

Keys In DBMS



- keys play a very important role in our database.

They → are used to identify one and only one instance of an entity uniquely.

• Types of key :

- Primary key
- Candidate key
- Super key
- Foreign key
- Alternate key

These four are very important.

- Composite key
- Artificial key

Remarks



I discussed here detail
in about primary,
candidate, foreign and super
key.

⇒ Primary key:

Primary key = { Unique + Not NULL }

Property: like in every table
every entity has their unique
id for identification.

Like in college I-card: we have
a key like = Enrollment number/
Registration number

Remarks

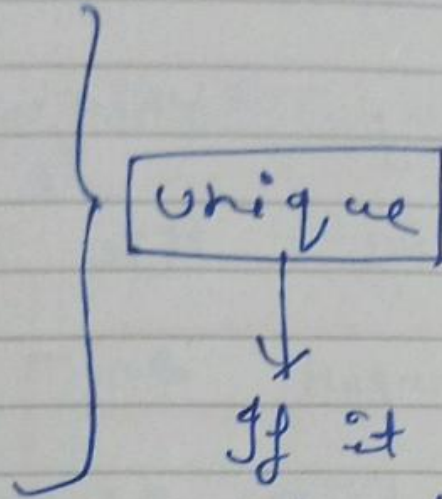
By using this no. they get all
data about particular student.



Unique

what come's
inside ??

Phone no.
Aadhar Card
PAN
Reg No.
enroll No.
:
etc.



unique

If it is unique
so that is

candidate key

but for primary
key unique is not

complete satisfaction.

Not Null

what ??

Never empty (it is compulsory
field)

Remarks

for primary key we achieved

Unique + Not NULL

Date ___/___/_____

Note



Candidate Key

Key \rightarrow attribute

use of key \rightarrow uniquely Identify

Name City Age

Shivani Kanpur 20

Poojyoma Lucknow 21

Prachi Delhi 28

Shivani Kanpur 20

Same

Take ex. of student data table

Adhar Card

Roll no

Registration

License No

Remarks Mobile No
email

All are diffⁿ
for all every
student

These are set of candidate key

Point: We choose primary key from set of candidate key.



Foreign Key

It is an attribute or set of attribute that references to primary key of same table or another table (relation).

Point: Maintains referential Integrity.

Remarks



Example

Student table
PK (Primary key)

Roll No	name	address
1	A	Delhi
2	B	Mumbai
3	A	Chandigarh

Course Table

Foreign key

Course Id	Course Name	Roll no
C1	DBMS	1
C2	Networking	2

~~Note~~

Remarks

So here in course table
Roll no is used as a foreign key.

Here,

student table is Referenced table
where primary key exist.



In Course table, it is Referencing
table,

where foreign key exist.

Query: After table creation -

Alter table course ADD constraint
fk foreign key (Roll No) references
Student (Roll No).

Remarks

Point —

Table has more than one
foreign key (possible).



Super keys

- It is a combination of all possible attributes which can uniquely identify two tuples in a table.
- Super set of any candidate key is super key.

Student table

Ck = Roll no

if we add

Roll no, name

Roll no, age

Roll no, name, age

Roll no Name age

Remarks

then

they

will be

super key.

Que: $R(A_1, A_2, A_3, A_4, \dots, A_n)$



then how many super keys are possible.

eg $\rightarrow A_1$ is candidate key.

$\rightarrow A_1, A_2$ are candidate key

Case - (1)

// given A_1 is candidate key

then A_1 is necessary to

present in all subset.

$\therefore 2^{n-1}$ is super key possible.

Case - (2)

// A_1, A_2 are candidate key

Remarks

So here $(2^{n-1} + 2^{n-1} - 2^{n-2})$ is

no. of Super key.