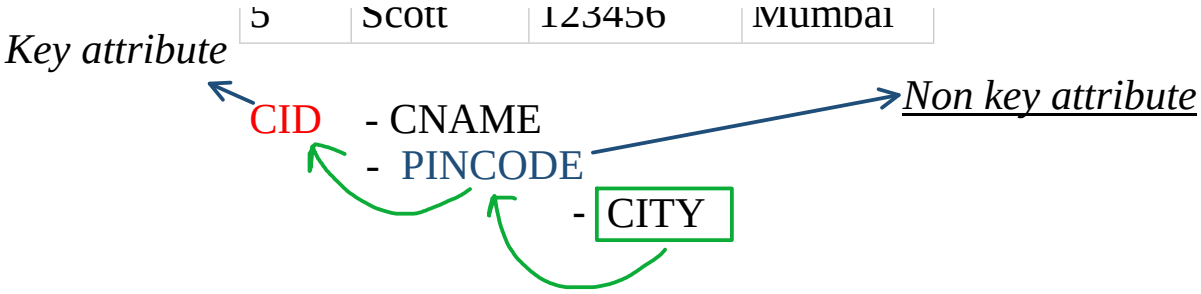
CUSTOMER - (CID , CNAME , PINCODE , CITY)

Customer

CID	CNAME	PINCODE	CITY
1	Smith	560019	Bangalore
2	Miller	560019	Bangalore
3	Scott	312121	Pune
4	Adams	123456	Mumbai
5	Scott	123456	Mumbai

Key attribute *Non key attribute*

5	Scott	123456	Mumbai



Redundancy : *The repetition of unwanted data is known as redundancy .*

Anomaly : *The side effects caused during DML operations is known as Anomaly.*

TOTAL	PARTIAL	TRANSITIVE
No Redundancy	Redundancy Exists	Redundancy Exists
No Anomalies	Anomalies are Present	Anomalies are Present