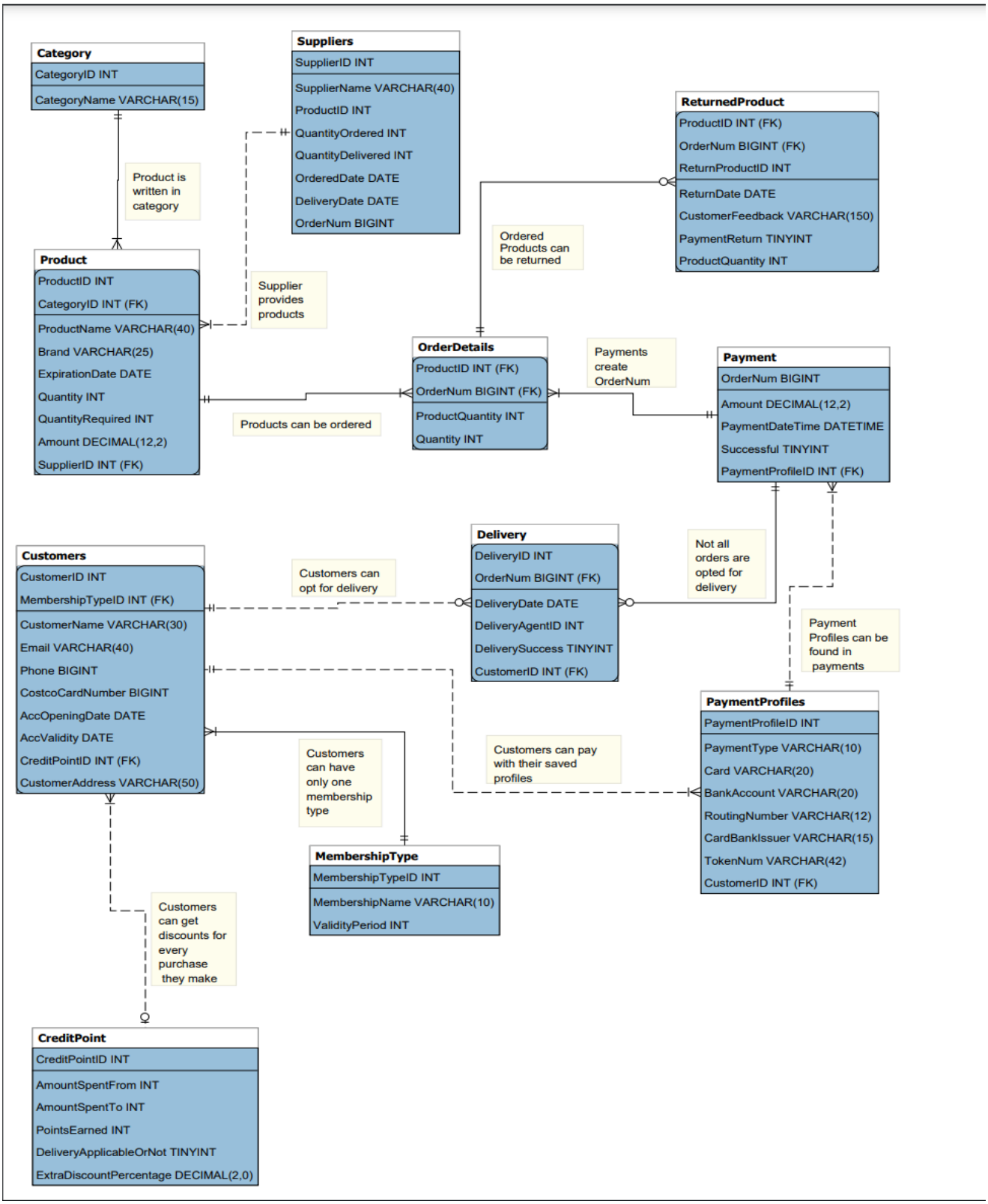
Project Title: Costco Inventory Management System

About The Project

Costco is the third-largest retailer in the world. For the proper functioning and success of the corporation in a locality, a well-defined inventory management system forms the backbone of the organization. The large amount of data owned by the organization should be safely stored, well maintained, and rapidly accessible by its database. Thus the project aims to deliver an inventory management system that involves implementing a robust database thereby ensuring seamless management of the vast inventory, ensuring accuracy, and real-time insights which would enhance the overall supply chain, reduce costs, and elevate the customer experience. The database is characterized by features such as efficient storage, data integrity, and performance optimization. Through the project, the aim is to empower Costco to navigate the challenges of inventory management with confidence, resilience, and unparalleled efficiency, making a lasting impact on the success and sustainability of the organization.

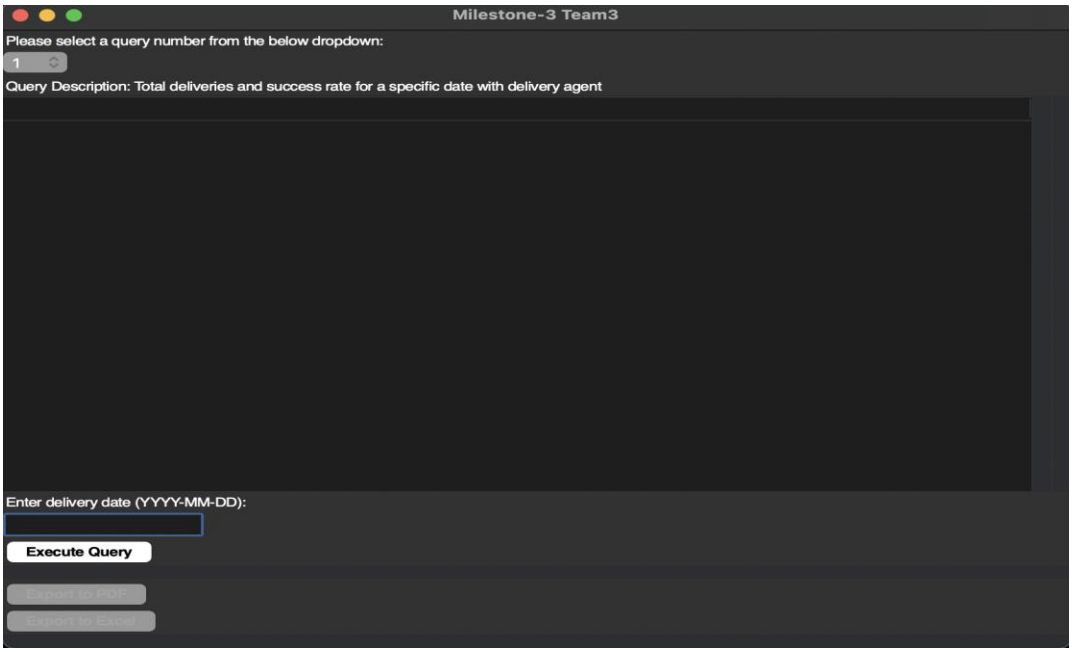
In this project, SQL is used to build and manage the database. First the requirements for the Costco inventory are gathered to understand the data that needs to be managed. Then a well defined ER diagram is built to model the data and its relationships based on the requirements. Now forward engineering is carried out to create actual database schema in a DBMS, followed by implementing indexes, constraints, and other database objects. The database is then populated with inventory data. Several significant SQL queries are built and executed upon the database. To reduce redundancy, and improve performance and security stored procedures are implemented. Tkinter is used to create the user interface to allow users to interact with the database.

- Logical ER Diagram

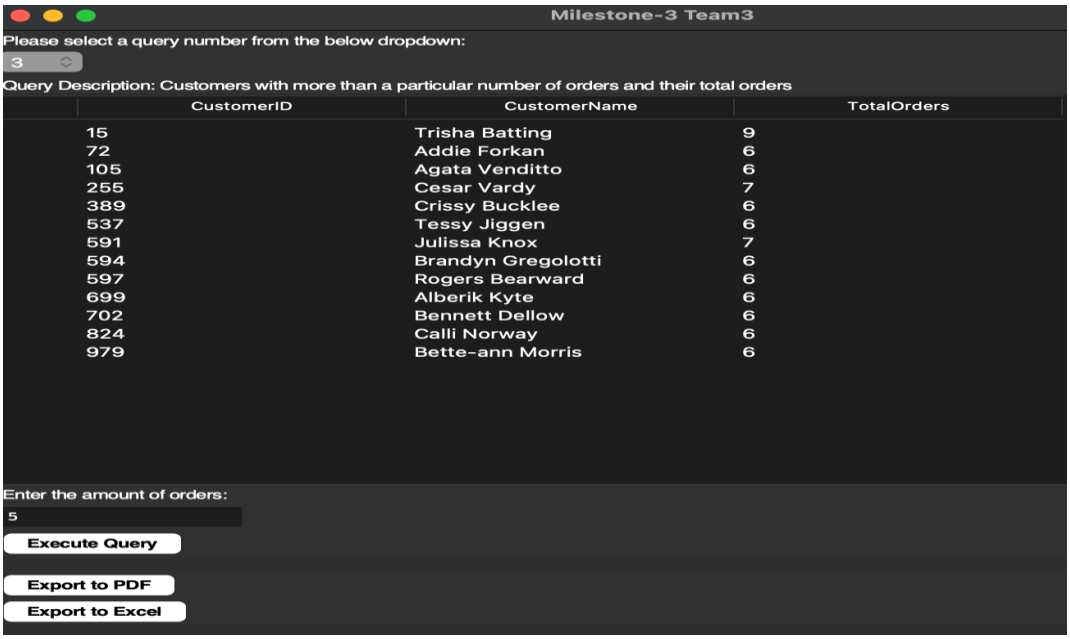


- User Interface

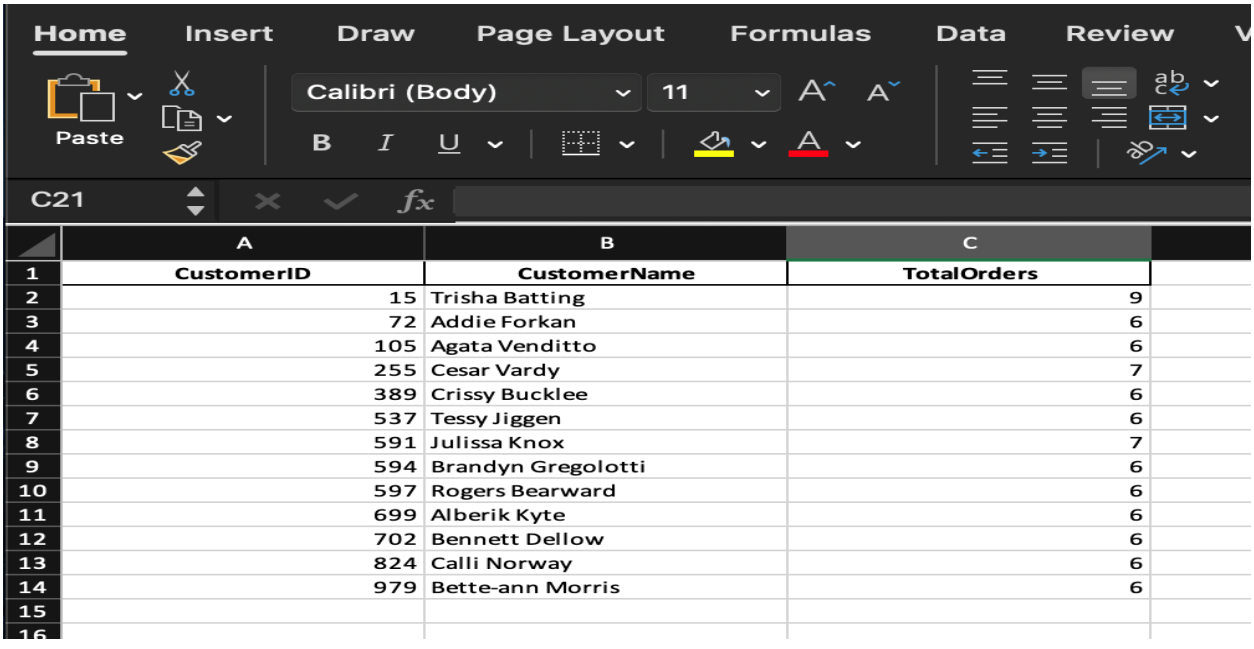
This program interface allows users to select from a number of different predefined queries. Each query has a description that explains what data it will return. Once a user selects a query and enters any required parameters (like delivery date), they can execute the query.



The query results are then displayed in a table format. Users can also export the results to a PDF or Excel file for future reference.



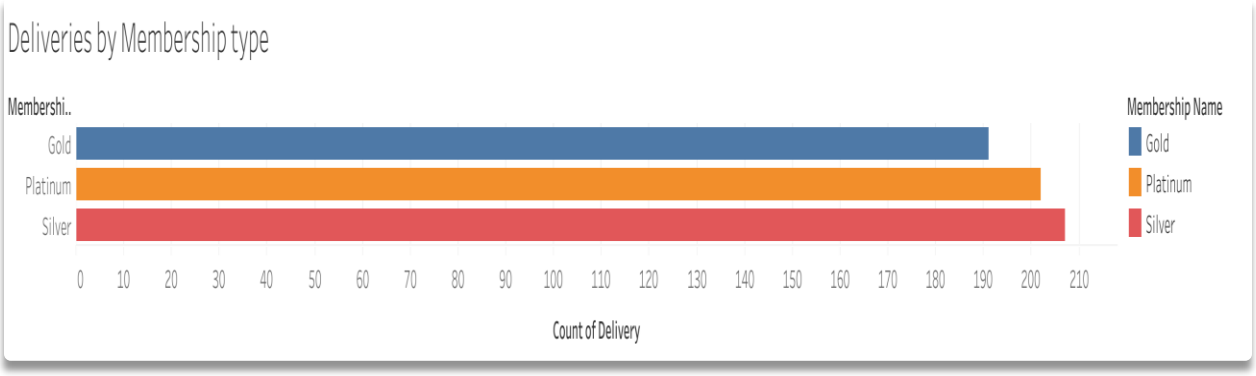
This is how the sample downloaded output will look like in excel file.



	A	B	C
1	CustomerID	CustomerName	TotalOrders
2	15	Trisha Batting	9
3	72	Addie Forkan	6
4	105	Agata Venditto	6
5	255	Cesar Vardy	7
6	389	Crissy Bucklee	6
7	537	Tessy Jiggen	6
8	591	Julissa Knox	7
9	594	Brandyn Gregolotti	6
10	597	Rogers Bearward	6
11	699	Alberik Kyte	6
12	702	Bennett Dellow	6
13	824	Calli Norway	6
14	979	Bette-ann Morris	6
15			
16			

- Data Visualization

The graph shows the number of deliveries completed by membership tier over a period of time. The y-axis shows the membership tier (Gold, Platinum, Silver), and the x-axis the number of deliveries.



The graph shows the number of successful Deliveries completed by each Delivery Agent and it is sorted by Agent ID. The y-axis displays the Agent ID and the x-axis the number of successful deliveries.