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## **Primary Key**

- A primary key is a unique identifier for a record in a relational database table.
- It ensures that each record in a table can be uniquely identified, and no two records have the same primary key value.
- A primary key column cannot contain NULL values, as its purpose is to uniquely identify each record.
- By enforcing uniqueness, the primary key is crucial for maintaining data integrity and supporting relationships between tables.
- In most database management systems, you can define a primary key constraint when creating a table.

## **Foreign Key**

- A foreign key is a column or set of columns in a relational database table that refers to the primary key of another table.
- It establishes a link between the data in two tables, creating a relationship between them.
- The foreign key in one table is used to match the primary key in another table, creating a reference to related data.
- Foreign keys are essential for maintaining referential integrity, ensuring that relationships between tables are valid and consistent.
- By using foreign keys, you can establish connections between tables, allowing for the creation of meaningful associations in a relational database.
- Typically, foreign keys are used to implement relationships such as one-to-many, many-to-one, or many-to-many between tables.

## **Comparison:**

- A primary key uniquely identifies records within a single table, while a foreign key establishes relationships between tables.
- The primary key of one table is referenced as a foreign key in another table to create connections between them.
- Primary keys ensure uniqueness within a table, while foreign keys enforce relationships between tables, preserving data consistency.
- Both primary and foreign keys play a crucial role in maintaining the integrity of relational databases and facilitating the establishment of meaningful connections between different entities.