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Course Title: INFO 579
Term name and year: Spring 2023
Submission Week: Week 16 Final Project Report
Instructor's Name: **Rahman Nayem**

Date of Submission:5/7/2023

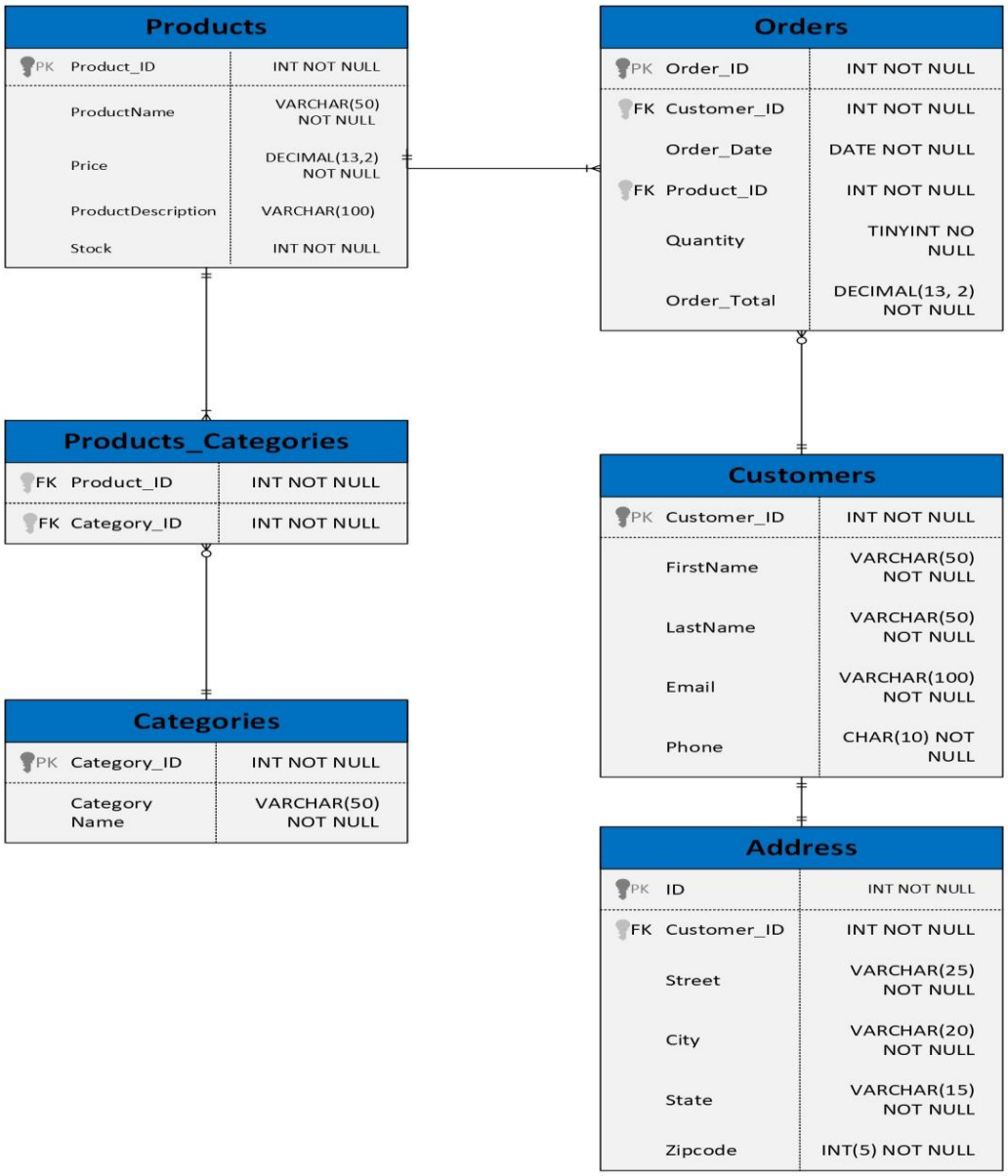
Executive Summary

The advent of the internet has revolutionized the way humanity interacts and conducts business, bringing people closer together and creating new opportunities for entrepreneurs. Particularly since the onset of the global pandemic in 2020, there has been a significant shift towards online purchasing, with individuals increasingly relying on various digital platforms to fulfill their needs. Capitalizing on this trend, I had the privilege of contributing to a project focused on establishing a comprehensive database for a client's thriving online grocery store business. At the core of this venture is the objective to provide customers with a seamless and expedient means of procuring high-quality household goods without the necessity of leaving the comfort of their homes. By building an efficient online platform, our aim was to facilitate a convenient shopping experience for customers, all the while ensuring their trust in receiving exceptional customer service. In order to achieve this, we diligently gathered and organized a wealth of data regarding both customers and inventory.

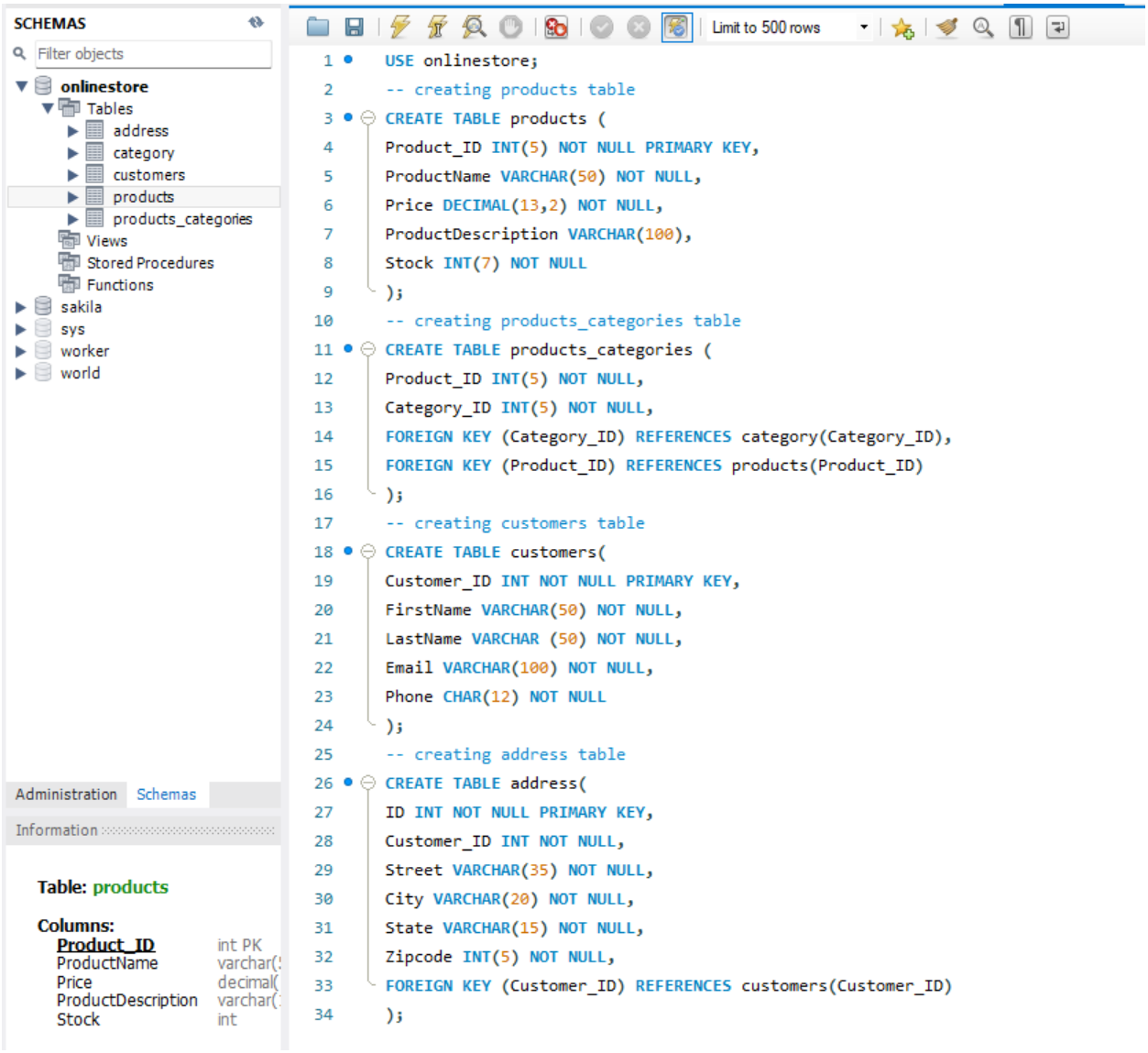
The data we collected plays a pivotal role in personalizing the shopping experience for each individual customer, tailoring recommendations and promotions to their preferences. Additionally, we implemented a rewards system to acknowledge and incentivize customer loyalty. By leveraging the power of the data we gathered, we were also able to monitor inventory levels, ensuring popular items were promptly restocked to meet demand. Moreover, this comprehensive database serves as a valuable resource for identifying trends, spotting opportunities for improvement in various aspects of operations, and conducting thorough business intelligence studies using tools such as PowerBI. Through a combination of online and offline data collection channels, we amassed a robust dataset that now resides in a MySQL database, serving as the backbone of the business's data management system. With this sophisticated infrastructure in place, our client is poised to thrive in the dynamic landscape of online grocery retail, armed with actionable insights to enhance customer satisfaction, streamline operations, and consistently deliver exceptional service.

5. Develop the physical model based on the Logical Model

ONLINE GROCERY STORE PHYSICAL MODEL



6. Create tables using a database system. Insert data into the database tables.



6.1. Example of insertion of data into the orders table

```
use onlinestore;

 INSERT INTO orders (Order_ID, Customer_ID, Order_Date, Product_ID, Quantity, Order_Total)
 VALUES
 (1000999 , 14, '2023-05-07', 20, 8, 39.92);
```

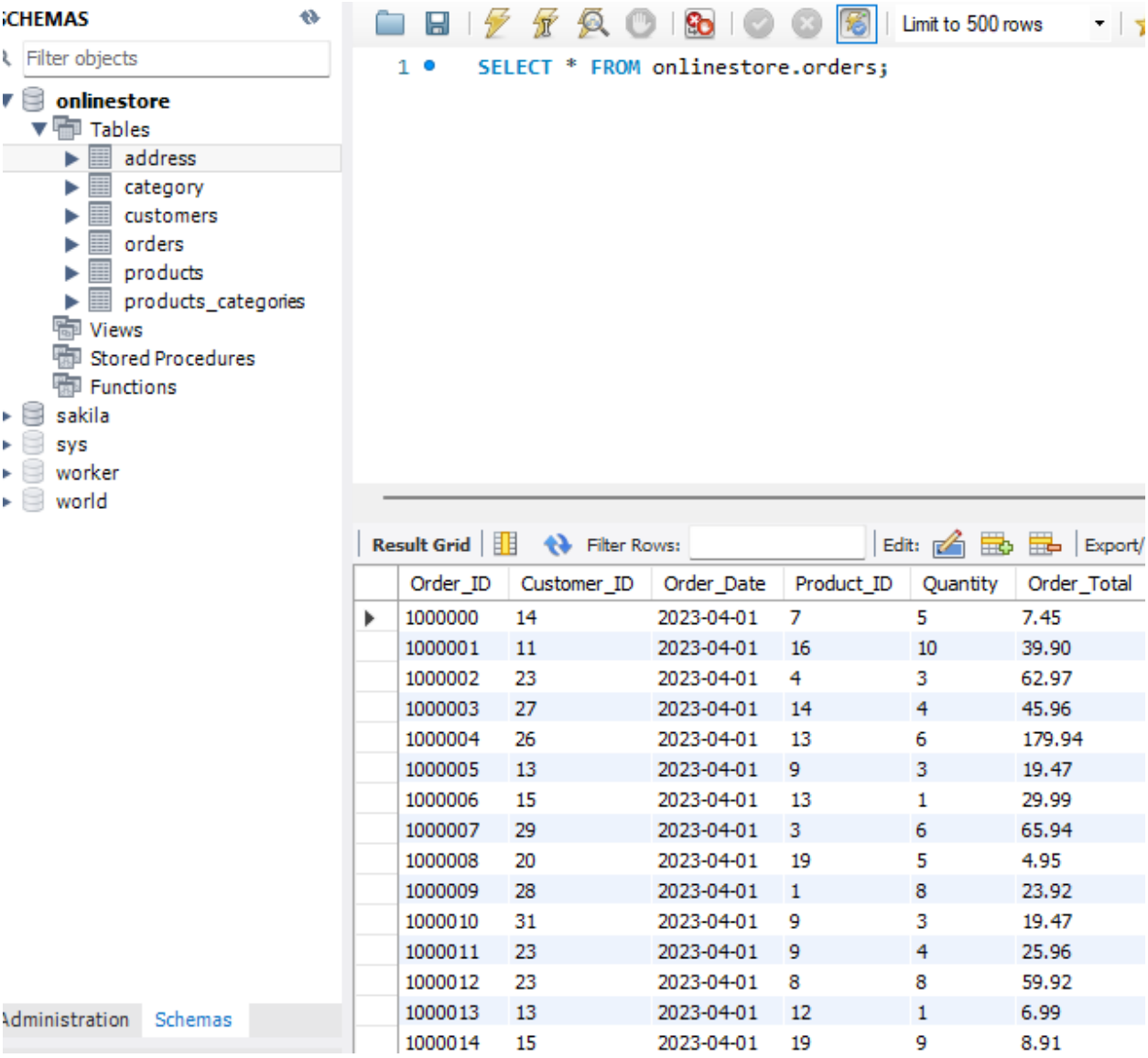
Output

Action Output

#	Time	Action	Message
1	12:41:56	use onlinestore	0 row(s) affected
2	12:41:56	select * from orders limit 5	5 row(s) returned
3	12:46:40	use onlinestore	0 row(s) affected
4	12:46:40	INSERT INTO orders (Order_ID, Customer_ID, Order_Date, Product_ID, Quantity, Order_Total) VALUES (1000999 , 14, 2023-05-07, 20, 8, 39.92)	Error Code: 1292. Incorrect date value: '2011' for column 'Order_Date' at row 1
5	12:47:03	use onlinestore	0 row(s) affected
6	12:47:03	INSERT INTO orders (Order_ID, Customer_ID, Order_Date, Product_ID, Quantity, Order_Total) VALUES (1000999 , 14, '2023-05-07', 20, 8, 39.92)	1 row(s) affected

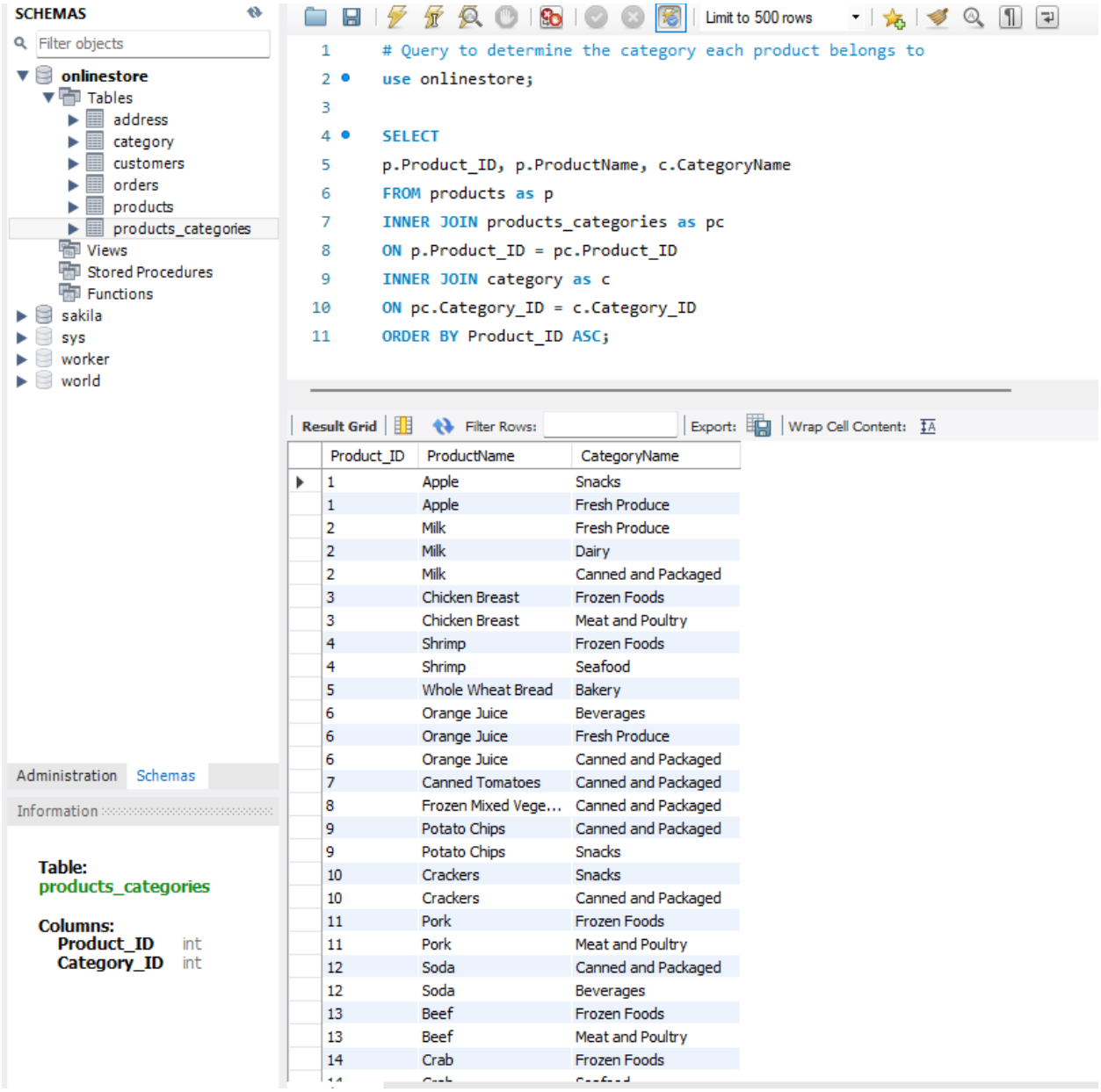
7. Create a variety of SQL queries to retrieve data from one or many tables.

a. Retrieving all data from orders table

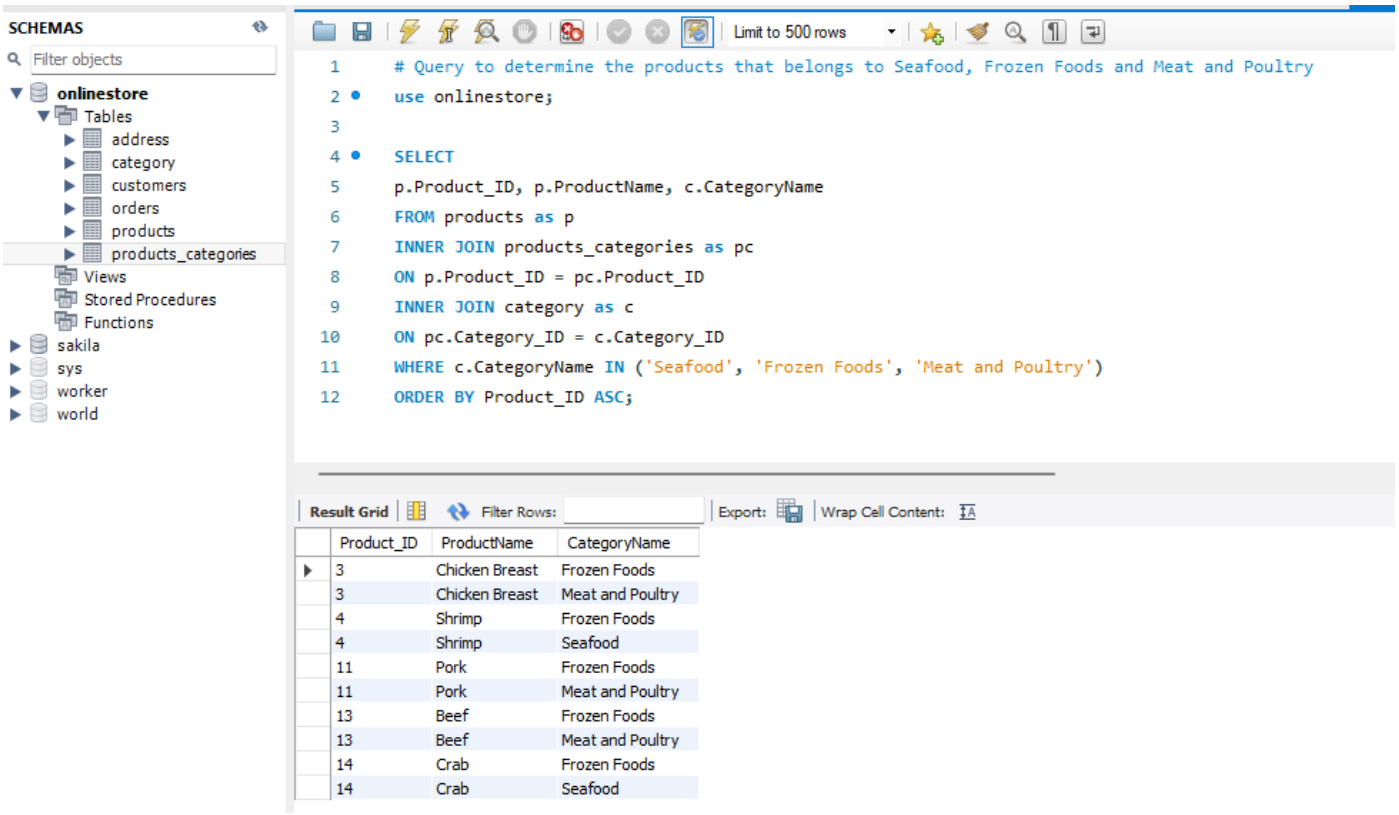


Order_ID	Customer_ID	Order_Date	Product_ID	Quantity	Order_Total
1000000	14	2023-04-01	7	5	7.45
1000001	11	2023-04-01	16	10	39.90
1000002	23	2023-04-01	4	3	62.97
1000003	27	2023-04-01	14	4	45.96
1000004	26	2023-04-01	13	6	179.94
1000005	13	2023-04-01	9	3	19.47
1000006	15	2023-04-01	13	1	29.99
1000007	29	2023-04-01	3	6	65.94
1000008	20	2023-04-01	19	5	4.95
1000009	28	2023-04-01	1	8	23.92
1000010	31	2023-04-01	9	3	19.47
1000011	23	2023-04-01	9	4	25.96
1000012	23	2023-04-01	8	8	59.92
1000013	13	2023-04-01	12	1	6.99
1000014	15	2023-04-01	19	9	8.91

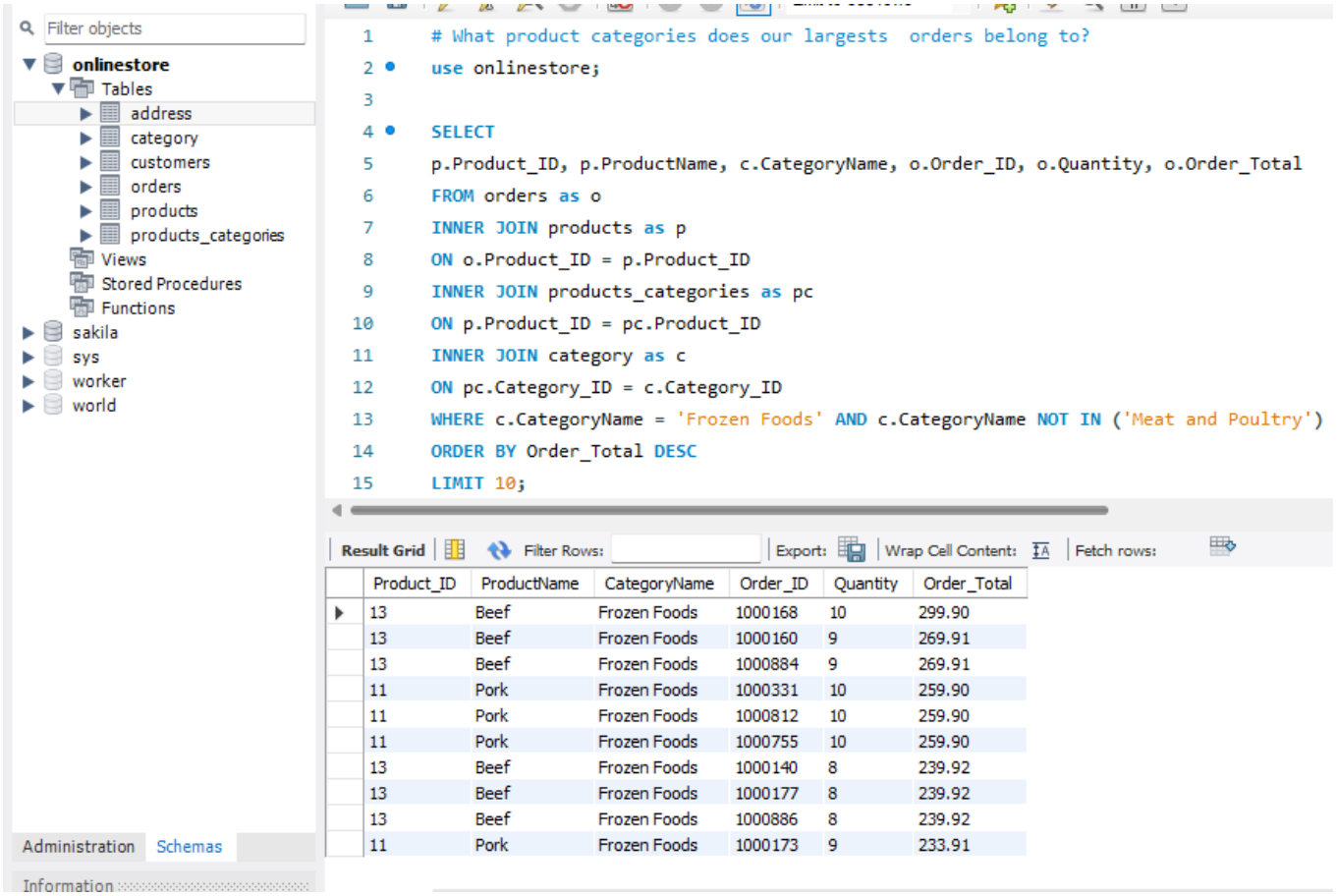
b. Query to determine the category each product belongs to



c. Query to determine the products that belong to Seafood, Frozen Foods and Meat and Poultry categories.

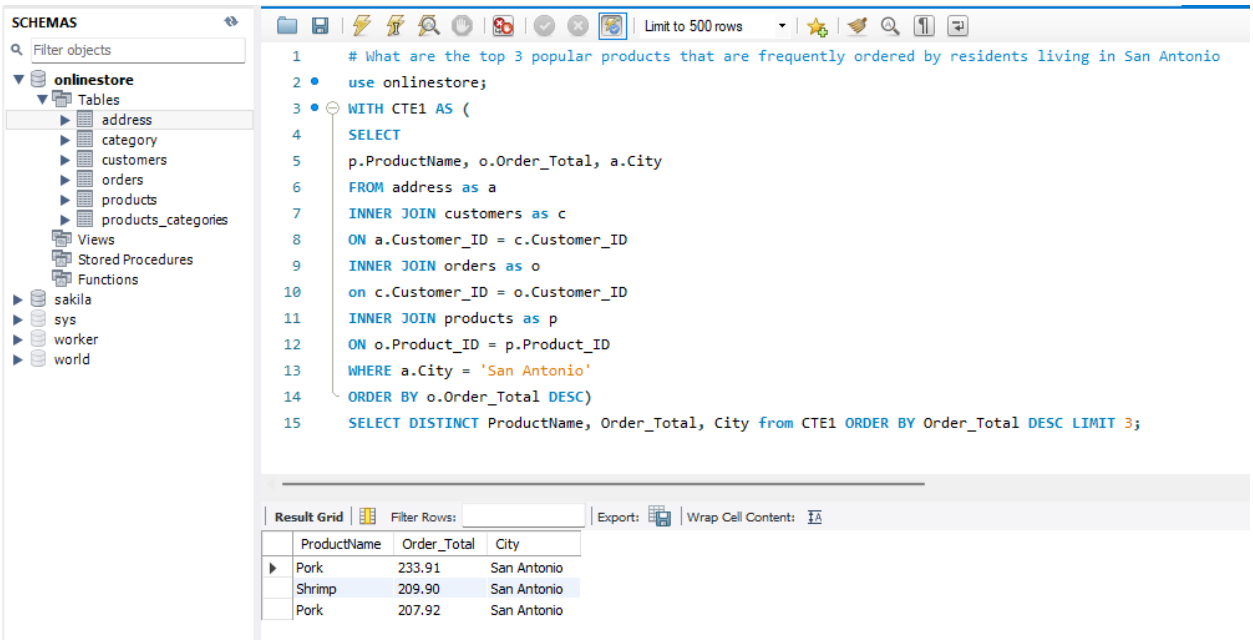


d. Query to determine what product categories does the largests orders belongs to.

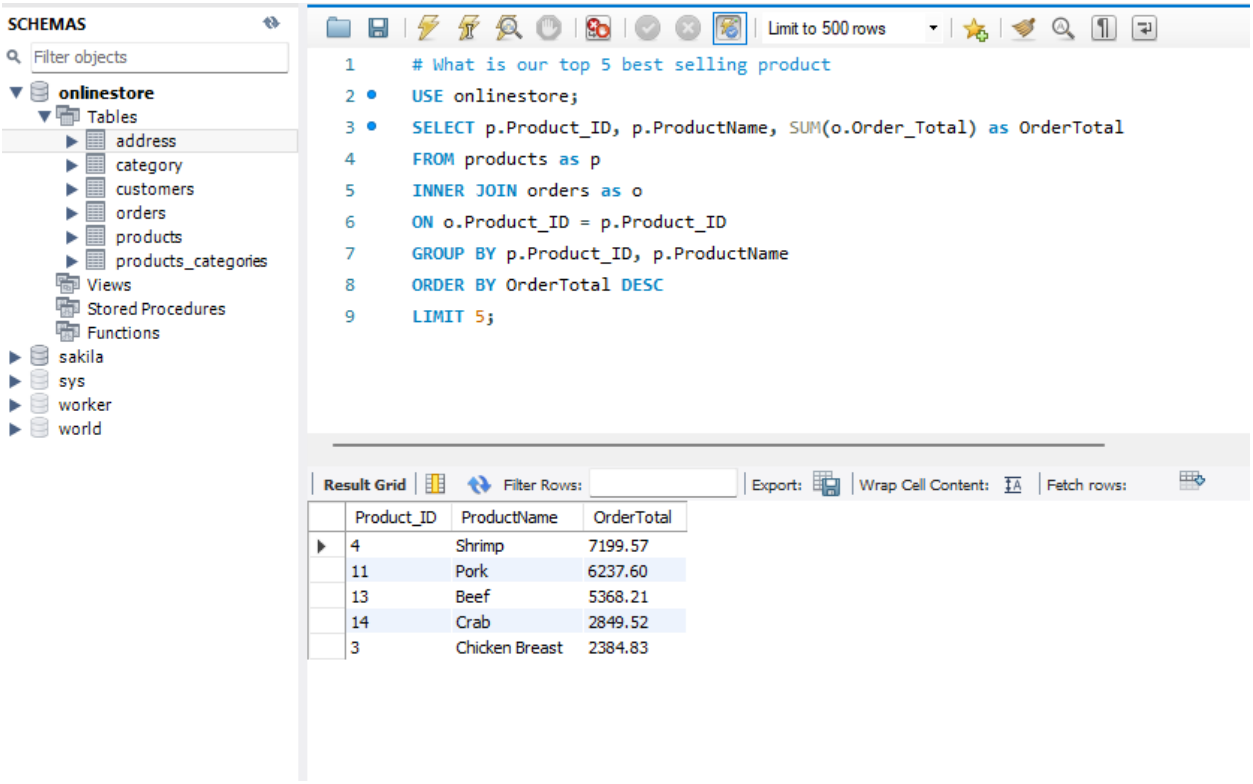


Product_ID	ProductName	CategoryName	Order_ID	Quantity	Order_Total
13	Beef	Frozen Foods	1000168	10	299.90
13	Beef	Frozen Foods	1000160	9	269.91
13	Beef	Frozen Foods	1000884	9	269.91
11	Pork	Frozen Foods	1000331	10	259.90
11	Pork	Frozen Foods	1000812	10	259.90
11	Pork	Frozen Foods	1000755	10	259.90
13	Beef	Frozen Foods	1000140	8	239.92
13	Beef	Frozen Foods	1000177	8	239.92
13	Beef	Frozen Foods	1000886	8	239.92
11	Pork	Frozen Foods	1000173	9	233.91

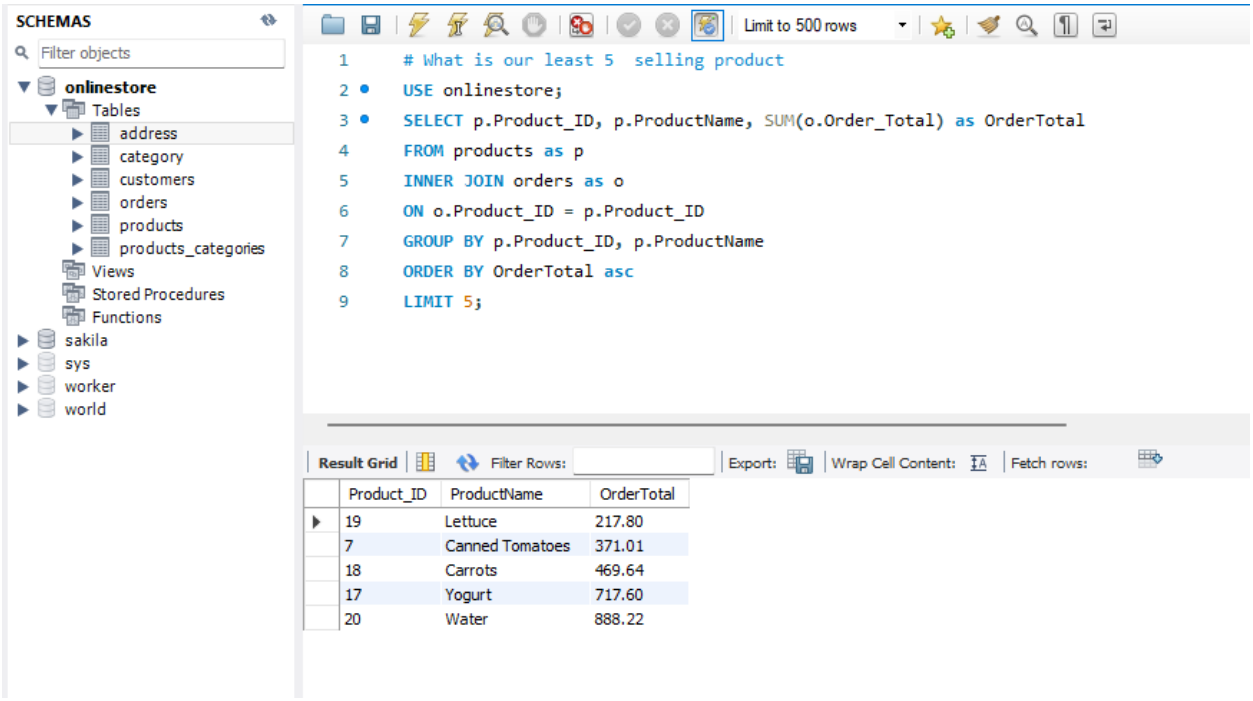
e. Query to determine the top 3 popular products that are frequently ordered by residents living in San Antonio



f. What is the top 5 selling products?

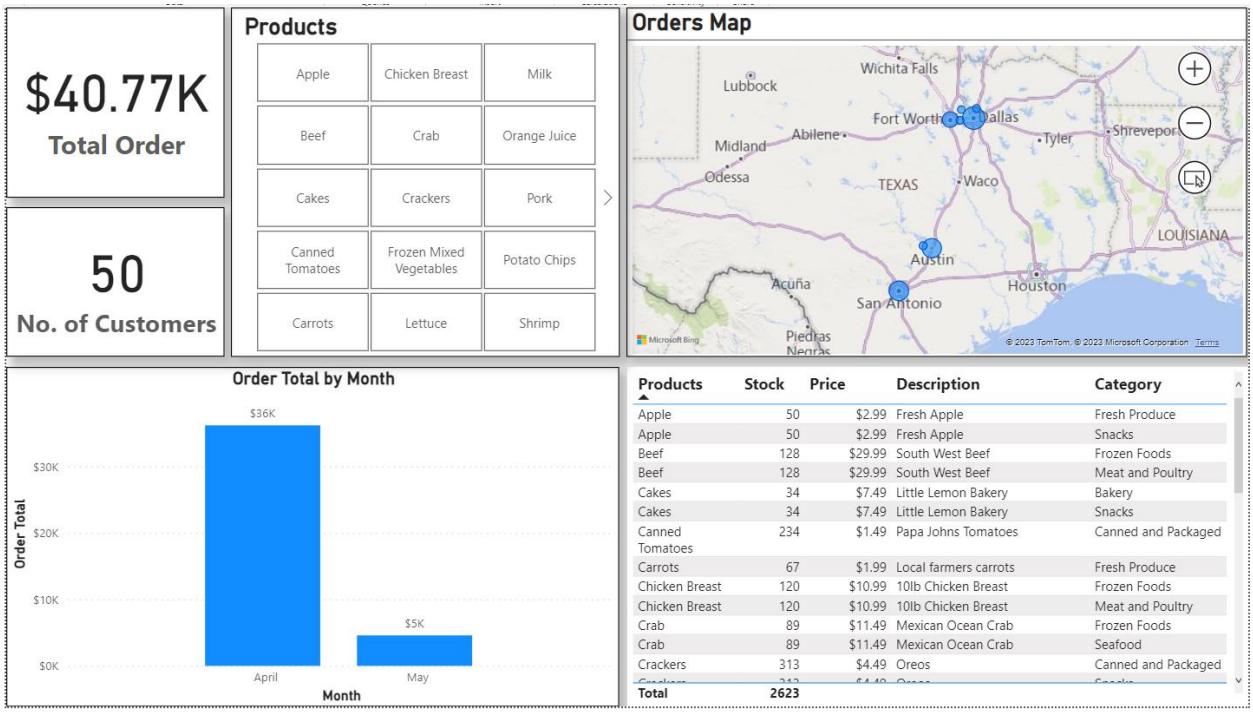


g. What is the least 5 selling product?

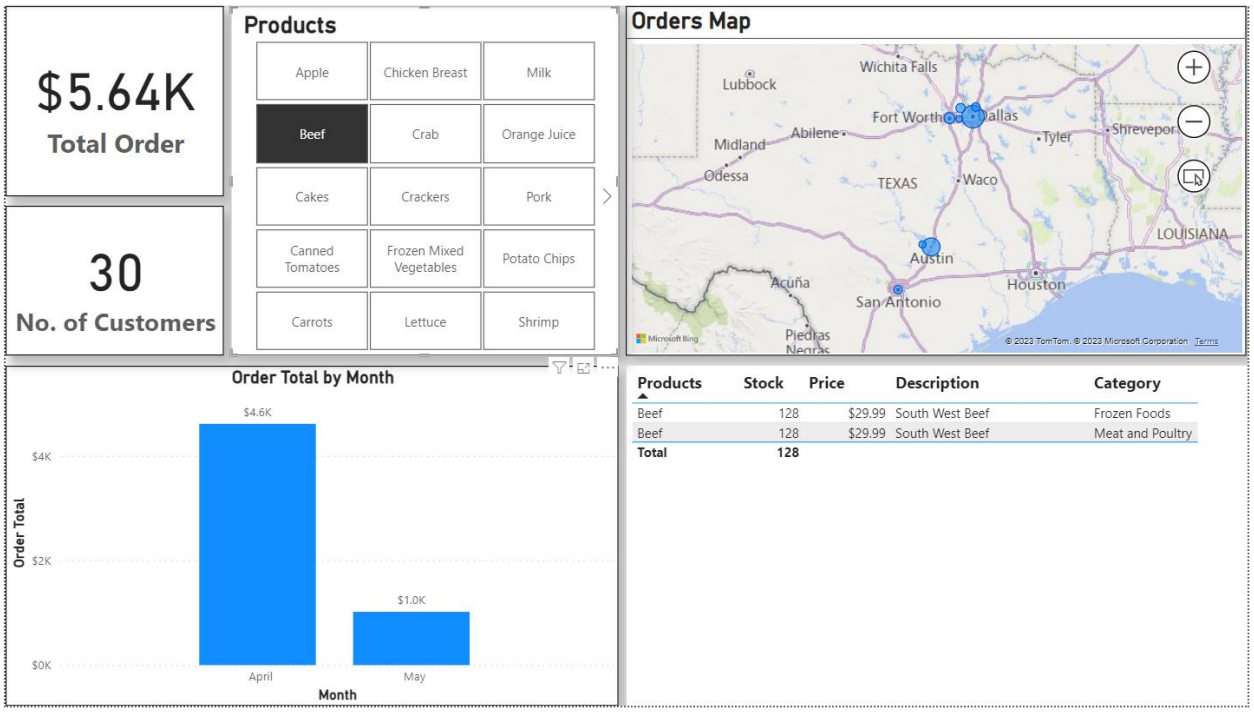


EXTRAS

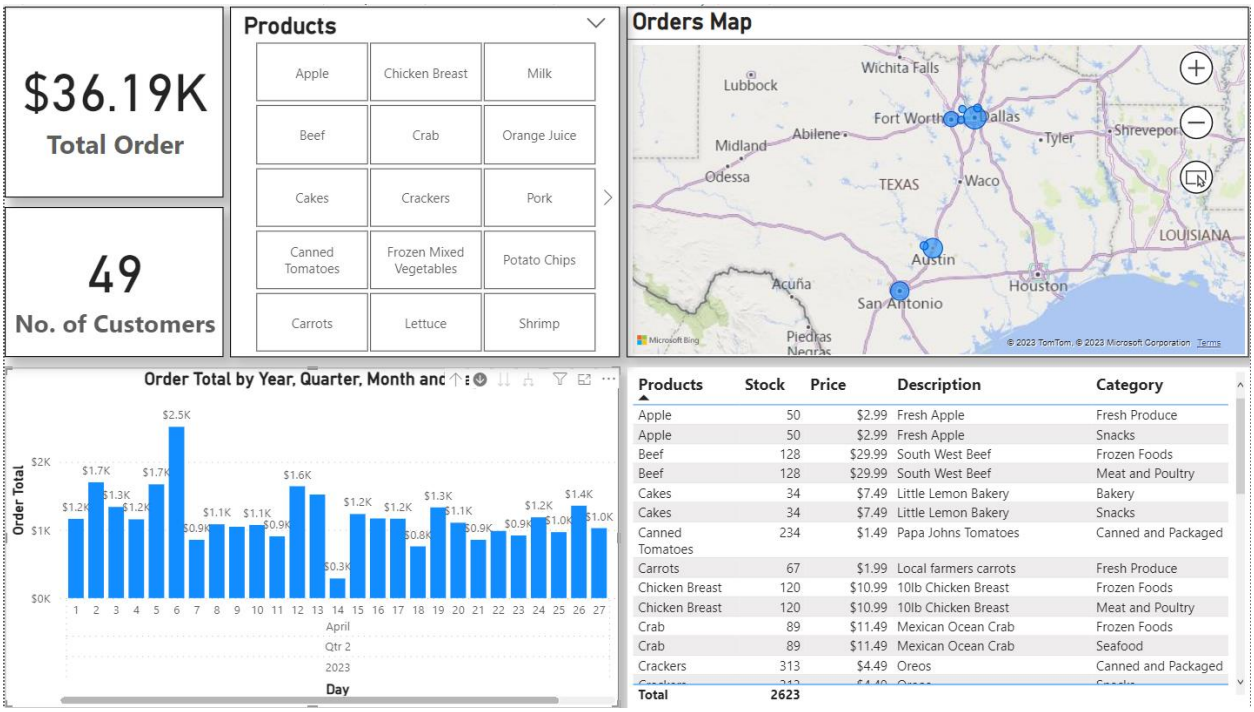
1.Power BI Dashboard with different visualizations showing Products slicer, Total Order generated so far, number of customers and column chart of order per month.



2. Dashboard showing number of sales made by Beef product and number of customers who have purchased beef so far



3. Visualization of daily orders made in the month of April



4. Visualization of orders made by customers living in San Antonio