

IKEA®

IKEA®

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IKEA®

Make room for life

Overview

IKEA is a worldwide store that sells furniture and other things for the home. The company was started by Ingvar Kamprad in 1943 and has grown into a global business since then. IKEA's business plan is based on selling high-quality items at low prices without sacrificing style or usefulness. The company's success is due to its expert use of market segmentation, which has won praise for its well-designed furniture that exudes the unique charm of Scandinavian style at prices that most people can afford.



Agenda

- Project overview
- Data sources
- Data warehouse design
- ETL process
- Analysis and Visualization
- Discussion



Overview



Details

PROJECT 1

Overview



Details

Data sources



Details

Data warehouse design



Details

PROJECT 1

OBJECTIVES

- Utilize IKEA data to create a dimensional model such as a star schema or relational model, focusing on the inventory management system.
- Design a comprehensive model and outline essential steps for the development of the IKEA system.
- Analyze the designed model, enumerate findings, and establish a systematic process for system development.



Available colors:



OVERVIEW



Scope of the Project

- Exploring the design of IKEA's data warehouse, which serves as the foundation for effective data management and analysis.
- Investigating the Extract, Transform, Load (ETL) process employed by IKEA to ensure the accuracy and relevance of data within its systems.
- Delving into how OLAP and OLTP systems, in conjunction with Tableau, facilitate data analysis and visualization, aiding in strategic planning and decision-making.



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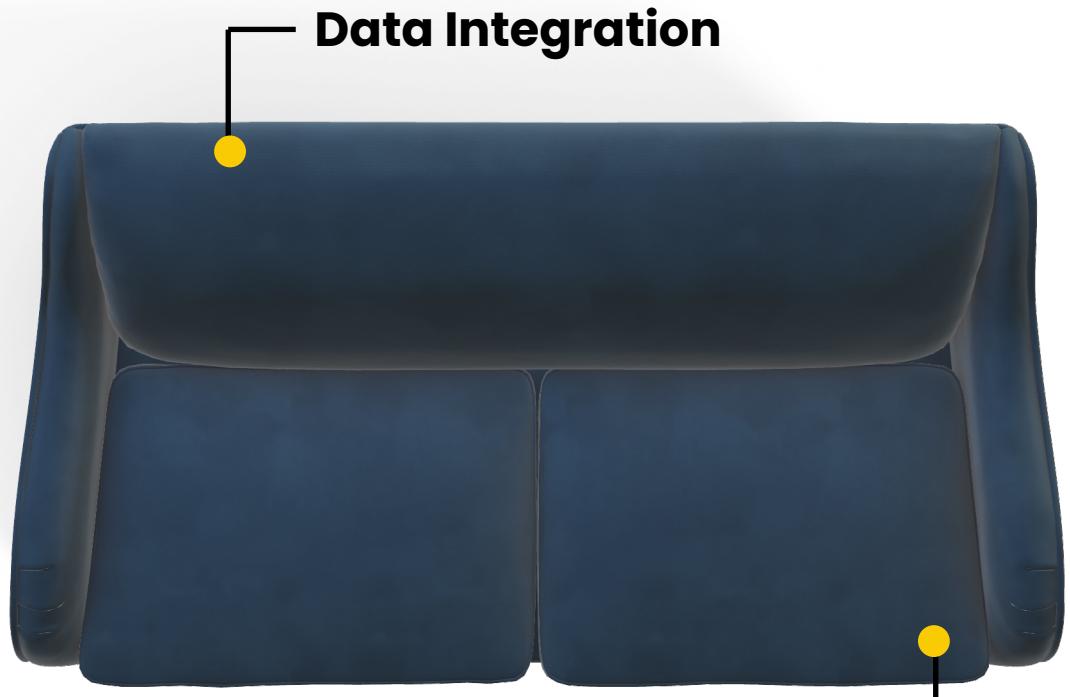


OVERVIEW

IKEA®



OVERVIEW



Data Integration

IKEA is a global company, so a data warehouse allows for the integration of data from different sources into a centralized repository. This integration enables a holistic view of the company's operations, providing valuable insights and facilitating better decision-making.

Understanding customer preferences and behavior is vital for a retailer like IKEA. So, a data warehouse allows the company to personalize marketing strategies.



Customer Insights

Business Requirements

Data Warehouse and BI Overview



Data sources

Understanding Customer Preferences

IKEA can learn more about the demographics and, with the use of this data, better store designs to better suit the wants and needs of its patrons.

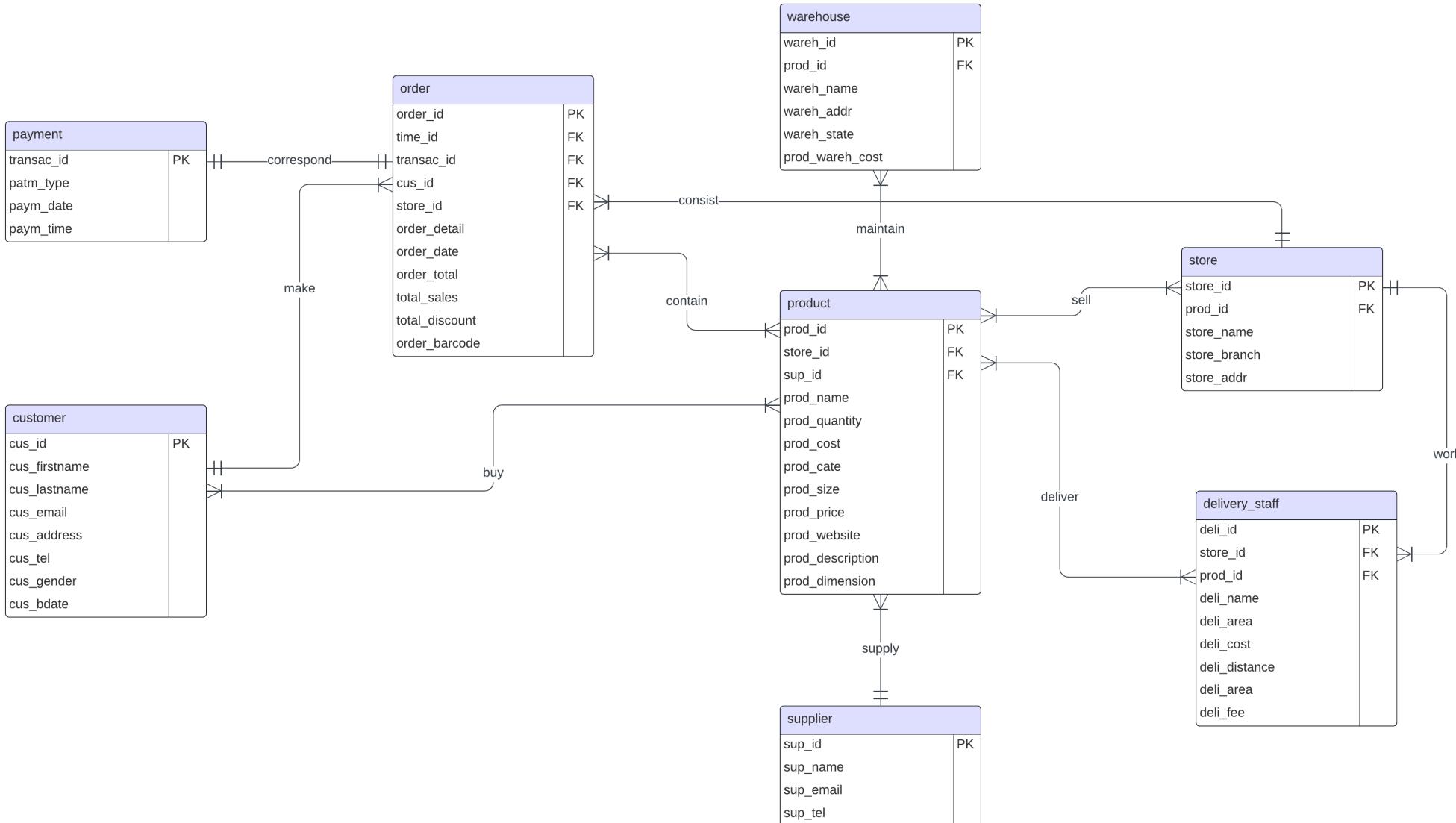


Global Expansion and Market Entry Strategies

BI is critical to the assessment of market prospects, competitive landscapes, and worldwide expansion plans of a multinational corporation such as IKEA.



ER diagram



Data sources



Data Dictionaries

Table name	Attribute name	Contents	Type	Format	Range	Nullable	Key	Example
customer	cus_id	Customer's id	varchar(5)	Cxxxx			PK	C0001
	cus_firstname	Customer's firstname	varchar(30)	xxxxxx				Sophia
	cus_lastname	Customer's lastname	varchar(30)	xxxxxx				Johnson
	cus_email	Customer's email	varchar(30)	xxxxxx@xxxxx				sophia.johnson@gmail.com
	cus_address	Customer's address	varchar(100)	xxxx xxx xx xx, xx xxxx				456, Elm Ave, Los Angeles, CA 90002
	cus_tel	Customer's telephone number	varchar(10)	(xxx) xxx-xxxx				(406) 171-1235
	cus_gender	Customer's gender	varchar(10)	xxxxxxxx	Female, Male, Other			Other
	cus_bdate	Customer's birth date	date	D/M/YYYY				25/6/1987
location	loca_postal	Location's postal code of customer	varchar(5)	xxxxx			PK	59601
	loca_state	Location's state of customer	varchar(50)	xxxxxx (xx)				Montana (MT)
	loca_city	Location's city of customer	varchar(50)	xxxxxx				Helena
supplier	sup_id	Supplier's id	varchar(5)	SPExxx			PK	SPE0001
	sup_name	Supplier's name	varchar(60)	xxxxxx				Floyd, Wheeler and Fisher
	sup_email	Supplier's email	varchar(30)	xxxxxx@xxxxx				paul80@oconnor.com
	sup_tel	Supplier's telephone number	varchar(10)	(xxx) xxx-xxxx				(217) 120-4888
order	order_id	Order's id	varchar(10)	Orxxxx			PK	OR0001
	time_id	Time's id	varchar(6)	TM0001			FK	TM00001
	transac_id	Payment transaction id	varchar(6)	TSxxxx			FK	TS0001
	cus_id	Customer's id	varchar(5)	Cxxxx			FK	C1001
	store_id	Store's id	varchar(10)	Sxxxx			FK	S0001
	order_detail	Order's detail	varchar(500)	xxxxx				GULLIVER, BILLY / OXBERG, BRYNET, NORDMELA, VÄSTANBY/VÄSTANÄ... / LEIFARNE, SUNDVIK,
	order_date	Order's date	date	D/M/YYYY				5/9/2023
	order_total	Order's total	int	xxxxxx			FK	8
	total_sales	Order's total sales	int	xxxxxx			FK	2448
	total_discount	Order's total discount	int	xxxxxx			FK	94
	order_barcode	Order's barcode	varchar(13)	xxxxxxxxxxxxx				5360f18e00001
warehouse	wareh_id	Warehouse's id	varchar(6)	WH0001			PK	WH0001
	prod_id	Product's id	varchar(6)	PDxxxx			FK	PD0001
	wareh_name	Warehouse's name	varchar(5)	xxxxx Warehouse				Veronica Warehouse
	wareh_addr	Warehouse's address	varchar(30)	xxxxxx				9530 Fuller Ferry Suite 699 Springfield, IL 62701
	total_qty	Warehouse's total quantity	varchar(5)	xxxxx Warehouse				Veronica Warehouse
	total_qty_sold	Warehouse's total quantity sold	varchar(30)	xxxxxx				9530 Fuller Ferry Suite 699 Springfield, IL 62701
	wareh_state	Warehouse's state	varchar(30)	xxxxxx (xx)				Illinois (IL)

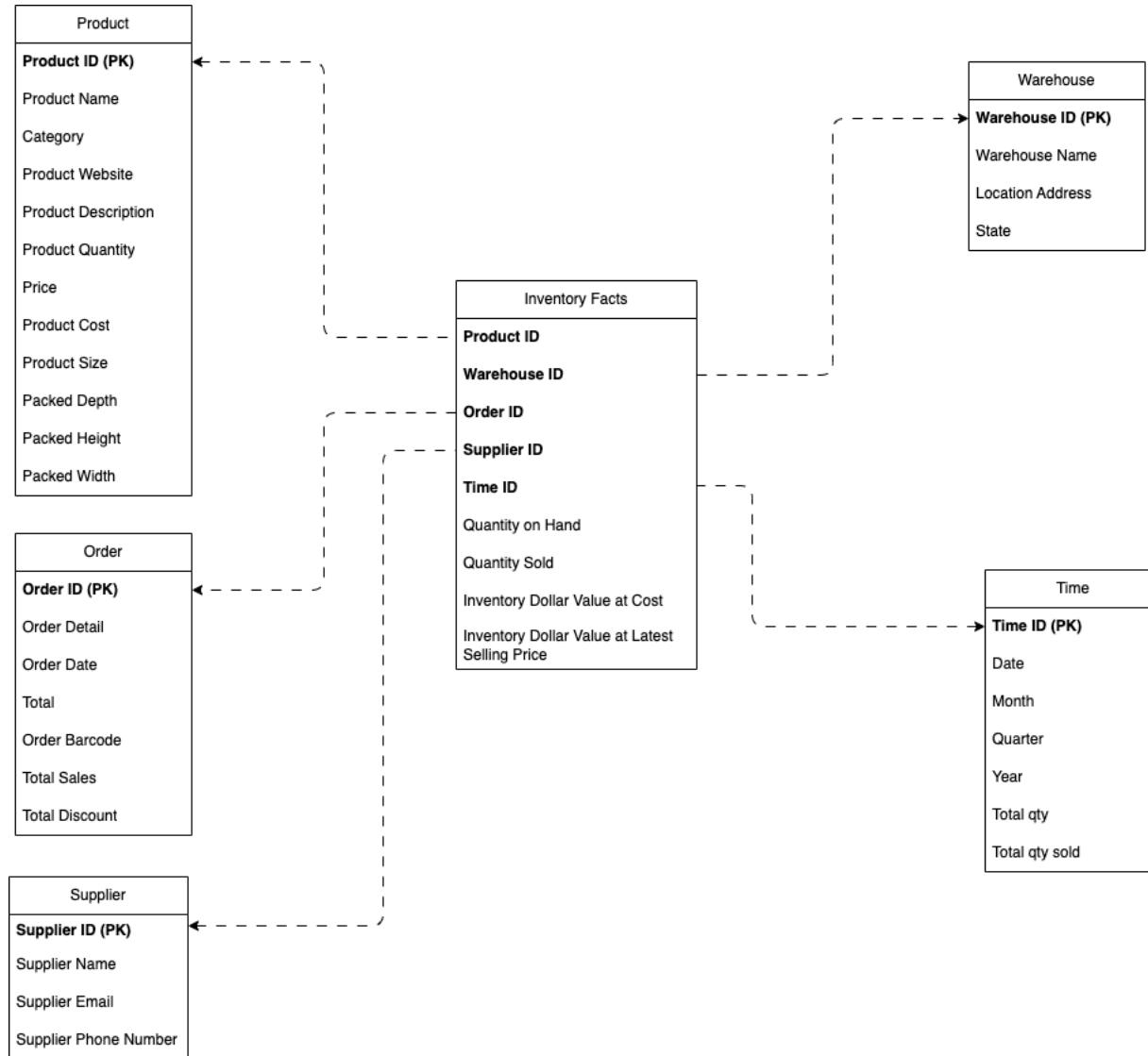


Data Dictionaries

store	store_id	Store's id	varchar(10)	Sxxxx		PK	S0001
	prod_id	Product's id	varchar(6)	PDxxxx		FK	PD0001
	store_name	Store's name	varchar(4)	IKEA			IKEA
	store_addr	Store's address	varchar(13)	United States			United States
	store_branch	Store's branch	varchar(30)	xxx			Oregon (OR)
payment	transac_id	Payment transaction id	varchar(6)	TSxxxx		PK	TS0001
	paym_type	Payment method' type	varchar(30)	xxxxxxxx	Cash,Debit Card,Credit Card		Cash
	paym_date	Paymetn method' date	date	D/M/YYYY			5/9/2023
	paym_time	Payment method' description	time	HH:MM:SS			12:12:02
time	time_id	Time's id	varchar(6)	TM0001		PK	TM00001
	wareh_id	Warehouse's id	varchar(6)	WHxxxx		FK	WH0001
	prod_id	Product's id	varchar(6)	PDxxxx		FK	PD0001
	sup_id	Supplier's id	varchar(6)	SPExxxx		FK	SPE0001
	time_date	Time's date	int	xx			P1
	time_month	Time's month	int	xx			P12
	time_quater	Time's quarter	varchar(2)	Qx			Q2
	time_year	Time's year	varchar(4)	xxxx			2023
	total_qty	Warehouse's total quantity	int	xxx			31
	total_qty_sold	Warehouse's total quantity sold	int	xxx			23
delivery_staff	deli_id	Delivery Staff's id	varchar(36)	xxx		PK	a7c2266c-5735-4074-92b9-6c432fe0b235
	store_id	Store's id	varchar(10)	Sxxxx		FK	S0001
	prod_id	Product's id	varchar(6)	PDxxxx		FK	PD0001
	deli_name	Delivery Staff's name	varchar(50)	xxxxx			Denise Bush
	deli_area	The area where the delivery staff deli	varchar(50)	xxxxx (xx)			Oregon (OR)
	deli_cost	delivery's cost	double	xx.xx			35.0460256
	deli_distance	delivery's distance	double	xxx.xx			111.07
	deli_fee	delivery's fee	double	x.xx			0.1
product	deli_gps	GPS that tells delivery staff the locat	varchar(500)	xxxx, -xxxx			45.78294493747652, -122.5429508
	prod_id	Product's id	varchar(6)	PDxxxx		PK	PD0001
	store_id	Store's id	varchar(10)	Sxxxx		FK	S0001
	sup_id	Supplier's id	varchar(5)	SPExxxx		FK	SPE0001
	prod_name	Product's name	varchar(100)	xxxxxxxx			FREKVENS
	prod_cate	Category's name of the product	varchar(100)	xxxxxxxx			Bar furniture
	prod_price	Product's price	double	xx.xx			49.99
	prod_website	Product's website	varchar(800)	https://www.ikea.com/us/en/p/xxxxxx			https://www.ikea.com/us/en/p/frekvens-led-multi-use-light-black-50420353/
	prod_description	Detailed description of the product	varchar(800)	xxxxxxxx			LED multi-use lighting, black
	prod_depth	Product's depth	int	xxx	Y		55
	prod_height	Product's height	int	xxx	Y		99
	prod_width	Product's width	int	xxx	Y		51
	prod_size	Product for gender	varchar(10)	xxx	Small,Medium,Big		Small
	prod_quantity	Product's quantity	int	xxx			278
	prod_cost	Product's cost	double	xx.xx			39.99

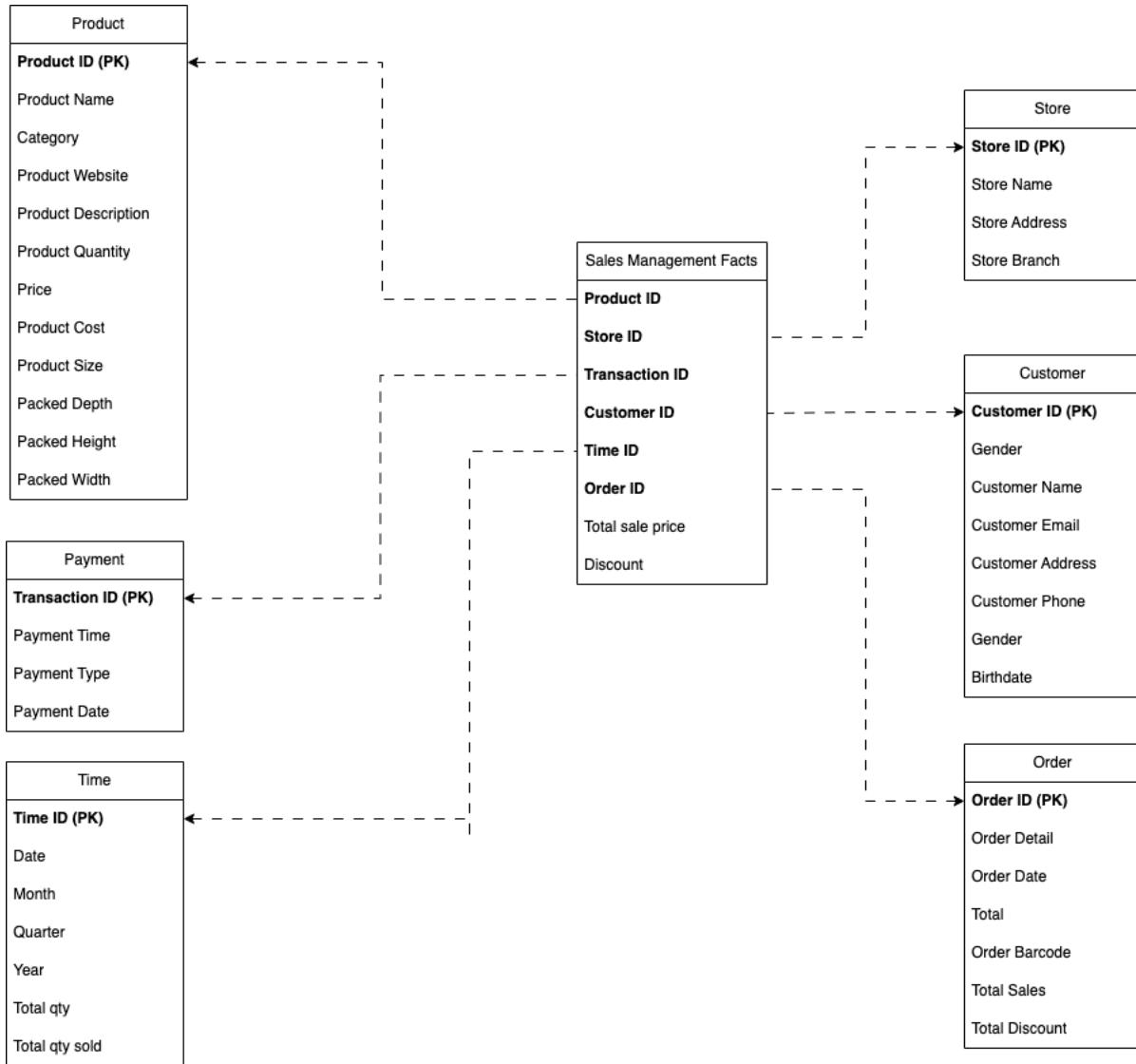


Data sources



Inventory

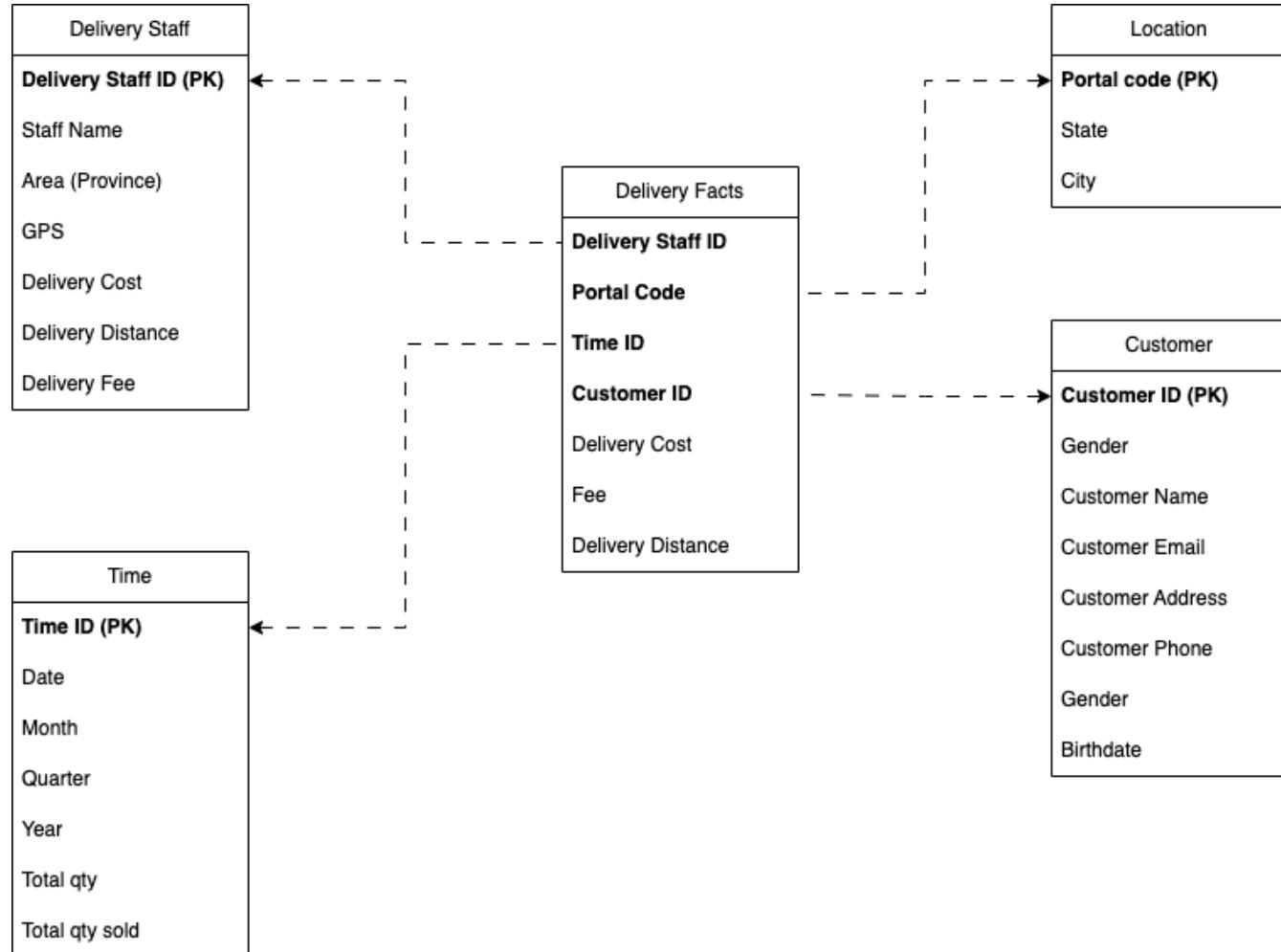
Data warehouse design Star Schema



Sales Management



Star Schema



Delivery

ETL process



Details

Analysis and Visualization



Details

Discussion



Details

PROJECT 1

Step 1

→ 01

02

03

04

05

Remove unrelated data

The screenshot shows a data processing interface with the following details:

- Source:** customer
- Transformation:** Remove unrelated...
- Changes:** 2 (Remove Field cus_email, Remove Field cus_tel)
- Resulting Dataset:** Remove unrelated data (6 fields, 2K rows)
- Fields:**
 - cus_id: 2K rows (values: C0001-C0012)
 - cus_firstname: 20 rows (values: Barbara, Charles, David, Elizabeth, James, Jennifer, Jessica, John, Joseph, Karen, Linda, Mary)
 - cus_lastname: 20 rows (values: Anderson, Brown, Davis, Garcia, Gonzalez, Hernandez, Jackson, Johnson, Jones, Lopez, Martin, Martinez)
 - cus_address: 2K rows (values: 0116 Vega Locks\nJefferson, 02214 Callahan Forest Ap, 03667 Johnson Mill\nNashville, 043 Amanda Neck Suite 9, 0687 Dennis Mill, August, 06933 Laura Terrace Suite, 0805 Brandy Path Suite 5, 10 Washington St, Concorde, 100 10th St, Montgomery, 1001 4th St, Indianapolis, 1002 Maple Ave, Nashville, 1003 Park Ave, Cheyenne)
 - cus_gender: 3 rows (values: Female, Male, Other)
 - cus_bdate: 2 rows (values: 01/01/1980, 01/01/2010)

01

→ 02

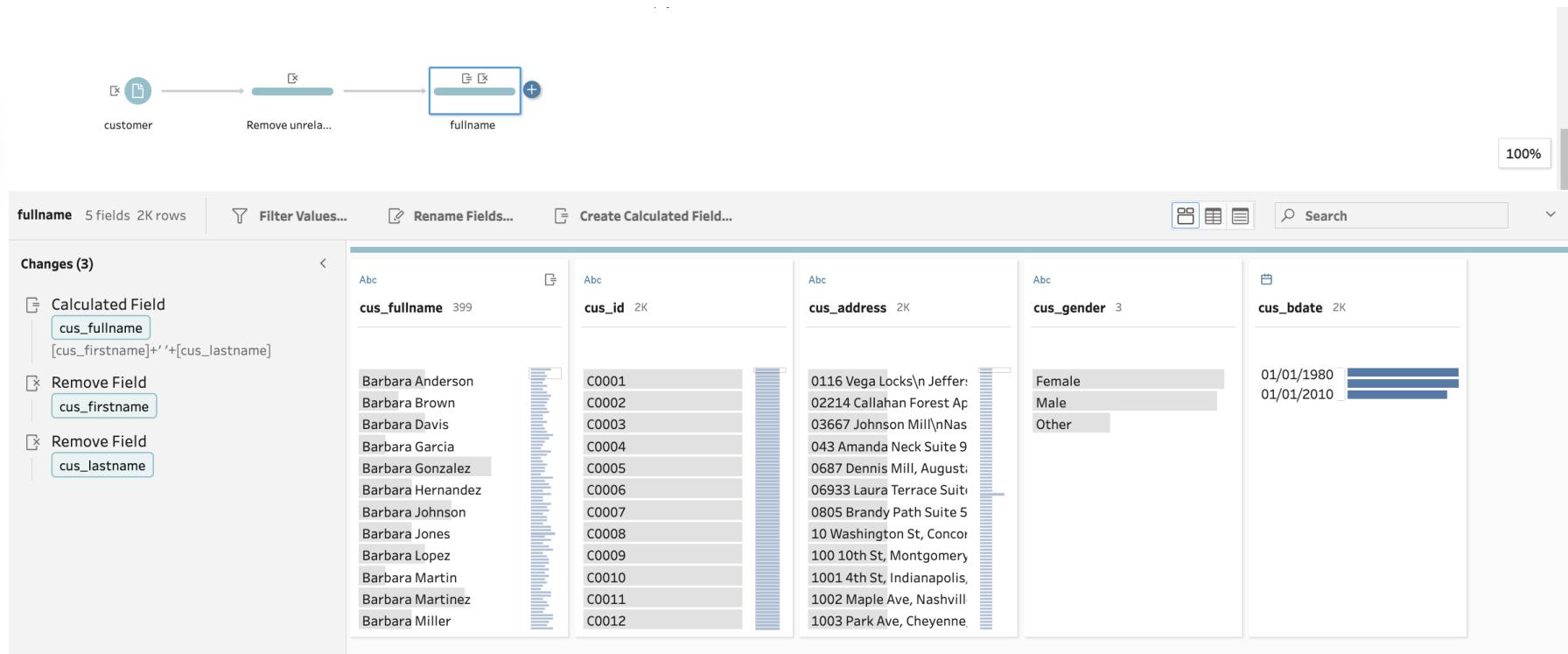
03

04

05

Step 2

Cleaning data



01

02

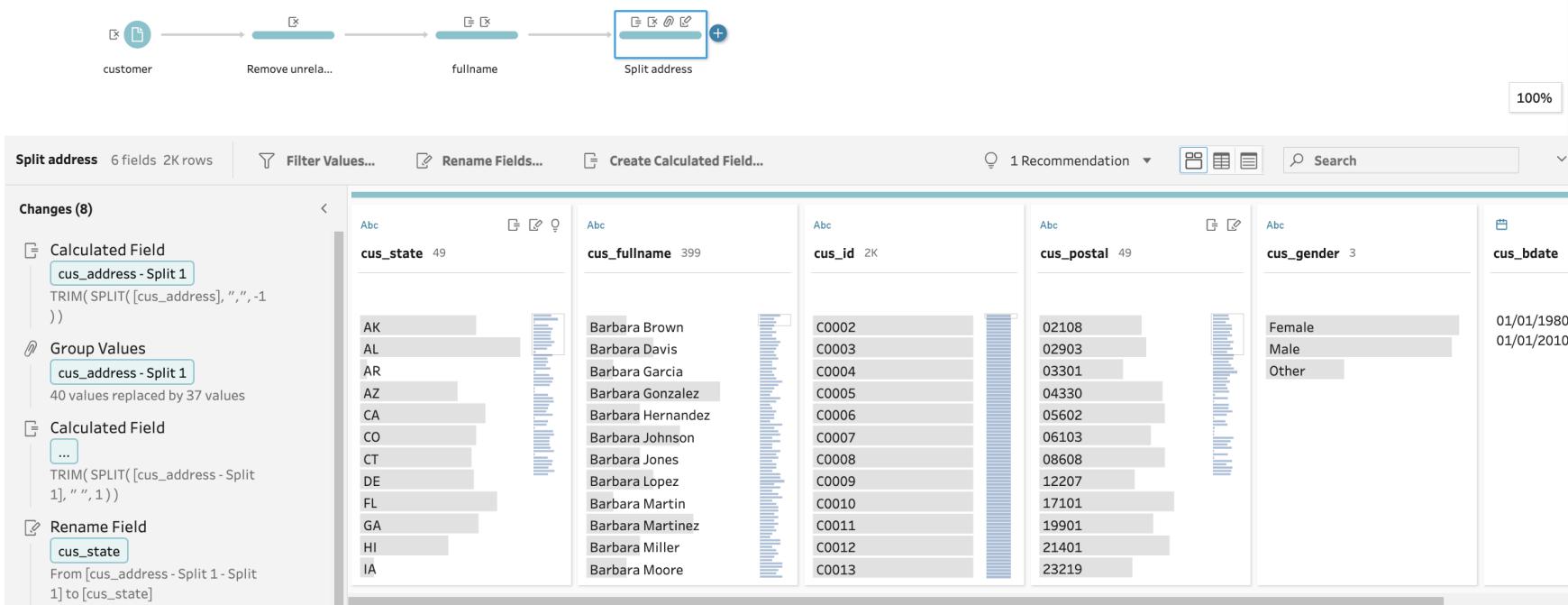
→ 03

04

05

Step 3

Split of group data



01

02

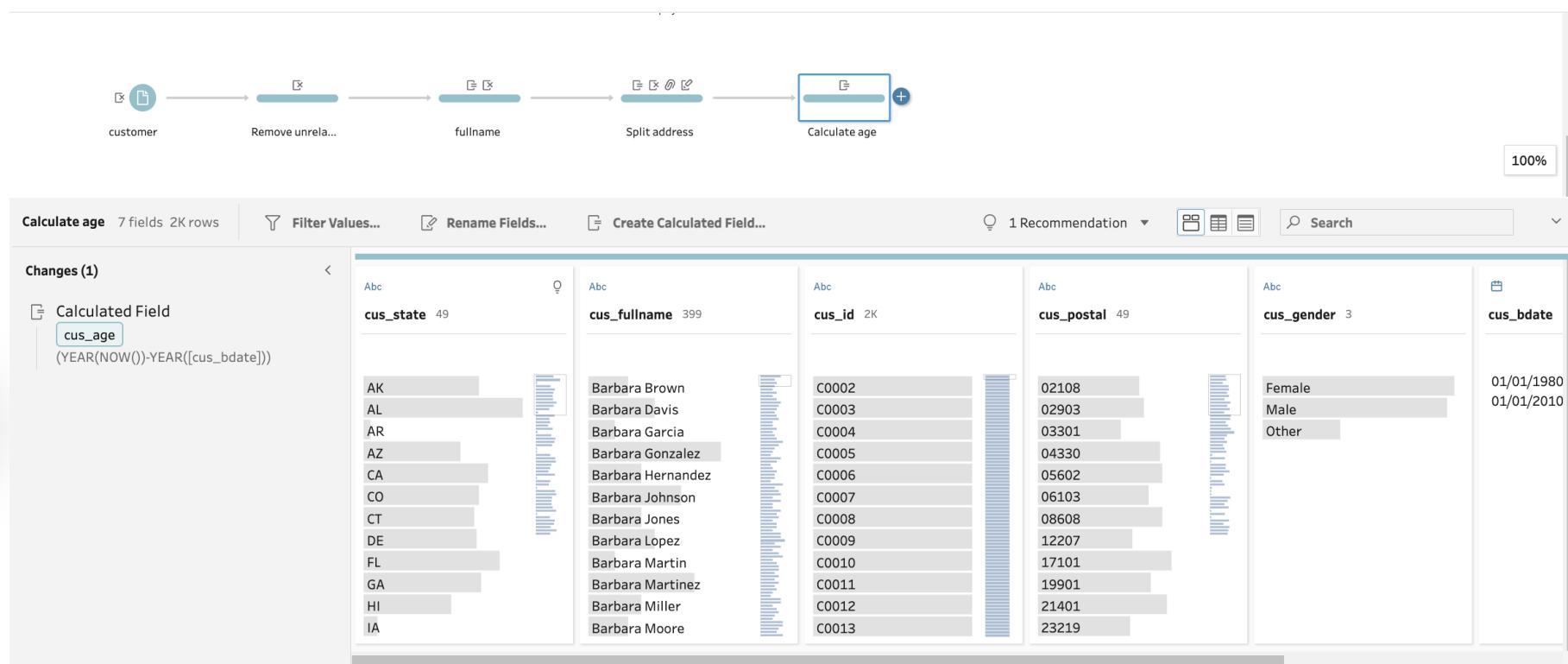
03

→ 04

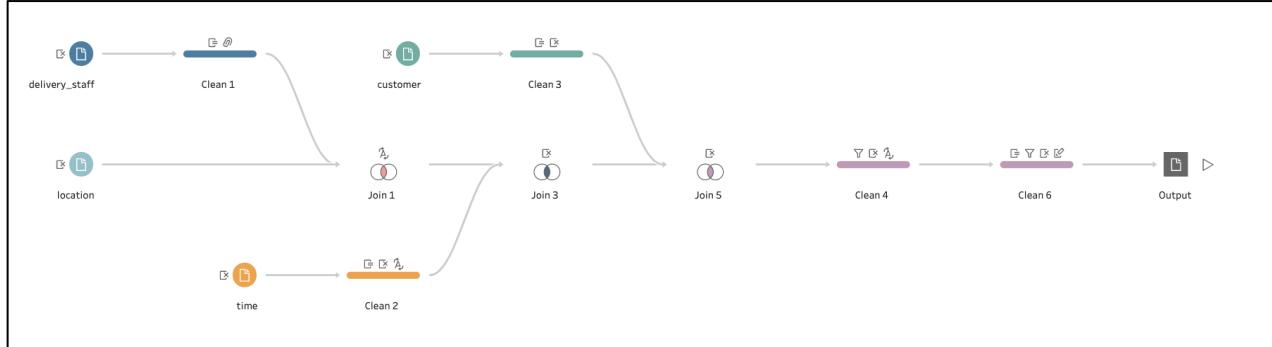
05

Step 4

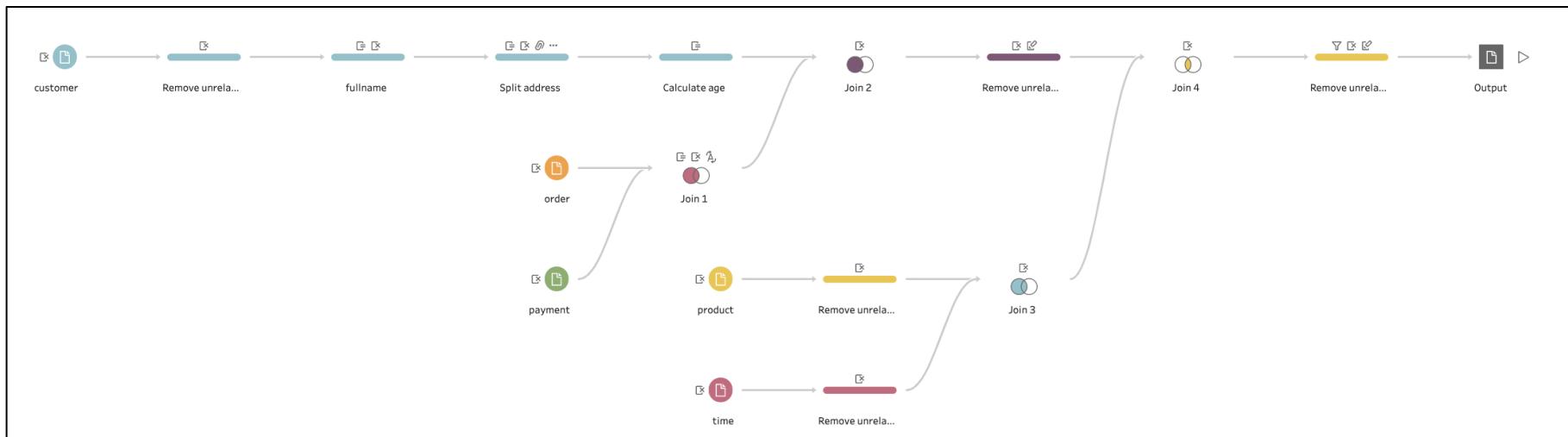
Calculated data



01



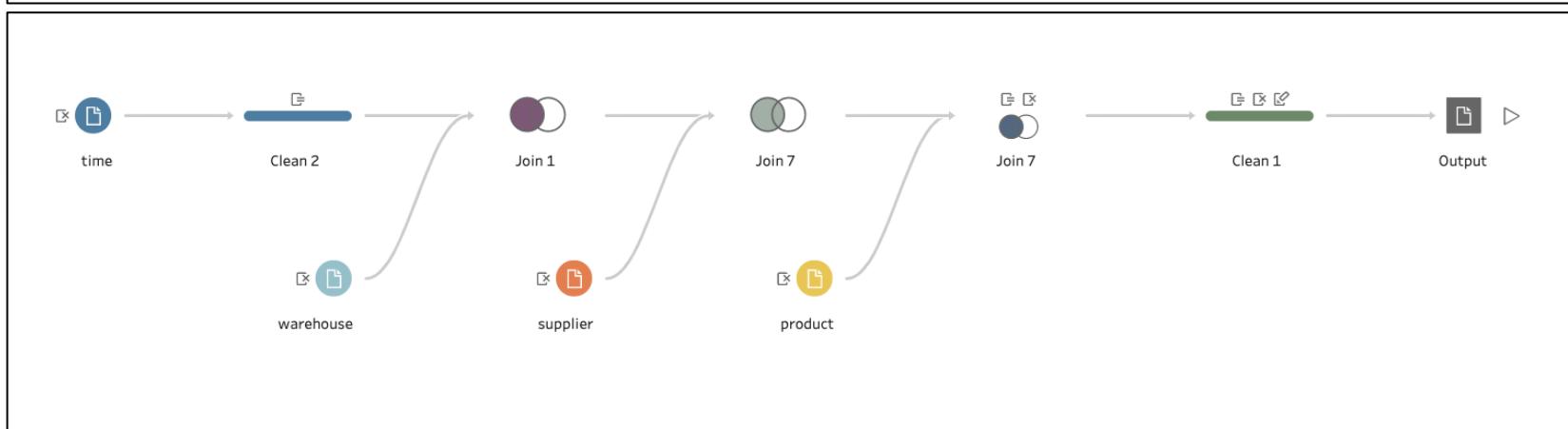
02



03

04

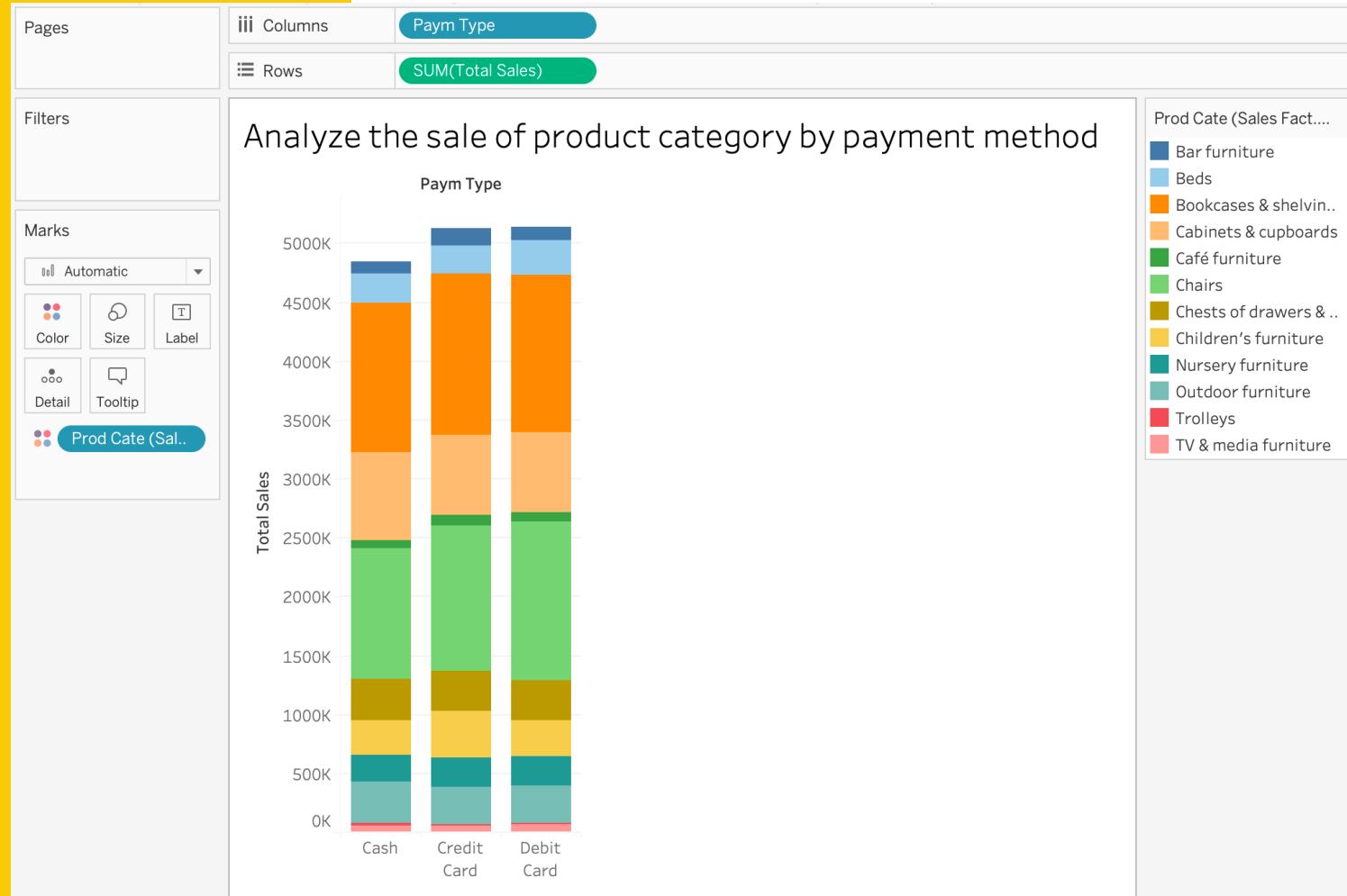
→ 05



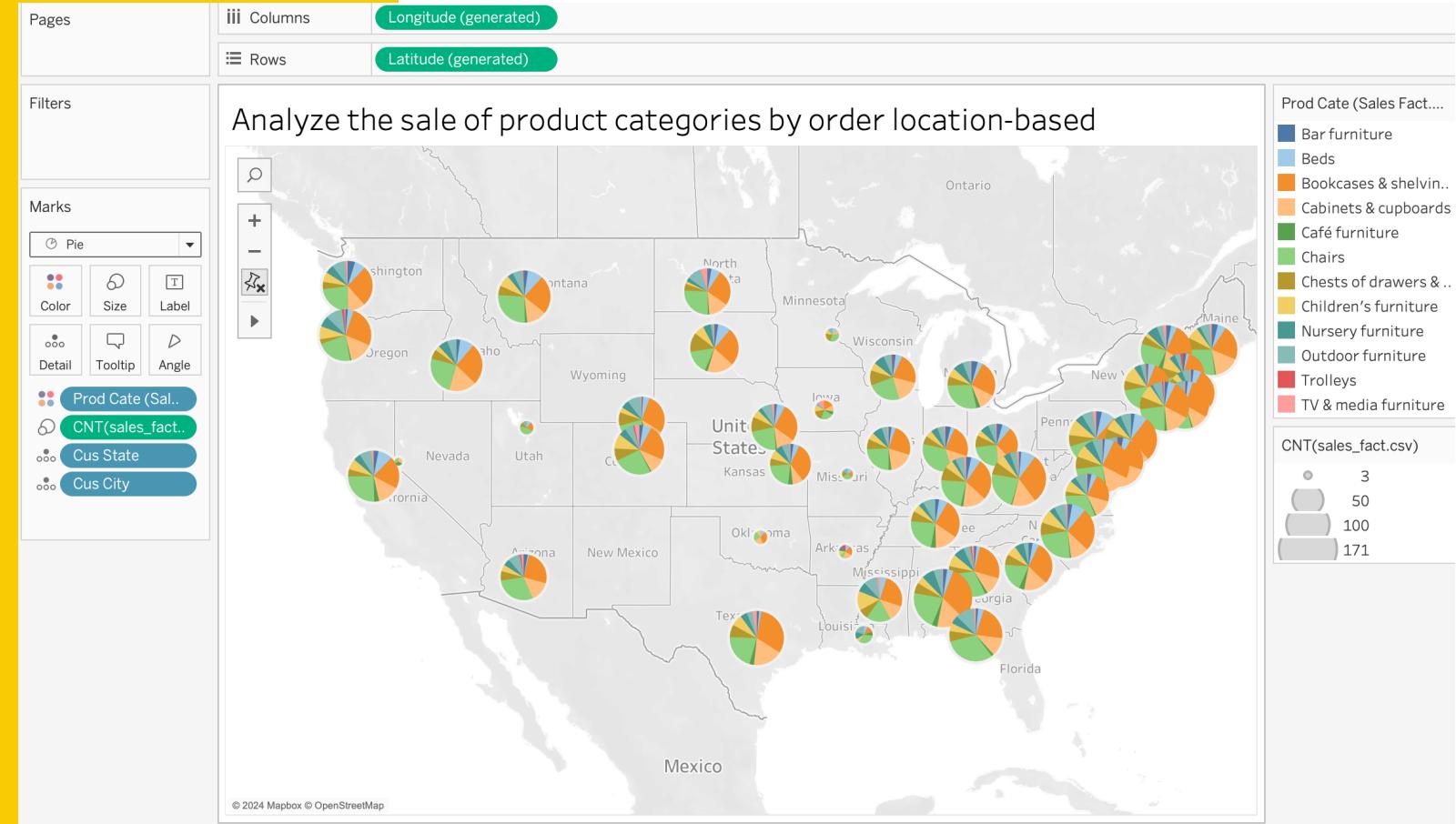
Step 5

Join data

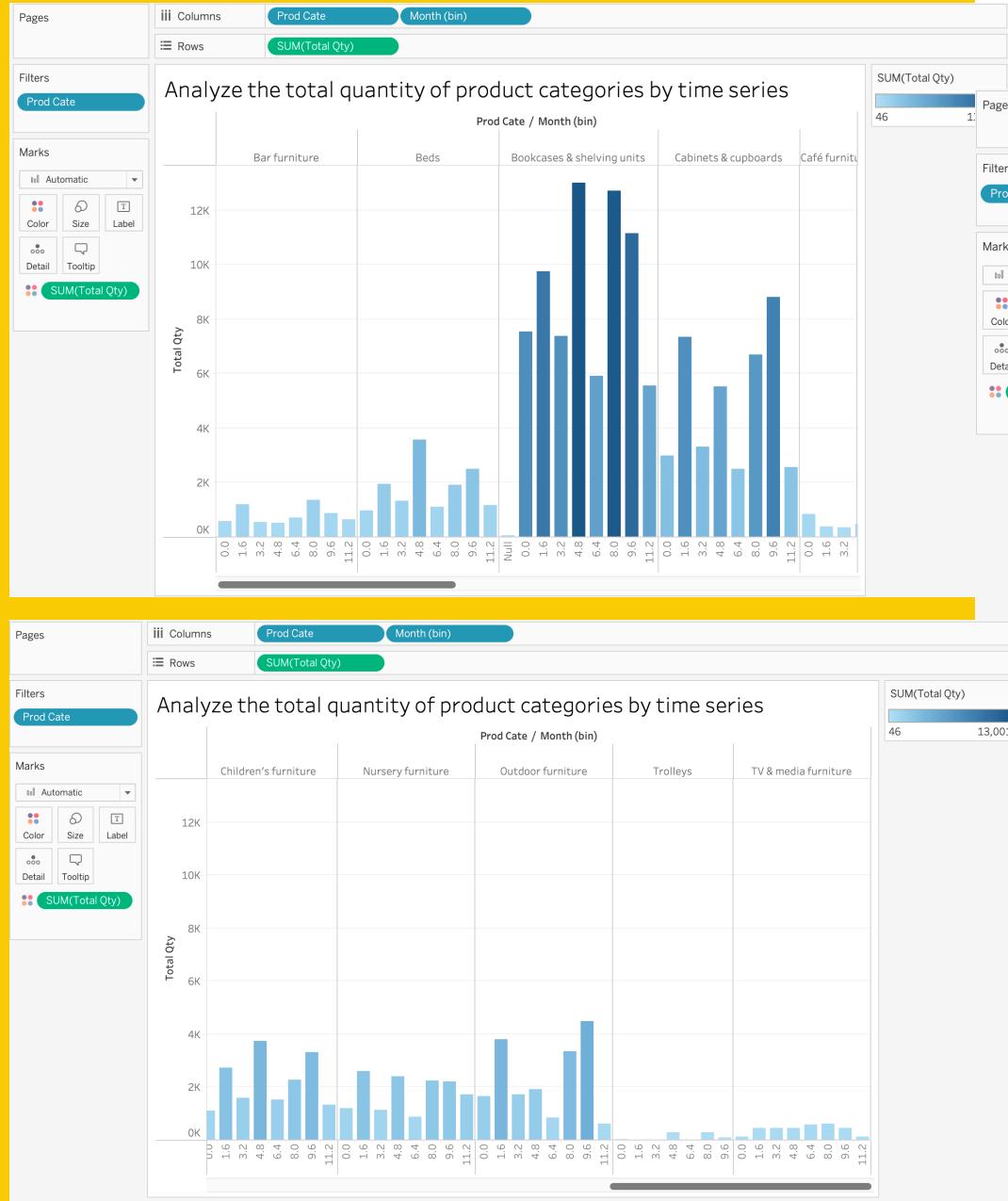
Analyze the sale of product category by payment method



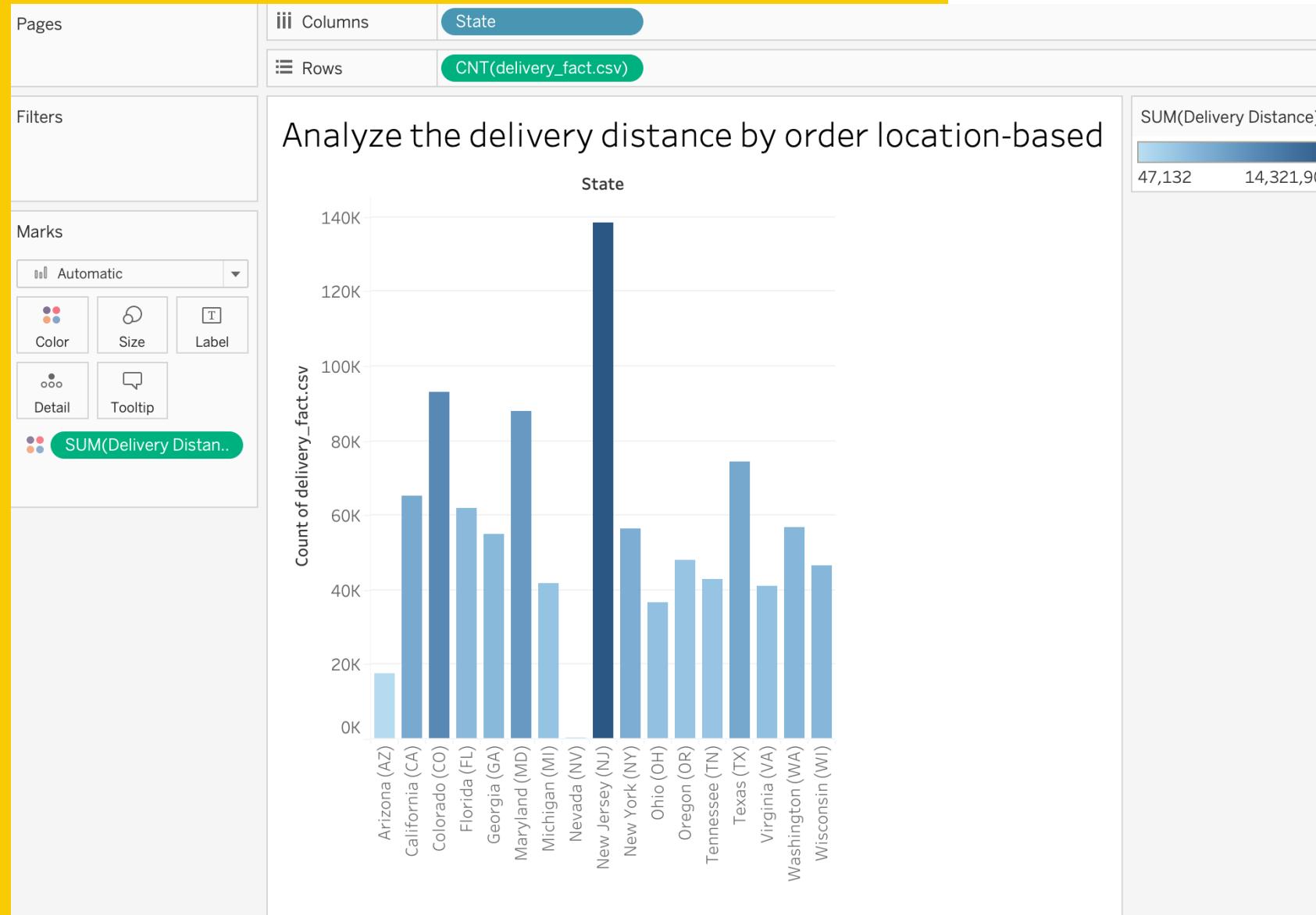
Analyze the sale
of product
categories by
order location-
based



Analysis and Visualization



Analyze the total quantity of product categories by time series



Analyze the
delivery distance
by order location-
based

Discussion

IKEA has adopted data warehousing and data mining technologies to enhance operational efficiency and customer satisfaction in the retail sector. The company uses Online Analytical Processing (OLAP) and Online Transaction Processing (OLTP) systems to manage sales data, monitor inventory levels, and analyze customer behavior in real-time. This integration facilitates a seamless flow of information across departments, fostering an environment where data-driven decisions thrive. IKEA's data warehousing consolidates disparate data sources into a single repository, enhancing data management and accessibility. Data mining techniques uncover hidden patterns and trends, enabling strategic decisions. Advanced data visualization tools like Tableau have revolutionized data communication, increasing operational transparency and fostering innovation.

Thank
you



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