TYPES OF KEYS

**Primary Key**

1. Primary Key is a column which is used to identify the record uniquely
2. When we keep a column as a primary key Index(clustered index /sorted automatically) will be automatically created.

**Not null**

**Primary Key**

**Unique**

1. You may need to choose a column as PK if it is going to be referred
2. Table level and column level PK constraint
3. Single column can be kept as column level constraint
4. For composite primary key it has to be in table level constraint
5. Don’t keep a column as primary key whose value is going to change very often.
6. Keep constraint name for PK column (PDM)

CREATE TABLE emp\_info(

empno NUMBER(3,0),

name VARCHAR(30),

address VARCHAR(70),

contact\_no VARCHAR(12),

CONSTRAINT pk\_no PRIMARY KEY(empno) );

ALTER TABLE emp\_info ADD CONSTRAINT EMP\_PK (empno,ename) ;

ALTER TABLE emp\_info DROP CONSTRAINT pk\_no;

ALTER TABLE emp\_info DROP primary key;

ALTER TABLE emp\_info DISABLE CONSTRAINT EMP\_PK ;

ALTER TABLE emp\_info ENABLE CONSTRAINT EMP\_PK ;

**Composite Primary key**

If we use multiple columns to create a Primary Key then that Primary Key is called Composite primary Key (also called a Compound Key or Concatenated Key).

**Unique key**

1. It will allow only unique values
2. It will create unique index(Non clustered index / Not sorted ) automatically
3. Table can have any number of unique constraints
4. Combination of columns also can be kept as unique
5. Alter table emp add constraint uc\_emp(empno,pan\_no)
6. Keeping multiple unique constraints in single table will reduce the performance when loading .
7. Unique will allow multiple null values(SQL server different)
8. Dropping the unique constraint will drop the index as well

 CREATE TABLE emp\_info(

empno NUMBER(3,0),

name VARCHAR(30),

address VARCHAR(70),

contact\_no VARCHAR(12),

CONSTRAINT uc\_emp unique(empno,Mobile\_no) );

**Foreign Key(Child Table)**

It is used to enforce referential integrity on table column

It can be more than one column

The foreign key in child table should always refer a primary key in the parent table

It will not create any index on the foreign key column

CREATE TABLE Dept (

Deptno number ,

Loc\_no number,

Loc varchar(10),

Constraint PK1 primary key(deptno,loc\_no)

CREATE TABLE emp\_info(

empno NUMBER(3,0),

name VARCHAR(30),

address VARCHAR(70),

contact\_no VARCHAR(12),

Deptno Number,

Loc\_no number,

CONSTRAINT FK1 foreign key (deptno,loc\_no)

References dept(deptno,loc\_no)

);

**Self referencing primary key & foreign key**

Create table emp\_mgr(empno int primary key,

Ename varchar(10),

Mgr int references emp\_mgr(empno));

|  |  |  |
| --- | --- | --- |
| Empno | Ename | Mgr |
| 101 | God |  |
| 102 | Raja | 101 |
|  |  |  |

**Super key**

* A super key is a combination of columns that uniquely identifies any row within a relational database management system (RDBMS) table.
* A table can have many Super Keys

**Example:**

1. Empno
2. Ename, Bank\_accno
3. Adhaar\_no
4. PAN\_no
5. Ename,Mobile\_no

* So any combination which can identify the records uniquely will be a Super Key

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Empno | Ename | Sal | Bank\_accno | Adhaar\_no | PAN\_no | Mobile\_no |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Candidate key**

A candidate key is a field with minimal fields that can act as a primary key field for that table to uniquely identify each record in that table.

It can be defined as minimal Super Key

Candidate Key by default should be

1. Not null

2. Unique

**Example:**

Empno

Adhaar\_no

PAN\_no

* The above any of the three column can be used to identify the record uniquely
* Pk can be choosen from any of the above column

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Empno | Ename | Sal | Bank\_accno | Adhaar\_no | PAN\_no | Mobile\_no |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Secondary Key or Alternative Key**

The candidate key which are not selected for primary key is Secondary key. ie., Alternate Key can be any of the Candidate Keys except for the Primary Key.

If any table have more than one candidate key, then after choosing primary key from those candidate key, rest of candidate keys are known as an alternate key of  that table.

Empno (PK)

Adhaar\_no (Secondary Key)

PAN\_no (Secondary Key)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Empno | Ename | Sal | Bank\_accno | Adhaar\_no | PAN\_no | Mobile\_no |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Surrogate Key**

1. It is a Primary key in Data Warehouse to identify the record uniquely.
2. It is generated automatically by the database or ETL tools.
3. So it can be called as Artificial Keys
4. Surrogate Key will generally have system generated data not the User data (Identity ,Sequence generator, Sno )

**Natural Key or Business Key**

It is a unique key

It has no meaning outside the database

Example : Invoice\_no