
Database for E-commerce Platform

INFO 6210 Group 17

Yanni Zhang, Xuanning Meng, Meng Zhou, Jiakai Liu



Agenda

1

Mission Statement & Objectives

2

ERD

3

SQL Code Highlights

4

Views & Reports

1. Mission Statement & Objectives



Mission Statement

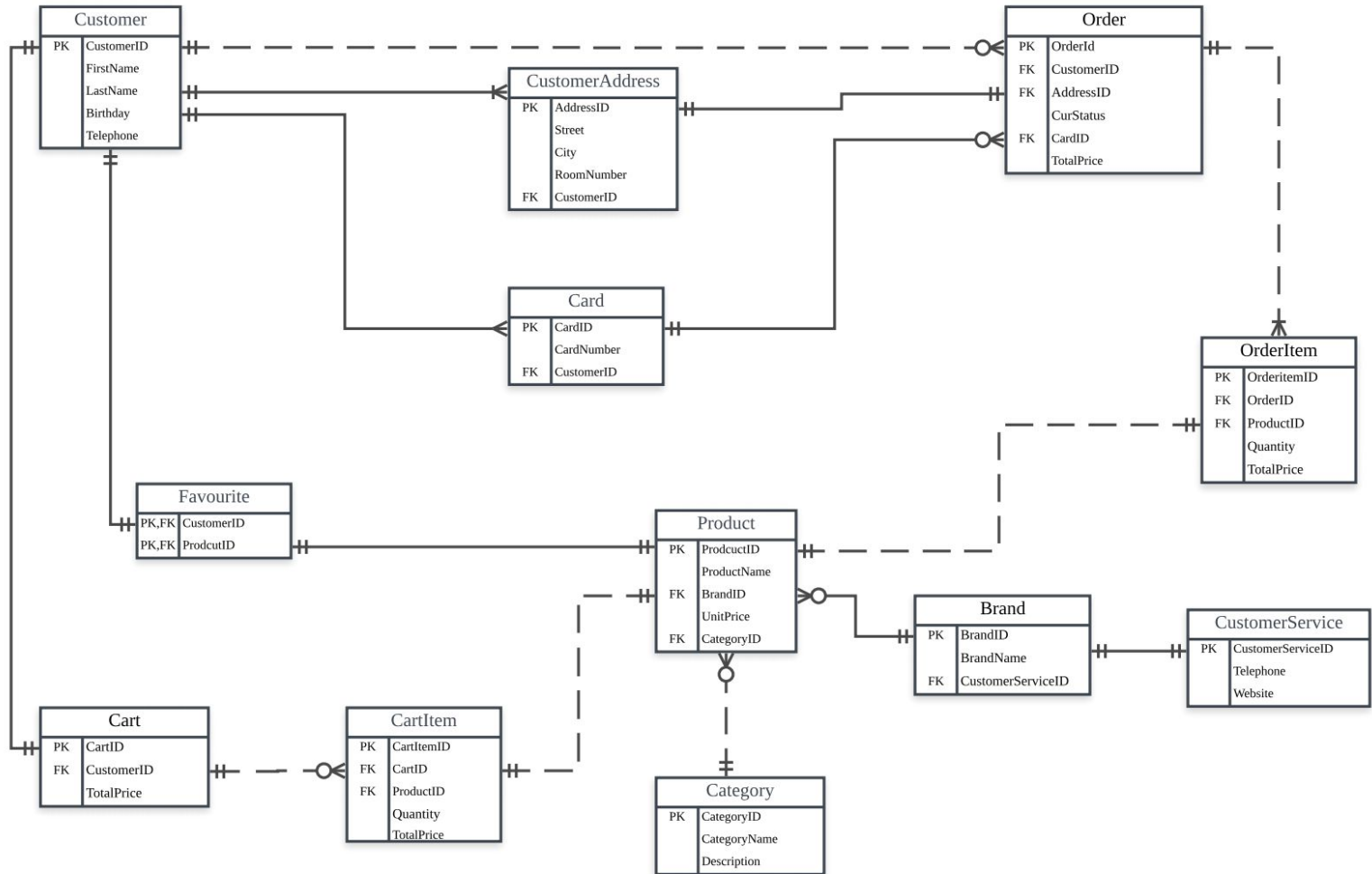
- Aim to maintain and analyze the data through the e-commerce platform. By using the data could help the e-commerce company make statistics of their customer.

Objectives

- To maintain customers personal information and order behavior
- To check product details, availability, brand and service info
- To enable statistic and review the order details after purchasing

2. ERD





3. SQL Code Highlights



Table level check constraints based on function

```
CREATE FUNCTION hasCompleteAddress(@CustID varchar(5))
RETURNS SMALLINT
AS BEGIN
    DECLARE @compelete SMALLINT;
    SELECT @compelete = CASE WHEN EXISTS (
        SELECT *
        FROM CustomerAddress
        WHERE CustomerID = @CustID
        AND Street IS NULL OR City IS NULL OR RoomNumber IS NULL
    )
    THEN 1
    ELSE 0
    END
    RETURN @compelete
END;
```

```
ALTER TABLE CustomerAddress ADD CONSTRAINT hasValidAddress CHECK (dbo.hasCompleteAddress(CustomerID) = 0);
--ALTER TABLE CustomerAddress DROP CONSTRAINT hasValidAddress;
```


--Failed due to the INSERT statement conflicted with the CHECK constraint "hasValidAddress"
INSERT dbo.CustomerAddress **VALUES** ('cd018', **NULL**, **NULL** , '9044', 'cu018');

 CustomerAddress 

 **INSERT** dbo.CustomerAddress **VALUES** (' |   Enter a SQL expression to filter results (use Ctrl+Space)



SQL Error [547] [23000]: The INSERT statement conflicted with the CHECK constraint "hasValidAddress". The conflict occurred in database "t17", table "dbo.CustomerAddress", column 'CustomerID'.

Details >>



Cart create Trigger for new customer

```
-- Trigger
-- New Customer inserted will has a unique cart by r
CREATE TRIGGER genCartForNewCustomer
ON Customer
AFTER INSERT
AS
BEGIN
    DECLARE @CustomerID varchar(5);

    SET @CustomerID = (
        SELECT CustomerID
        FROM inserted
    )
    BEGIN
        INSERT Cart VALUES (@CustomerID, @CustomerID)
    END
END
```

Stored functions keep updating price of order & cart

-- 4. Calculate OrderItem Total Price

CREATE FUNCTION [dbo].[CalcuOrderTotalPrice](@OrderID **VARCHAR**(20))

RETURNS money **AS BEGIN**

DECLARE @total money

SELECT @total = **SUM**(TotalPrice)

FROM dbo.OrderItem

WHERE OrderID = @OrderID

ON p.Proc)

WHERE 01

SET @total = **ISNULL**(@total,0);

RETURN @total

END;

ALTER TABLE dbo.[Order] **ADD** TotalPrice **AS** ([dbo].[CalcuOrderTotalPrice](OrderID));

ALTER TABLE dbo.OrderItem **ADD** TotalPrice **AS** ([dbo].[CalcuOrderItemTotalPrice](OrderItemID));

END;

ALTER TABLE dbo.[Order] **ADD** TotalPrice **AS** ([dbo].[CalcuOrderTotalPrice](OrderID));

ALTER TABLE dbo.OrderItem **ADD** TotalPrice **AS** ([dbo].[CalcuOrderItemTotalPrice](OrderItemID));

Result	
SELECT * FROM [Order] Enter a SQL expression to filter results (use Ctrl+Space)	
Grid	Text
	OrderID
	CustomerID
	AddressID
	CurStates
	CardID
	TotalPrice
1	od001
2	od002
3	od003
4	od004
5	od005
6	od006

INSERT dbo.OrderItem VALUES ('oi011', 'od003', 'pr005', 2);

Result	
SELECT * FROM [Order] Enter a SQL expression to filter results (use Ctrl+Space)	
Grid	Text
	OrderID
	CustomerID
	AddressID
	CurStates
	CardID
	TotalPrice
1	od001
2	od002
3	od003
4	od004
5	od005

Data Encryption

-- Data Encryption

ALTER TABLE Customer

ADD Password VARBINARY(255);

-- Create DMK

CREATE MASTER KEY

ENCRYPTION **BY** PASSWORD = 'Group17P@ssword';

-- Create certificate to protect symmetric key

CREATE CERTIFICATE Group17_Certificate

WITH SUBJECT = 'Group17 Certificate',

EXPIRY_DATE = '2020-01-01';

-- Create symmetric key to encrypt data

CREATE SYMMETRIC **KEY** Group17_SymmetricKey

WITH ALGORITHM = AES_256

ENCRYPTION **BY** CERTIFICATE Group17_Certificate;

-- Open symmetric key

OPEN SYMMETRIC **KEY** Group17_SymmetricKey

DECRYPTION **BY** CERTIFICATE Group17_Certificate;

4. Views & Reports



View

CustomerID	FirstName	LastName	ProductID	ProductName	UnitPrice
06162	Salvador	Gomez	0137F	Proitor	89.98
0P0E2	Barry	Morgan	01U08	Cliperrack	455.2
1H373	Rodney	Sanchez	087M0	Kliomscope	355.73
10Q9P	Lawrence	Miller	0P0X2	Winpicker	896.87
218ZS	Jesus	Wood	120I7	Micthphone	524.6
22Y8R	Ronnie	Gonzalez	127YR	Proomentor	661.67
28WW8	Raul	Barnes	18685	Docomentor	741.17
2D4TU	Marion	Cruz	18SM2	Kliitor	458.87
2E4JW	Isabelle	Reyes	1C1F0	Klipickphone	157.79
2I4PB	Aaliyah	Myers	1R87R	Reitscope	367.59
2IWJG	Vivian	Perry	24JAK	Micomor	602.72
2ZGQA	Jose	Howard	24RM6	Kliitentor	767.36
318Z4	Jerry	Anderson	2FFO1	Winader	618.02
3C4I8	Ian	Turner	2T288	Adomphone	671.82
3JL2J	Mark	Jackson	31J8Y	Kliitentor	842.81
3PULD	Savannah	Richardson	3I84L	Aditor	511.22
3V7SW	Charlie	Edwards	3S4JJ	Filitphone	937.38
42E84	Benjamin	Scott	3YFA7	Filpickphone	97.72
441F4	Juan	King	40110	Klierrphone	170.55
476TU	Brooklyn	Lewis	44HTU	Superrer	285.97

```
-- userFavoriteInfo view
```

```
CREATE VIEW vwFavoriteInfo
```

```
AS
```

```
SELECT
```

```
FROM
```

```
INNER JOIN
```

```
on
```

```
INNER JOIN
```

```
on
```

```
-- DROP VIEW vwFavoriteInfo
```

```
SELECT * FROM vwFavoriteInfo
```

```
]; [LastName],
```

```
]; [UnitPrice]
```


View

-- Product Brand and Customer Service

```
CREATE VIEW vwProductBrandCustomerService
AS
SELECT b.BrandName, p.ProductName, p.Price, p.ServiceTelephone, p.ServiceWebsite
FROM Product p
JOIN Brand b
ON p.BrandID = b.BrandID
JOIN CustomerService c
ON b.CustomerServiceID = c.CustomerServiceID
```

-- DROP VIEW vwProductBrandCustomerService

```
SELECT * FROM vwProductBrandCustomerService
```

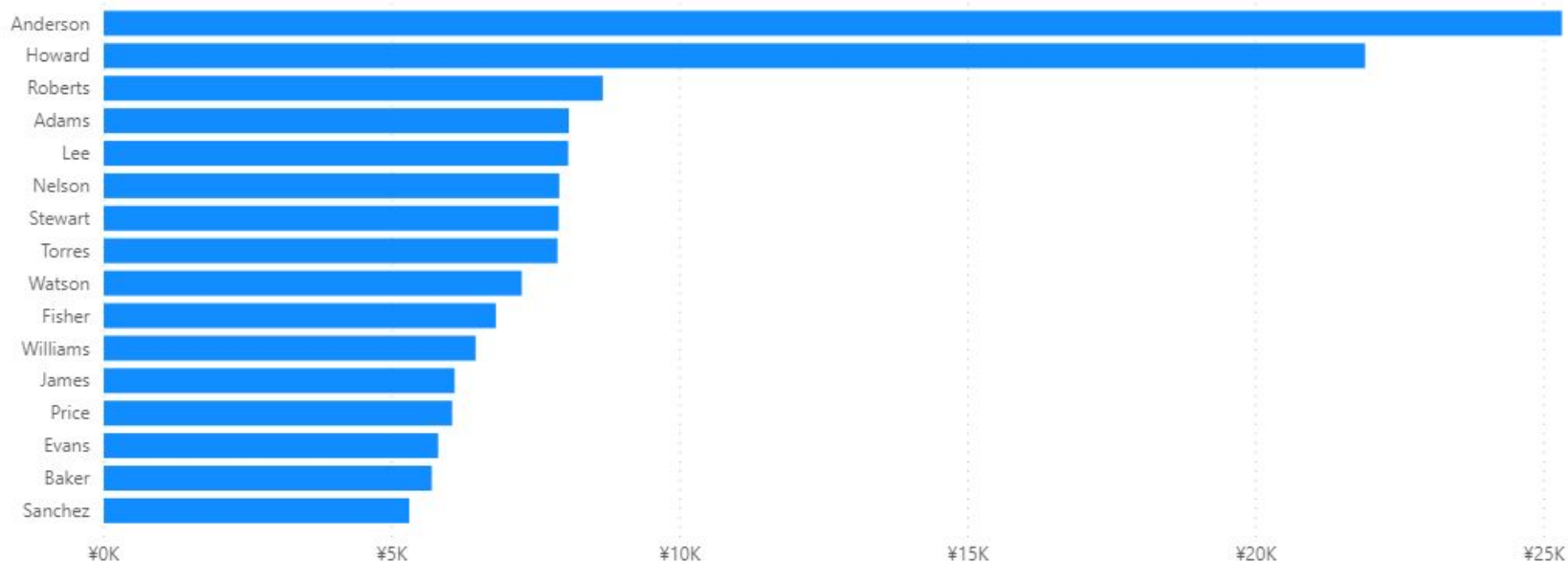
BrandName	ProductName	Price	ServiceTelephone	ServiceWebsite
B00I6JR2Y8	Proitor	89.98	405-877-0935	https://www.lyyivfom.net/cpuxsgrbeci/vdfovi.php
B0013DY243	Cliperrack	455.2	414-274-0181	http://www.aomldndr.org/shmuwfw/hryqctnfq.html
B00Q4YP1UH	Kliomscope	355.73	270-268-5543	http://www.srxspnu.org/vlcajtvqk/mwfxvn.html
B00Y7RKMOX	Winpicker	896.87	318-327-2628	https://www.hdcuumbt.net/bvrhmhmb/vnkmodu.aspx
B00FK56JHO	Micthphone	524.6	418-367-5837	http://www.znlssaw.org/wsmhxuxwt/noupkk.php
B0030JFGMQ	Proomentor	661.67	414-274-0181	http://www.aomldndr.org/shmuwfw/hryqctnfq.html
B00S2P018U	Docomentor	741.17	214-820-7591	http://www.xcculhj.co/zficpgxb/lyzljbbbr.aspx
B00L96E297	Kliitor	458.87	313-338-7099	https://www.chqyxooou.org/gxtbycxw/tjksziie.php
B00CDKC21I	Klipickphone	157.79	351-659-5483	https://www.odijxhbi.net/prlwsjfol/ncldlj.html
B008D1S5B7	Reitscope	367.59	309-624-4450	http://www.xqvnypnhl.org/reytibuq/lbgjwu.htm
B0059L37DP	Micomor	602.72	325-935-2449	http://www.tpisjhda.org/onsmytmj/xvskpf.html
B00LXGLR98	Kliitentor	767.36	345-574-3892	https://www.wxhizgno.net/xmpeffhj/tvxnnlve.php
B008HC2R5N	Winader	618.02	406-546-5128	http://www.ywgwprj.net/wogwsscqe/arvvdoo.php
B002P43613	Adomphone	671.82	316-854-1872	http://www.llobmwwnak.net/sutwmrrpj/bzvltl.htm
B00CDKC21I	Kliitentor	842.81	351-659-5483	https://www.odijxhbi.net/prlwsjfol/ncldlj.html
B002FJ18GC	Aditor	511.22	205-340-8452	https://www.helzqvj.co/dsuskckafm/legsbe.html
B0060KVTO0	Filitphone	937.38	320-604-7392	http://www.gtcxnti.net/oscmeyxnfy/xqqhipm.htm
B00P7XX2SE	Filpickphone	97.72	410-488-8758	http://www.jzrqxfgb.net/jsrscdrog/hhykptwuc.php
B00U4T4985	Klierrphone	170.55	276-552-5099	https://www.noghrhvo.net/pdnvngke/lokspkx.html

Customer Geolocation Distribution

We can easily find our customers all over the world, mainly in Western Europe and the Eastern United States

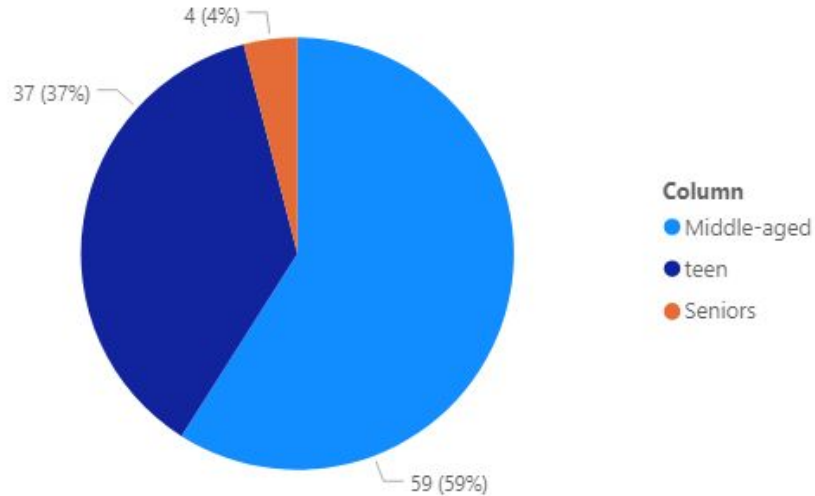


Purchasing Power Analysis



Randomly sampling some data, we can see that the main group's spending power is still between 5K and 10K

Customer Age Distribution



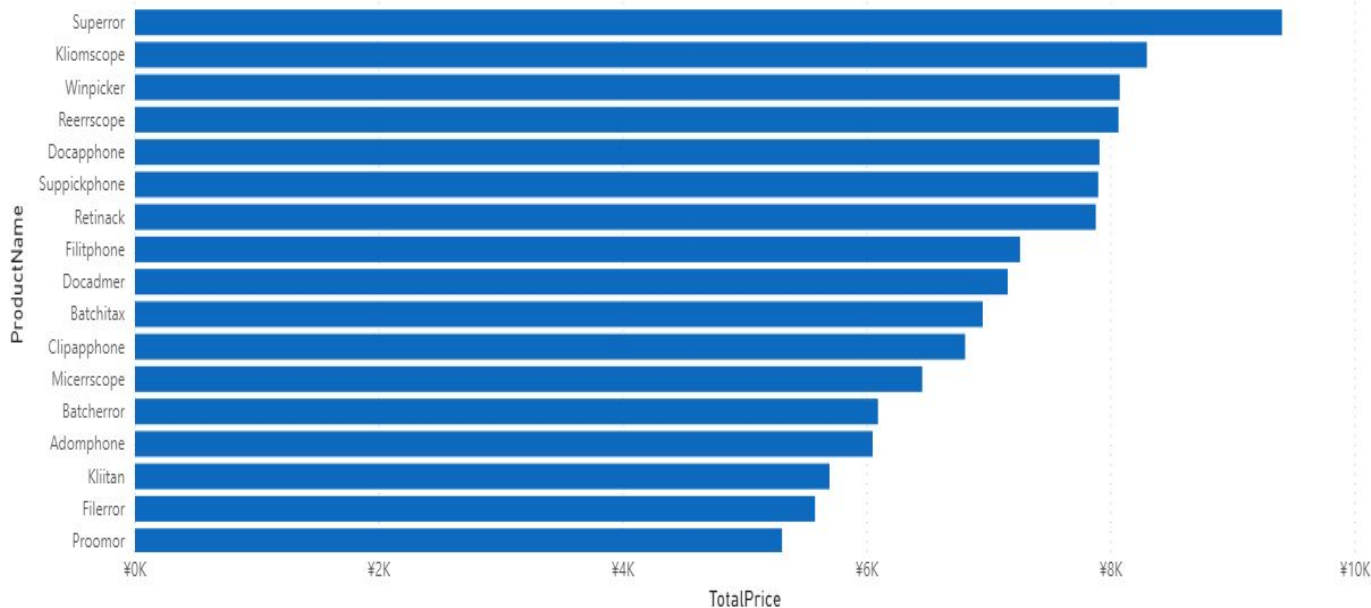
We randomly sampled 100 people and found that the main users are teen and middle-aged people. This chart allows us to better analyze the scope of our business.

Popular Product



We have made this chart according to the sales weight (depends on quantity) of the products, and we can easily find that our most popular products are kliitentor and supiter

Popular Product



We have made this chart according to the sales weight(depends on total price) of the products, and we can easily find that our most popular products are kliitentor and supiter too

A decorative network diagram in the top right corner, consisting of numerous small grey dots connected by thin grey lines, forming a complex web-like structure.

Thank you!

Any questions ?