



Part of **Future Connect Media's** IT Course

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Topics to be covered:



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Assigning Primary key & Foreign Key



In database design, **primary keys** and **foreign keys** are crucial for establishing **relationships** between **tables** and ensuring data integrity.



Primary Key:

•**Definition:** A primary key is a column or a set of columns in a table that uniquely identifies each row or record in that table. It ensures that each row in a table is unique.

•Characteristics:

- Must contain unique values.
- Cannot have NULL values.
- There can be only one primary key in a table.
- •Usage: Typically used as the main identifier for the records in a table.



Foreign Key:

•**Definition:** A foreign key is a column or set of columns in a table that refers to the primary key or a unique key in another table. It establishes a link between two tables, enforcing referential integrity.

•Characteristics:

- Values in the foreign key column must exist in the referenced table's primary key column or a unique key column.
- Can have NULL values unless the column is defined as NOT NULL.
- •Usage: Used to create relationships between tables, ensuring that data in one table aligns with data in another table.



Let's consider two tables: **orders** and **customers**. The **orders** table has a foreign key

that references the **customer_id** column in the **customers** table.

Customers Table:

CREATE TABLE customers (customer_id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(50), email VARCHAR(50));



Orders Table:

```
CREATE TABLE orders (
order_id INT AUTO_INCREMENT PRIMARY KEY,
order_date DATE,
amount DECIMAL(10, 2),
customer_id INT,
FOREIGN KEY (customer_id) REFERENCES
customers(customer_id)
);
```



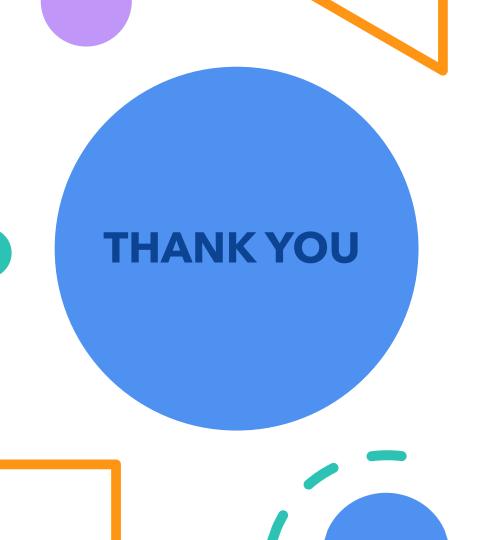
In this example:

- •customers table has customer_id as the primary key.
- •orders table has order_id as the primary key and a customer_id column referencing the customer_id in the customers table as a foreign key.

This establishes a relationship between the customers and orders tables, ensuring that the customer_id in the orders table references an existing customer_id in the customers table.

When inserting data into the orders table, ensure that the customer_id value exists in the customers table to maintain referential integrity.

This is a basic example of setting up a one-to-many relationship between two tables using primary and foreign keys. Adjust the columns and constraints according to your specific requirements and the structure of your database





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