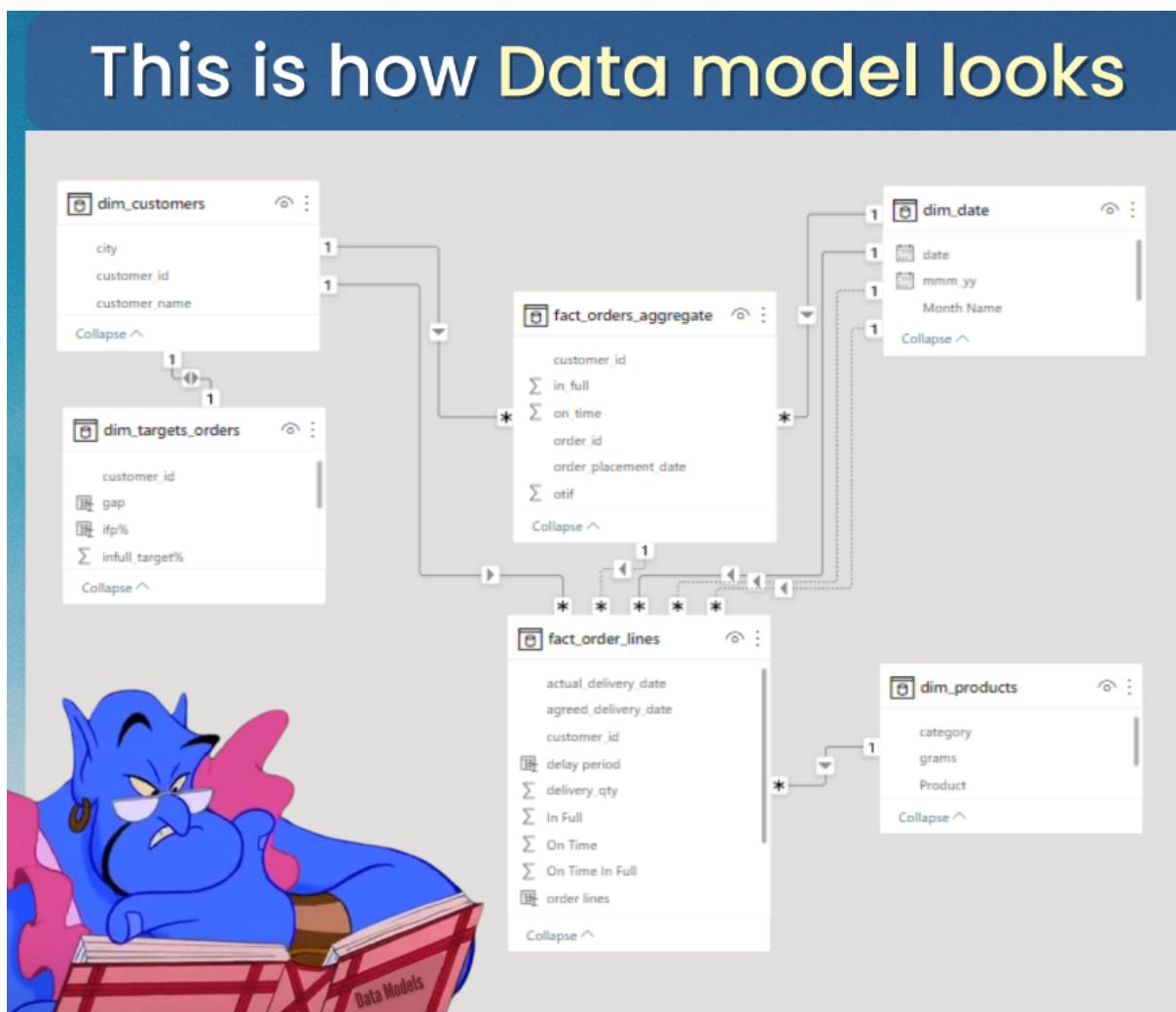




DATA MODELING



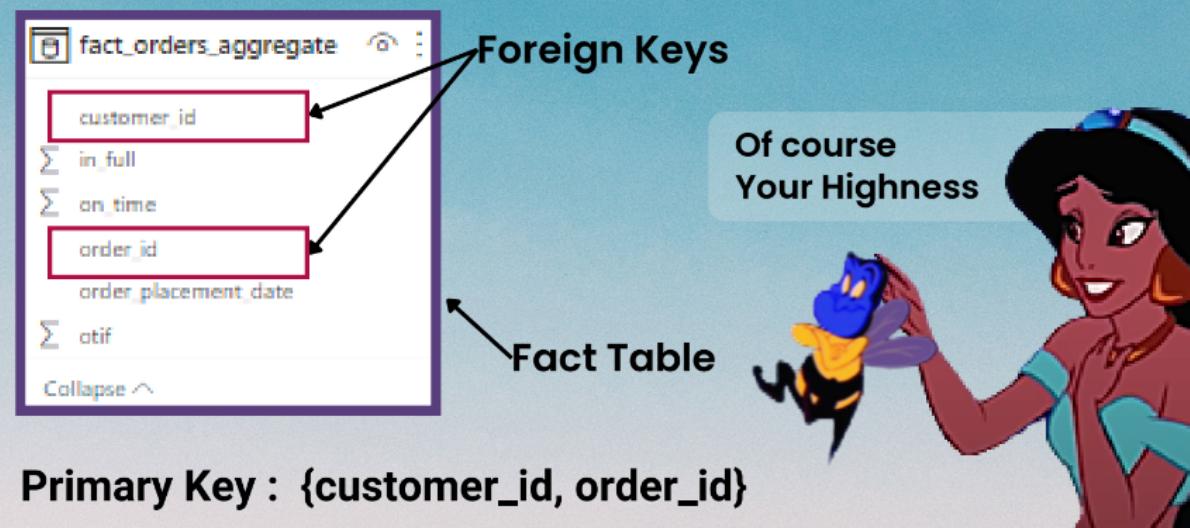
- It consists of fact tables surrounded by dimension tables.
- Also all the relationships between the tables.

Now question came what is all this, fact tables, dimension table, relationship ???

FACT TABLE.

Fact Table

- It consists of measurements, metrics or facts of a business process.
- It generally contains transactional data.
- A fact table has two types of columns: those that contain **facts** and those that are a **foreign key** to dimension tables.
- The primary key of a fact table is usually a composite key that is made up of all of its foreign keys.



Example

Sales	⋮
\sum amount	
customer_id	
date	
product_id	
\sum qty	
Collapse ^	

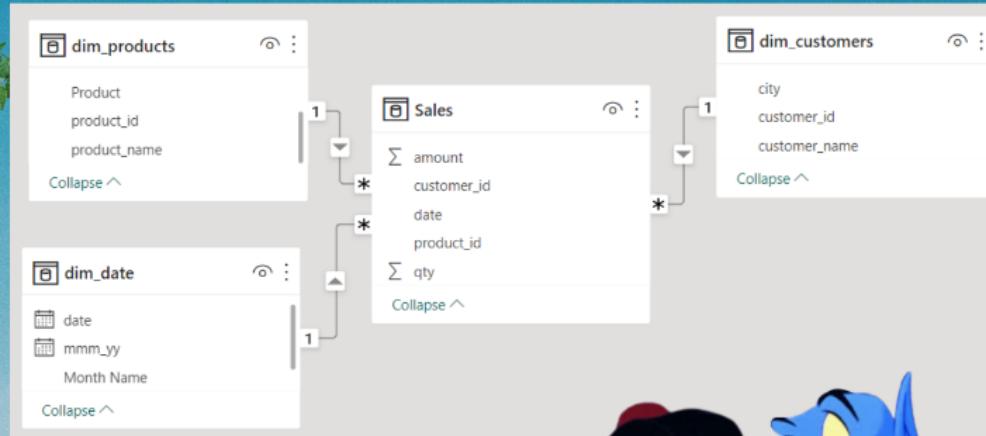


A fact table stores information about things that happened.

Sales is a fact table that contains sales of a store like how many of each product were sold and how much money the store made from each sale.



From the Sales(fact) table, we get data about each transaction.
How can I know which product is being sold more or which city has produced more revenue?



Fact tables are linked to other tables called dimension tables. Dimension tables make it possible to perform these types of queries and analyses.



DIMENSIONAL TABLE

Dimension Table

- It consists of attributes that describe the object of a fact table.
- It has a primary key column that uniquely identifies each dimension record.
- The dimension table is associated with a fact table using this key.

dim_customers	
city	
customer_id	
customer_name	
Collapse ▾	

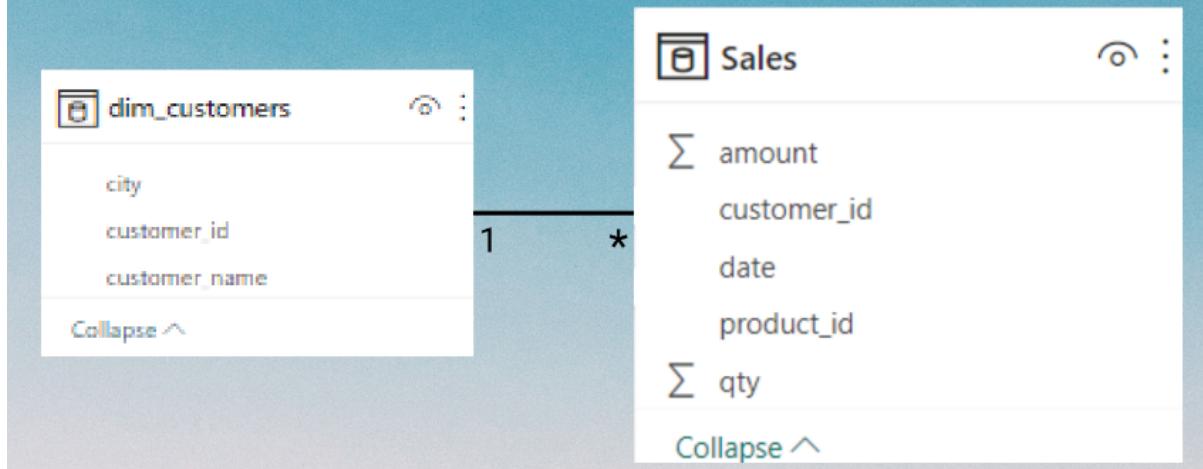
Dimension Table

Primary key

A dim_Customer table store information about the people who made the purchases.



- Here dim_customers is a dimension table, and Sales is a fact table
- To make a relationship between tables, the tables should consist of a common column attribute.
- Here the common column attribute is customer id, and the relationship is 1 to many.

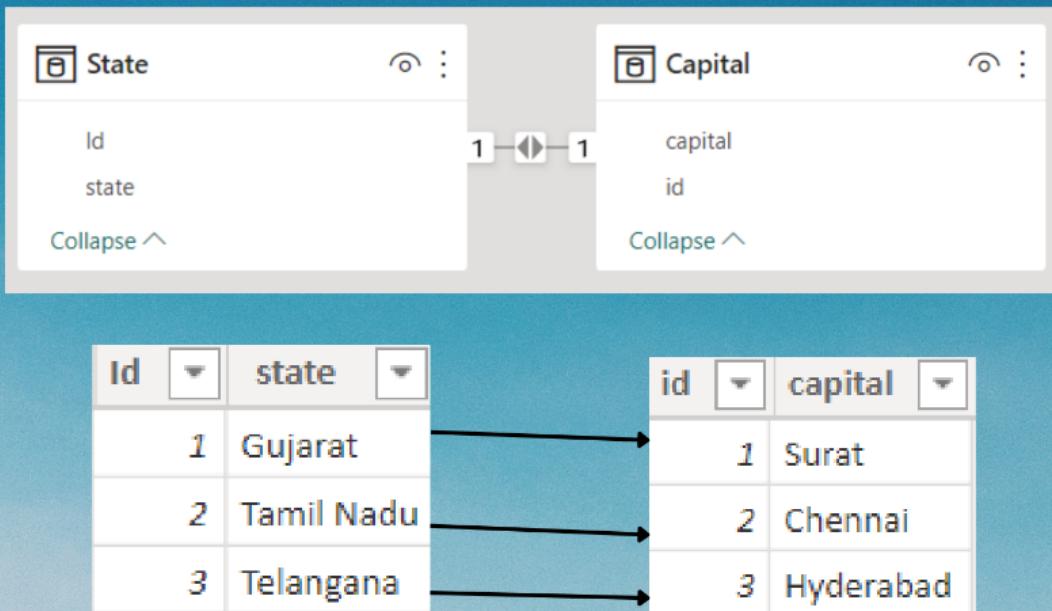


What is 1 to many relationship?

Well there are 4 types of relationship:

1. **ONE-to-ONE relationship**

1 to 1 relationship



Each row in one table has only mapped with one row in the second table.
Each State has only one capital.

2. ONE-to-MANY relationship

1 to many relationship

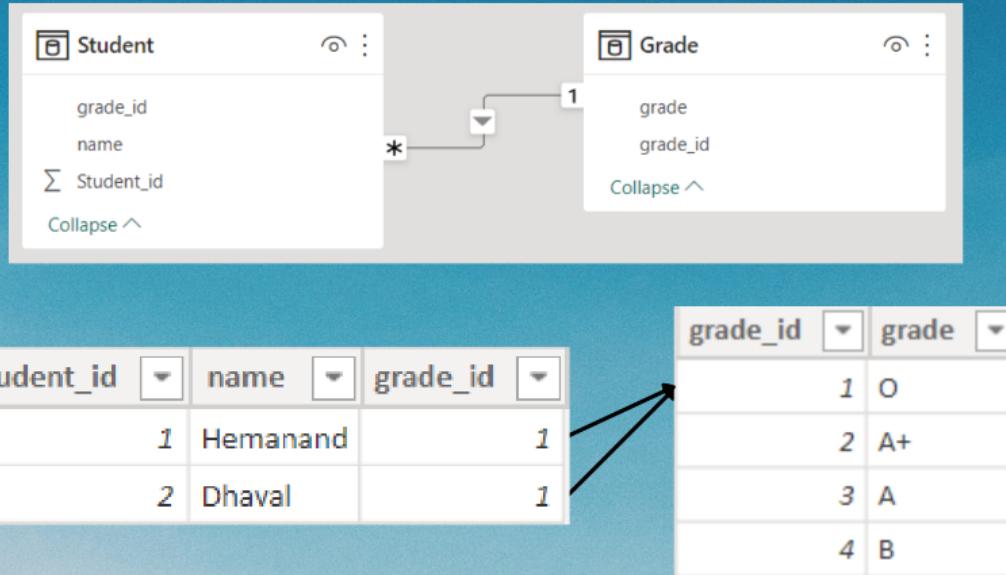
The diagram illustrates a 1 to many relationship. On the left, there is a screenshot of a data visualization tool showing a row from the 'dim_customer' table. The row has three columns: 'platform' (Brick & Mortar), 'channel' (Direct), and 'customer_code' (70002017). From the 'customer_code' cell, two black arrows point to the right, leading to a screenshot of the 'fact_orders_aggregate' table. This table has four columns: 'date', 'product_code', 'customer_code', and another column whose header is partially visible. The data shows multiple rows for the same customer code (70002017), with dates ranging from November 1, 2021, to November 11, 2021.

date	product_code	customer_code	
11/1/2021 12:00:00 AM	A4821110808	70002017	
11/1/2021 12:00:00 AM	A4821110807	70002017	
11/1/2021 12:00:00 AM	A4821110806	70002017	
11/1/2021 12:00:00 AM	A4821110805	70002017	
11/1/2021 12:00:00 AM	A4821110804	70002017	
11/1/2021 12:00:00 AM	A4821110803	70002017	
11/1/2021 12:00:00 AM	A4821110802	70002017	

The Customer code "70002017" in the dim_customer table is mapped with 'n' number of rows with the same customer code in fact_orders_aggregate.
This is called 1 to many relationship.

3. MANY-to-ONE relationship

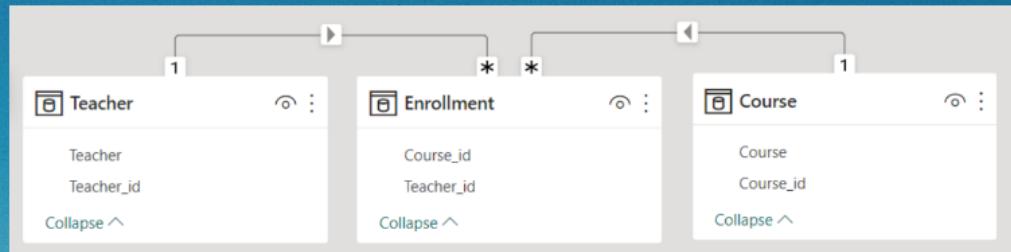
Many to 1 relationship



Multiple rows in first table has mapped with single related rows in a second table.
Different students get the same grade.

4. MANY-to-MANY relationship

Many to many relationship



Multiple records of one table are related to multiple records of another table.
More than one teacher can teach multiple courses

Dhaval teaches ML,
Power BI

Power BI is taught by
Dhaval and Hem