**Surrogate key s we're going to give an ID to every Single row within every single table or give every single fable an id column**

**•Surrogate keys are kept Completely private one use the surrogate key except**

**for the people working with the DB .**

**AI Auto increment which means every single time you make, a new row within this table It's going to raise the ID by one**

**ex:-**

**user id 45**

**45 is going to be private The reason For that is the number doesn't have real world meaning, therefore it's Private For database only**

**if I started putting it on sales, reports, then I'm giving real meaning the world to become a natural key that's**

**• Natural is something that's already DB**

**•surrogate some thing we just added**

**Natural keys are used or columns used as your key that are already defined within your table they are natural to what you want to store .**

**Surrogate keys are just kind of added like a user ID or a car ID or credit ID , surrogate have no real world meaning .**

**Foreign key**

**Foreign key reference to a primary key**

**Every single value in a column or every single row is going to have a reference in each individual row**

**Every single row in the table has a connection with a specific row in another table**

**Foreign keys are used to keep things connected**

**If the value changed In the row it’ll change or update automatically in the another row which connect with it .**

**\*every table has one primary key and can be a combination of multiple columns if you want , but it’s only defined as one primary key\***

**With foreign keys , you can have multiple columns having foreign key relation to different tables**

**Keep in mind , each column can only have one reference**

**Primary keys values should never change , while foreign keys can change because references change .**

**Simple and composite primary keys:-**

**Simple key : consist of one column , But surrogate key is just a random number one column so surrogate keys are simple key**

**Composite key: consist of two or more columns this most common with natural key because natural keys can be combination of multiple columns.**

**Composite key you have at least one is not a key itself**

**Compound key:-**

**It’s a key that has a multiple columns , and they’re all keys themselves .**

**Review :-**

**-Super keys are any number of columns that make ensure uniqueness within a table**

**- candidate key is the least number of columns used to enforce uniqueness.**

**- the primary key is the one you select as a main key for your table**

**All the other ones you can assign as alternate keys as you can use these to enforce uniqueness but they’re not uses the main key within your table**

**-an then when you reference that in another table you have a foreign key ( it’s used to make connection between tables ) and foreign key is also primary key .**

**The candidate and super key are less important about finding and figuring out , and primary , foreign keys are essential**

**Entity relationship modeling :-**

**EER -> enhanced entity relationship model**

**ERD -> enhanced relationship diagram**

**ER -> enhanced relationship**

**Reminder:-**

**A relationship is a table or is a connection between two tables.**

**It’s define your database structure , so anything that is DDL**

**Cardinality :-**

**Is basically the relationship type between a row of one table and rows of a row of another table**

**The cardinality for one side is straight up-down line , and for the many side is cross foot notation**

**Modality:-**

**Is basically whether or not the child or the relationship is required**

**The way we can do that :-**

**Little circle in cardinality means zero , and little dash means one ( you can think of this as 0 or 1 ).**

**The zero means that that column doesn’t accept the not null characteristic meaning it accepts no value**

**So if we have one-one relationship that is the maximum but it’s not required**

**\*انما فى الي قبلها كان أخري واحد فمكنش ينفع ازود اقصي حاجه ممكن تبقي عندي هي 1**

**If we have one-many with zero modality so at least you have zero (card for example ) up to many**

**اقل حاجه عندي هي الصفر لكن ممكن ازود عادي لأن انا عندي many**