

</talentlabs>

# CHAPTER 7

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## Table Relationships





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# AGENDA

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- Primary Key
- Foreign Key
- Relationships

# Primary Key



# Primary Key (PK)

- An **unique** identifier of the records, kind of like an ID
- e.g. For a city, citizens' names can be repeated. We add an id column to distinguish each citizen
- e.g. For an eCommerce Platform, purchases can be repeated. (same user purchases the same drink twice). So we'll add a transaction\_id to each purchase record

**Citizen**

ID	First_name	Last_Name
1	Darren	Chiu
2	Peter	Chow
3	Michelle	Ling
4	Anthony	Chiu

**Transactions**

Transaction_ID	User	Product
1	Darren	Coke X 2
2	Peter	Burger X 2
3	Anthony	Chips
4	Darren	Coke X 2



# Foreign Key



# Foreign Key (FK)

- Foreign key is used to establish relationship between two tables
- e.g. For a movie ratings table, the movie\_id column is created for identifying which movie the ratings is for. The movie\_id column is “foreign key” column.

**movies**

id
title
year

**ratings**

movie_id
rating

**students**

id
name
class

**exam\_scores**

student_id
score



# Relationships



# What is Table Relationships

- We categorize data and organize the data into different tables
- For example, we put “movie details” in movies table, and the “movies ratings” into ratings table
- Different tables have relationships between them (e.g. each ratings is attached to a movie)



**movies**

id
title
year

**ratings**

movie_id
rating





# Three types of relationships

One-to-One relationship



One-to-Many relationship

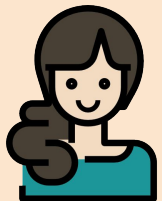
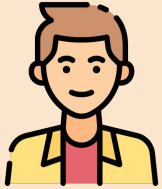


Many-to-Many relationship



# One-to-One Relationship

- One-to-One relationship are usually used to separate a big table into two, or attaching additional data to a record.
- E.g.
  - users and users\_profile (separate a big users table to users and users\_profile)
  - citizens and passport\_info (attaching passport\_info to citizen)



**users**

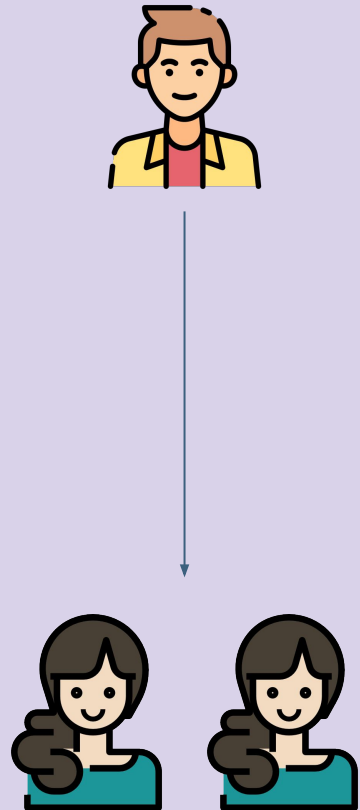
ID	First_name	Last_Name
1	Darren	Chiu
2	Peter	Chow
3	Michelle	Ling
4	Anthony	Chiu

**users\_profile**

User_id	Gender	Country	Last_Online	Number of Posts
1	M	Hong Kong	2019-12-06	3
2	M	Japan	2019-12-05	2
3	F	Malaysia	2019-12-07	6
4	M	Hong Kong	2019-12-06	5

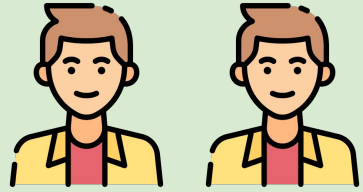
# One-to-Many relationship

- One-to-Many relationship usually refers to ownership relationships
- E.g.
  - users and users\_uploads (users owning multiple file uploaded)
  - country and states (country owning multiple states)



users			users_uploads			
ID	First_name	Last_Name	User_id	Post_ID	Image	Text
1	Darren	Chiu	1	1	img1.jpg	This is my first post.
2	Peter	Chow	2	2	img2.jpg	Hi Everyone!
3	Michelle	Ling	3	3	img3.jpg	Please follow my page!
4	Anthony	Chiu	1	4	img4.jpg	Another post!
			2	5	img5.jpg	I love posting!

# Many-to-Many relationship



- Many-to-Many relationship usually refers to a membership between two categories of data
- E.g.
  - movies and actors (each actor is a “member” of the multiple movies)
  - desserts and ingredients (each ingredient is a “member” of multiple dessert recipes)

**Movies**

id	movie_name
1	Toy Story
2	Star Wars
3	Harry Potter

**Actors**

id	name
1	Darren
2	Anthony
3	Peter
4	Karl

**Movies\_Actors**

movie_id	actor_id
1	1
1	3
1	4
2	1
2	2
3	1
3	4
4	1