

FINAL REPORT OF NORTHWIND DATABASE

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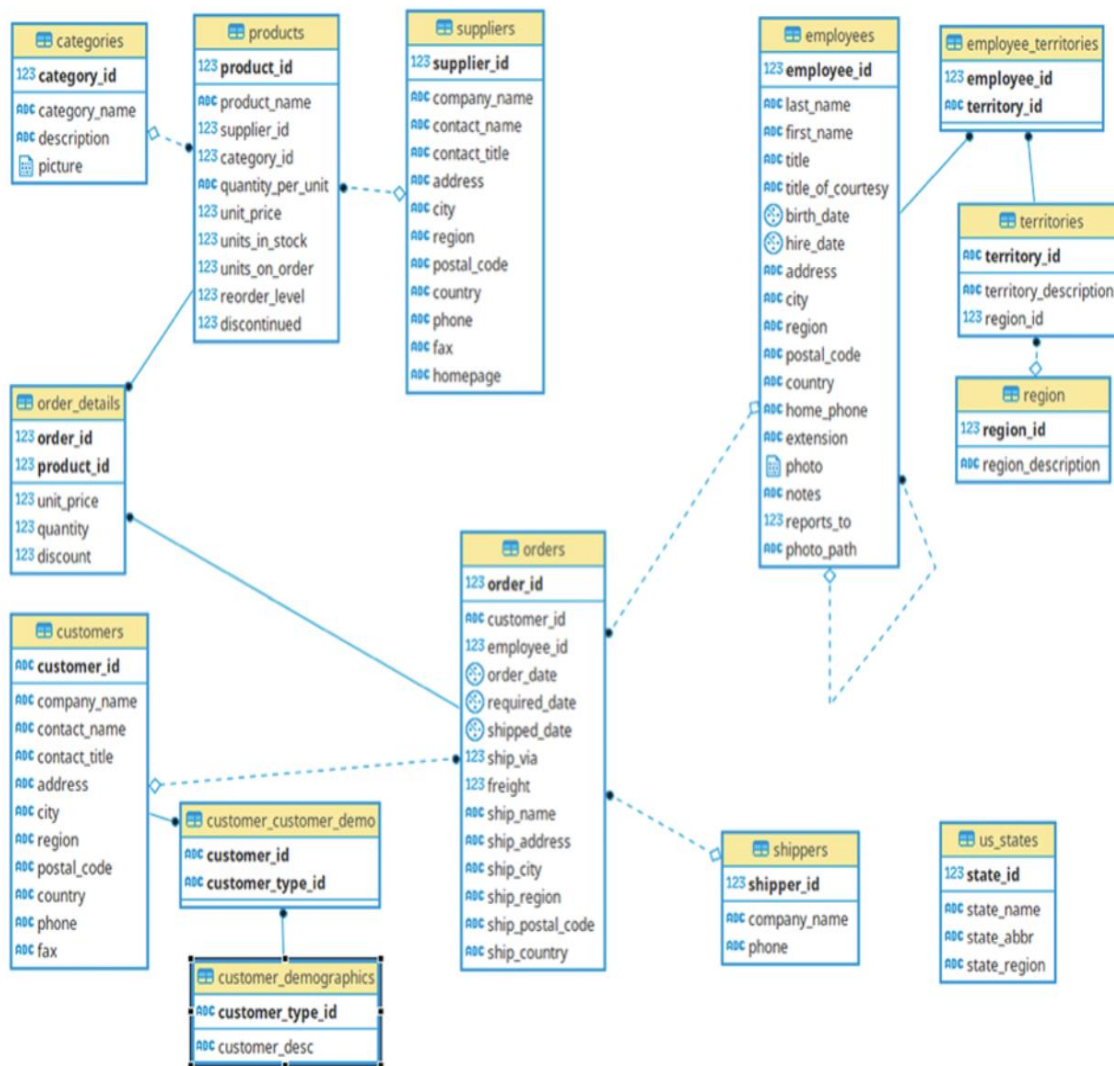
Data Science Practice Assignment 2

1 PRESENTATION OF DATA

The dataset “Northwind” contains 14 tables, including categories, customers, customer_customer_demo, customer_demographics, employees, employee_territories, orders, order_details, products, region, shippers, suppliers, territories, us_states.

- Categories: list of product categories
- Customers: buyers of Northwind products
- Customer_customer_demo & customer demographics: customers detail, including customer id
- Employee_territories: the territory employee is working in and employee id
- Employees: people who work for Northwind
- Orders: information about each order such as customer who placed the orders, employee who handled the order, and shipment date etc.
- Order details: transaction details of each order such as products, unit price and quantity, discount applied
- Products: the products Northwind buys and sells
- Region: information about region
- Suppliers: who supply products to Northwind
- Shippers: companies who ship products from Northwind to customers
- Us_states: details of USA states

1.1. The diagram of the relationships between tables



1.2 Table for dimensions and number of samples

Tables	Dimensions	Number of samples
Categories	<ul style="list-style-type: none"> - Category_id - Category_name - Description - Picture 	8
Customer_customer_demo	<ul style="list-style-type: none"> - Customer_id - Customer_type_id 	-
Customer_demographics	<ul style="list-style-type: none"> - Customer_type_id - Customer_desc 	-
Customers	<ul style="list-style-type: none"> - Customer_id - Company_name - Contact_name - Contact_title - Address - City - Region - Postal_code - Country - Phone - fax 	91
Employees	<ul style="list-style-type: none"> - Employee_id - Last_name - First_name - Title - Title_of_courtesy - Birth_date - Hire_date - Address - City - Region - Postal_code - Country - Homephone - Extension - Photo - Notes - Reports_to - Photo_path 	9

Employee_territories	<ul style="list-style-type: none"> - Employee_id - Territory_id 	49
Orders	<ul style="list-style-type: none"> - Order_id - Customer_id - Employee_id - Order_date - Required_date - Shipped_date - Ship_via - Freight - Ship_name - Ship_address - Ship_city - Ship_region - Ship_postal_code - Ship_country 	830
Order_details	<ul style="list-style-type: none"> - Order_id - Product_id - Unit_price - Quantity - Discount 	2155
Products	<ul style="list-style-type: none"> - Product_id - Product_name - Supplier_id - Category_id - Quantity_per_unit - Unit_price - Unit_in_stock - Unit_on_order - Reorder_level - Discontinued 	77
Region	<ul style="list-style-type: none"> - Region_id - Region_description 	4
Shippers	<ul style="list-style-type: none"> - Shipper_id - Company_name - Phone 	6
Suppliers	<ul style="list-style-type: none"> - Supplier_id - Company_name - Contact_name - Contact_title - Address - City - Region - Postal_code - Country - Phone - Fax 	29

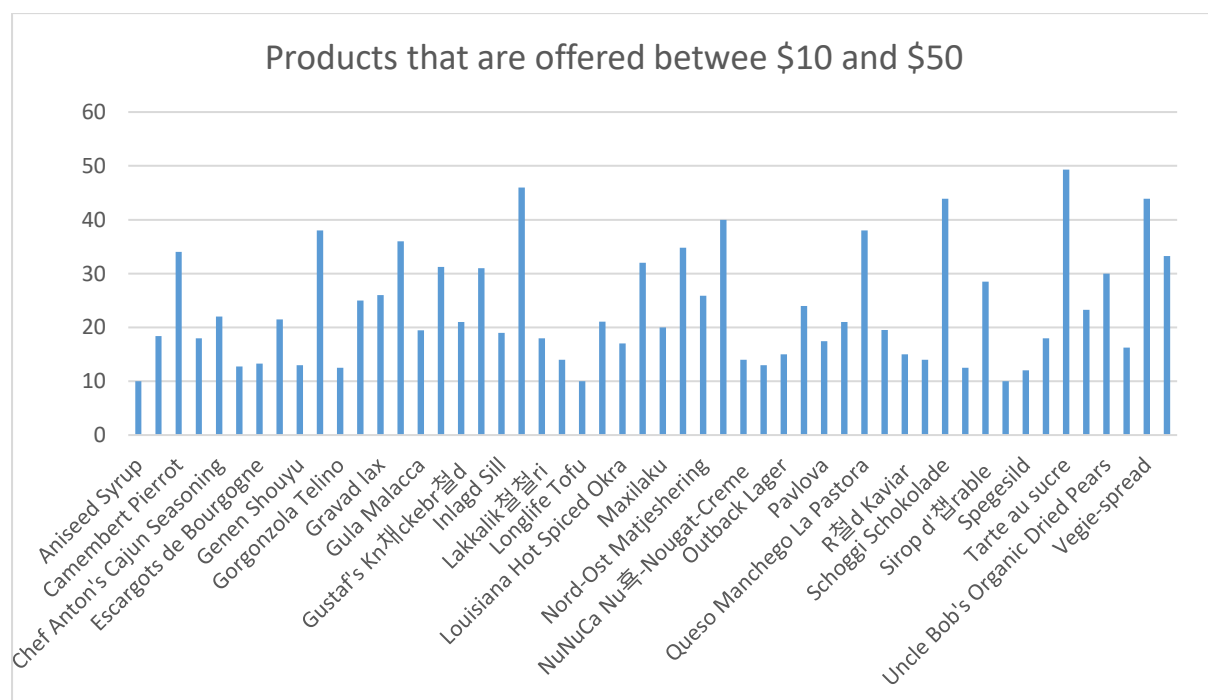
	<ul style="list-style-type: none"> - Home_page 	
Territories	<ul style="list-style-type: none"> - Territory_id - Territory_description - Region_id 	53
Us_states	<ul style="list-style-type: none"> - State_id - State_name - State_abbr - State_region 	51

2 INSTRUCTIONS TO CONNECT TO DATABASE

1. Download the Northwind dataset, including tables and sample data on Canvas (I downloaded Northwind dataset, tables and samples on <https://docs.yugabyte.com/preview/sample-data/northwind/>).
2. In DBeaver, create to postgresSQL database, with localhost and port (5432).
3. Create Schemas named Northwind.
4. Create 14 tables with given columns and set a primary key and foreign keys for each table (shown in diagram).
5. Insert sample data for each table (make sure to insert reference tables first and then insert tables, which include foreign keys, otherwise will make an error).
6. Start running queries to answer business questions.

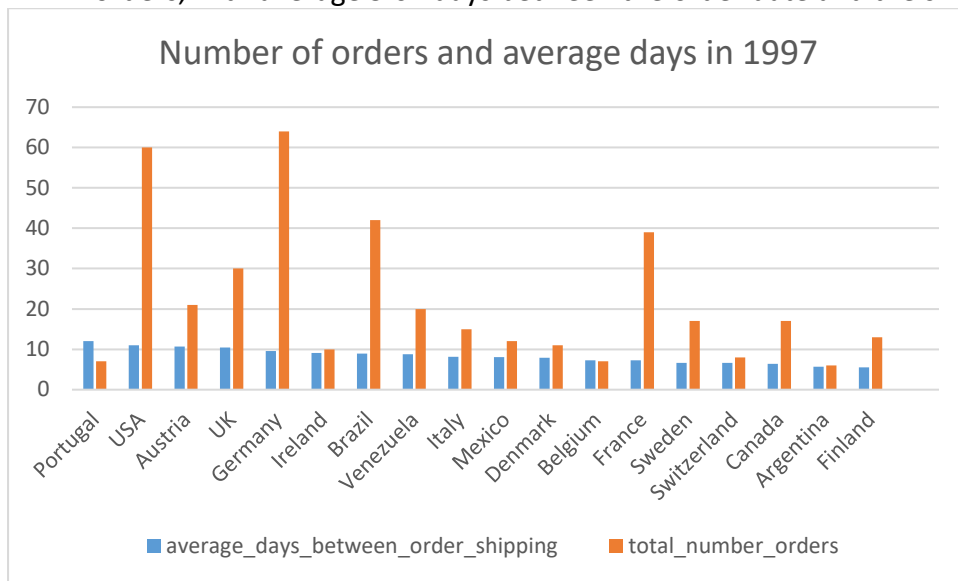
3 ANSWERING BUSINESS QUESTIONS

1. There are 52 products that are currently being offered for a price range between \$10 to \$50 with the lowest price of \$10 for “Sir Rodney’s Scones” and the highest price of \$49.3 for “Tarte au sucre”.



2. The Logistics Team wants to do a retrospection of their performances for the year 1997, in order to identify for which countries they didn't perform well. There are 18 countries, in which Northwind products were ordered and shipped in 1997.

Accordingly, the lowest number of orders in 1997 is Argentina, which had only 6 orders, with average 5.67 days between the order date and the shipping date.



- The HR Team wants to know for each employee what was their age on the date they joined the company and who they currently report to. There are 9 employees in Northwind and here is a table for each employee with the age they were hired and the name of their manager.

Employee name	The age employee was hired	Name of the manager
Anne Dodsworth	29	Steven Buchanan
Janet Leverling	29	Andrew Fuller
Michael Suyama	30	Steven Buchanan
Robert King	34	Steven Buchanan
Laura Callahan	36	Andrew Fuller
Steven Buchanan	39	Andrew Fuller
Andrew Fuller	40	None
Nancy Davolio	43	Andrew Fuller
Margaret Peacock	56	Andrew Fuller

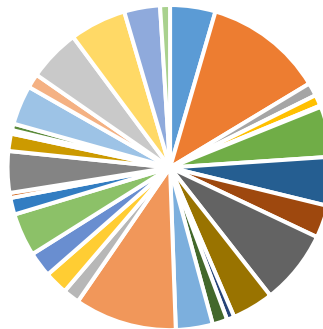
- The Logistics Team wants to do a retrospection of their global performance over 1996-1997, in order to identify which month they perform well. There were 7 months over 1996-1997, which are October 1997, December 1997, May 1997, September 1997, August 1997, April 1997 and December 1996. The highest number of orders was in December 1997.



5. The Pricing Team wants to know which products had an unit price increase and the percentage increase was not between 10% and 30%. Out of 80 products, there are only two products, "Queso Cabrales" (50% increase) and "Singaporean Hokkien Fried Mee" (42.86% increase), which had a unit price increase greater than 30%. Exceptionally, "Mozzarella di Giovanni" product had a unit price decrease about -20%. Other than that, all other products have no price change.

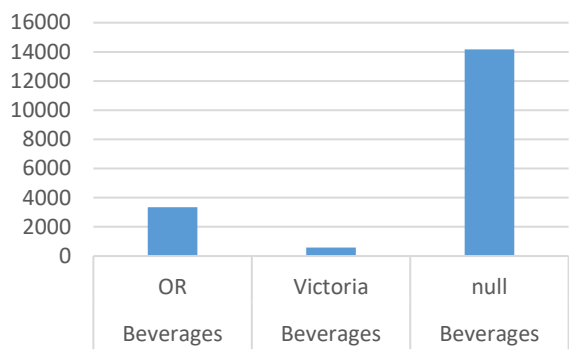
6. The Pricing Team wants to know how each category performs according to their price range. Here is a pie chart, describing total number of orders for different categories in different price range.

Total number of orders for each category in different price range

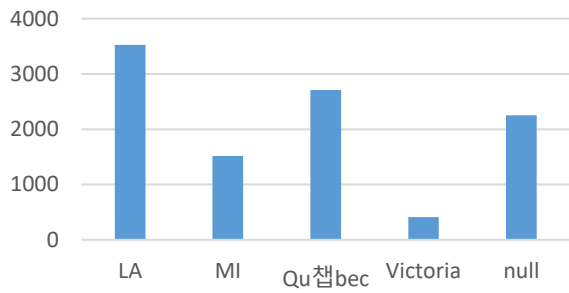


7. The Logistics Team wants to know what the current state of our regional suppliers' stocks for each category of product is. There are 8 categories, including beverages, condiments, confections, dairy products, grains/cereals, meat/poultry, produce and seafood. Here are the graphs for each category stocks in different state.

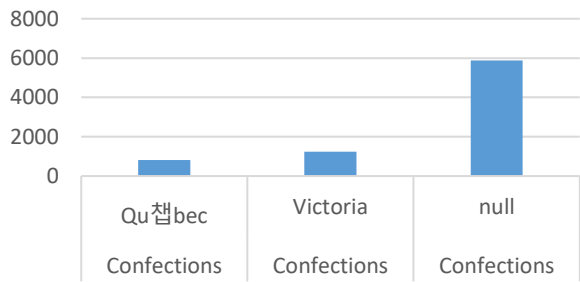
Stocks for beverages
in states

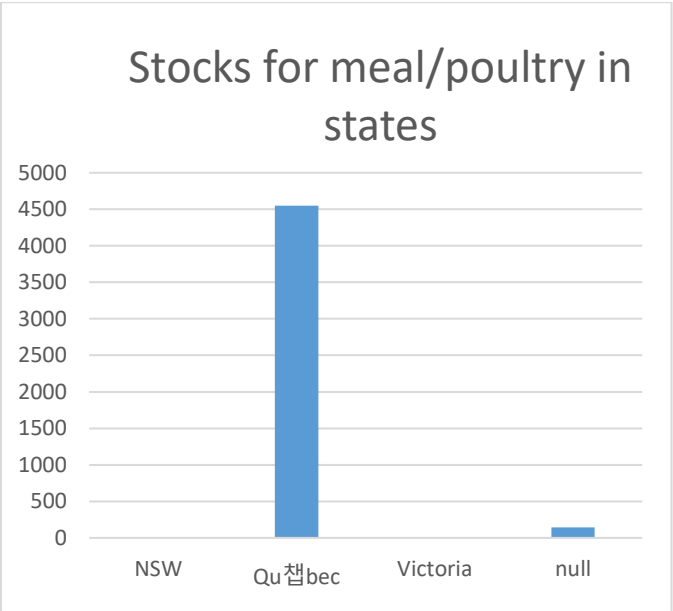
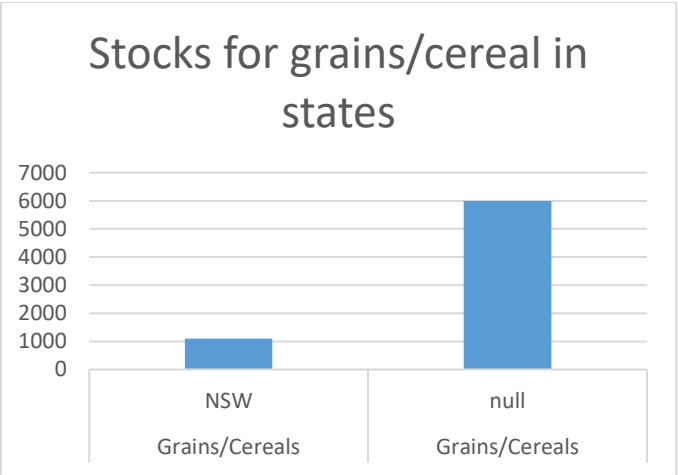
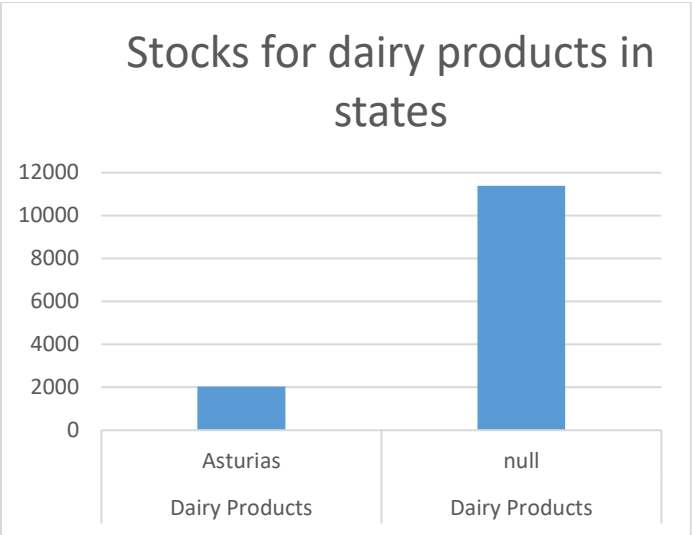


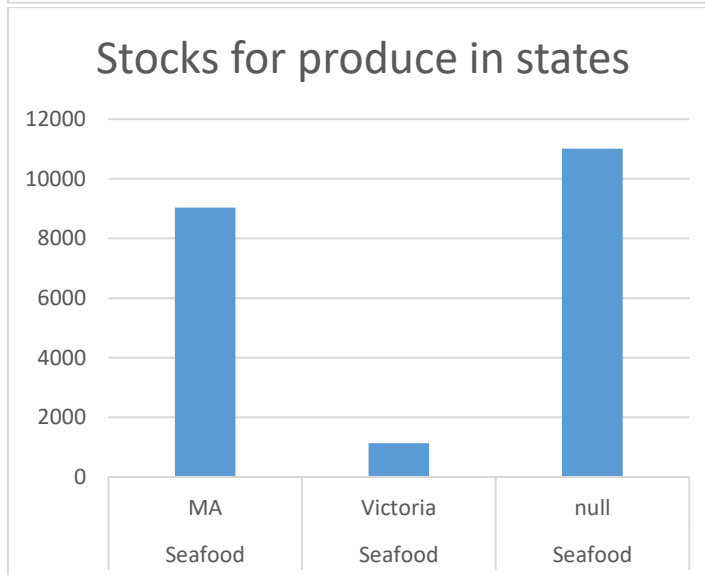
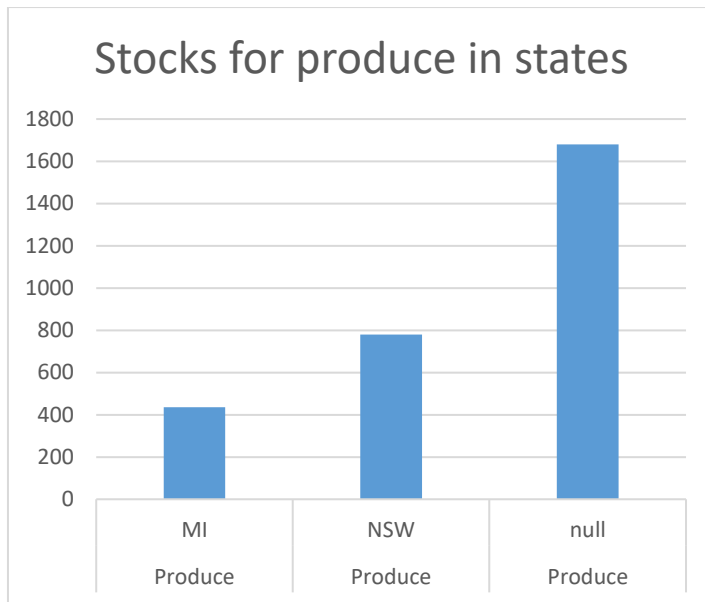
Stocks for condiments
in states



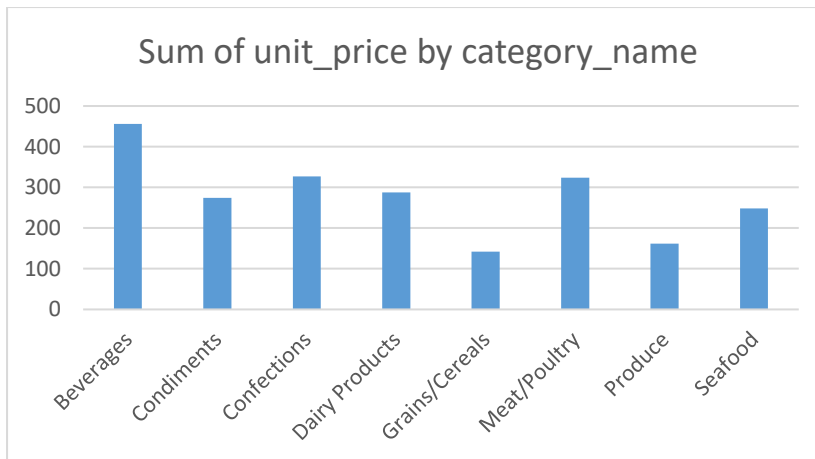
Stocks for confections in
states







8. The Pricing Team wants to know for each currently offered product how their unit price compares against their categories average and median unit price.



Beverages: The average unit price is 37.98 and the median unit price is 18.

Condiments: The average unit price is 22.85 and the median unit price is 21.05.

Confections: The average unit price is 25.16 and the median unit price is 16.25.

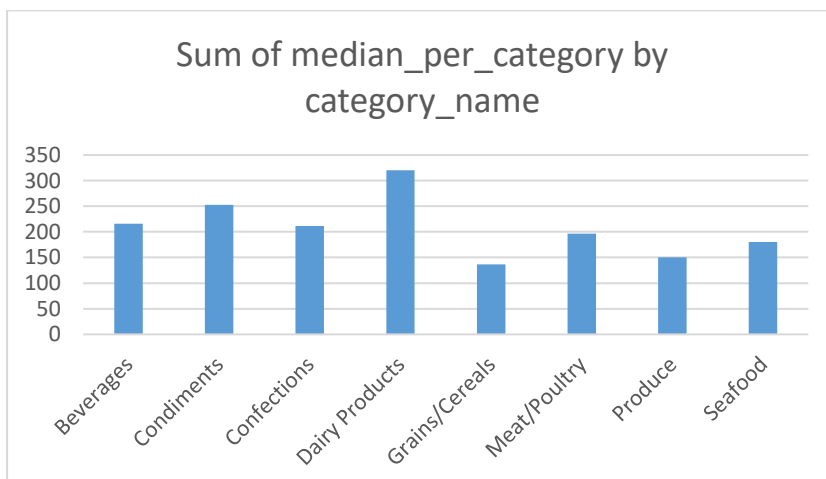
Dairy Products: The average unit price is 28.73 and the median unit price is 32.

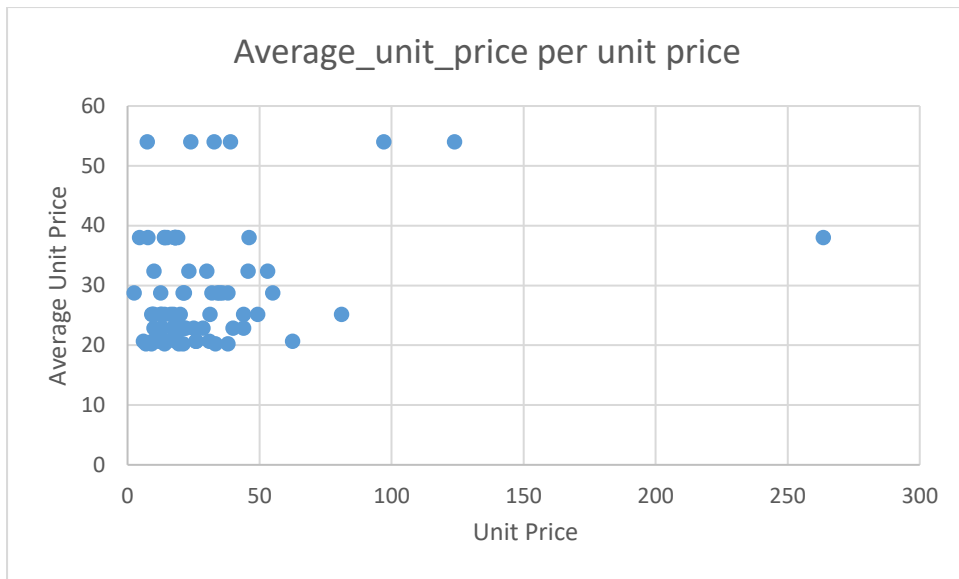
Grains/Cereals: The average unit price is 20.25 and the median unit price is 19.5.

Meat/Poultry: The average unit price is 54.01 and the median unit price is 32.8.

Produce: The average unit price is 32.37 and the median unit price is 30.

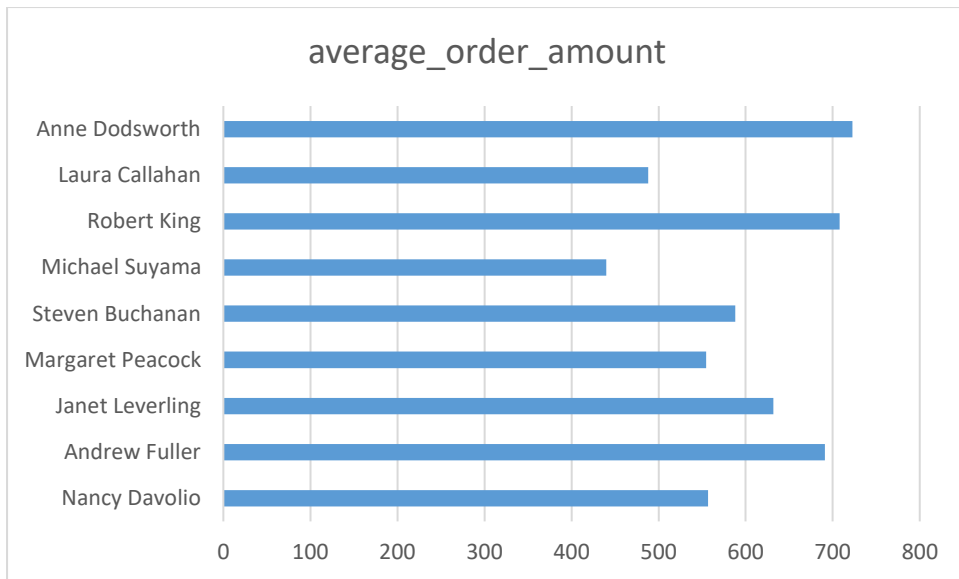
Seafood: The average unit price is 20.68 and the median unit price is 15.



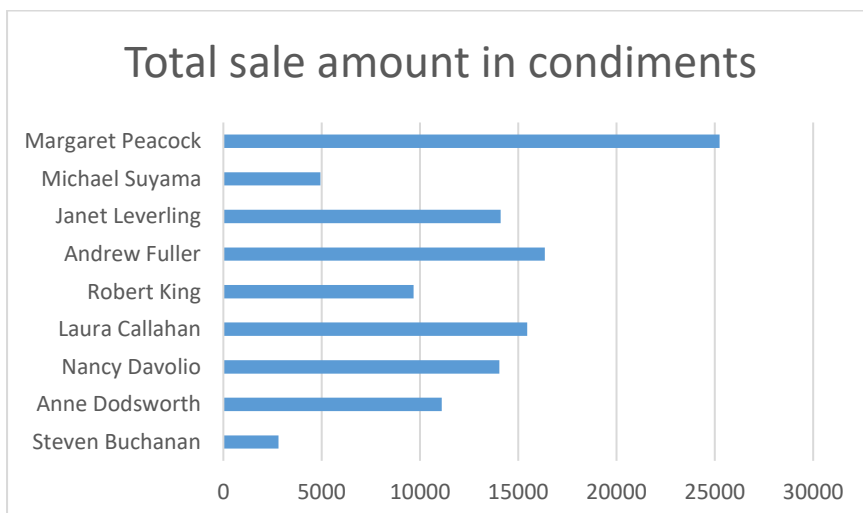
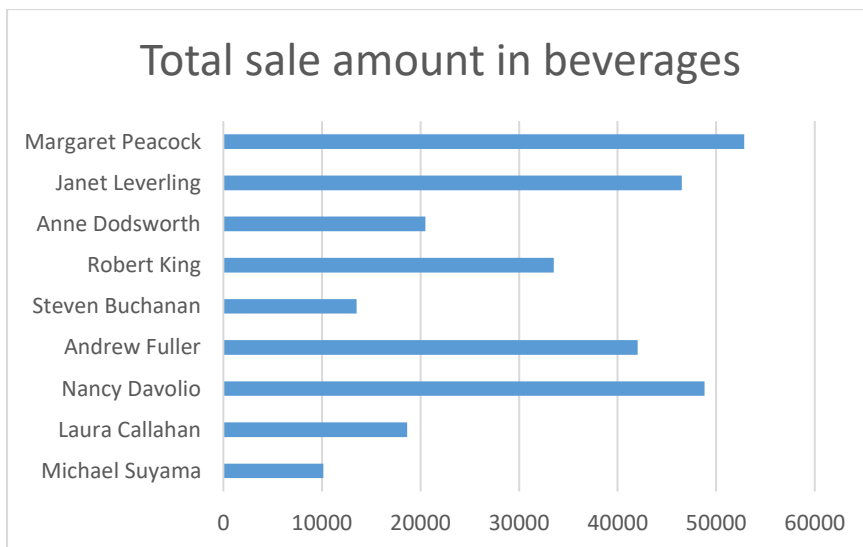


9. The Sale Teams wants to build a list of KPIs to measure employees' performances. There are 9 employees in total and the graphs show total sale amount excluding discount and average order amount.

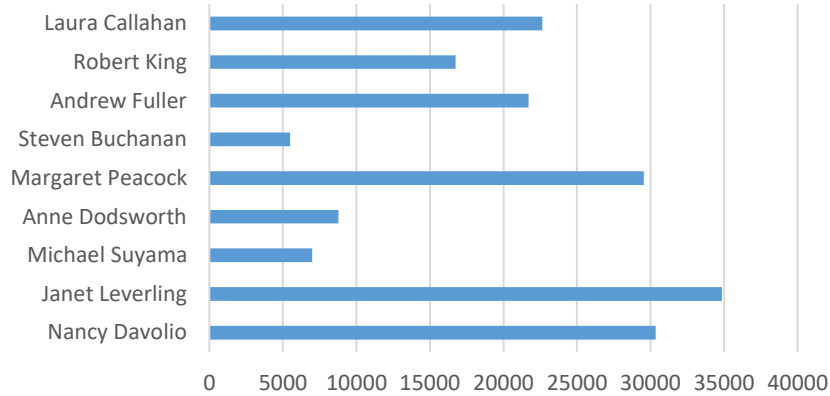




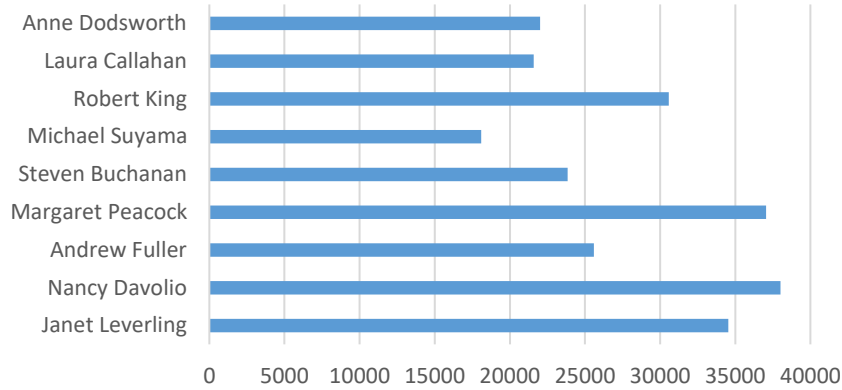
10. The Sales Team wants to build another list of KPIs to measure employees' performance across each category. Here are the graphs of employee's total sale amount of each category.



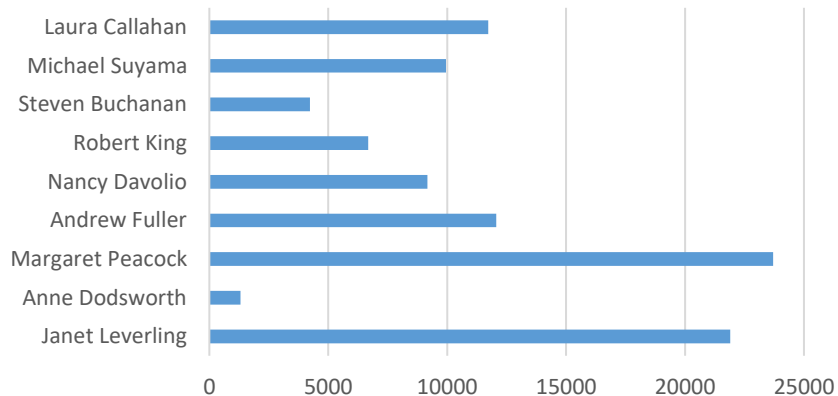
Total sale amount in confections



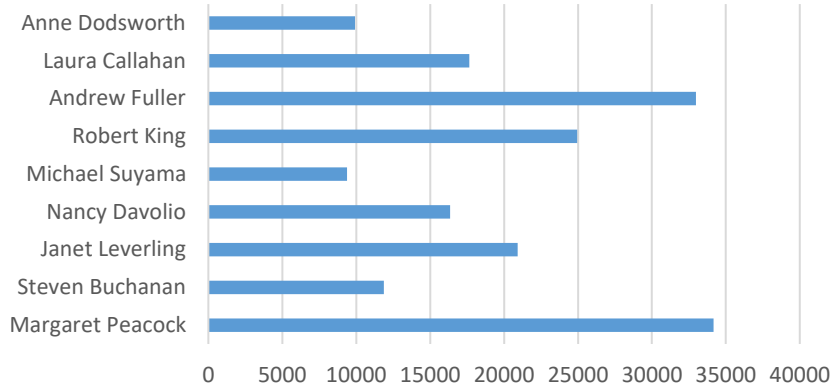
Total sale amount in dairy product



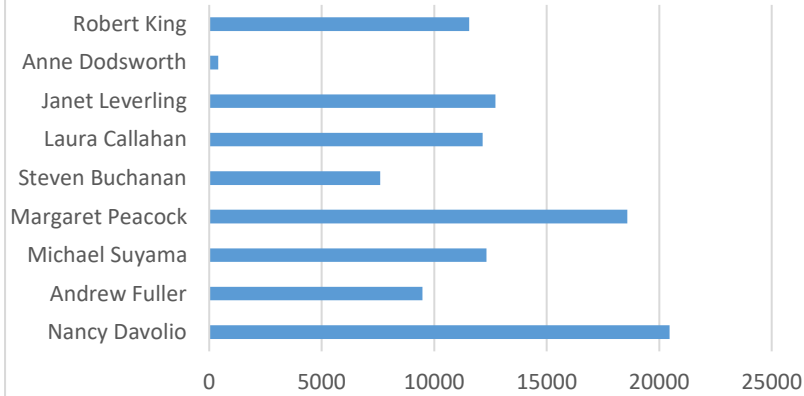
Total sale amount in grains/cereal



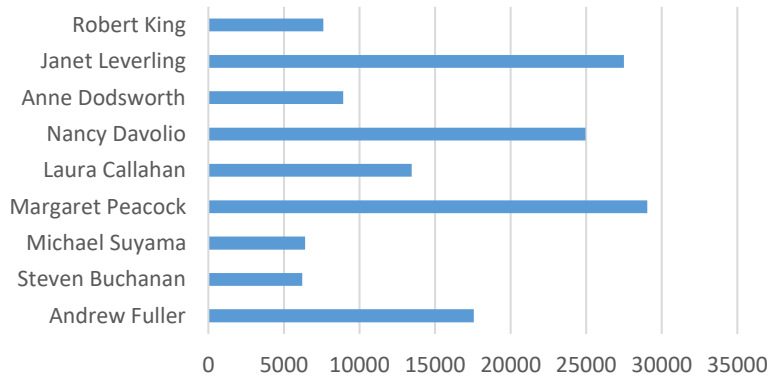
Total sale amount in meat/poultry

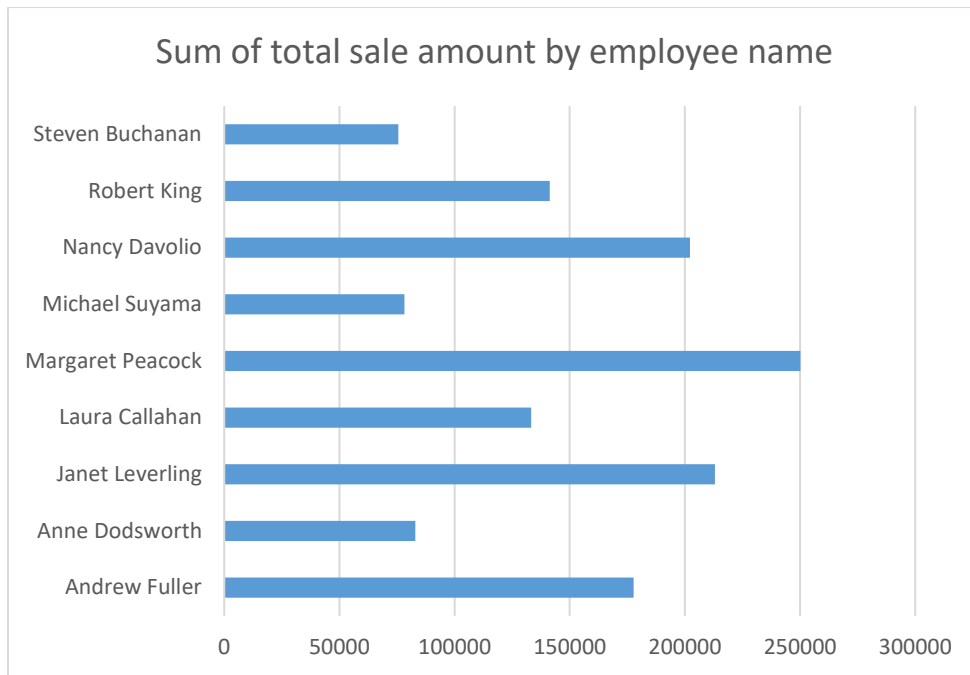


Total sale amount in produce



Total sale amount in seafood





4 REFERENCE

Northwind sample database. Documentation. (n.d.). Retrieved October 8, 2022, from <https://docs.yugabyte.com/preview/sample-data/northwind/>