

Designing a Data model?

Learn How to choose the
Right Key? 🗝️

Primary key

Vs 🔒

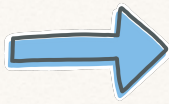
Foreign key



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Primary Key and Foreign Key Relationship



Primary Key:

A primary key is a unique identifier for a record in a table. It ensures that each record can be uniquely identified by its primary key value. The primary key must contain unique values and **cannot** contain NULL values.

Foreign Key:

A foreign key is a field (or a collection of fields) in one table that uniquely identifies a row in another table. The foreign key establishes a link between the data in the two tables, ensuring referential integrity.

How to Choose the Right Key?

Choosing the right primary key and foreign key is crucial for database integrity and performance. Here are some guidelines:

Primary Key:

1. **Uniqueness:** Ensure the primary key uniquely identifies each record.
2. **Non-nullability:** Primary keys cannot have NULL values.
3. **Immutability:** Choose a key that is unlikely to change over time.
4. **Simplicity:** Use a single, simple field whenever possible.

Example: In the Products table, product_id is chosen as the primary key because it uniquely identifies each product and is unlikely to change.

Foreign Key:

1. **Referential Integrity:** Ensure the foreign key accurately references a primary key in another table.
2. **Consistency:** Use foreign keys to maintain consistency and integrity between related tables.

Example: In the Sales table, product_id is chosen as the foreign key to link each sale to a specific product in the Products table.





Business Use case

Imagine a retail company wants to generate a sales report that includes product details. By using primary and foreign keys, the company can easily join the Sales table with the Products table to retrieve the necessary data.

SELECT

```
Sales.sales_id,  
Products.product_name,  
Sales.sale_date,  
Sales.quantity,  
Sales.total_amount
```

FROM

```
Sales
```

JOIN

```
Products ON Sales.product_id = Products.product_id;
```

Product Table

Primary Key: product_id

Primary key

Product_id	Product_name	Category	Price
101	Product A	Category 1	100.00
102	Product B	Category 2	250.00
103	Product C	Category 3	150.00

Join

Sales Table

Primary key

Foreign key

Sales_id	Product_id	Sales_date	quantity	total_amount
1	101	2023-07-01	5	500.00
2	102	2023-07-02	3	750.00
3	103	2023-07-03	2	300.00

Primary Key: sales_id

Foreign Key: product_id (references product_id in the Products table)

