SUPPLY CHAIN REPORT

OUTLINE

1. Show Business Results by Year.

2. Identify Customer Behaviours and Target Market.

3. Compare Scheduled and Actual Shipping Days. How to optimize On Time Shipping ?

METHODOLOGY

- Collect data from DataCo Global.

- Use SQL to clean and analyze data.

- Use Seaborn, Plotly (Python) to analyze and visualize data.

- Show business results (total sales, total profit, total orders, top categories, top products)

- Identify target customer, target market.

- Show impact of delivery time to business results.

- Use Power BI to create Supply Chain Dashboard.

DATA AFTER CLEANING

	OrderId	ProductName	CategoryName	OrderDate	ShippingDate	TotalShippingDays(scheduled)	TotalShippingDays(actual)	Type	ShippingMode	DeliveryStatus
1	52147	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2017-01-31	2017-02-03	4	3	PAYMENT	Standard Class	Advance shipping
2	237	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-01-04	2015-01-07	4	3	PAYMENT	Standard Class	Advance shipping
3	5283	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2015-03-19	2015-03-23	4	4	PAYMENT	Standard Class	Shipping on time
4	161	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-01-03	2015-01-05	4	2	PAYMENT	Standard Class	Advance shipping
5	52504	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2017-02-05	2017-02-10	4	5	PAYMENT	Standard Class	Late delivery
6	299	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2015-01-05	2015-01-10	4	5	PAYMENT	Standard Class	Late delivery
7	55090	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2017-03-15	2017-03-21	4	6	PAYMENT	Standard Class	Late delivery
8	53599	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2017-02-21	2017-02-26	4	5	PAYMENT	Standard Class	Late delivery
9	950	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2015-01-14	2015-01-20	4	6	PAYMENT	Standard Class	Late delivery
10	57701	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2017-04-22	2017-04-24	4	2	PAYMENT	Standard Class	Advance shipping
11	6902	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-04-11	2015-04-14	4	3	PAYMENT	Standard Class	Advance shipping
12	53239	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2017-02-16	2017-02-21	4	5	PAYMENT	Standard Class	Late delivery
13	1891	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2015-01-28	2015-01-30	4	2	PAYMENT	Standard Class	Advance shipping
14	127	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-01-02	2015-01-05	4	3	PAYMENT	Standard Class	Advance shipping
15	55633	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2017-03-23	2017-03-27	4	4	PAYMENT	Standard Class	Shipping on time
16	60731	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2017-06-05	2017-06-07	4	2	PAYMENT	Standard Class	Advance shipping
17	9396	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2015-05-18	2015-05-20	4	2	PAYMENT	Standard Class	Advance shipping
18	8134	Under Armour Girls' Toddler Spine Surge Runni	Shop By Sport	2015-04-29	2015-05-04	4	5	PAYMENT	Standard Class	Late delivery
19	5982	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-03-29	2015-04-01	4	3	PAYMENT	Standard Class	Advance shipping
20	61281	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2017-06-13	2017-06-15	4	2	PAYMENT	Standard Class	Advance shipping
21	53802	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2017-02-24	2017-02-27	4	3	PAYMENT	Standard Class	Advance shipping
22	7552	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-04-21	2015-04-24	4	3	PAYMENT	Standard Class	Advance shipping
23	75	Nike Men's Dri-FIT Victory Golf Polo	Women's Apparel	2015-01-02	2015-01-08	4	6	PAYMENT	Standard Class	Late delivery

1. Business Results

$36.78M
was the total sales from 01/2015 – 01/2018

180.52K
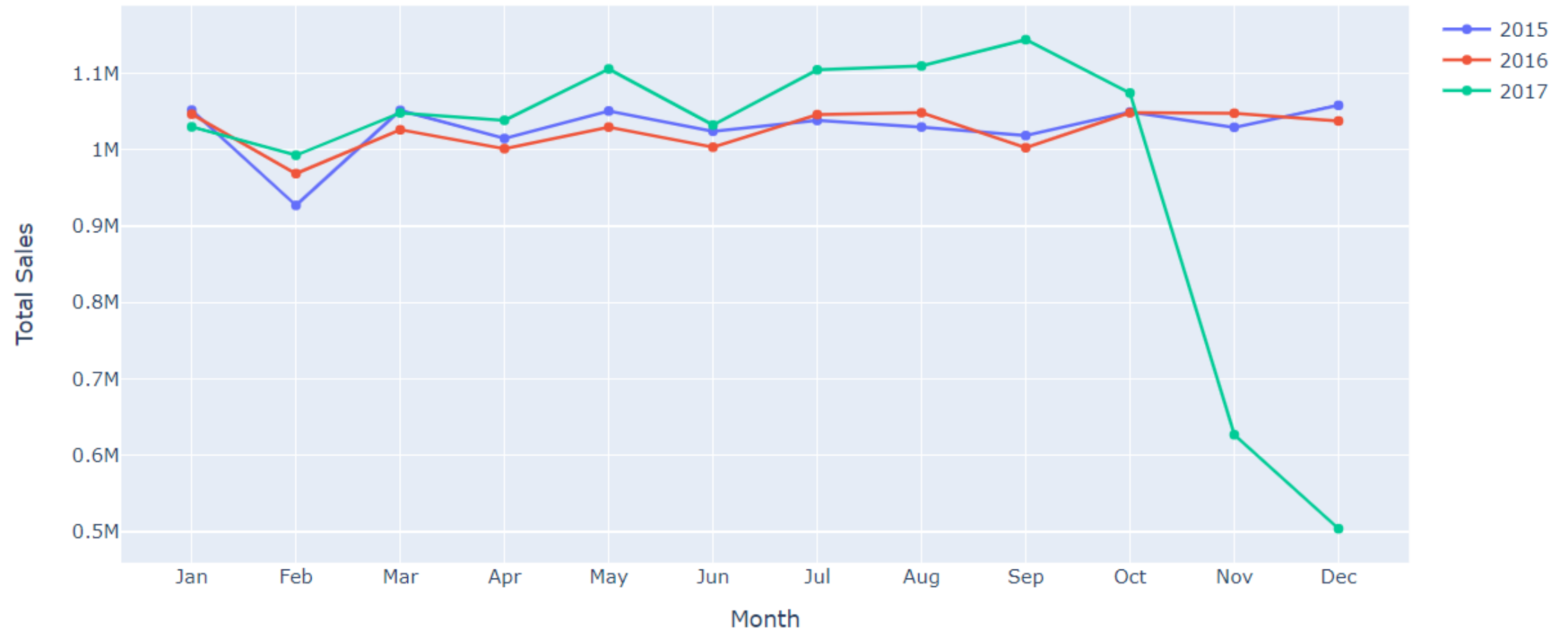was the total orders from 01/2015 – 01/2018

$3.97M
was the total profit from 01/2015 – 01/2018

384K
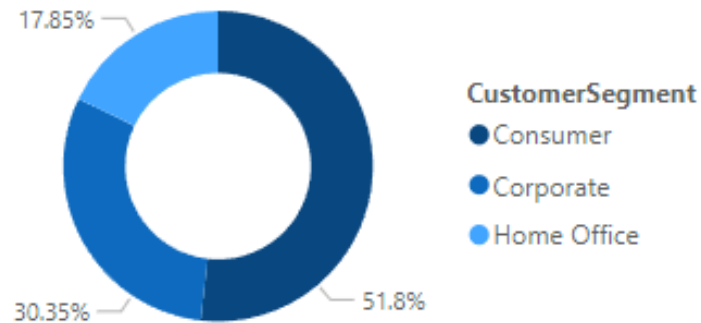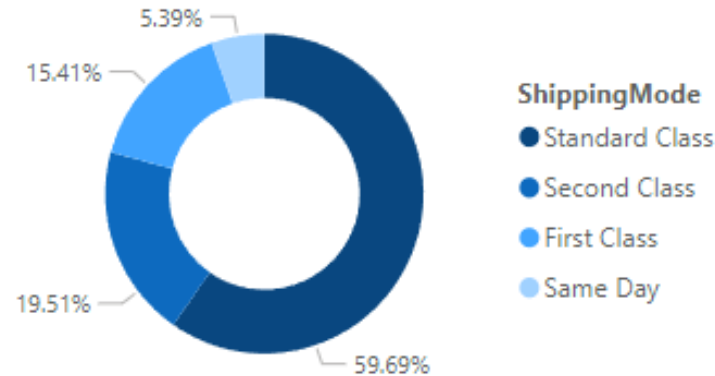was the total product quantity from 01/2015 – 01/2018

Monthly Total Sales

In 2015 and 2016, total sold products and total sales were quite similar. But from 09/2017 both total sold products and total sales decreased suddenly.
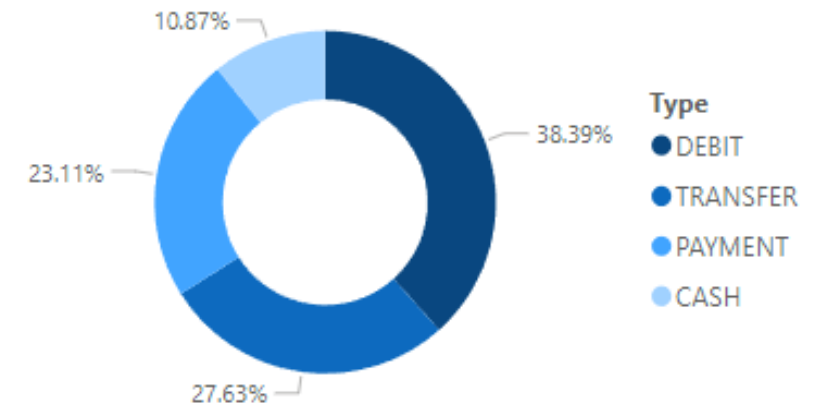
2. Identify Customer Behaviours and Target Market

Percentage of Total Orders by Customer Segment

17.85%

51.8%

30.35%

CustomerSegment
- Consumer
- Corporate
- Home Office

Percentage of Total Orders by Shipping Mode

5.39%

15.41%

19.51%

59.69%

ShippingMode
- Standard Class
- Second Class
- First Class
- Same Day

Percentage of Total Orders by Payment Method

10.87%

23.11%

38.39%
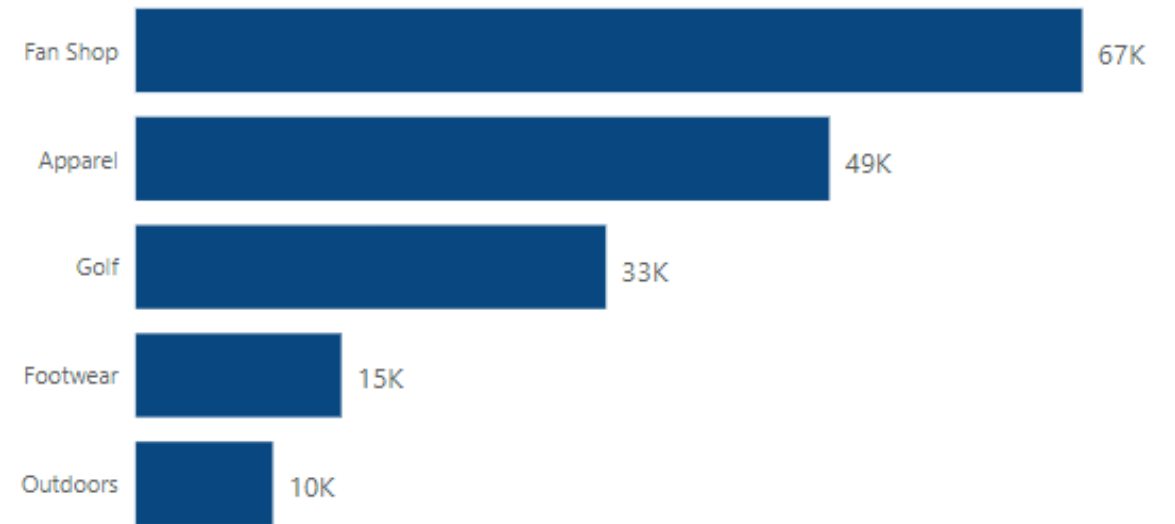
27.63%

Type
- DEBIT
- TRANSFER
- PAYMENT
- CASH

- The majority of customers were **consumers**.
- Almost 60% of customers chose **standard class** shipping mode.
- The majority of customers tended to pay by **debit card**.
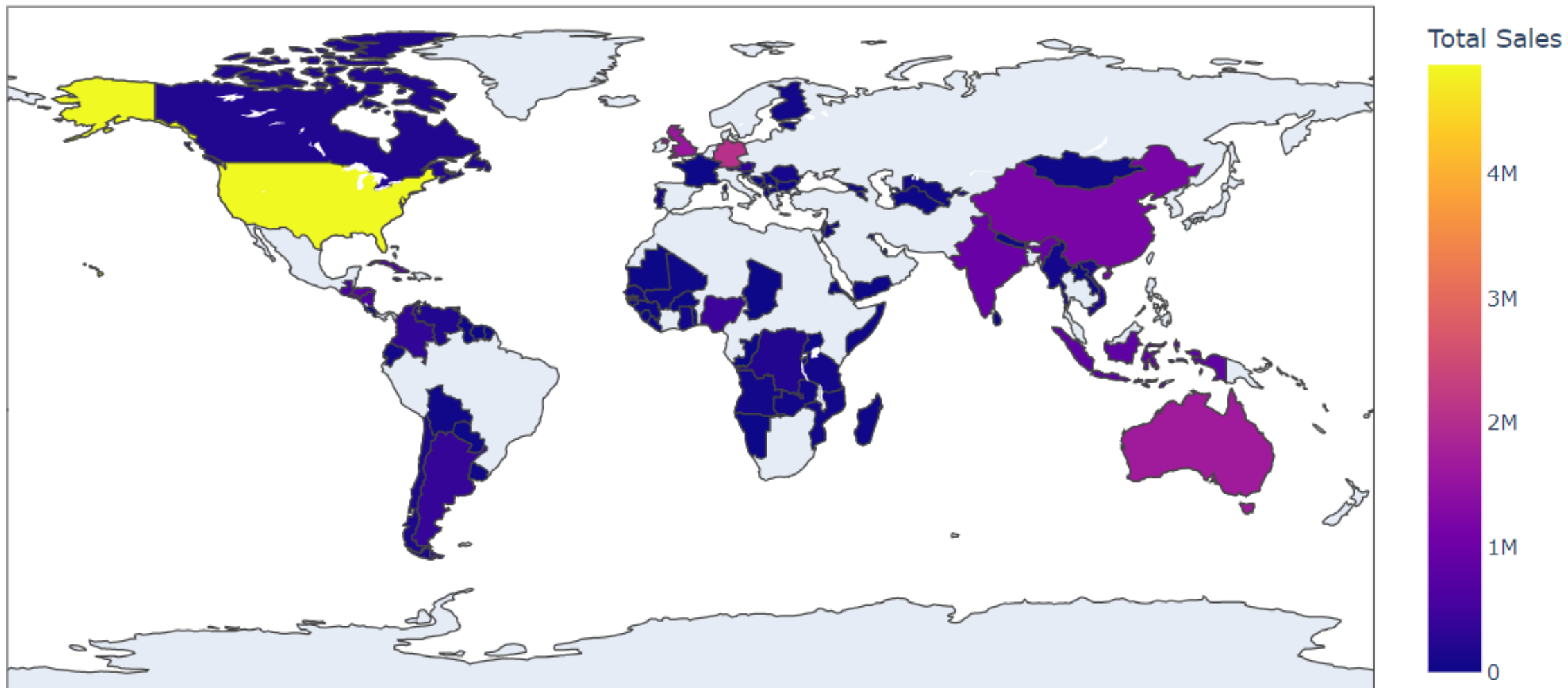
Top 5 Categories by Total Orders

Category	Orders
Cleats	25K
Men's Footwear	22K
Women's Apparel	21K
Indoor/Outdoor Games	19K
Fishing	17K

Top 5 Departments by Total Orders

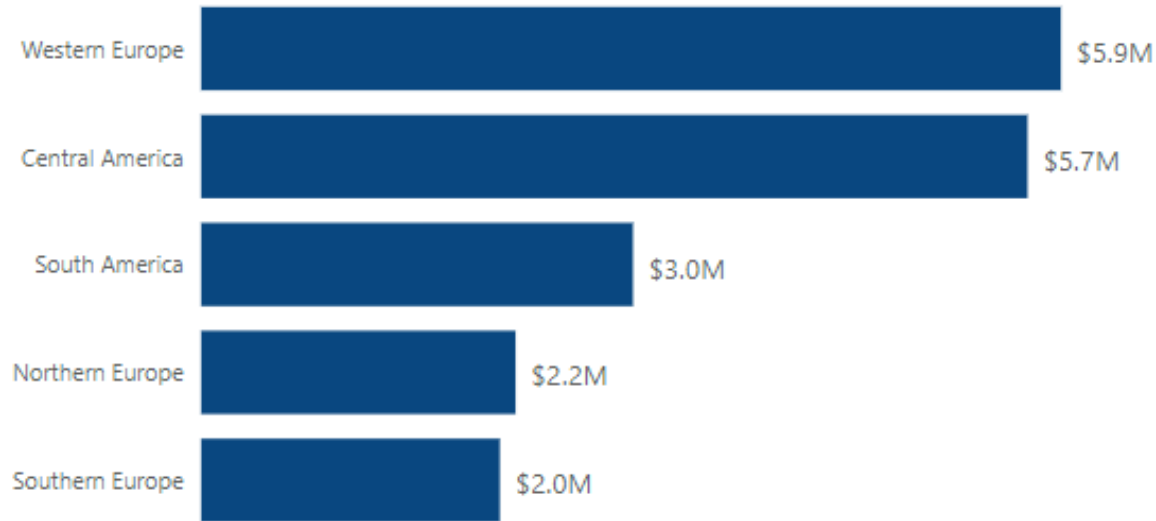| Department	Orders
Fan Shop	67K
Apparel	49K
Golf	33K
Footwear	15K
Outdoors	10K

- The customer needs were high for categories like **cleats**, **men's footwear** and **women's apparel**.
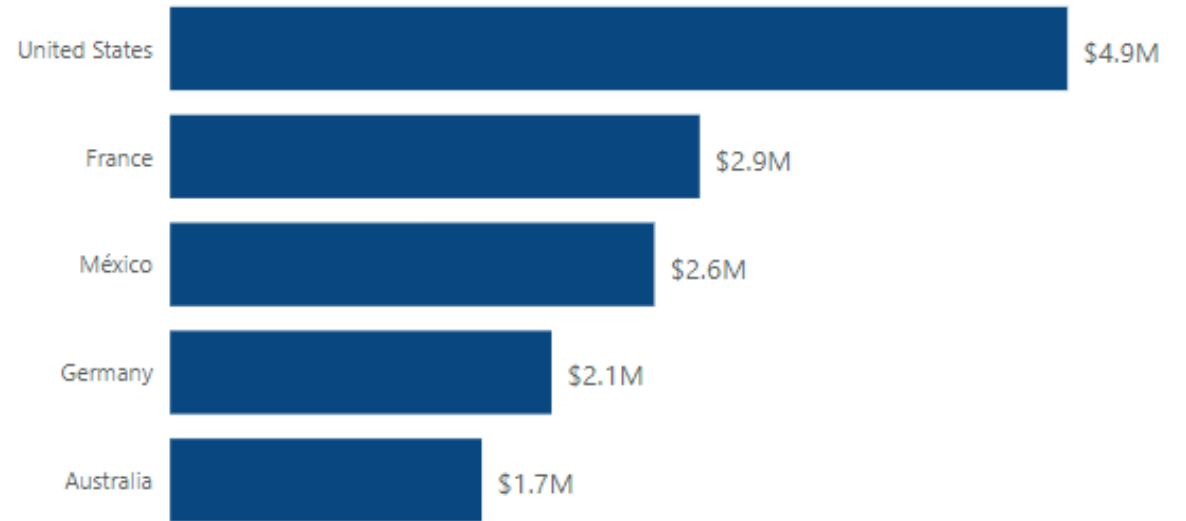- The majority of orders were taken from **fan shop**, **apparel** and **gold department**.

Total Sales by Country

Top 5 Regions by Total Sales

Region	Total Sales
Western Europe	$5.9M
Central America	$5.7M
South America	$3.0M
Northern Europe	$2.2M
Southern Europe	$2.0M

Top 5 Countries by Total Sales

Country	Total Sales
United States	$4.9M
France	$2.9M
México	$2.6M
Germany	$2.1M
Australia	$1.7M

- **Western Europe** and **Central America** were two biggest markets.
- **United Stated** dominated in Top 5 Countries by Total Sales.

Supply Chain Management

Year `All` ⌄　Quarter `All` ⌄　Month `All` ⌄　Payment `All` ⌄　Shipping Mode `All` ⌄　Country `All` ⌄

Sales

Customer

Total Sales

$36.78M

Total Profit

$3.97M

Total Orders

180.52K

Quantity

384K

Total Sales by Year and Quarter

Quarter ● Qtr 1 ● Qtr 2 ● Qtr 3 ● Qtr 4

	2015	2016	2017	2018
	$3M	$3M	$3M	
	$3M	$3M	$3M	
	$3M	$3M	$3M	
	$3M	$3M	$2M	

% Profit by Quarter

10.58%　10.77%　11.20%　10.56%

Qtr 1　Qtr 2　Qtr 3　Qtr 4

% Profit

10.78%

Percentage of Total Orders by Delivery Status

4.3%
17.84%
54.83%
23.04%

DeliveryStatus
- ● Late delivery
- ● Advance shipping
- ● Shipping on time
- ● Shipping canceled

Top 5 Categories by Total Sales

Category	Total Sales
Fishing	$6.9M
Cleats	$4.4M
Camping & ...	$4.1M
Cardio Equi...	$3.7M
Women's A...	$3.1M
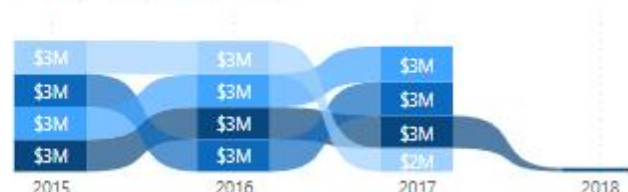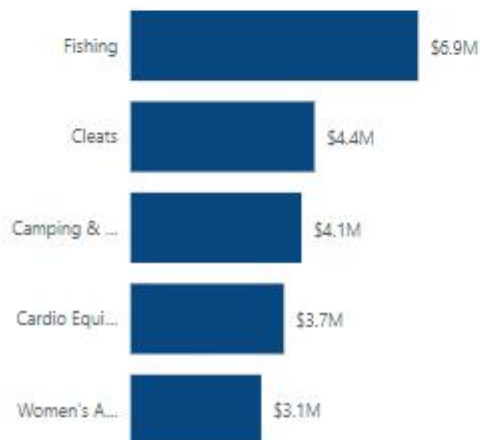
Top 5 Products by Total Sales
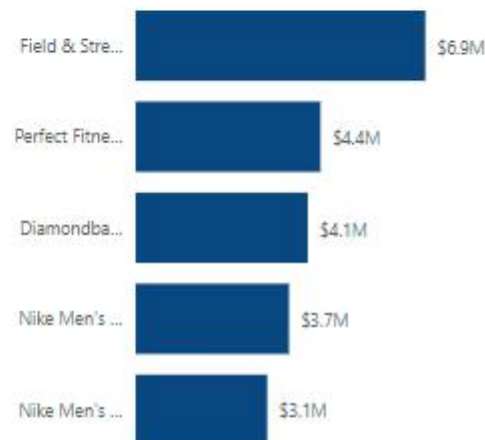
Product	Total Sales
Field & Stre...	$6.9M
Perfect Fitne...	$4.4M
Diamondba...	$4.1M
Nike Men's ...	$3.7M
Nike Men's ...	$3.1M
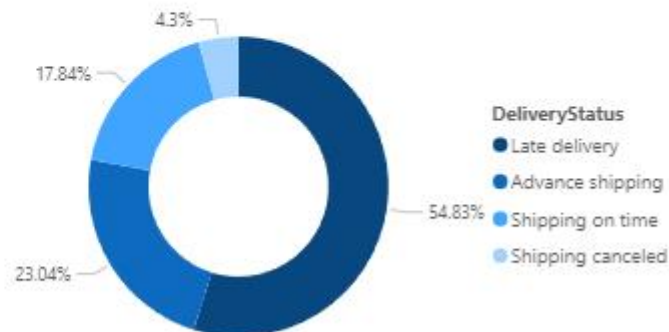
Total Sales by Country

NORTH AMERICA　EUROPE　ASIA
Pacific Ocean　Atlantic Ocean
AFRICA
SOUTH AMERICA　Indian Ocean　AUSTRALIA

Microsoft Bing

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Supply Chain Management

Year [All ▾] Quarter [All ▾] Month [All ▾] Payment [All ▾] Shipping Mode [All ▾] Country [All ▾]

Sales

Customer

Payments

Total Sales by Payment Method

DEBIT	TRANSFER
$14.08M	$10.19M
PAYMENT	CASH
$8.49M	$4.02M
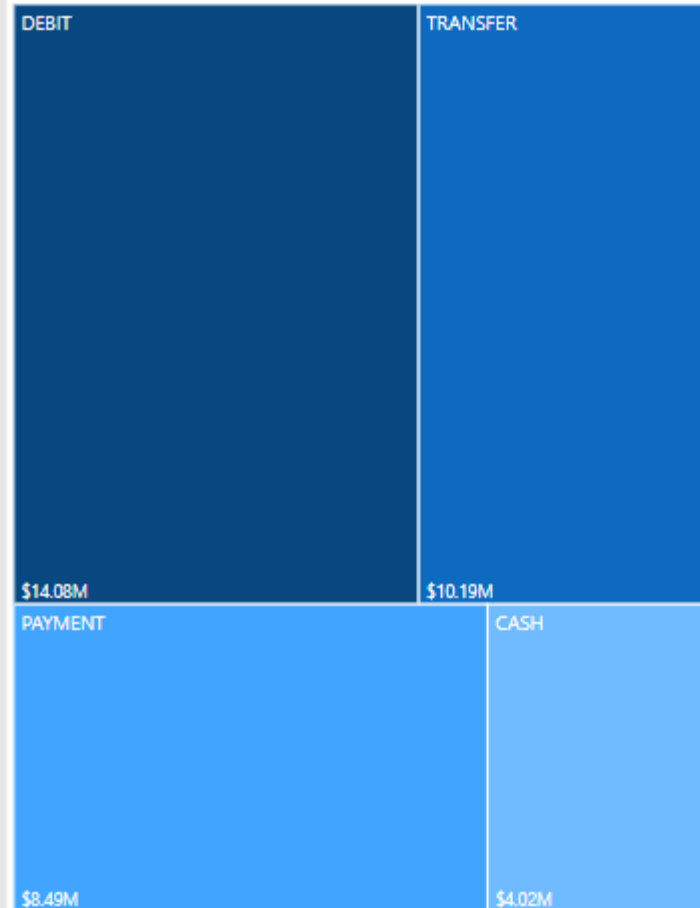
Customer Behaviors

Percentage of Total Orders by Shipping Mode

5.39%
15.41%
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19.51%

ShippingMode
- Standard Class
- Second Class
- First Class
- Same Day

Percentage of Total Orders by Customer Segment

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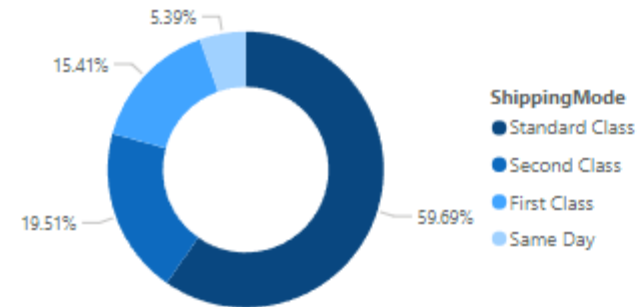
CustomerSegment
- Consumer
- Corporate
- Home Office
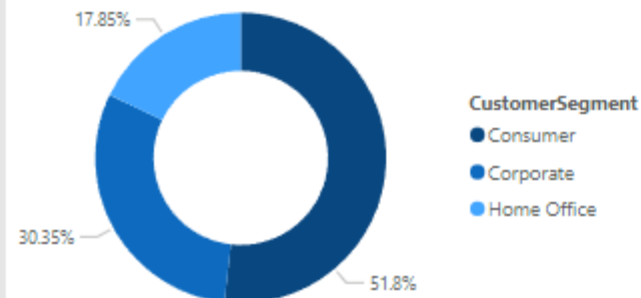
Late Delivery Risk

Percentage of Late Delivery Risk

45.17%
54.83%

LateDeliveryRisk
- Yes
- No

Scheduled and Actual Shipping Days by Delivery Status

● Schedule ● Actual

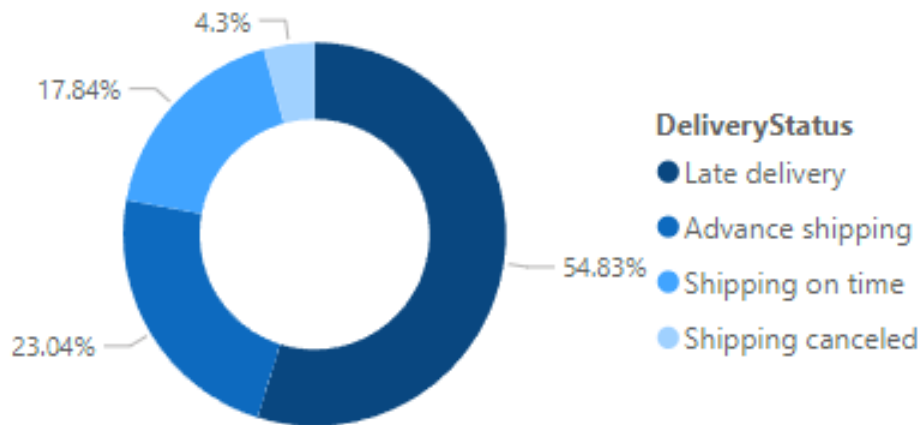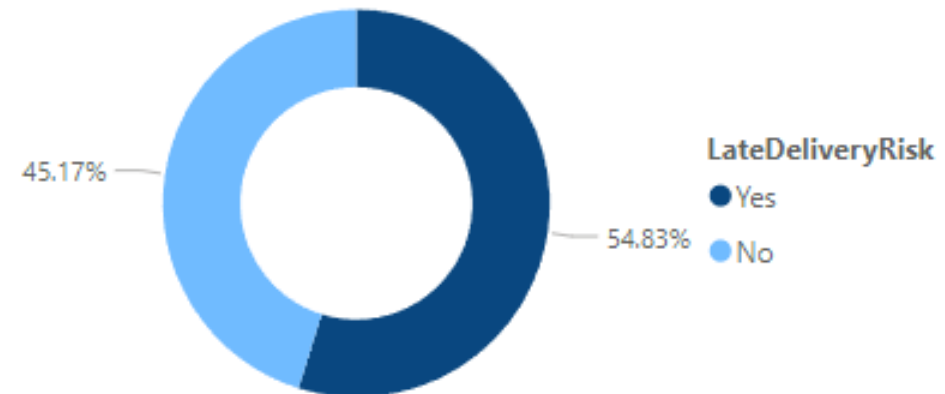|	Advance shipping	Shipping on time	Shipping canceled	Late delivery
Schedule	4.00	2.98	2.90	2.47
Actual	2.50	2.98	3.48	4.09
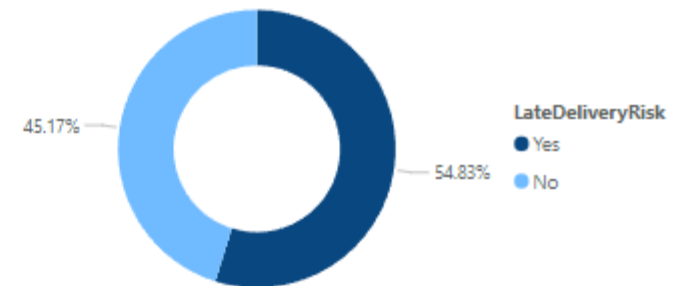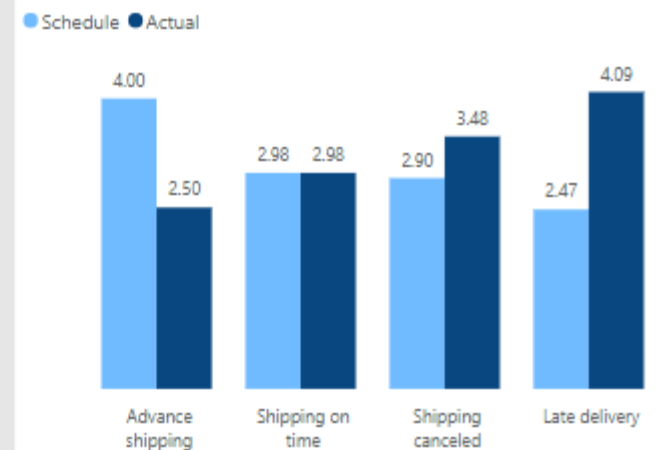
3. Compare Schedule and Actual Shipping Days. How to optimize On Time Shipping ?

Percentage of Total Orders by Delivery Status

4.3%

17.84%

54.83%

23.04%

DeliveryStatus
- Late delivery
- Advance shipping
- Shipping on time
- Shipping canceled
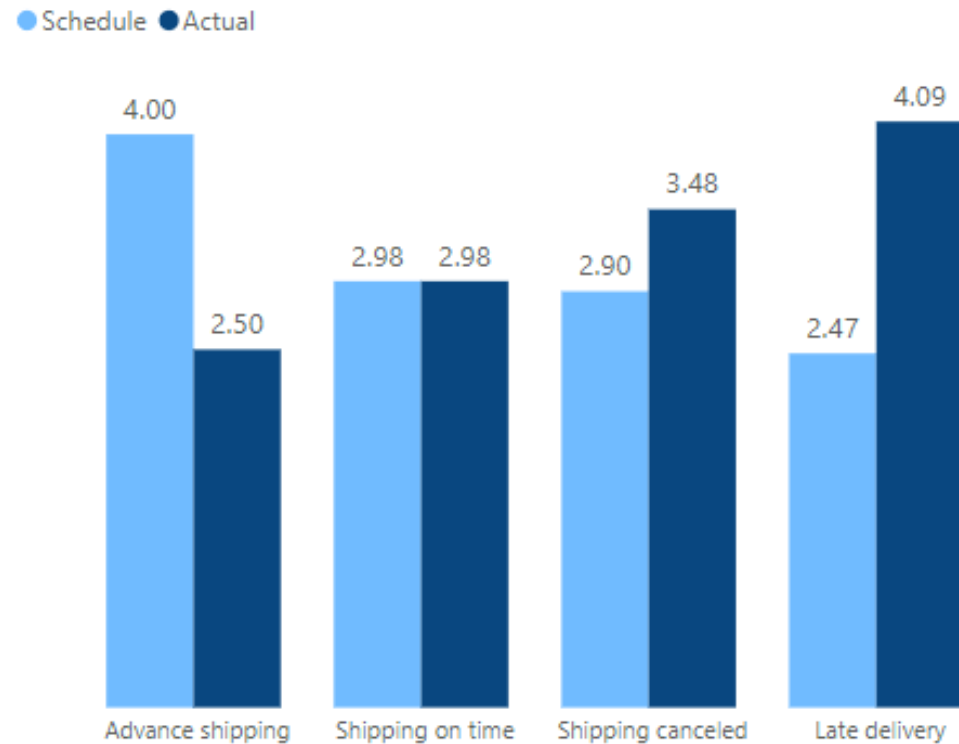
Percentage of Late Delivery Risk
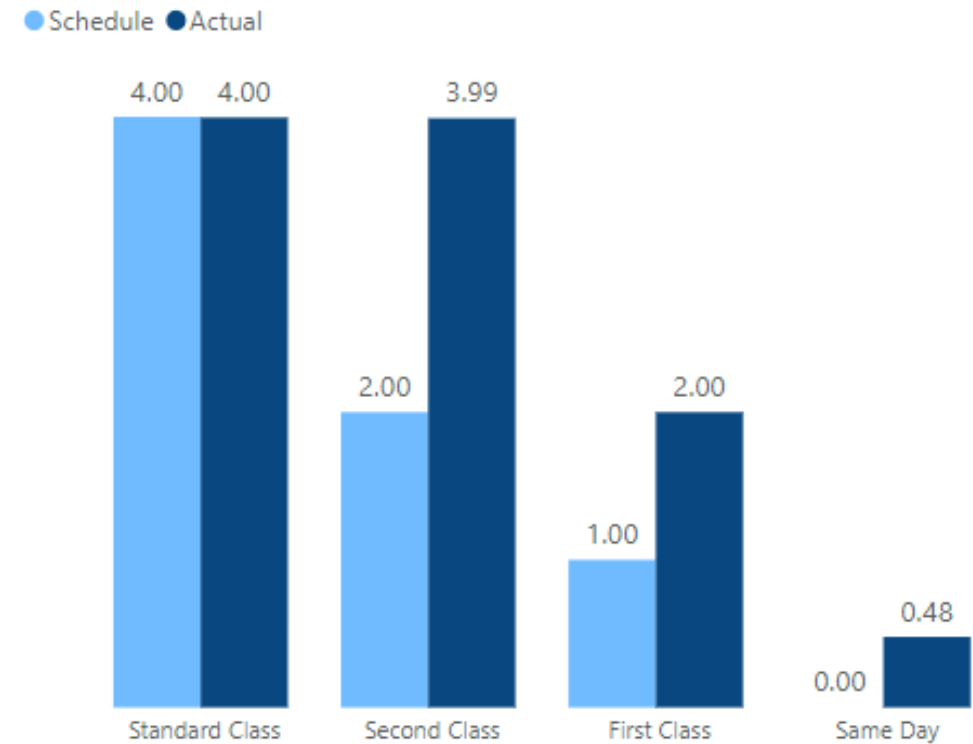
45.17%

54.83%

LateDeliveryRisk
- Yes
- No

- Over **50%** of total orders were delivered late and the percentage of shipping on time or earlier than scheduled was **40.88%** (both Advance Shipping and Shipping on time)
- Percentage of late delivery risk was **54.83%**

Scheduled and Actual Shipping Days by Delivery Status

● Schedule ● Actual

	Advance shipping	Shipping on time	Shipping canceled	Late delivery
Schedule	4.00	2.98	2.90	2.47
Actual	2.50	2.98	3.48	4.09

Scheduled and Actual Shipping Days by Shipping Mode

● Schedule ● Actual

	Standard Class	Second Class	First Class	Same Day
Schedule	4.00	2.00	1.00	0.00
Actual	4.00	3.99	2.00	0.48

- The orders which were canceled had shipping days more than scheduled and it was one of the reasons that made orders cancel.
- Except for orders that were delivered earlier than scheduled by Standard Class, the rest of orders were delivered late than scheduled.

How to optimize On Time Shipping ?

- Uitilize data to forecast customer demands.

- Use technology and automation to streamline supply chain management.

- Find reliable and flexible partners to add supply chain resilience.