

The background of the slide is a photograph of a clothing store. In the foreground, there are several racks of clothes, including a blue and white patterned shirt. The background is slightly blurred, showing more racks and clothes in various colors like red, purple, and blue. Overlaid on the image are several realistic water droplets of different sizes, some in the top left and others in the bottom right, adding a fresh or clean aesthetic.

ONLINE SHOPPING DATASETS ANALYTIC

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SOURCE DATA, DATA TRANSFER AND DATA CLEANING

- [HTTPS://WWW.KAGGLE.COM/TANYADAYANAND/ONLINE-SHOPPING](https://www.kaggle.com/tanyadayanand/online-shopping)

DATA TRANSFER AND DATA CLEANING

```
--ALTER COLUMN SHIPDATE
```

```
UPDATE SHIPMENT
```

```
SET SHIP_DATE = CONVERT(NVARCHAR(255),CONVERT(SMALLDATETIME, SHIP_DATE,105))
```

```
ALTER TABLE SHIPMENT
```

```
ALTER COLUMN SHIP_DATE SMALLDATETIME
```

```
--ALTER COLUMN PRODUCT_BASE_MARGIN
```

```
UPDATE MARKET
```

```
SET PRODUCT_BASE_MARGIN = '0' WHERE PRODUCT_BASE_MARGIN = 'NA'
```

```
ALTER TABLE MARKET
```

```
ALTER COLUMN PRODUCT_BASE_MARGIN FLOAT
```

IMPORTING DATASETS TO MS SQL

The screenshot displays the Microsoft SQL Server Enterprise Manager interface. The 'Object Explorer' on the left shows the 'OnlineShopping' database with a 'Tables' folder expanded, listing system tables, file tables, external tables, graph tables, and user tables like 'customer', 'market', 'orderdetail', 'producttype', and 'shipment'. The main window shows the 'Import Flat File "OnlineShopping"' wizard. The 'Specify Input File' step is selected, showing the 'Location of file to be imported' as 'C:\Users\linda\Desktop\Data analyst\Capstone Project 2 associate data analyst\c'. The 'New table name' is 'customer'. The 'Table schema' is set to 'dbo'. The 'Summary' tab shows the 'customer' table with columns 'id', 'name', 'email', 'password', 'phone', 'address', 'city', 'state', 'zip', 'country', 'created_at', and 'updated_at'.

Import Flat File 'OnlineShopping'

Specify Input File

This operation will create a table from your input file.

Location of file to be imported
C:\Users\linda\Desktop\Data analyst\Capstone Project 2 associate data analyst\c

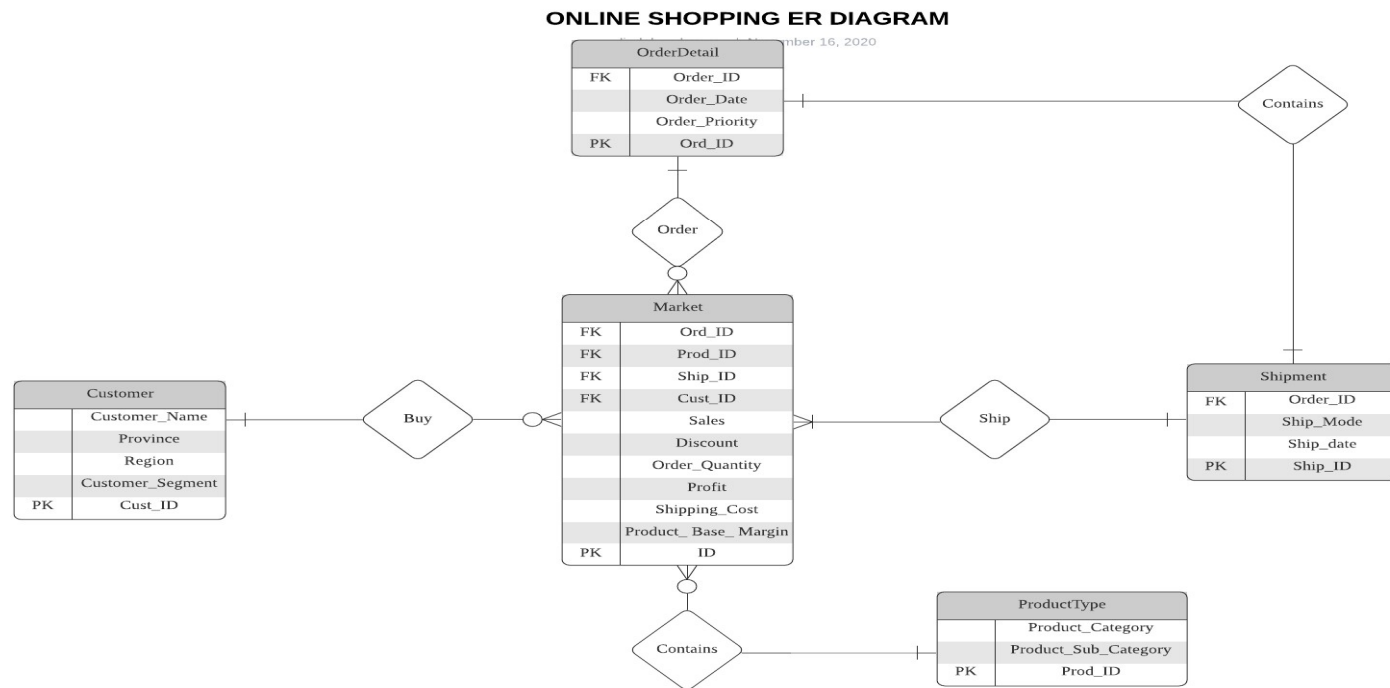
New table name:
customer

Table schema:
dbo

OnlineShopping

- Database Diagrams
- Tables
 - System Tables
 - FileTables
 - External Tables
 - Graph Tables
 - dbo.customer
 - dbo.market
 - dbo.orderdetail
 - dbo.producttype
 - dbo.shipment

ER DIAGRAM ONLINE SHOPPING



DATA TRANSFER FROM MS SQL TO EXCELL

SQL Server database

Server

desktop-dbqbj47\mssqlserver01

Database (optional)

onlineshopping

Advanced options

Command timeout in minutes (optional)

SQL statement (optional, requires database)

```
SELECT datepart(yy, o.order_date) as 'Year', c.Customer_Segment, count(distinct c.Cust_id)
FROM customer c
JOIN market m ON c.cust_ID = m.Cust_id
JOIN orderdetail o ON o.Ord_id = m.Ord_id
WHERE datepart(yy, o.order_date) = 2012
```

☒ Include relationship columns

☐ Navigate using full hierarchy

☐ Enable SQL Server Failover support

OK Cancel

desktop-dbqbj47\mssqlserver01: onlineshopping

Year	Customer_Segment	No.ofCust
2012	CORPORATE	358
2012	HOME OFFICE	222
2012	CONSUMER	190
2012	SMALL BUSINESS	195

Year	Customer_Segment	No.ofCust
2012	CORPORATE	358
2012	HOME OFFICE	222
2012	CONSUMER	190
2012	SMALL BUSINESS	195

QUERIES

```
--CUSTOMERSEGMENT
SELECT DATEPART(YY, O.ORDER_DATE) AS 'YEAR',    C.CUSTOMER_SEGMENT, COUNT(DISTINCT C.CUST_ID) AS 'NO.OFCUST',
SUM(M.SALES) AS 'T.SALES',
SUM(M.PROFIT) AS 'T.PROFIT',
ROUND(SUM(M.PROFIT)/SUM(M.SALES),2) AS 'GROSS_MARGIN',
COUNT(M.ORD_ID) AS 'NO.OFORDER'
FROM CUSTOMER C
JOIN MARKET M ON C.CUST_ID = M.CUST_ID
JOIN ORDERDETAIL O ON O.ORD_ID = M.ORD_ID
GROUP BY DATEPART(YY, ORDER_DATE), C.CUSTOMER_SEGMENT
ORDER BY DATEPART(YY, ORDER_DATE), [T.SALES] DESC
```

```
-- Topprofit by product
With Toprow AS (
SELECT ROW_NUMBER() over (partition by datepart(yy, order_date) order by round(sum(m.profit),2) desc) AS R,
datepart(yy, order_date) as 'Year', p.Product_Sub_Category,
c.region,
sum(m.Order_Quantity) AS 'Quantity', round(sum(m.sales),2) AS 'Total Sales',
round(sum(m.profit),2) AS 'TotalProfit',
round(sum(m.Profit)/sum(m.Sales),2) AS 'Gross_Margin',
round(avg(m.discount),2) AS 'Discount',
round(avg(m.Product_Base_Margin),2) AS 'ProductBaseMargin',
round(avg(m.Shipping_Cost),2) AS 'Shippingcost'
FROM orderdetail o
JOIN market m ON o.ord_id = m.Ord_id
JOIN producttype p ON m.Prod_id = p.prod_id
JOIN customer c ON c.Cust_id = m.Cust_id
GROUP by datepart(yy, order_date), p.Product_sub_Category, c.region)
Select *
From Toprow
where Toprow.R <=20
```

```
-- PROFIT BY PRODUCT
SELECT DATEPART(YEAR, ORDER_DATE) AS 'YEAR', P.PRODUCT_CATEGORY, SUM(M.ORDER_QUANTITY) AS 'QUANTITY', ROUND(SUM(M.SALES),2) AS 'TOTALSALES',
ROUND(SUM(M.PROFIT),2) AS 'TOTALPROFIT', ROUND(SUM(M.PROFIT)/SUM(M.SALES),2) AS 'GROSS MARGIN', ROUND(AVG(M.DISCOUNT),2) AS 'DISCOUNT'
FROM ORDERDETAIL O
JOIN MARKET M ON O.ORD_ID = M.ORD_ID
JOIN PRODUCTTYPE P ON M.PROD_ID = P.PROD_ID
JOIN CUSTOMER C ON C.CUST_ID = M.CUST_ID
GROUP BY DATEPART(YEAR,ORDER_DATE), P.PRODUCT_CATEGORY
ORDER BY DATEPART(YEAR,ORDER_DATE), [TOTALPROFIT] DESC, P.PRODUCT_CATEGORY
```

```
--avg shipment cost
```

```
Select Ship_Mode, p.Product_Category,
       round(avg(m.Shipping_Cost),2) AS 'Avg_Shipcost'
```

```
FROM orderdetail o
JOIN shipment s ON s.Order_ID = o.Order_ID
JOIN market m ON m.Ord_id = o.Ord_id
JOIN customer c ON c.Cust_id = m.Cust_id
join producttype p on p.Prod_id = m.Prod_id
GROUP by ship_mode, p.Product_Category
ORDER by ship_mode
```

```
-- Losses
```

```
With Toprow AS (
SELECT ROW_NUMBER() over (partition by datepart(yy, order_date) order by round(sum(m.profit),2)asc) AS R,
datepart(yy, order_date) as 'Year', p.Product_Sub_Category, sum(m.Order_Quantity) AS 'Quantity', round(sum(m.sales),2) AS 'Total Sales',
round(sum(m.profit),2) AS 'TotalProfit',
round(sum(m.Profit)/sum(m.Sales),2) AS 'Gross_Margin',
round(avg(m.discount),2) AS 'Discount',
round(avg(m.Product_Base_Margin),2) AS 'ProductBaseMargin',
round(avg(m.Shipping_Cost),2) AS 'Shippingcost',
count(distinct m.Cust_id) AS 'No.ofcust',
count(m.ord_id) AS 'No.ofOrder'
FROM orderdetail o
JOIN market m ON o.ord_id = m.Ord_id
JOIN producttype p ON m.Prod_id = p.prod_id
GROUP by datepart(yy, order_date), p.Product_sub_Category)
```

```
Select *
From Toprow
where Toprow.R <=10
```

```

--CUSTOMER LIFE CYCLE
SET DATEFORMAT DMY
WITH O_SEQUENCE AS (
SELECT O.ORDER_DATE, C.CUST_ID,
ROW_NUMBER() OVER (PARTITION BY C.CUST_ID ORDER BY
O.ORDER_DATE ASC) AS ORDER_SEQUENCE,
LAG(O.ORDER_DATE) OVER (PARTITION BY C.CUST_ID ORDER BY
O.ORDER_DATE ASC) AS PREVIOUS_ORDER_DATE
FROM ORDERDETAIL O
JOIN MARKET M ON M.ORD_ID = O.ORD_ID
JOIN CUSTOMER C ON C.CUST_ID = M.CUST_ID
GROUP BY O.ORDER_DATE, C.CUST_ID),

TIME_BETWEEN_ORDERS AS (
SELECT ORDER_DATE, CUST_ID, ORDER_SEQUENCE,
CASE WHEN PREVIOUS_ORDER_DATE IS NULL THEN ORDER_DATE
ELSE PREVIOUS_ORDER_DATE END AS PREVIOUS_ORDER_DATE,
DATEDIFF(DAY, PREVIOUS_ORDER_DATE, ORDER_DATE)
AS DAYS_BETWEEN_ORDERS
FROM O_SEQUENCE),

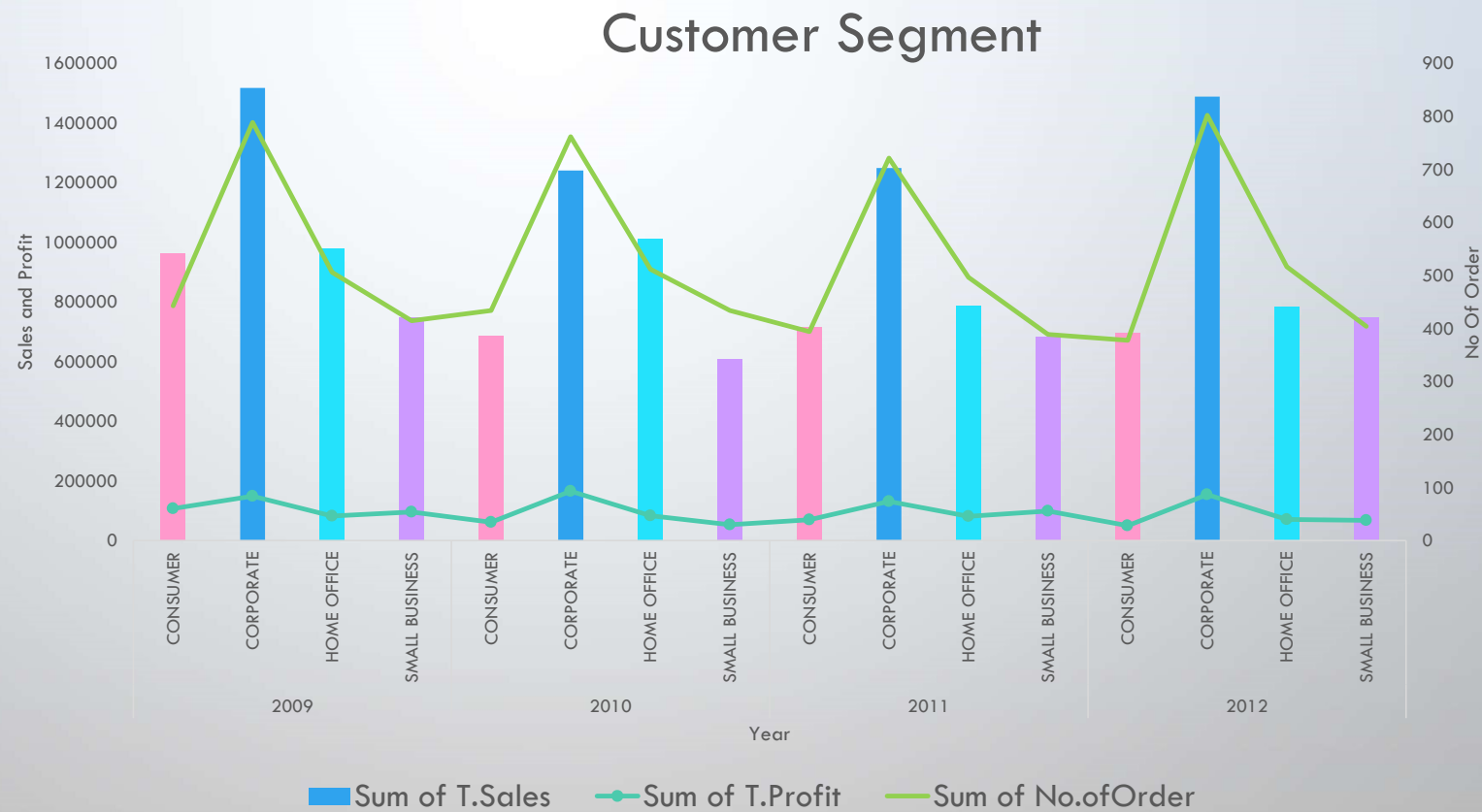
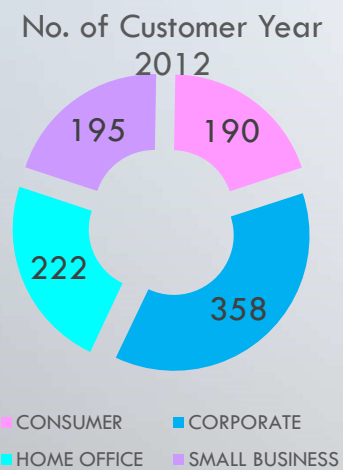
CUSTOMER_LIFE_CYCLE AS (
SELECT ORDER_DATE, CUST_ID,
CASE
WHEN ORDER_SEQUENCE = 1 THEN 'NEW CUSTOMER'
WHEN DAYS_BETWEEN_ORDERS > 0 AND DAYS_BETWEEN_ORDERS < 366
THEN 'ACTIVE CUSTOMER'
WHEN DAYS_BETWEEN_ORDERS > 365 THEN 'LAPSED CUSTOMER'
ELSE 'UNKNOWN'
END AS CUSTOMER_LIFE_CYCLE,

ORDER_SEQUENCE,
PREVIOUS_ORDER_DATE,

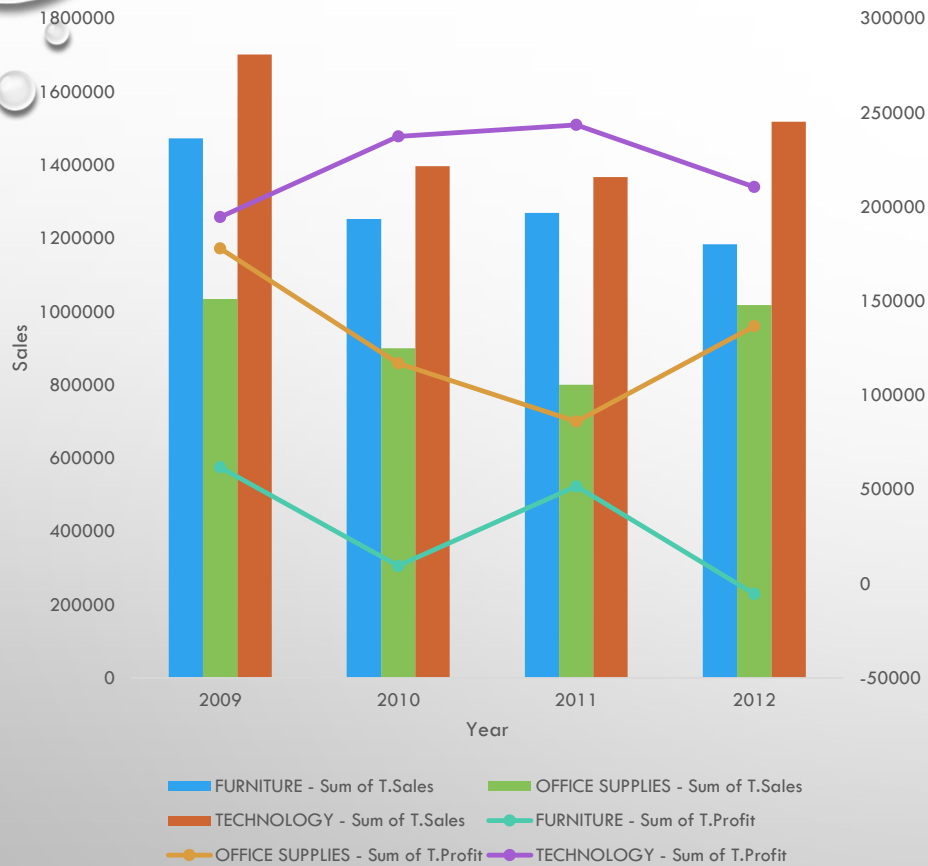
CASE
WHEN DAYS_BETWEEN_ORDERS IS NULL THEN 0
ELSE DAYS_BETWEEN_ORDERS
END AS DAYS_BETWEEN_ORDERS
FROM TIME_BETWEEN_ORDERS)

SELECT
O.ORDER_DATE,
C.CUST_ID,
T1.CUSTOMER_LIFE_CYCLE,
T1.ORDER_SEQUENCE,
T1.DAYS_BETWEEN_ORDERS,
O.ORDER_ID,
C.CUSTOMER_SEGMENT
FROM ORDERDETAIL O
JOIN MARKET M ON M.ORD_ID = O.ORD_ID
JOIN CUSTOMER C ON C.CUST_ID = M.CUST_ID
JOIN CUSTOMER_LIFE_CYCLE T1 ON
(C.CUST_ID=T1.CUST_ID
AND O.ORDER_DATE=T1.ORDER_DATE)

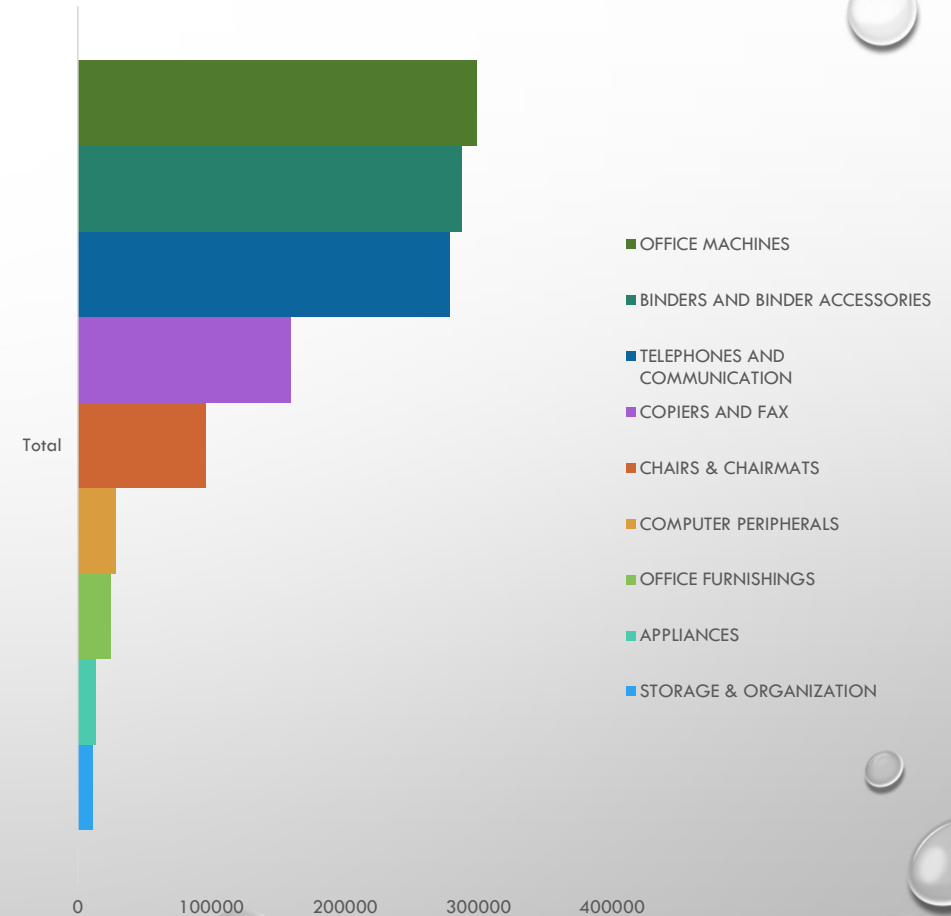
```

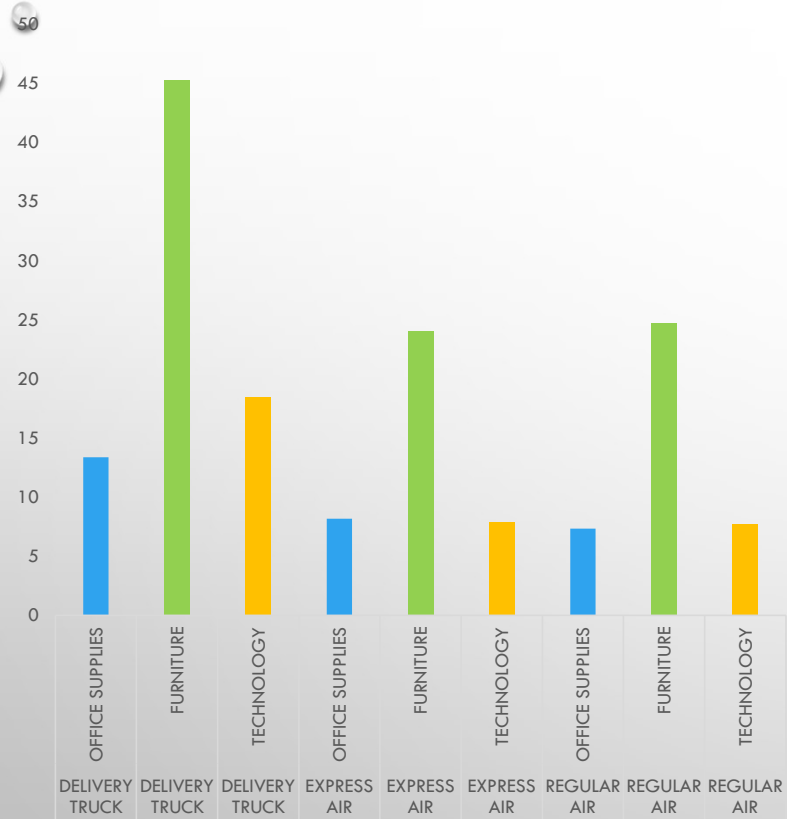
Sales vs Profit by Product



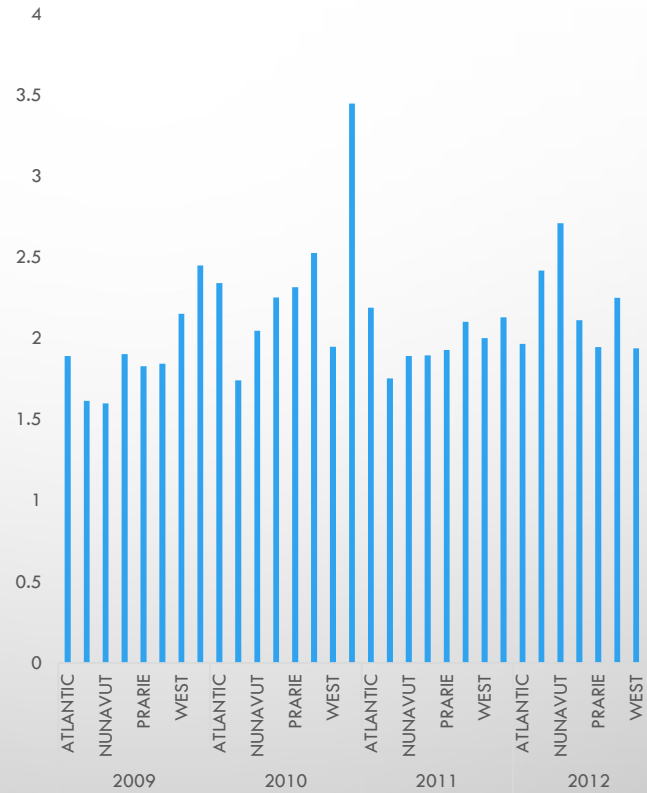
3 years Highest Profit From Product sub category



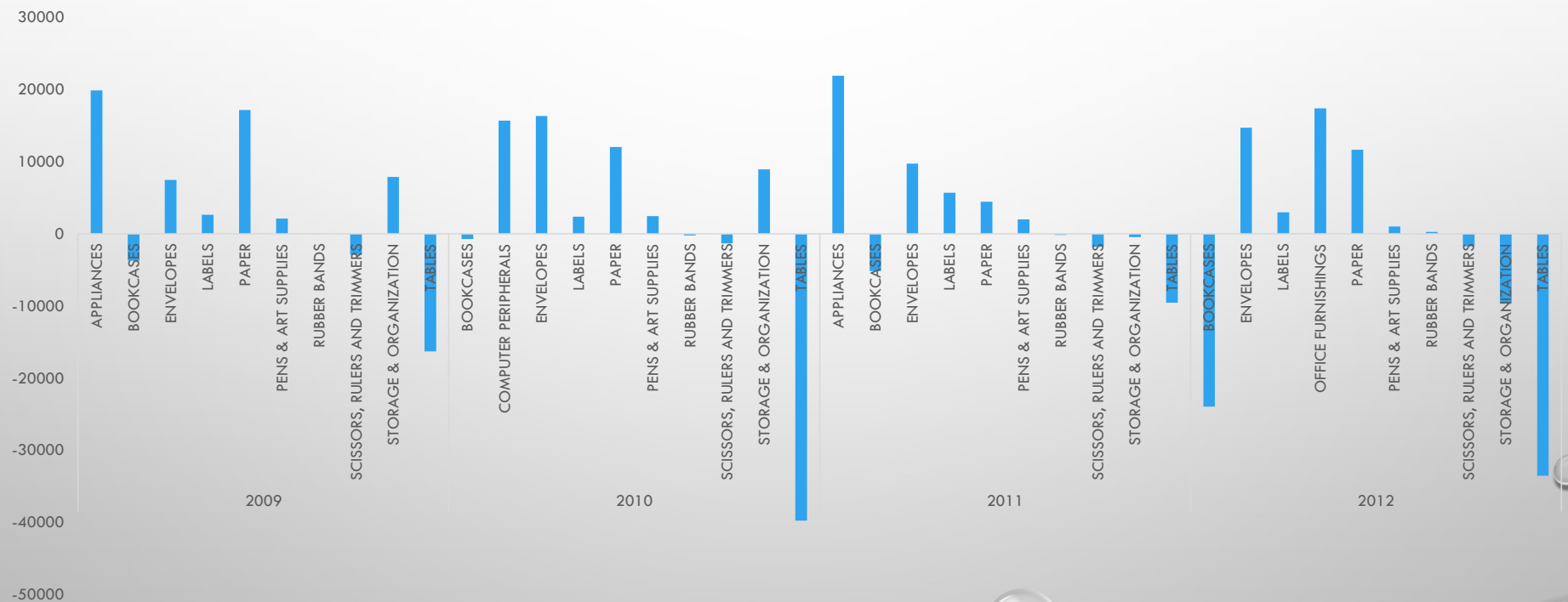
Avg Shipping Cost



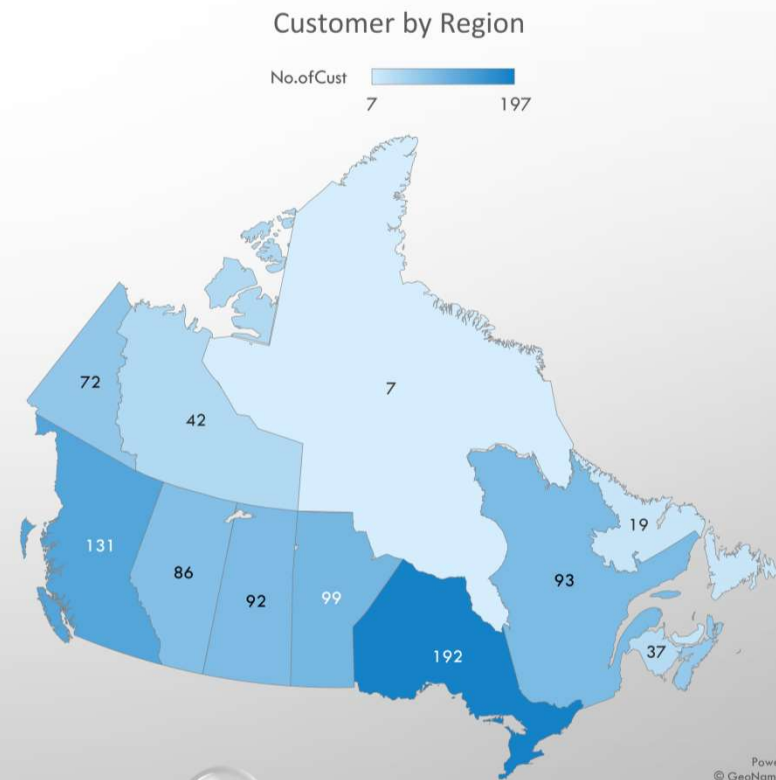
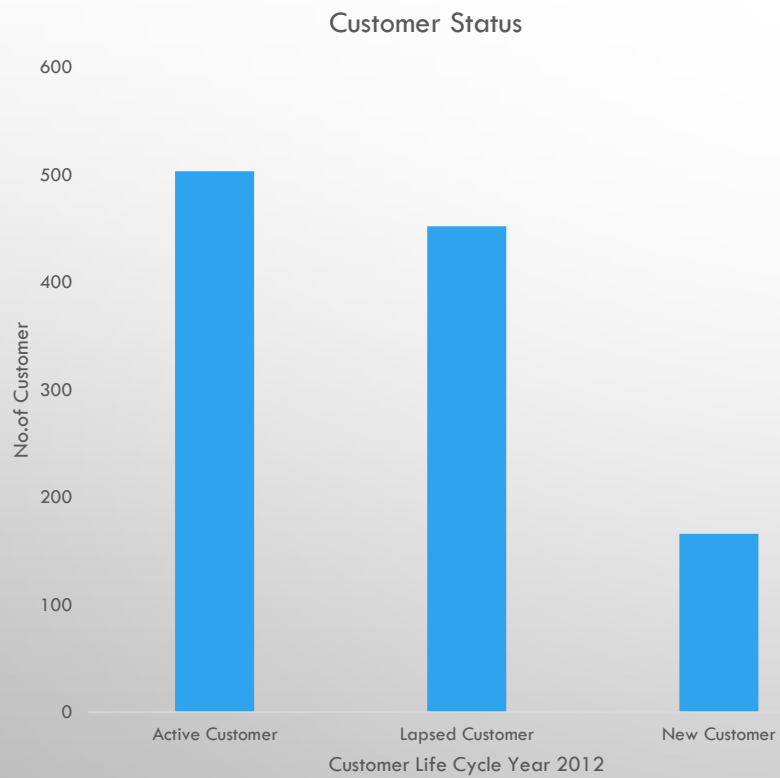
Avg Daystoship



LOSSES FROM PRODUCT SUB CATEGORY



CUSTOMER LIFE CYLCE



PROBLEMS

- LATE ORDER PROCESSING TO SHIP THE PRODUCTS TO CUSTOMER WITH SOME ORDER WERE SHIP TO CUSTOMER > 7 DAYS
- SOME PRODUCTS WERE SOLD BELOW PRODUCT MARGIN AND INCURRED LOSSES

RECOMMENDATION

- IMPROVE THE ORDER PROCESSING TO SHIP DAYS TO CUSTOMER
- IMPROVE THE SUPPLY CHAIN SYSTEMS
- OPT FOR DELIVERY MODE WITH MORE EFFICIENT SHIPPING COST
- IMPROVE CUSTOMER RETENTION BY MAINTAINING THE CUSTOMER LIFE CYCLE DATA



THANK YOU