YLY Consultant Co.

Kyungho Yu, Jaehyun Lee, Yullie Yang
December 2, 2022

Agenda

01

Background

About the Project
Data/Sources Includes

02

Introduction

Mission Statement
Mission Objectives

03

Database Design

ER diagram
Relational ER Schema

04

Use Cases

Use Case 1
Use Case 2

01

Background

About the project

‘James’ computer and electronic retail’ is a small a shop which located in College Park, Hyattsville, and Greenbelt in Maryland.

This retail shop currently faced an issue that the price of wholesale has been increasing, but the profits of the retail shop has stayed on the same level of 2021.

Therefore, the owner of the retail shop wants to build insights on maximizing profit and minimizing costs based on inventory turnover ratio.

Through this database management project, he wants to determine the amount of each product.

Data/Sources Includes

The owner of the retail shop, James Rhee, provided the data below

Products

ID, Name, Price, Costs

Orders

Information of Product and Stores, Date, Quantity Sold

Stores

ID, City, State, Phone Number

Manufacturers

ID, Name, Phone Number

Shipper

ID, Quantity Shipped

02

Introduction

Mission Statement

Order

To improve the database to enhance selling history with transparent profits of selling and real-time availability of products.

01

Database

To develop and design a new database model with the selling data of the James' computer and electronic retail shop.

02

03

Inventory

To build insights on maximizing profits and minimizing costs through inventory management.

Mission Objectives

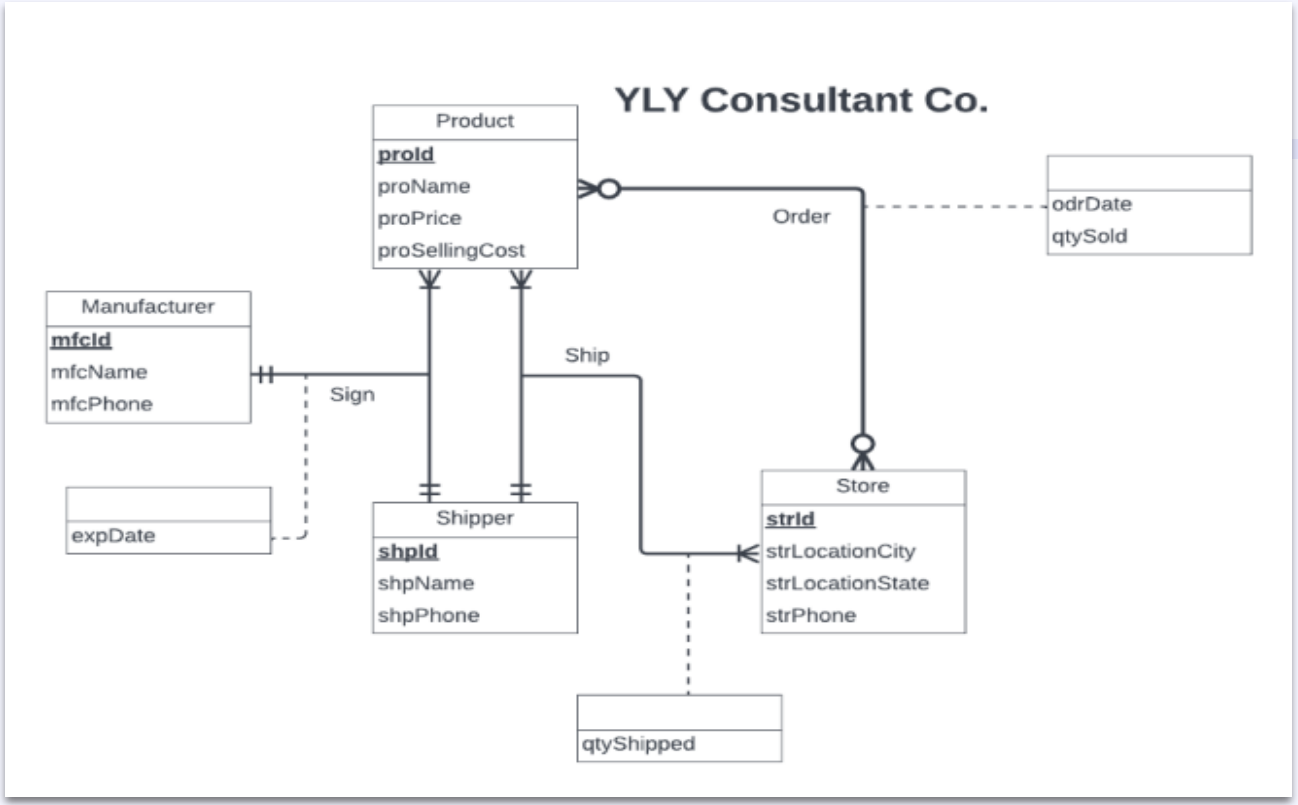
- To find the profits of each product for each store in descending order.
- To find the details of the expiration date of contract of each shipper.
- To find the inventory turnover ratio for each product on each store.
  (the number of each product is 1,000 per each month)
- To find the dense rank and the details of order.
- To find the details of order with the accumulated product quantity sold within each store.
- To find the number of products sold on each store within 7-days from the end day of October

03

Database Design

Conceptual Database Design

ER Diagram:



Logical Database Design

Relations:

Product (**proId,** proName proPrice, proSellingCost)

Store (**strId**, strLocationCity, strLocationState, strPhone)

Manufacturer (**mfcId**, mfcName, mfcPhone)

Shipper (**shpId**, shpName, shpPhone)

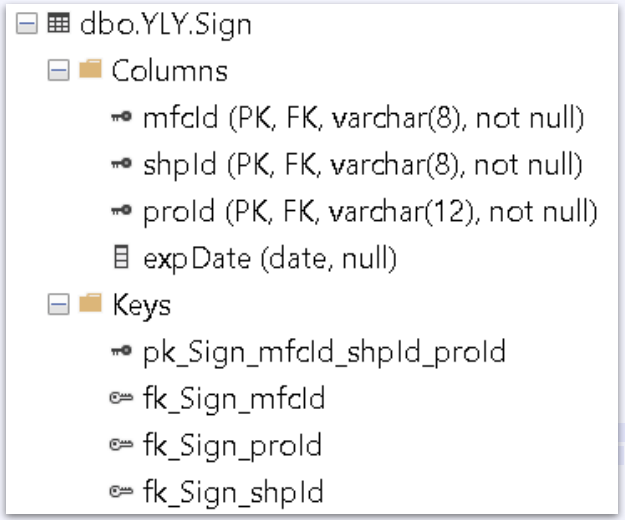
Sign (***mfcId***, ***shpId***, ***proId,*** expDate)

Ship (***shpId***, ***proId,*** ***strId,*** qtyShipped)

Order (***proId***, ***strId,*** odrDate, qtySold)

Physical Database Design

[YLY.Sign]:




```
CREATE TABLE [YLY.Sign] (
    mfcId VARCHAR (8) NOT NULL,
    shpId VARCHAR (8) NOT NULL,
    proId VARCHAR (12) NOT NULL,
    expDate Date,
    CONSTRAINT pk_Sign_mfcId_shpId_proId
        PRIMARY KEY (mfcId, shpId, proId),
    CONSTRAINT fk_Sign_mfcId FOREIGN KEY (mfcId)
        REFERENCES [YLY.Manufacturer] (mfcId)
        ON DELETE NO ACTION ON UPDATE NO ACTION,
    CONSTRAINT fk_Sign_shpId FOREIGN KEY (shpId)
        REFERENCES [YLY.Shipper] (shpId)
        ON DELETE NO ACTION ON UPDATE NO ACTION,
    CONSTRAINT fk_Sign_proId FOREIGN KEY (proId)
        REFERENCES [YLY.Product] (proId)
        ON DELETE NO ACTION ON UPDATE NO ACTION )
```

04

Use Cases

Use Case 1

What are the manufacturer name, shipper name and expiration date for each sign?

```
SELECT m.mfcName, h.shpName, s.expDate
FROM [YLY.Sign] s, [YLY.Shipper] h, [YLY.Manufacturer] m
WHERE s.mfcId = m.mfcId AND s.shpId = h.shpId
ORDER BY s.expDate
```

Use Case 1

What are the manufacturer name, shipper name and expiration date for each sign?

	Shipper Name	
Exp Date	Bravo Shipping	Safe Shipping
2/1/2023	IN&OUT Elec.	
6/1/2023		IN&OUT Elec.
6/6/2023		IN&OUT Elec.
6/27/2023	SuperDuperDevice	
7/15/2023	IN&OUT Elec.	
12/1/2023		SuperDuperDevice
12/27/2023		SuperDuperDevice
8/12/2024		FiveDevices

	mfcName	shpName	expDate
1	IN&OUT Elec.	Bravo Shipping	2023-02-01
2	IN&OUT Elec.	Safe Shipping	2023-06-01
3	IN&OUT Elec.	Safe Shipping	2023-06-06
4	SuperDuperDevice	Bravo Shipping	2023-06-27
5	IN&OUT Elec.	Bravo Shipping	2023-07-15
6	SuperDuperDevice	Safe Shipping	2023-12-01
7	SuperDuperDevice	Safe Shipping	2023-12-27
8	FiveDevices	Safe Shipping	2024-08-12

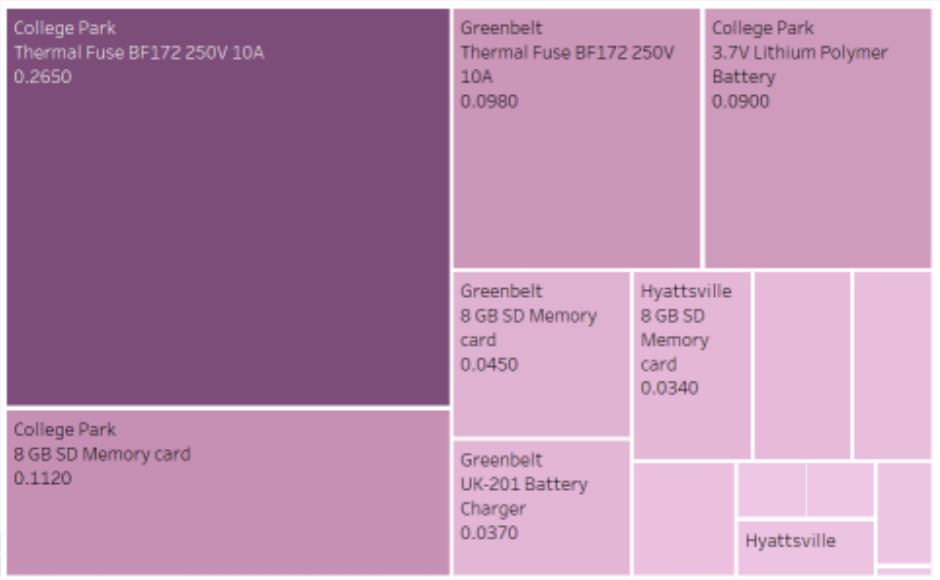
Use Case 2

What are the product name, inventory turnover ratio, and store location in descending order assuming that the number of each product is 1,000?

```
SELECT p.proName, (o.qtySold/1000) AS 'Inventory_Turnover_Ratio',
s.strLocationCity
FROM [YLY.Order] o, [YLY.Product] p, [YLY.Store] s
WHERE p.proId = o.proId
                    AND o.strId = s.strId
ORDER BY Inventory_Turnover_Ratio DESC
```

Use Case 2

What are the product name, inventory turnover ratio, and store location in descending order assuming that the number of each product is 1,000?



	proName	Inventory_Turnover_Ratio	strLocationCity
1	Thermal Fuse BF172 250V 10A	0.265000	College Park
2	8 GB SD Memory card	0.112000	College Park
3	Thermal Fuse BF172 250V 10A	0.098000	Greenbelt
4	3.7V Lithium Polymer Battery	0.090000	College Park
5	8 GB SD Memory card	0.045000	Greenbelt
6	UK-201 Battery Charger	0.037000	Greenbelt
7	8 GB SD Memory card	0.034000	Hyattsville
8	3.7V Lithium Polymer Battery	0.028000	Hyattsville

Thank you