

TAIPEI 101 COMPUTERS

Group 9

Name: Afia Simeen/Anshul Dave/Thanmai Reddy

Kadire/ Yu Hsiang Cheng

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Background

- **Users of Database:**
 - People who run the online business selling laptops
- **Data included:**
 - Customer
 - Product
 - Order
 - Shipment
 - Include

Data resources:

Customer: <https://www.kaggle.com/datasets/claودیodavi/superhero-set>

Product: Micro-Star Int'l (MSI) laptop product list

Introduction

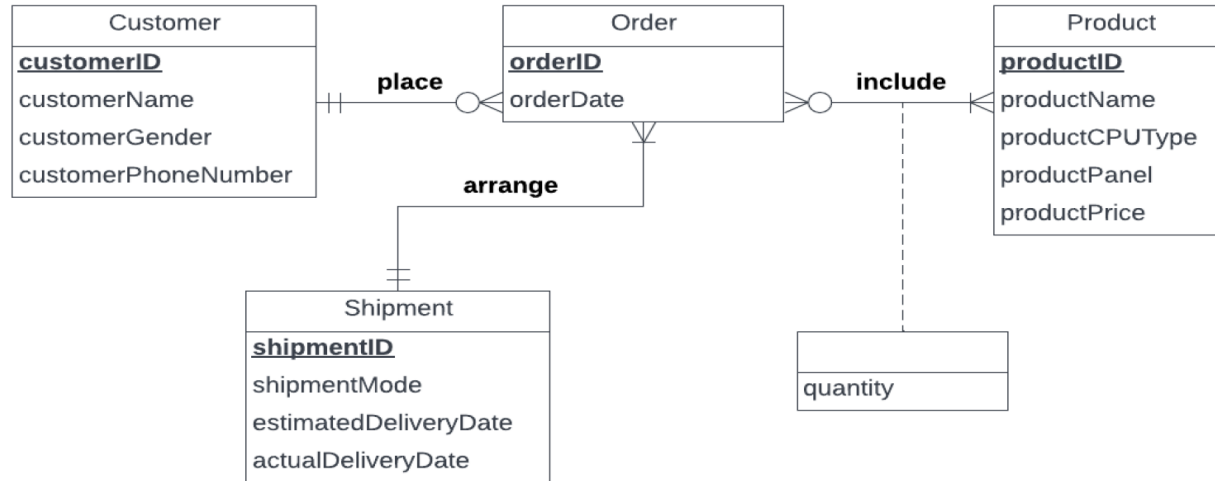
- **Mission Statement:**
 - Taipei 101 Computers sells different types of laptops based on different processors and panel sizes and intends to develop a website to sell laptops online and track sales record

Introduction

- Objectives:
 - With our database, we can easily answer the below questions:
 - What are the details and quantity of the top 5 selling laptops?
 - How many laptops were sold in the 2nd quarter of 2022?
 - Which gender contributes significantly to the sales of laptops?
 - Which shipment mode do customers largely prefer?

ER Diagram

Taipei 101 Computers
By Group 9



ER Schema

- **Entities, Attributes and Primary Keys**
 - Customer (**customerID**, customerName, customerGender, customerPhoneNumber)
 - Order (**orderID**, orderDate)
 - Product (**productID**, productName, productCPUType, productPanel, productPrice)
 - Shipment (**shipmentID**, shipmentMode, estimatedDeliveryDate, actualDeliveryDate)

ER Schema

- **Relationships, Attributes, Degrees, Participating Entities and Constraints:**
 - Place: binary relationship
 - 1 customer to 0 or more orders / 1 order to 1 customer
 - Include: binary relationship
 - 1 order to 1 or many products / 1 product to 0 or many orders
 - Arrange: binary relationship
 - 1 order to 1 shipment / 1 shipment to 1 or many orders.

Relational Schema

- Customer (**customerID**, customerName, customerGender, customerPhoneNumber)
- Product (**productID**, productName, productCPUType, productPanel, productPrice)
- Shipment (**shipmentID**, shipmentMode, estimatedDeliveryDate, actualDeliveryDate)
- Order (**orderID**, orderDate, *customerID*, *shipmentID*)
- Include(**orderID**, **productID**, quantity)

Physical Database Design

- Customer Table
- Primary Key – customerID

```
CREATE TABLE [Taipei101Com.Customer] (  
    customerID VARCHAR (7) NOT NULL,  
    customerName VARCHAR (30),  
    customerGender VARCHAR (12),  
    customerPhoneNumber VARCHAR (12),  
    CONSTRAINT pk_Customer_customerID PRIMARY KEY (customerID) )
```

Physical Database Design

- Product Table
- Primary Key – productID

```
CREATE TABLE [Taipei101Com.Product] (  
    productID VARCHAR (7) NOT NULL,  
    productName VARCHAR (40),  
    productCPU VARCHAR (20),  
    productPanel INT,  
    productPrice DECIMAL (8,2),  
    CONSTRAINT pk_Product_productID PRIMARY KEY (productID))
```

Physical Database Design

- Shipment Table
- Primary Key – shipmentID

```
CREATE TABLE [Taipei101Com.Shipment] (  
    shipmentID VARCHAR (7) NOT NULL,  
    shipmentMode VARCHAR (40),  
    estimateDeliveryDate DATE,  
    actualDeliveryDate DATE,  
    CONSTRAINT pk_Shipment_shipmentID PRIMARY KEY (shipmentID))
```

Physical Database Design

- Order Table
- Primary Key – orderID
- Foreign Keys – customerID, shipmentID

```
CREATE TABLE [Taipei101Com.Order] (  
    orderID VARCHAR (7) NOT NULL,  
    orderDate DATE,  
    customerID VARCHAR (7) NOT NULL,  
    shipmentID VARCHAR (7) NOT NULL,  
    CONSTRAINT pk_Order_orderID PRIMARY KEY (orderID),  
    CONSTRAINT fk_Order_customerID FOREIGN KEY (customerID)  
        REFERENCES [Taipei101Com.Customer] (customerID)  
        ON DELETE CASCADE ON UPDATE CASCADE,  
    CONSTRAINT fk_Order_shipmentID FOREIGN KEY (shipmentID)  
        REFERENCES [Taipei101Com.Shipment] (shipmentID)  
        ON DELETE CASCADE ON UPDATE CASCADE )
```

Physical Database Design

- Include Table
- Primary Key – orderID, productID
- Foreign Keys – orderID, productID

```
CREATE TABLE [Taipei101Com.Include] (  
    orderID VARCHAR (7) NOT NULL,  
    productID VARCHAR (7) NOT NULL,  
    quantity INT,  
    CONSTRAINT pk_Include_orderID_productID PRIMARY KEY(orderID,productID),  
    CONSTRAINT fk_Include_orderID FOREIGN KEY (orderID)  
        REFERENCES [Taipei101Com.Order] (orderID)  
        ON DELETE CASCADE ON UPDATE CASCADE,  
    CONSTRAINT fk_Include_productID FOREIGN KEY (productID)  
        REFERENCES [Taipei101Com.Product] (productID)  
        ON DELETE CASCADE ON UPDATE CASCADE)
```

Business Transactions

- What are the details and quantity of the top 5 selling laptops?

```
--Top 5 selling laptops with the details of the product
SELECT TOP 5 i.productID AS 'Product ID' ,p.productName AS 'Model Name' ,
           p.productCPU AS 'CPU', p.productPanel AS 'Panel Size' ,
           p.productPrice AS 'MSRP USD', SUM(i.quantity) AS 'Total Sell QTY'
FROM [Taipei101Com.Include] i, [Taipei101Com.Product] p
WHERE i.productID = p.productID
GROUP BY i.productID, p.productID, p.productName , p.productCPU, p.productPanel , p.productPrice
ORDER BY SUM(i.quantity) DESC
```

	Product ID	Model Name	CPU	Panel Size	MSRP USD	Total Sell QTY
1	P000062	GF63 Thin 10SCXR	i5-10300H	15	1799.99	232
2	P000037	GL65 Leopard 9SDK	i7-9750H	15	1799.99	11
3	P000041	Pulse GL66 11UDK	i7-11800H	15	1999.99	10
4	P000064	GF65 Thin 10SDR	i7-10750H	15	1899.99	10
5	P000042	Pulse GL76 11UEK	i7-11800H	17	1599.99	9

Business Transactions

- Which gender contributed significantly to the sales of laptops?

```
-- Which Gender contributed most of the sellout of laptop
SELECT c.customerGender AS 'Gender', SUM (i.quantity) AS 'Taipei101Com Laptop Sellout QTY'
FROM [Taipei101Com.Order] o, [Taipei101Com.Customer] c, [Taipei101Com.Include] i
WHERE o.customerID = c.customerID AND o.orderID = i.orderID
GROUP BY c.customerGender
```

	Gender	Taipei101Com Laptop Sellout QTY
1	Female	114
2	Male	497

Business Transactions

- What is the 2022 Q2 total sellout quantity of laptops?

```
-- What is the 2022 Q2 total sellout QTY of laptop
SELECT SUM (i.quantity) as '2022 Q2 Taipei101Com Laptop Sellout QTY'
FROM [Taipei101Com.Order] o,[Taipei101Com.Include] i
WHERE o.orderDate BETWEEN '2022-04-01' and '2022-06-30' and i.orderID = o.orderID
```

	2022 Q2 Taipei101Com Laptop Sellout QTY
1	202

Business Transactions

- What is the most popular shipment mode?

```
-- What is the most popular shipment mode
SELECT s.shipmentMode AS 'Shipment Mode', COUNT(s.shipmentMode ) AS 'Usage count'
FROM [Taipei101Com.Shipment] s
GROUP BY s.shipmentMode
ORDER BY COUNT(s.shipmentMode ) DESC
```

	Shipment Mode	Usage count
1	Truck	101
2	Air	100
3	Rail	99



Thank You!