# DBMS KEYS

Primary Key

Candidate Key

Super Key

Foreign Key

Alternate Key

Composite Key

Artificial Key

# Primary Key

- Key is an attribute or set of attribute ro identify recrods or row of data from database table.
- Primary key is a unique attribute(column).
- It can not be null.
- There is only one primary key for a table(entity).
- For example – there is a table for Student data then we can have Student_rollno column as primary key as it will be unique and not null for each student.

question). A table can exist without primary key. True or False?

give your answer in comments.

# Candidate Key

- An attribute or set of attributes that can uniquely identify tuple in a table.
- Candidate key is always unique.
- It can be null
- Every table must have single candidate key.
- A table can have multiple candidate key but a single primary key.
- For example - we have employee table which has 4 columns(emp_id, emp_name, emp_license, emp_passport, SSN). Here id is best suited for primary key and license, passport and SSN are candidate keys.

# Super Key

- Super key is an attribute set that can uniquely identify a tuple.
- It must contain candidate key + any key.
- A superkey is a superset of candidate key.
- For example in employee table employee name can be same but set of employee name and employee id can't be same this combination can also be a key.

Question - R(ABCD) has 4 attributes and contains 2 candidate key A and B. find all super key.
power(2, n-candidate keys) $\Rightarrow$ power(2, 4-2) = 4.

# Foreign Key

- Foreign keys are the column of the table used to print to the primary key of another table. It creates a relationship between 2 tables.
- Every employee works in a specific department and employee and department are 2 different enitities. so we link these two tables through primary key of one table.

Employee

Emp_id
Deparment_id  ←———————
Emp_name
emp_license
emp_passport

Deparment

Deparment_id

department_name

# Alternate Key

- We can have one or more candidate keys in a table and one key is chosen as the primary key from these candidate keys and the remaining candidate key, if exists, is termed as alternate key.
- Alternate key = Cadidate key - Primary key

For example - employee table has emp_id, emp_passport, emp_pan_no as unique keys(candidate keys). we select emp_id as primary key and rest 2 will be alternate keys.

Employee

Emp_id → Primary key

Emp_passport →

Alternate key

Emp_pan_no →

→ Candidate key
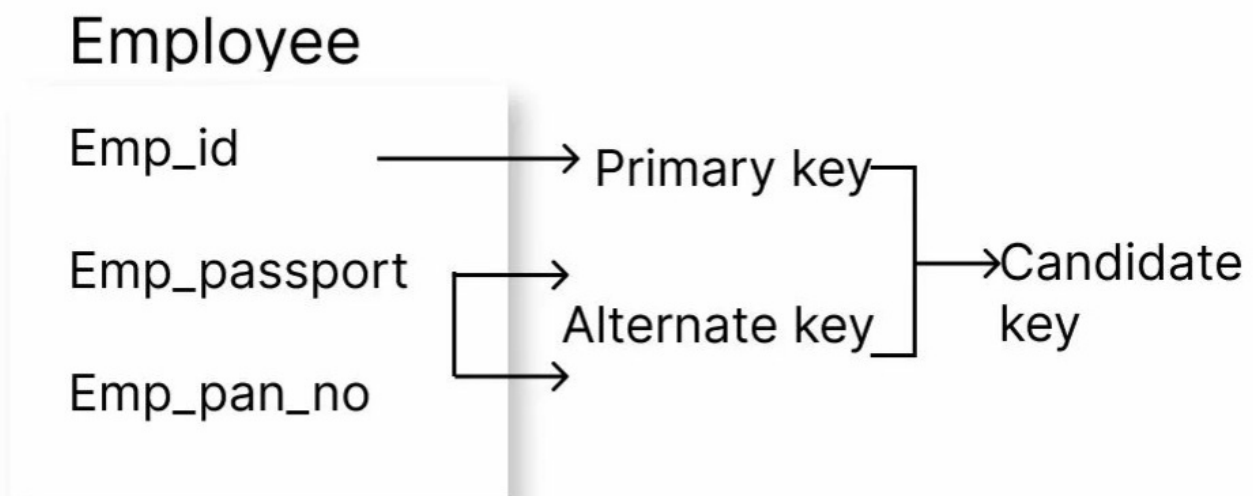
# Composite Key

- Whenever a primary key consists of more than one attribut, it is known as composite (Concatenated key).
- For example we assume a employee work on multiple porjects so the primary key will be composed of 2 attributes emp_id and project_id.

Employee

Emp_id
Project_id   → composite key

Emp_name
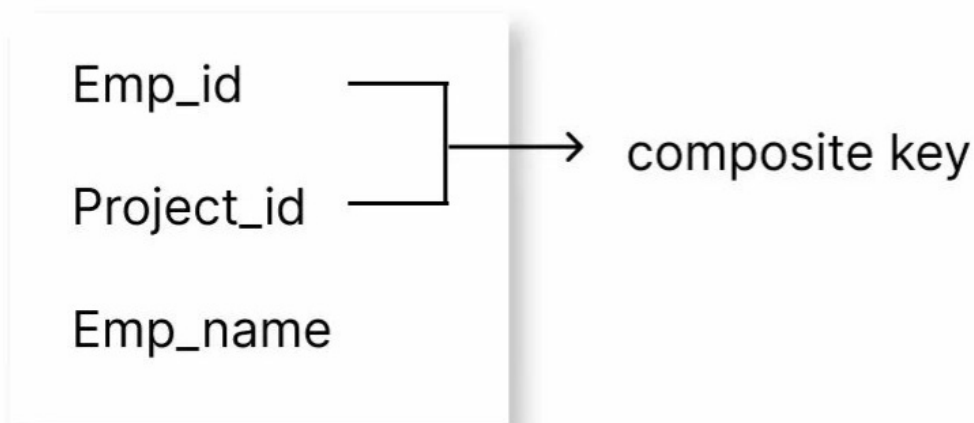
# Artificial Key

- The key created using arbitrarily assigned data are known as artificial keys. these keys are created when a primary key is large and complex and has no relationship with many other relations. the data values of the artificial keys are usually numbered in a serial order.

- For example the primary key, which is composed of emp_id and project_id can be large so it would be batter to add a new virtual attribute to identify each tuple in the relation uniquely.

# Questions.

1. Can a table contain multiple foreign key?
2. Can foreign key have null values?
3. what is referenced table?
4. What is referencing table?
5. R(ABCD) has 4 attribute and 1 candidate key . find cound of all super key.