Title: Bacchus Winery Case Study Solution

Group Number: Group 7

Team Members: Arun Sharma, Tatiana Tan

Group Introduction

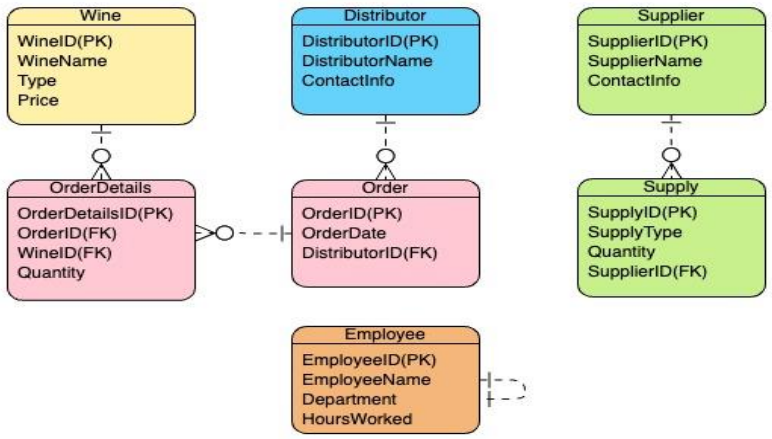
Tatiana Tan: Hi, I'm Tatiana. I work in a clerical role at a hospital. I'm excited to be working on this project again with Arun, as we were part of same class early. My role in this project primarily focused on [Sql Queries Collaboration and ERD Collaboration and Python Scripts for].

Arun Sharma: Hello, I'm Arun Sharma. I work as a Team Lead of (S&E) at Target and am currently pursuing my second bachelor's degree. It's great to be teaming up with Tatiana once more. For this project, I was responsible for [Collaboration in ERD, Studying all the case studies and then choose a team which is good one, Python scripts, SQL Queries].

Case Study Overview

Bacchus Winery Case Study

- Objective: To design a database for Bacchus Winery to manage their operations.
- Goals: Efficient inventory management, supplier management, and order tracking.



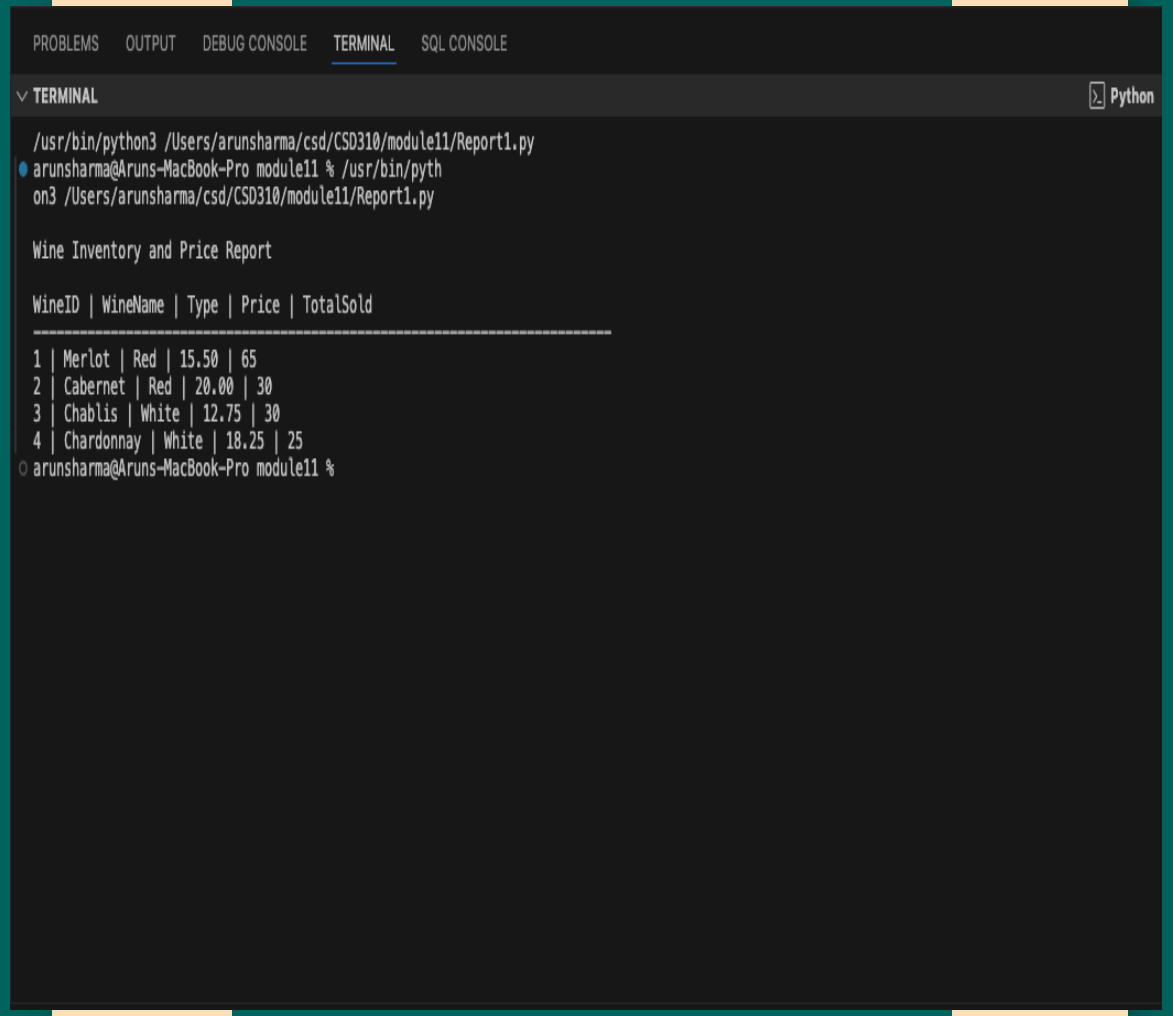
Finalized ERD

Entities, Attributes and Relationships:

The entities and attributes in the system include Wine, Supplier, Supply, Distributor, Order, OrderDetails, and Employee. Each Wine entity has a unique WineID (Primary Key), WineName, Type, Price, and a reference to its Supplier. The Supplier entity includes a unique SupplierID (Primary Key), SupplierName, and ContactInfo. Supply entities are identified by a unique SupplyID (Primary Key) and include SupplyType, Quantity, and a foreign key reference to SupplierID. The Distributor entity is characterized by a unique DistributorID (Primary Key), DistributorName, and ContactInfo. Orders are managed with an Order entity that includes a unique OrderID (Primary Key), OrderDate, and a foreign key reference to DistributorID. The OrderDetails entity includes a unique OrderDetailsID (Primary Key), OrderID (Foreign Key), WineID (Foreign Key), and Quantity. Finally, the Employee entity has a unique EmployeeID (Primary Key), EmployeeName, Department, and HoursWorked.

= Relationships:

One supplier can provide many supplies (Supplier to Supply - One-to-Many).
One distributor can place many orders (Distributor to Order - One-to-Many).
One order can have many order details (Order to OrderDetails - One-to-Many).
One wine can appear in many order details (Wine to OrderDetails - One-to-Many).
Employees have their working hours tracked (Employee - One-to-One for simplicity).



Report 1:

= Wine Inventory and Price Report

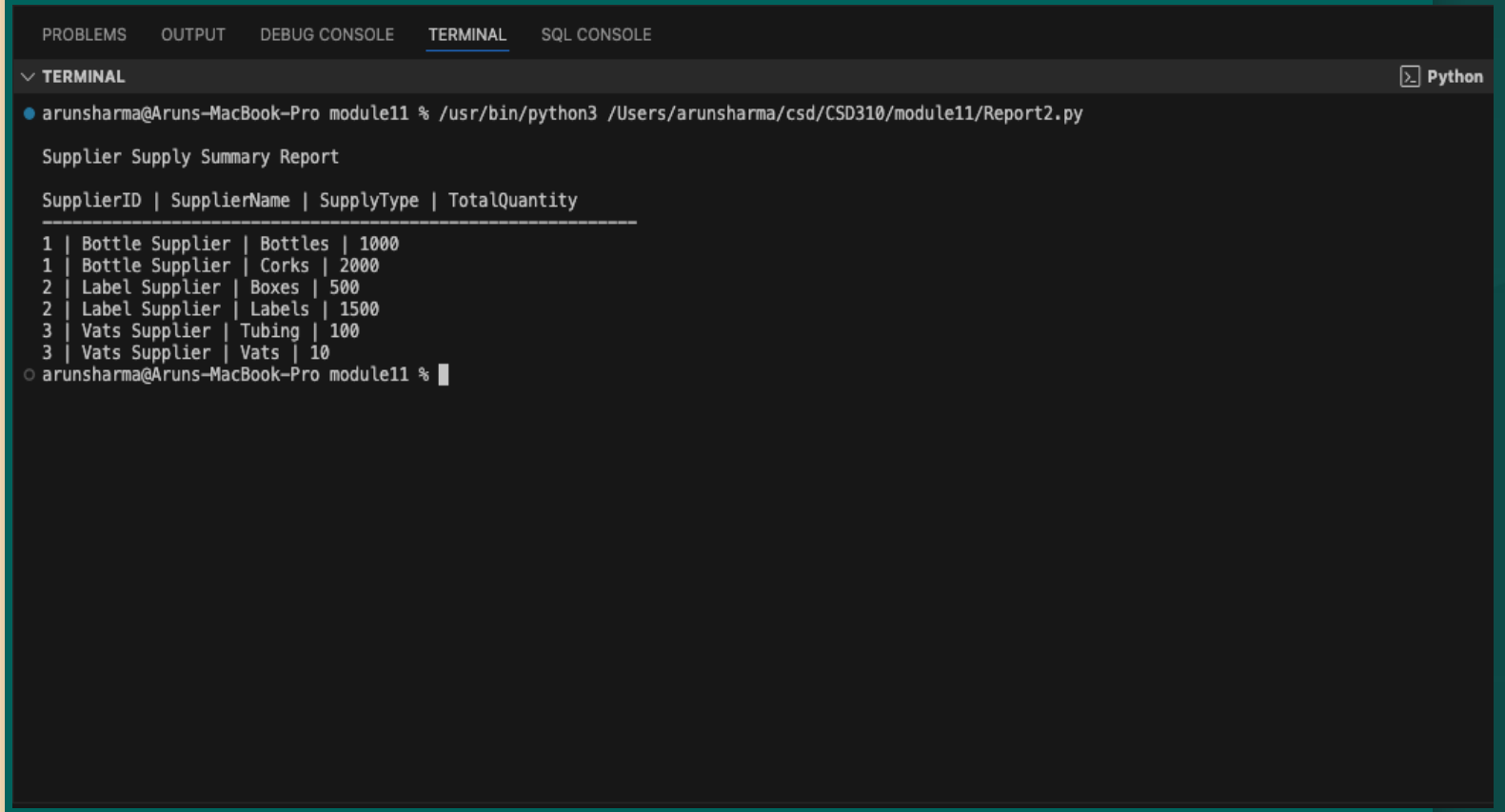
= Description: Current inventory of wines along with their prices.

= Purpose: Track wine availability and pricing.

Report 2:

= Supplier Supply Summary Report:

= Description: Summary of supplies from each supplier, including supply types and quantities.
= Purpose: Understand supplier contributions and manage supplier relationships.

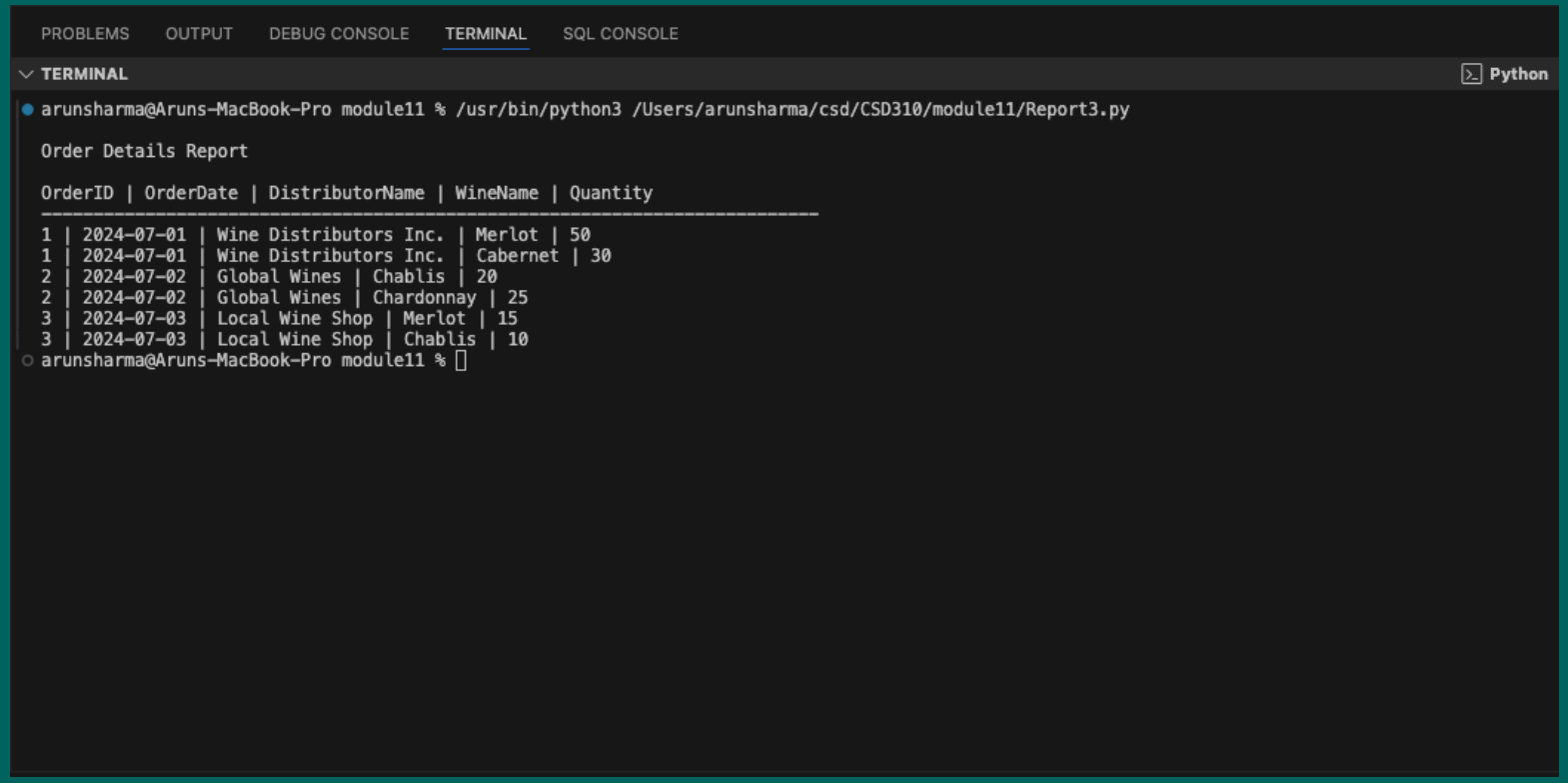


Report 3:

= Order Details Report:

= Description: Detailed orders, including the distributor, order date, wine, and quantity.

= Purpose: Track orders and analyze sales trends.



Assumptions:

= Assumptions : (Same as team decision)

1. Each type of wine, supplier, distributor, order, and employee has a unique identifier (WineID, SupplierID, DistributorID, OrderID, EmployeeID).

2. Supplies are categorized into types such as bottles, corks, labels, boxes, vats, and tubing.

3. Deliveries are tracked monthly, and the system records both expected and actual delivery times.

4. Distributors can place orders and track shipments online, indicating the system supports an e-commerce functionality.

5. Employee working hours are tracked quarterly, with each employee associated with a specific department.

6. Each wine type has a specific price associated with it.

7. The system tracks the inventory of supplies, and each supply item is linked to a specific supplier.

8. Each distributor can carry multiple types of wine, and this relationship is tracked in the system.

= Influence on Design: - Ensured data validation mechanisms. - Designed for scalability to accommodate future growth.

Conclusion

= Our project successfully addressed the Bacchus Winery case study by designing a robust and normalized database in 3NF, ensuring data integrity and efficiency. We developed and implemented an ERD that accurately represents the winery's business processes and relationships between entities. By generating three insightful reports, we provided valuable data to assist Bacchus Winery in making informed business decisions.

= The first report, the Wine Inventory and Price Report, offers a comprehensive view of the winery's inventory, helping management assess stock levels and identify top-selling wines. The insights from this report can guide pricing strategies and inventory management. The second report, the Supplier Supply Summary Report, provides an overview of supplies provided by each supplier, allowing for better supplier performance evaluation and supply chain optimization. Management can use this information to negotiate better terms with suppliers and ensure a consistent supply of essential materials. The third report, the Order Details Report, details each order, including distributor information and wine quantities, aiding in order fulfillment tracking and sales trend analysis. By analyzing this report, Bacchus Winery can improve distributor relationships and tailor their sales strategies to meet market demands.

= Our design decisions were informed by certain assumptions. We assumed that the provided data was accurate and up-to-date, which guided our database design and report generation. We ensured the database adhered to 3NF to eliminate data redundancy and improve query performance. Additionally, we assumed each entity (Wine, Supplier, Distributor, Order, Employee) had unique attributes critical for business operations, influencing our choice of attributes and relationships.

= For future recommendations, we suggest regularly updating the database with new data to maintain accuracy and relevance of reports. Expanding the database to include additional entities or attributes as the business grows is also advised. Implementing data analytics tools can further provide deeper insights from the existing data and support more advanced decision-making processes.

Thank You

Tatiana Tan
Arun Sharma