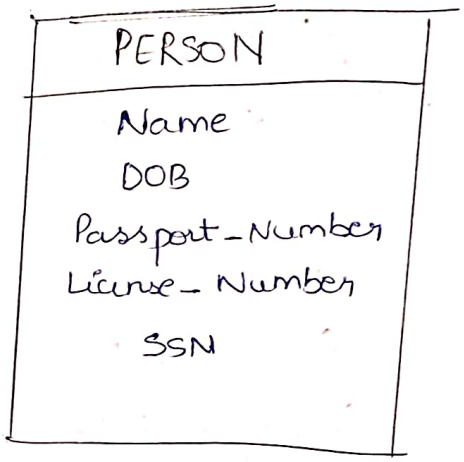
Keys In DBMS

Keys

Keys play an important role in the relational database. It is used to uniquely identify any record or row of data from the table.

Types of Keys

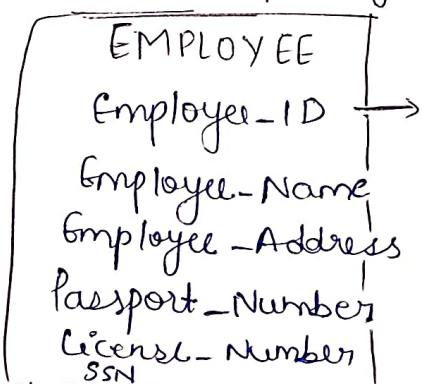
Primary Key
Candidate Key
Super Key
Foreign Key
Alternate Key
Composite Key.



1. PRIMARY KEY

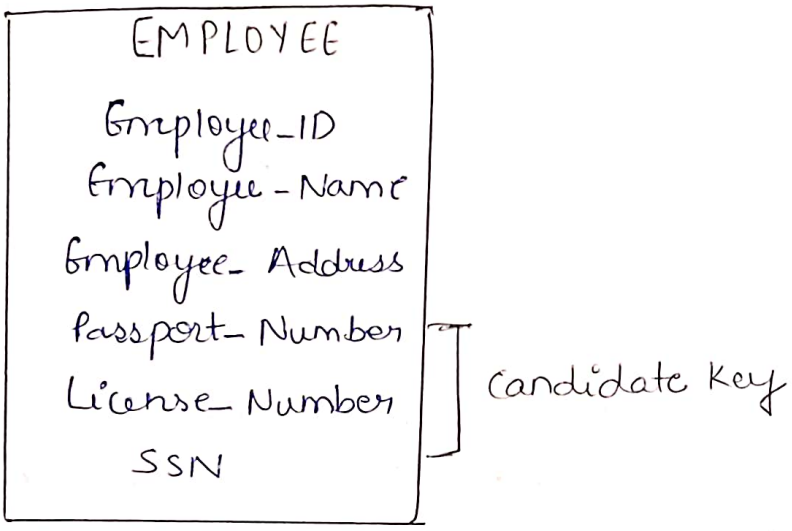
It is the first key used to identify one and only one instance of an entity uniquely. An entity can contain multiple keys, as we saw in the person table. The key which is most suitable from those lists become a primary key.

In the EMPLOYEE table, ID can be the primary key since it is unique for each employee. In the EMPLOYEE table, we can even select License_Number and Passport_Number as primary keys since they are also unique.



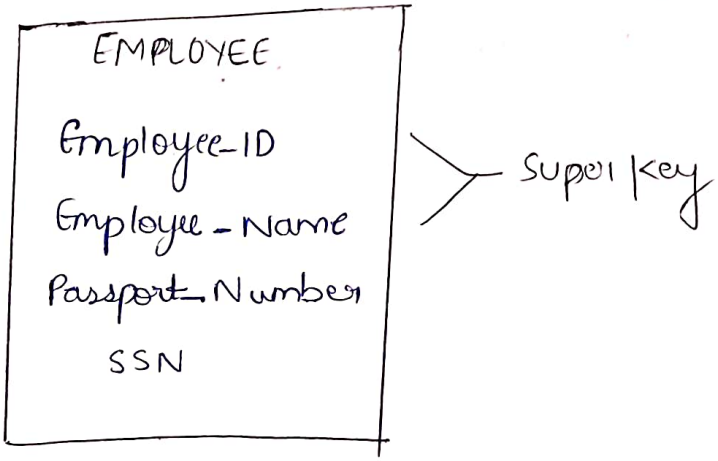
2. CANDIDATE KEY

A Candidate Key is an attribute or set of attributes that can Uniquely identify a tuple.
Except for the primary key, the remaining attributes are considered a Candidate Key.
The Candidate Keys are as strong as the primary key.
For example: In the EMPLOYEE table, id is best suited for the primary key. The rest of the attributes, like SSN, Passport_Number, License_Number, etc., are considered a Candidate Key.



3. SUPER KEY

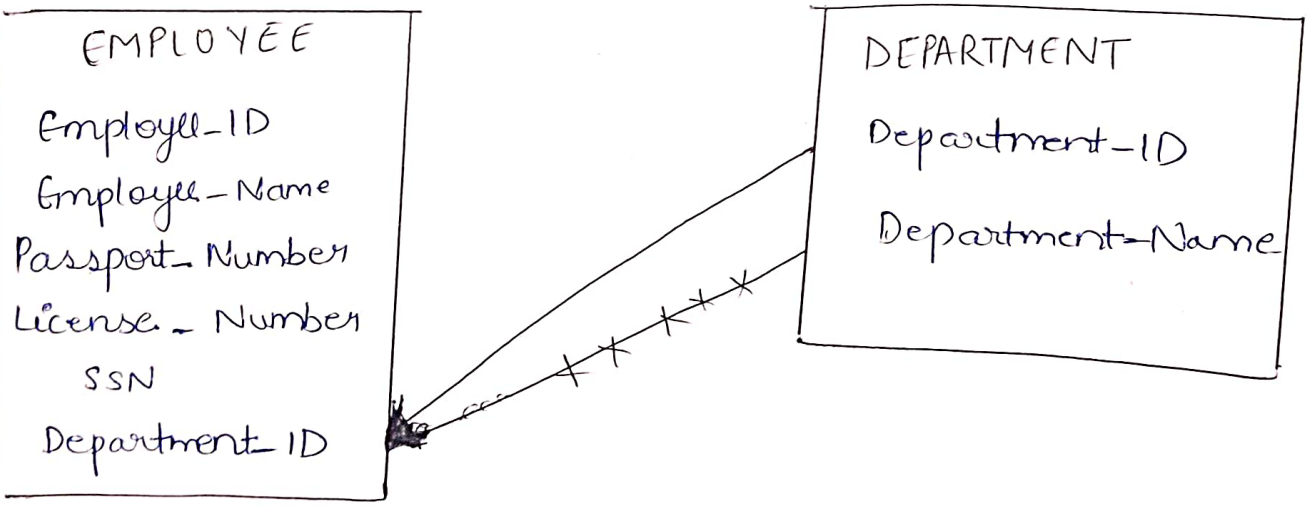
Super Key is an attribute set that can uniquely identify a tuple. A Super Key is a superset of a Candidate Key.



For example: In the above EMPLOYEE table, for (EMPLOYEE_ID, EMPLOYEE_NAME), the name of two employees can be the same, but their EMPLOYEE_ID can't be the same. Hence, this combination can also be a key.
The Super Key would be EMPLOYEE_ID (EMPLOYEE_ID, EMPLOYEE_NAME), etc.

4. FOREIGN KEY

Foreign Keys are the column of the table used to point to the primary key of another table.
Every Employee works in a specific department in a company, and Employee and department are two different entities.
So we can't store the department's information in the Employee table. That's why we link these two tables through the primary key of one table.
We add the primary key of the DEPARTMENT table, Department Id as a new attribute in the EMPLOYEE table.



5. Alternate Key

There may be one or more attributes or a combination of Attributes that Uniquely identify each tuple in a relation. These attributes or combinations of the attributes are called the candidate keys. One key is chosen as the primary key from these candidate keys, and the remaining candidate key, if it exists, is termed the alternate key.

Alternate Key = Candidate Key - Primary Key.

For example, employee relation has two attributes, Employee_Id and PAN_NO, that act as candidate keys. In this relation, Employee_id is chosen as the primary key, so the other candidate key, PAN_NO, acts as the Alternate Key.

6. Composite Key

Whenever a primary key consists of more than one attribute, it is known as Composite key. This key is also known as Concatenated key.