

Data Modeling with **Tableau**



CONCEPT

Data Modeling
80%

Data Visualization
20%



A SINGLE TABLE WITH ALL THE COLUMNS DOESN'T WORK

- The file is unnecessarily large.
- One column contains redundant data.
- Calculations are slow.
- The data model is underutilized.

Data inaccuracy!



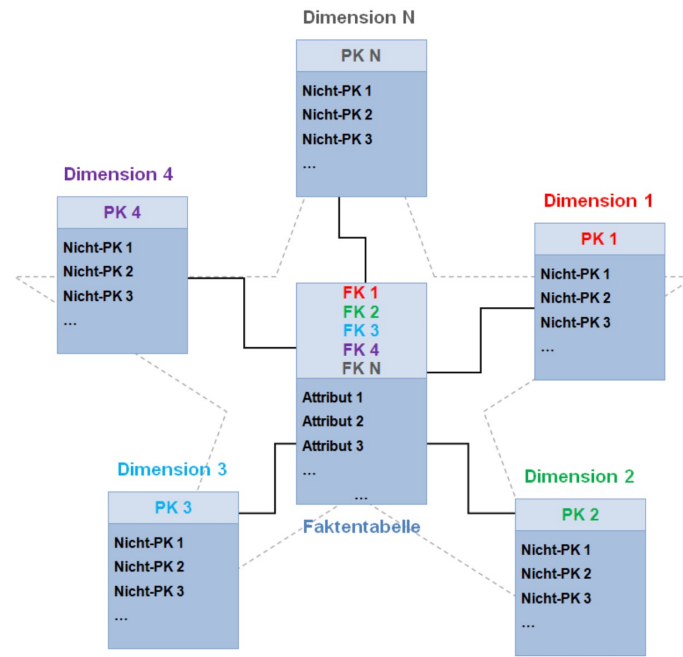
STAR SCHEMA

- 1. **The fact table** : serves as the central repository for numerical data.
- 2. **Dimension tables** : provide descriptive context and are typically numerous.

STAR SCHEMA VS SNOWFLAKE SCHEMA

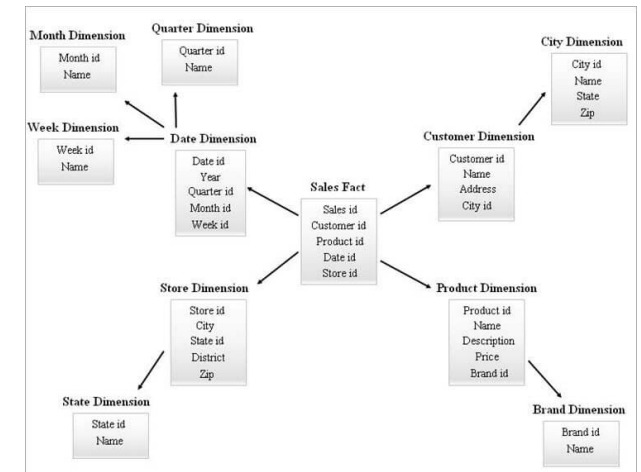
■ Star Schema

- More Efficient
- Simple Model
- Redundant data



■ Snowflake Schema

- Remove redundant data
- More complex as needed
- Relatively slower than star schema



NORMALIZATION

- Database normalization involves **splitting tables** to eliminate data redundancy. Identify columns with recurring data and create **separate tables** for them.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Country	City	State	Postal Code	Region	Product ID	Category	Sub-Category
2	#####	US-2019-103800	3/1/2019	7/1/2019	Standard Class	DP-13000	Darren Powers	Consumer	United States	Houston	Texas	77095	Central	OFF-PA-10000174	Office Supplies	Paper
3	#####	US-2019-112326	4/1/2019	8/1/2019	Standard Class	PO-19195	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	Central	OFF-BI-10004094	Office Supplies	Binders
4	#####	US-2019-112326	4/1/2019	8/1/2019	Standard Class	PO-19195	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	Central	OFF-LA-10003223	Office Supplies	Labels
5	#####	US-2019-112326	4/1/2019	8/1/2019	Standard Class	PO-19195	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	Central	OFF-ST-10002743	Office Supplies	Storage
6	#####	US-2019-141817	5/1/2019	12/1/2019	Standard Class	MB-18085	Mick Brown	Consumer	United States	Philadelphia	Pennsylvania	19143	East	OFF-AR-10003478	Office Supplies	Art
7	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	FUR-CH-10004063	Furniture	Chairs
8	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	OFF-AR-10001662	Office Supplies	Art
9	#####	US-2019-106054	6/1/2019	7/1/2019	First Class	JO-15145	Jack O'Briant	Corporate	United States	Athens	Georgia	30605	South	OFF-AR-10002399	Office Supplies	Art
10	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	OFF-BI-10004632	Office Supplies	Binders
11	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	OFF-FA-10001883	Office Supplies	Fasteners
12	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	OFF-PA-10000955	Office Supplies	Paper

NORMALIZATION

Fact Table

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Country	City	State	Postal Code	Region	Product ID	Category	Sub-Category
2	#####	US-2019-103800	3/1/2019	7/1/2019	Standard Class	DP-13000	Darren Powers	Consumer	United States	Houston	Texas	77095	Central	OFF-PA-10000174	Office Supplies	Paper
3	#####	US-2019-112326	4/1/2019	8/1/2019	Standard Class	PO-19195	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	Central	OFF-BI-10004094	Office Supplies	Binders
4	#####	US-2019-112326	4/1/2019	8/1/2019	Standard Class	PO-19195	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	Central	OFF-LA-10003223	Office Supplies	Labels
5	#####	US-2019-112326	4/1/2019	8/1/2019	Standard Class	PO-19195	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	Central	OFF-ST-10002743	Office Supplies	Storage
6	#####	US-2019-141817	5/1/2019	12/1/2019	Standard Class	MB-18085	Mick Brown	Consumer	United States	Philadelphia	Pennsylvania	19143	East	OFF-AR-10003478	Office Supplies	Art
7	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	FUR-CH-10004063	Furniture	Chairs
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11	#####	US-2019-167199	6/1/2019	10/1/2019	Standard Class	ME-17320	Maria Etezadi	Home Office	United States	Henderson	Kentucky	42420	South	OFF-FA-10001883	Office Supplies	Fasteners
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Dim Table

A	B	C
Customer ID	Customer Name	Segment
DP-13000	Darren Powers	Consumer
PO-19195	Phillina Ober	Home Office
MB-18085	Mick Brown	Consumer
ME-17320	Maria Etezadi	Home Office
JO-15145	Jack O'Briant	Corporate

Customer Table

Dim Table

A	B	C	D
Postal Code	Country	City	State
77095	United States	Houston	Texas
60540	United States	Naperville	Illinois
19143	United States	Philadelphia	Pennsylvania
42420	United States	Henderson	Kentucky
30605	United States	Athens	Georgia
90049	United States	Los Angeles	California
77340	United States	Huntsville	Texas

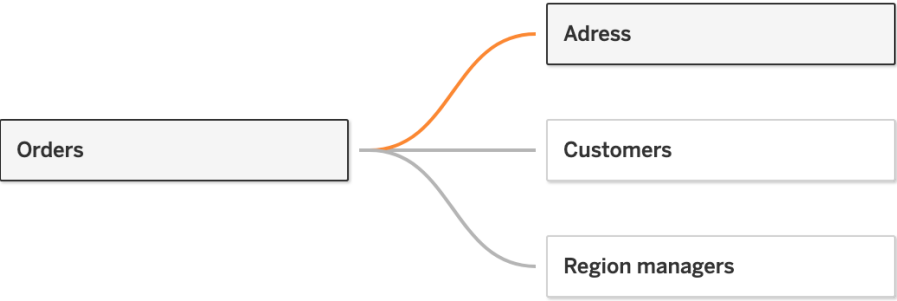
AdressTable

Dim Table

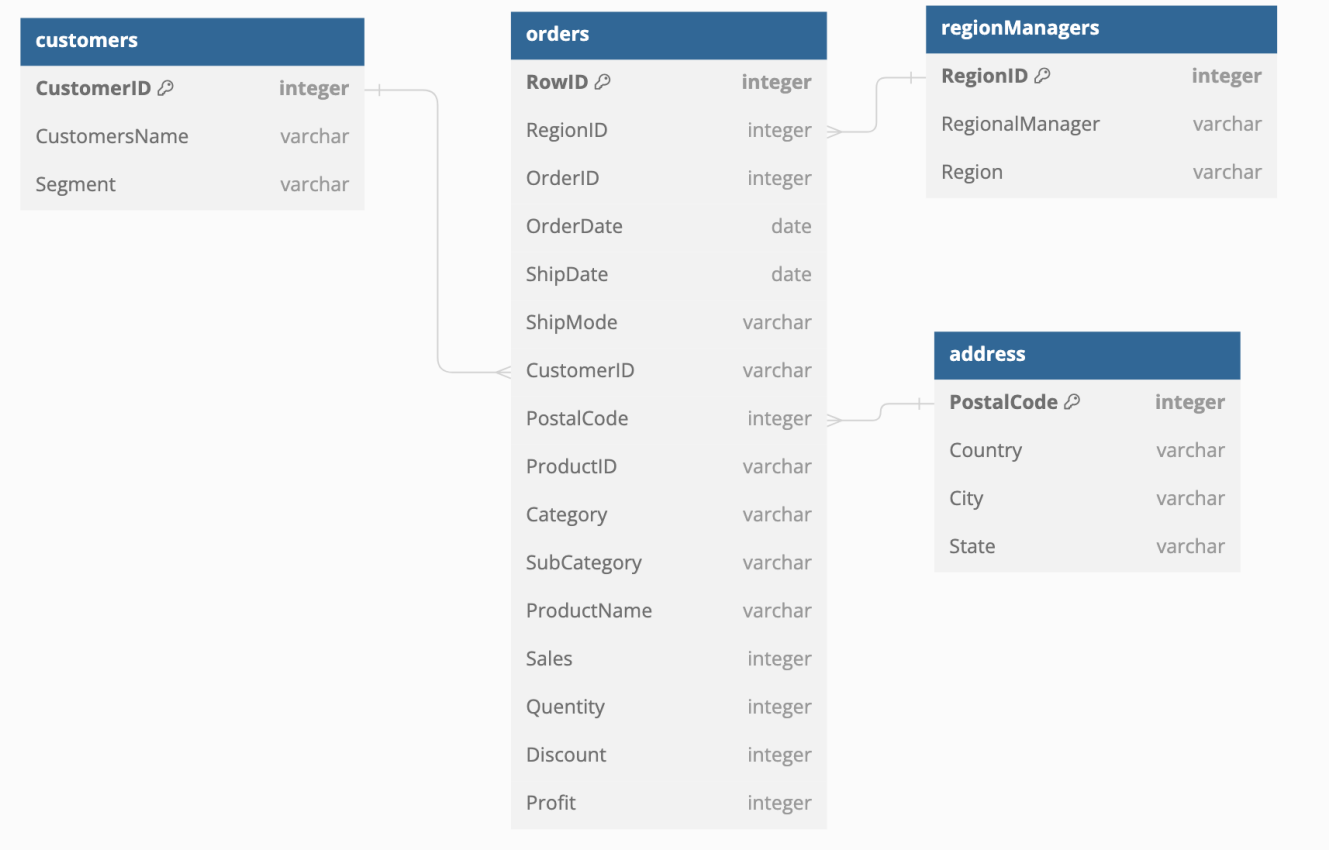
A	B	C
Region ID	Regional Manager	Region
1	Sadie Pawthorne	West
2	Chuck Magee	East
3	Roxanne Rodriguez	Central
4	Fred Suzuki	South

Manager Table

TABLEAU



Data Model



ER Diagram

VISUALIZATION

