AMAZON SALES DATA ANALYSIS

BY GAYATRI BALLAL

INTRODUCTION

- Amazon is a multinational company and e-commerce platform that offers a wide range of products and dervices ,known for its convenience ,innovation,and customer-centric approach.
- Amazon is founded in 1944 by Jeff Bezos and started as an online marketplace for books and rapidly expanded into various product categories.
- Today,Amazon has evolved into one of the world’s largest e-commerce platforms offering a wide range of products and services ,including retail,cloud computing,digital streaming and AI.
- In this project,we delve into Amazon Sales data to uncover insights,trends and opportunities for growth.

OBJECTIVE

- To find total profit,total cost,total sales revenue,average unit price,average unit cost,total unit sold.
- To identify year-wise and month-wise sales trends to understand overall sales performance over time.
- To determine regional sales performance by visualizing total revenue and total units sold by region.
- To identify top selling items,revenue sources.
- To identify regions contributing the most to overall profit.
- To identify the most common order priorities and the most utilized sales channels.
- To understand revenue -generating regions.
- To identify regions with the highest profitability and cost efficiency.

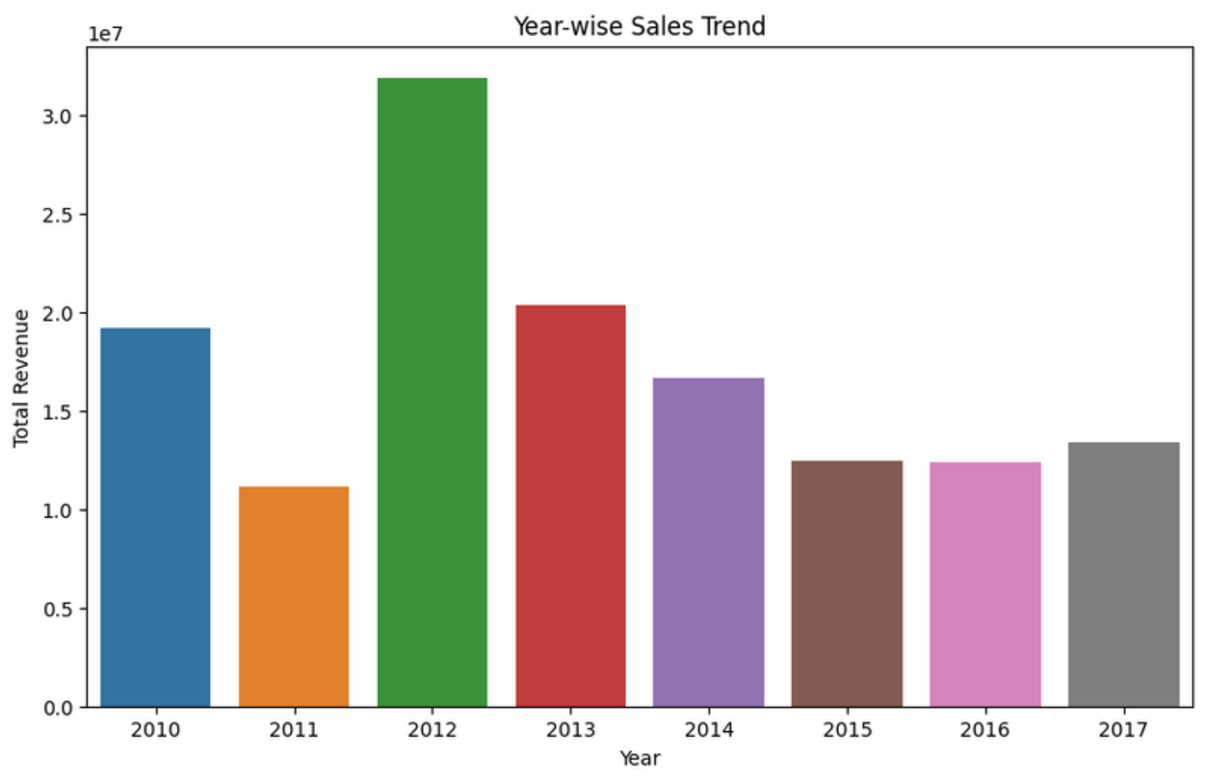
DETAILS OF DATA

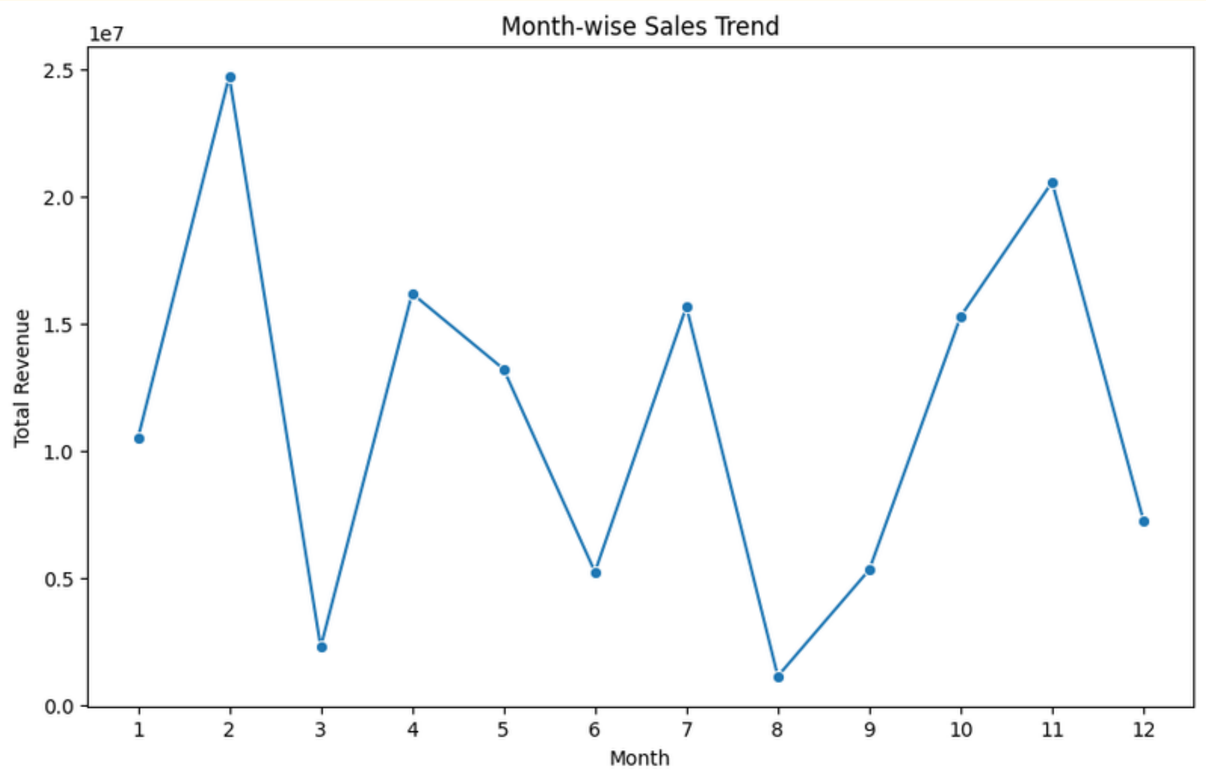
- The data is in the form of csv file and named ‘Amazon sales data.csv’
- The data contains 101 rows and 14 columns.

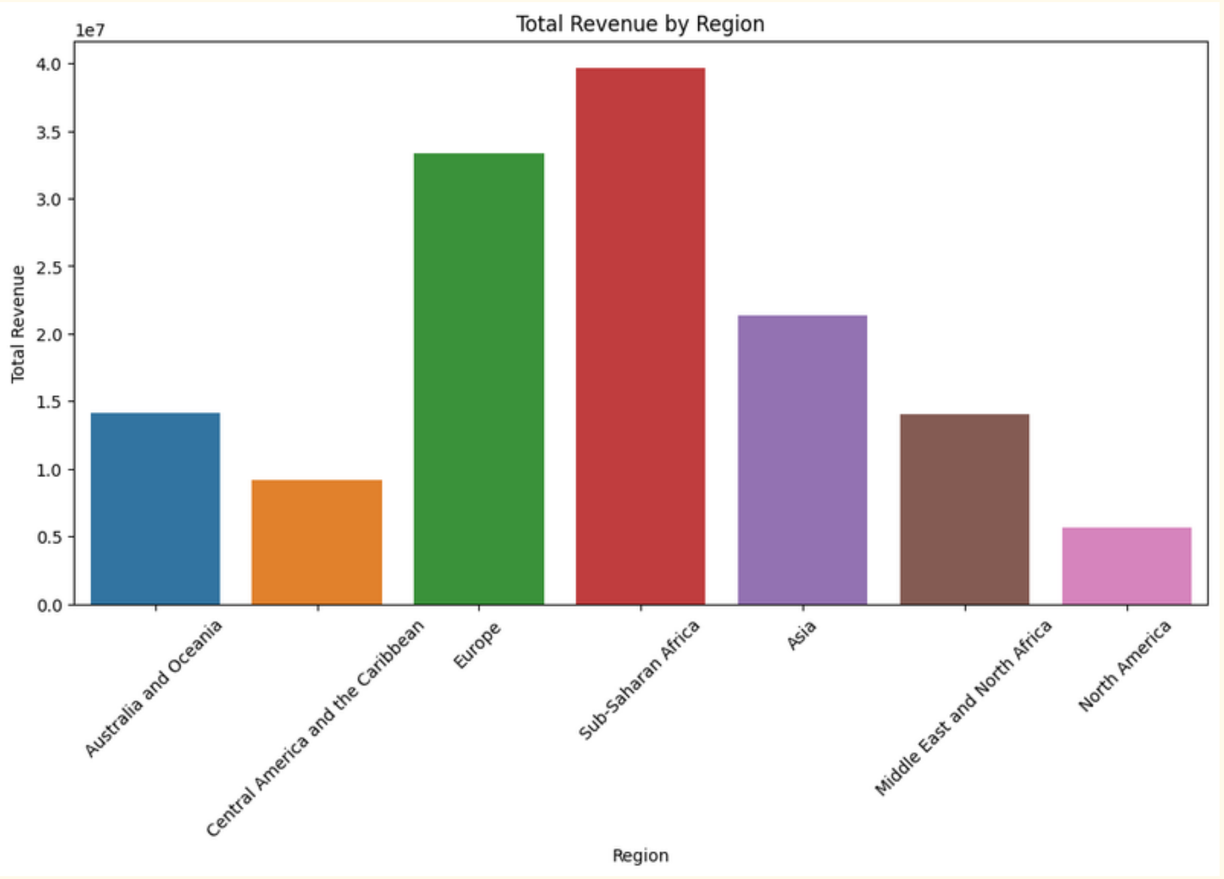
DATA CLEANING

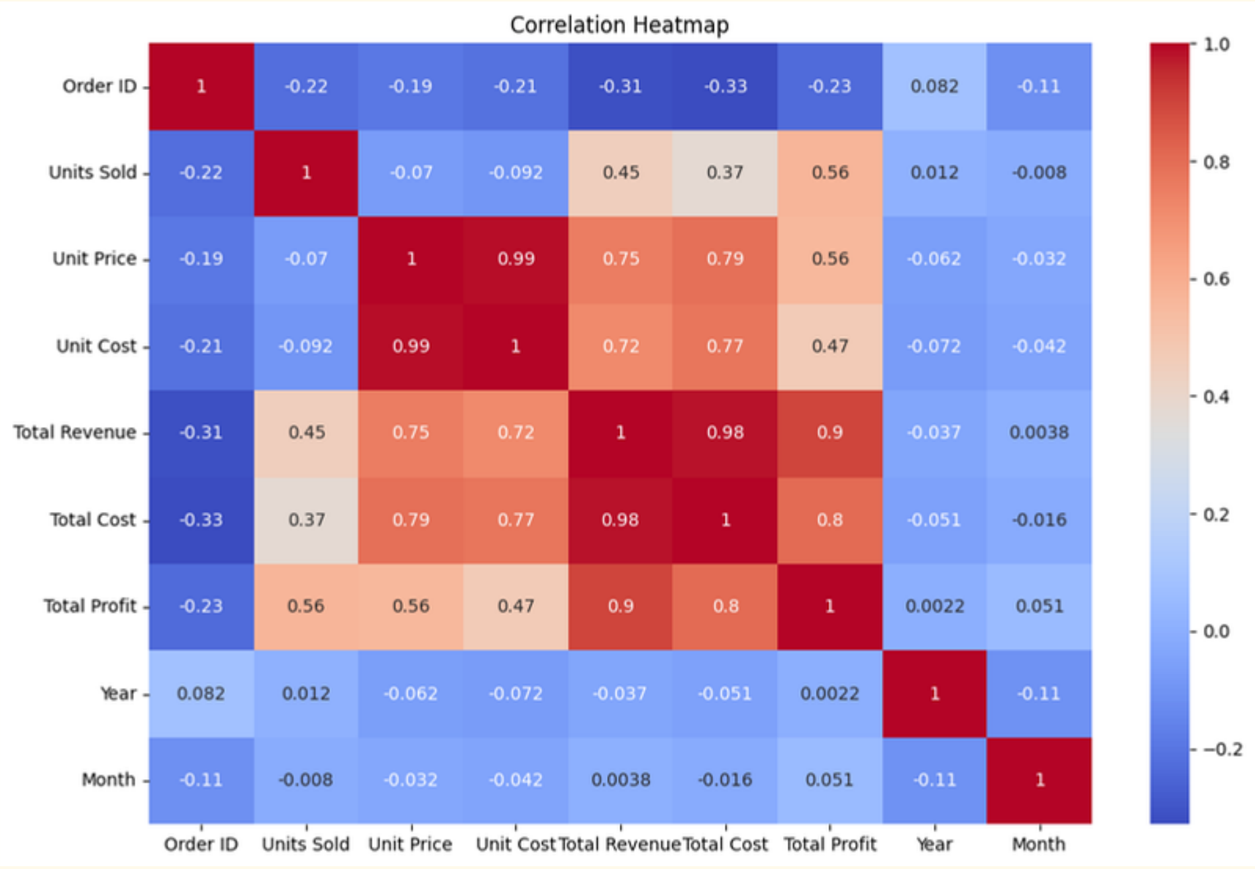
- The data is already cleaned,no any missing value present in the data.
- Some values in “Order Date” and “Ship Date” columns are in the string datatypes so we converted them into datetime datatype using python
- The data contains 101 rows and 14 columns.

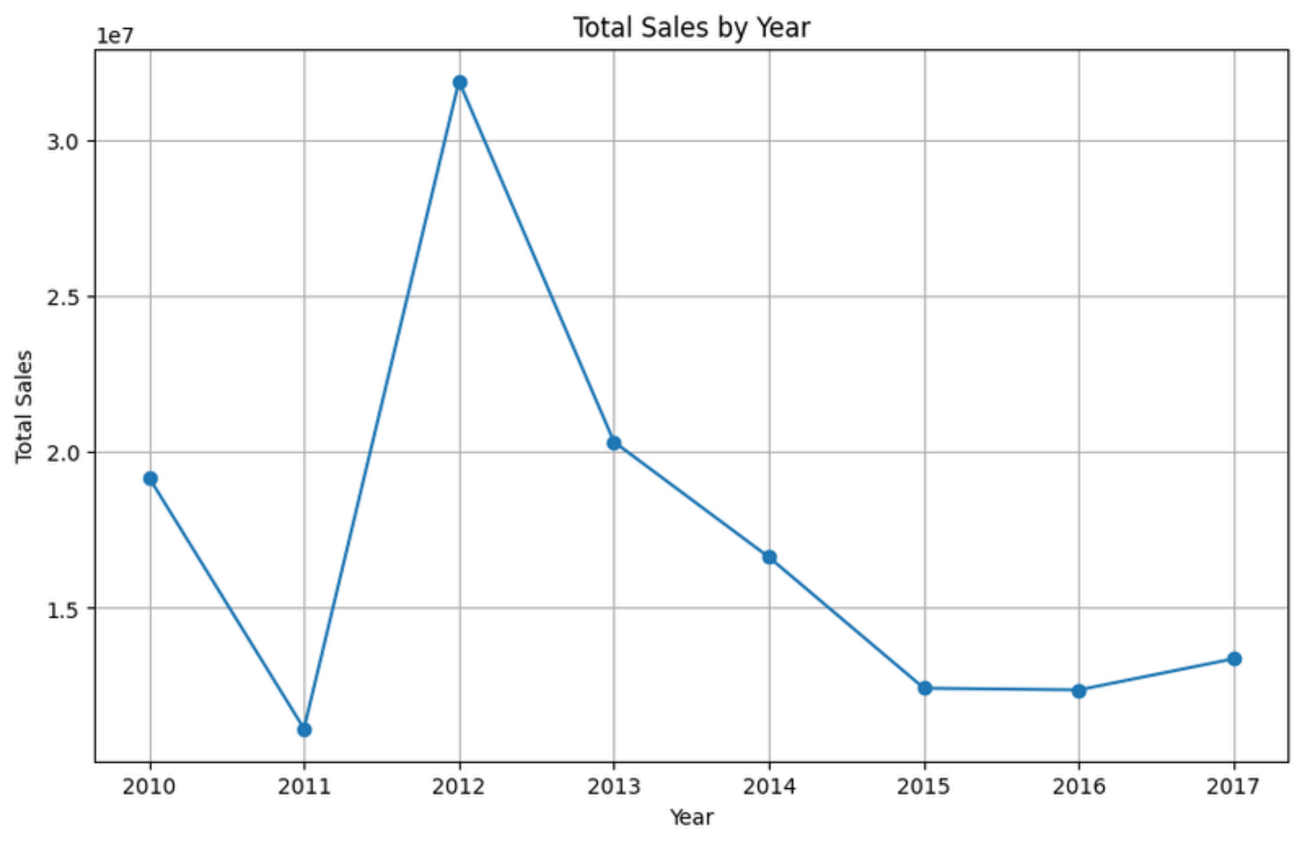
DATA ANALYSIS

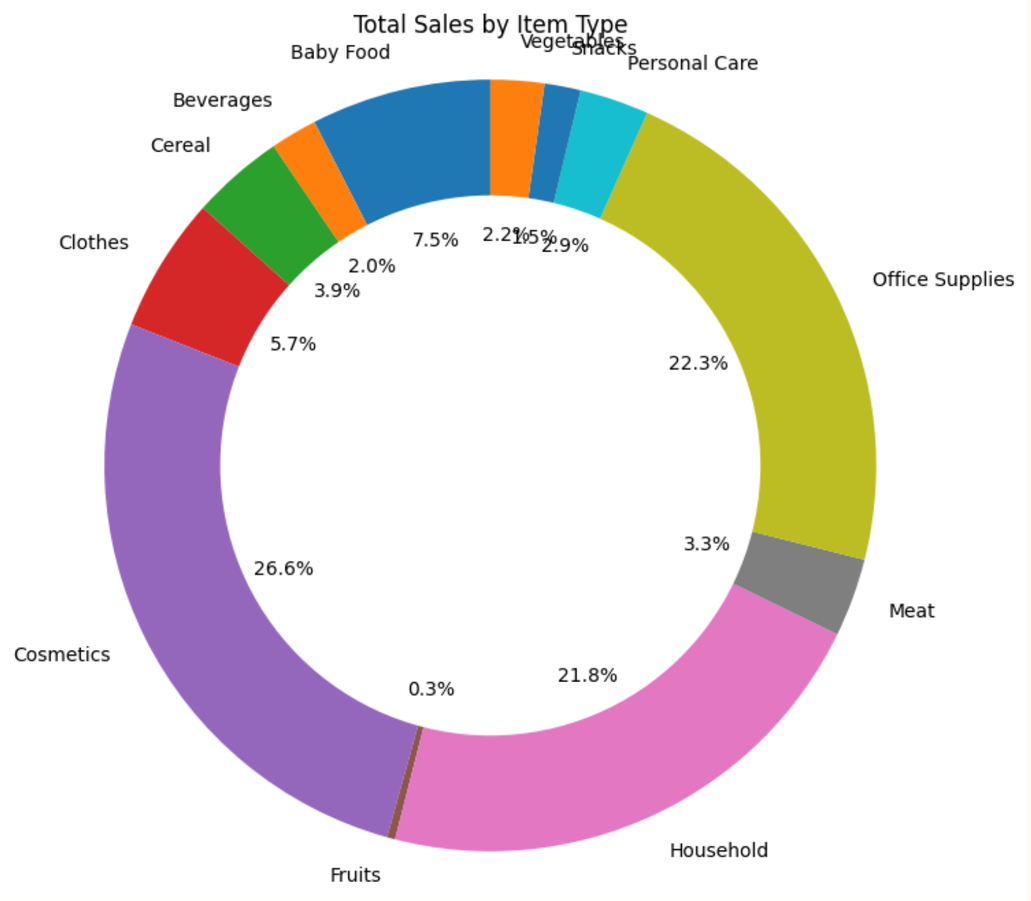


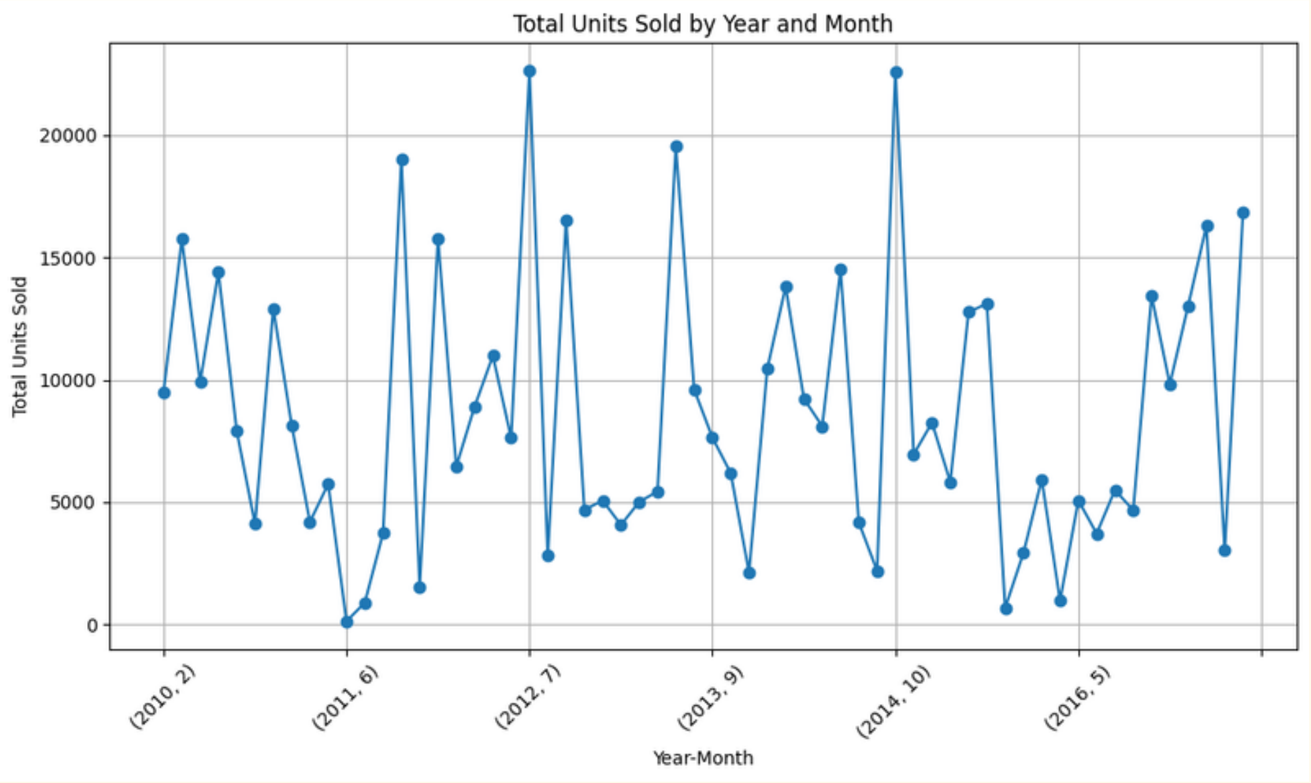


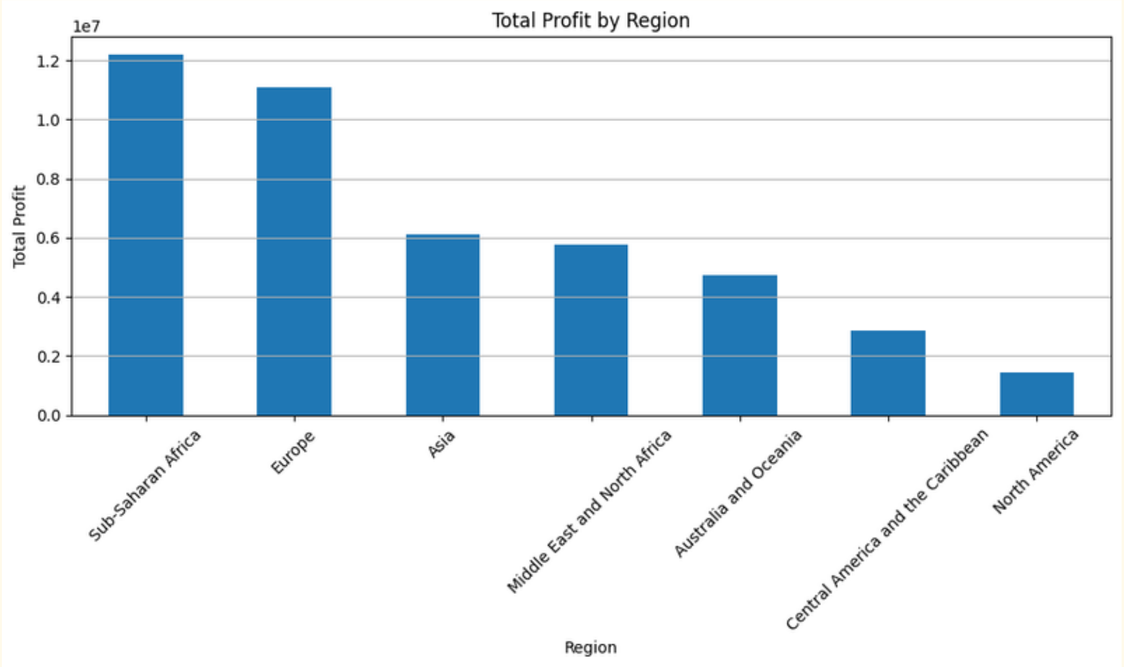

Total Revenue by Region
1e7
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Total Revenue
Australia and Oceania
Central America and the Caribbean
Europe
Sub-Saharan Africa
Asia
Middle East and North Africa
North America
Region

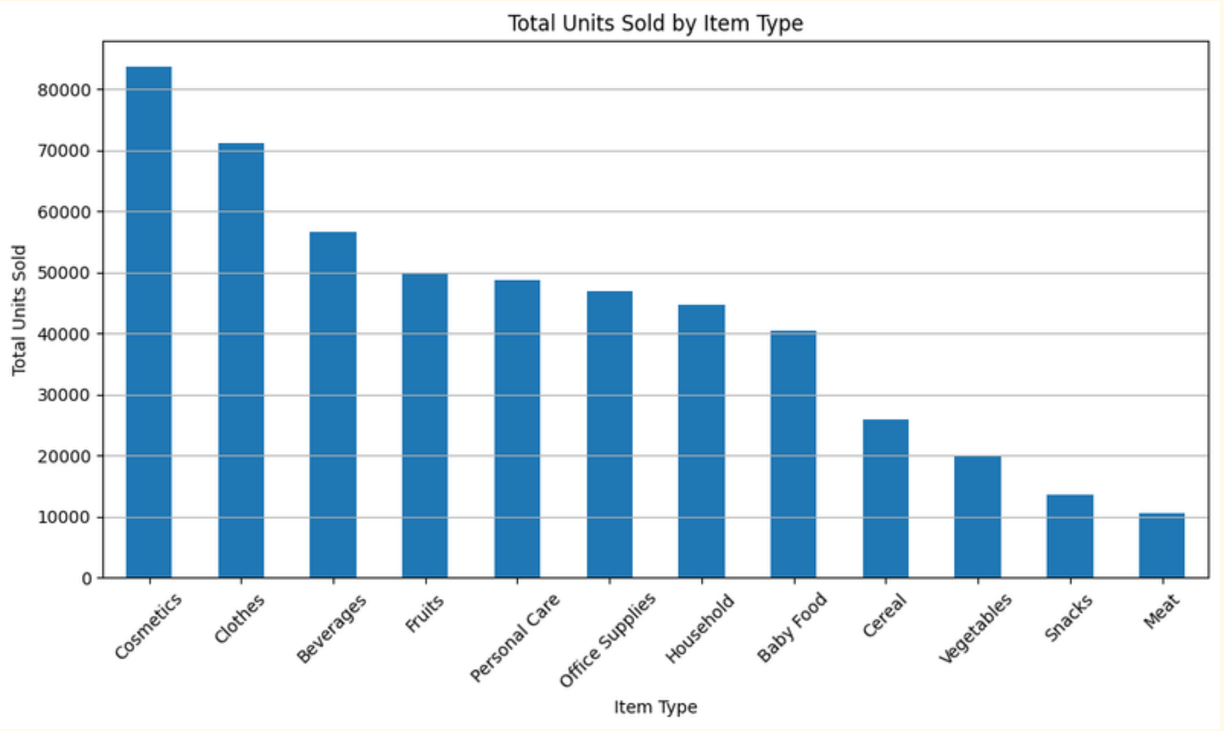

Correlation Heatmap
Order ID 1 -0.22 -0.19 -0.21 -0.31 -0.33 -0.23 0.082 -0.11
Units Sold -0.22 1 -0.07 -0.092 0.45 0.37 0.56 0.012 -0.008
Unit Price -0.19 -0.07 1 0.99 0.75 0.79 0.56 -0.062 -0.032
Unit Cost -0.21 -0.092 0.99 1 0.72 0.77 0.47 -0.072 -0.042
Total Revenue -0.31 0.45 0.75 0.72 1 0.98 0.9 -0.037 0.0038
Total Cost -0.33 0.37 0.79 0.77 0.98 1 0.8 -0.051 -0.016
Total Profit -0.23 0.56 0.56 0.47 0.9 0.8 1 0.0022 0.051
Year 0.082 0.012 -0.062 -0.072 -0.037 -0.051 0.0022 1 -0.11
Month -0.11 -0.008 -0.032 -0.042 0.0038 -0.016 0.051 -0.11 1
Order ID
Units Sold
Unit Price
Unit Cost
Total Revenue
Total Cost
Total Profit
Year
Month
1.0
0.8
0.6
0.4
0.2
0.0
−0.2

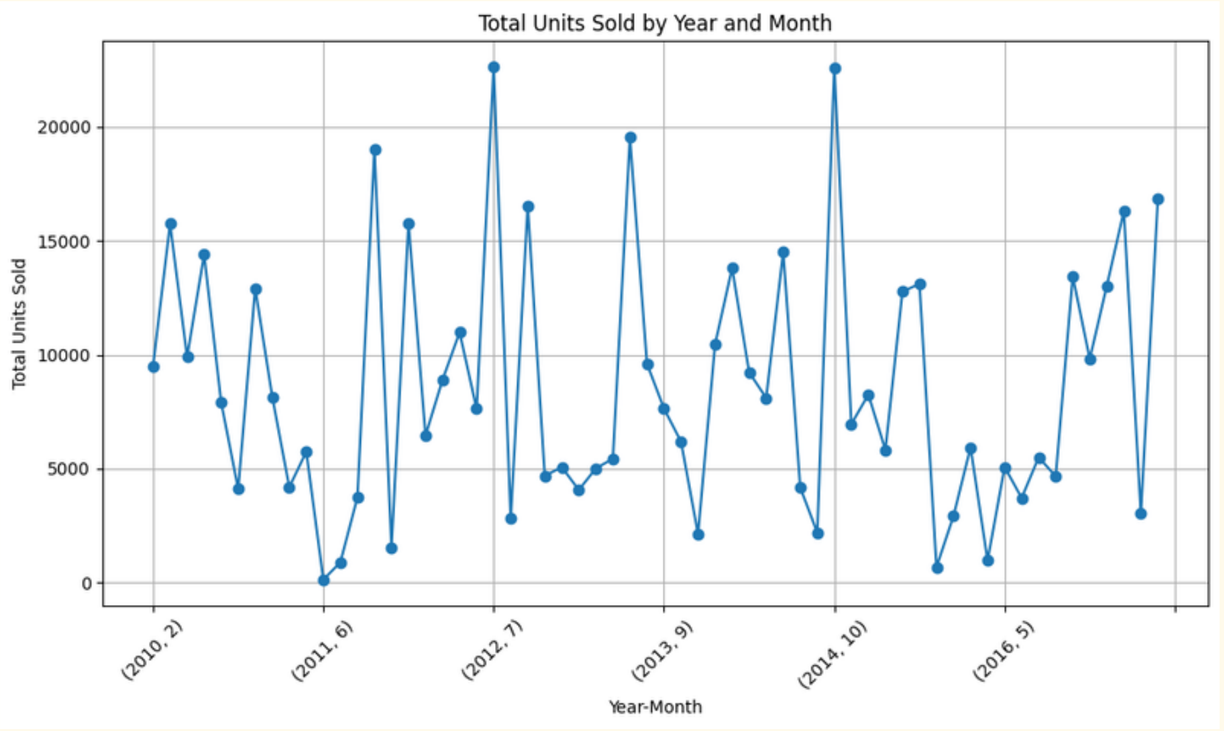

Total Sales by Year
1e7
3.0
2.5
2.0
1.5
Total Sales
2010
2011
2012
2013
2014
2015
2016
2017
Year

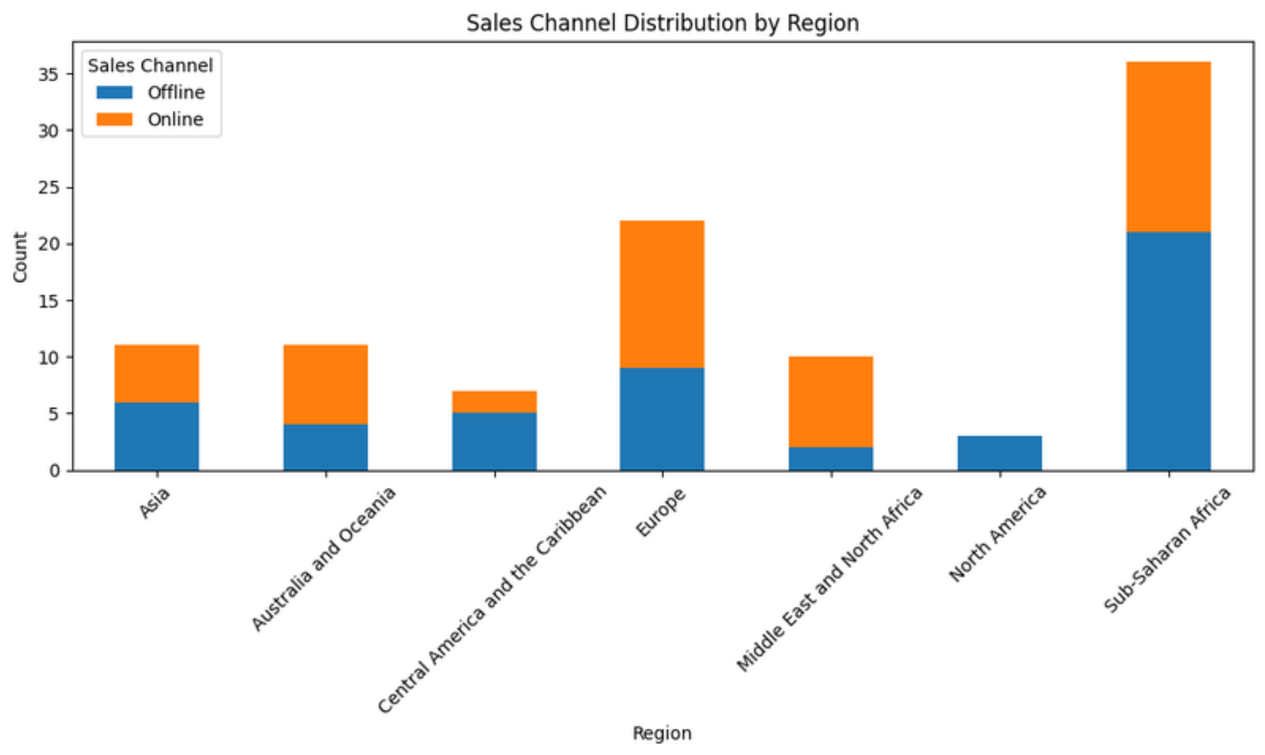

Total Sales by Item Type
Baby Food
Vegetables
Snacks
Personal Care
Beverages
Cereal
Clothes
Office Supplies
Meat
Cosmetics
Fruits
Household
7.5%
2.2%
1.5%
2.9%
2.0%
3.9%
5.7%
22.3%
3.3%
26.6%
0.3%
21.8%

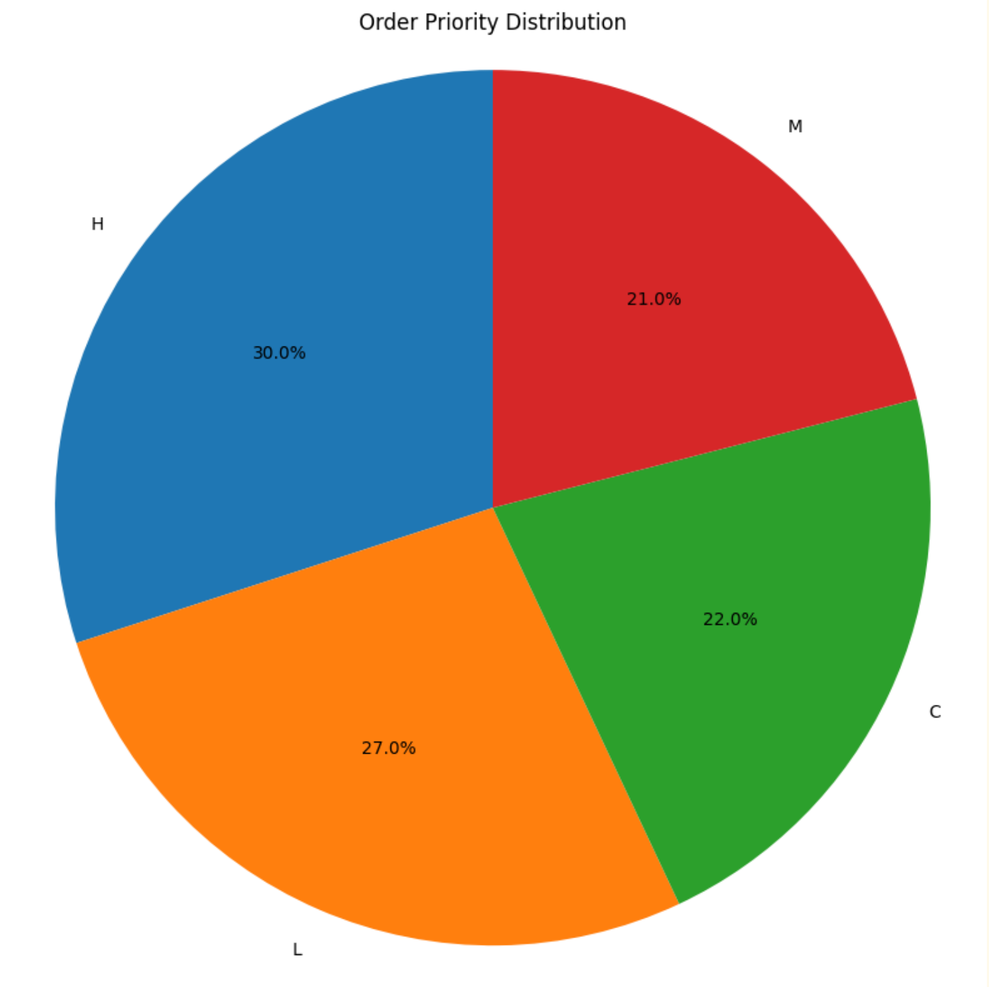

Total Units Sold by Year and Month
Total Units Sold
20000
15000
10000
5000
0
(2010, 2)
(2011, 6)
(2012, 7)
(2013, 9)
(2014, 10)
(2016, 5)
Year-Month

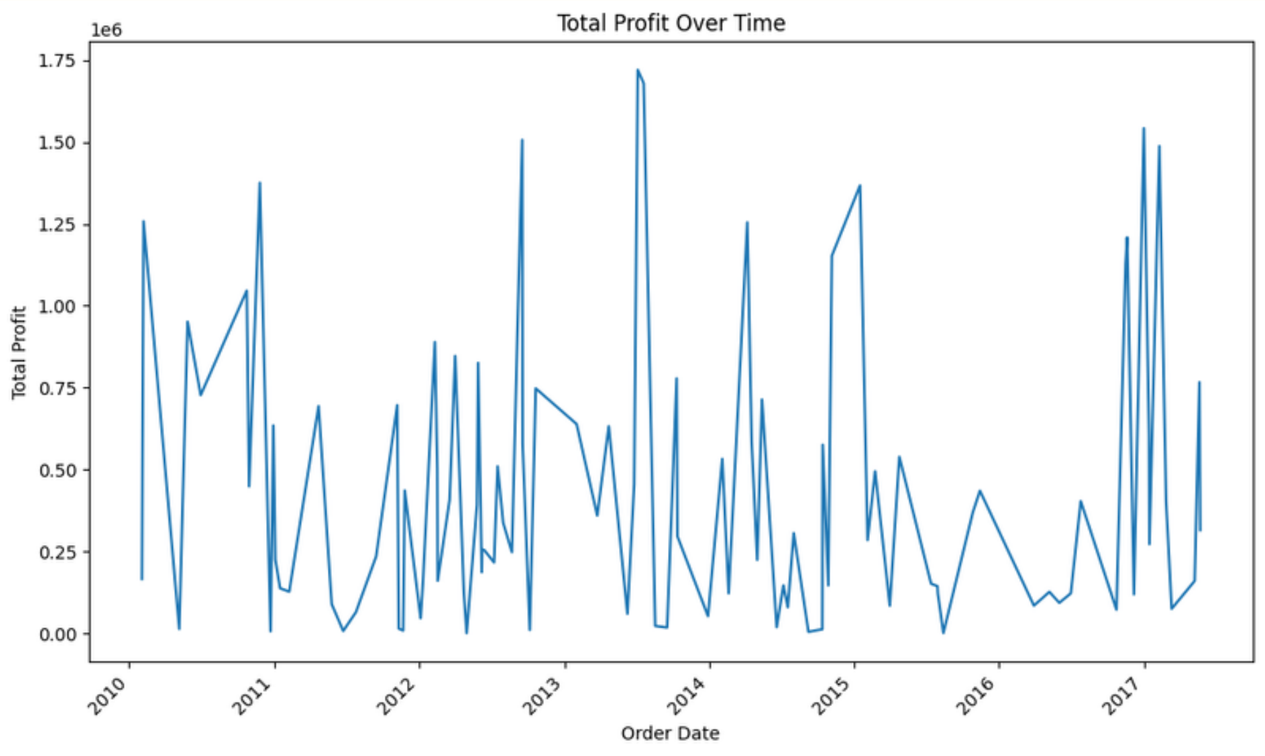

Total Profit by Region
1e7
Total Profit
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Sub-Saharan Africa
Europe
Asia
Middle East and North Africa
Australia and Oceania
Central America and the Caribbean
North America
Region

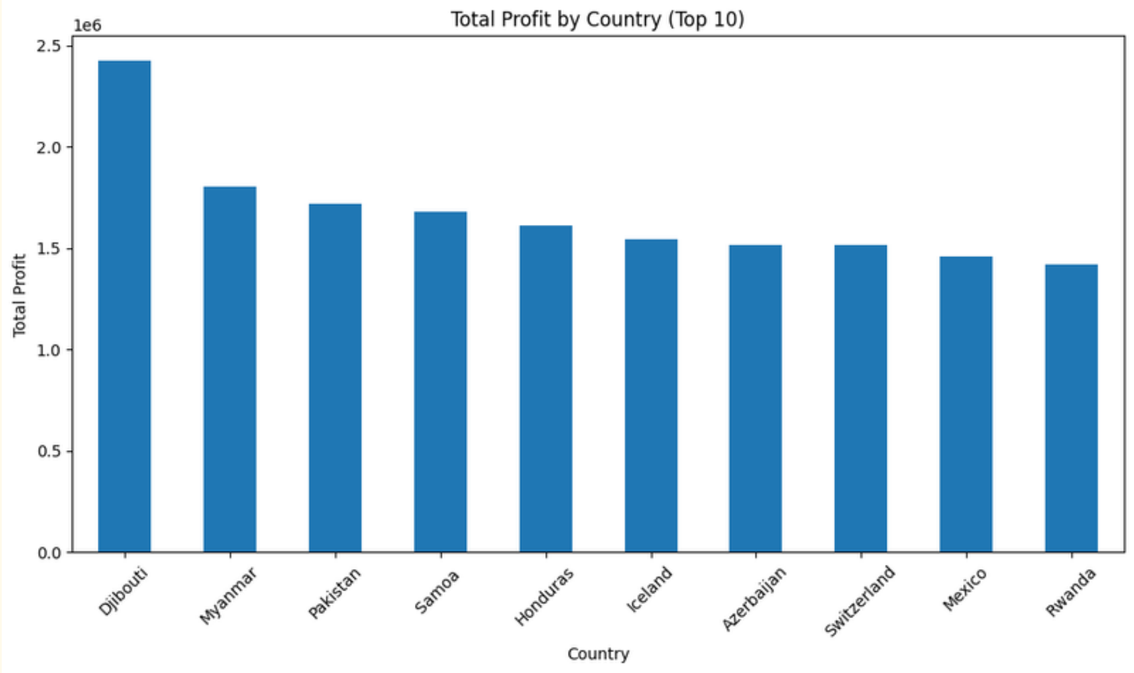

Total Units Sold by Item Type
Total Units Sold
0
10000
20000
30000
40000
50000
60000
70000
80000
Cosmetics
Clothes
Beverages
Fruits
Personal Care
Office Supplies
Household
Baby Food
Cereal
Vegetables
Snacks
Meat
Item Type

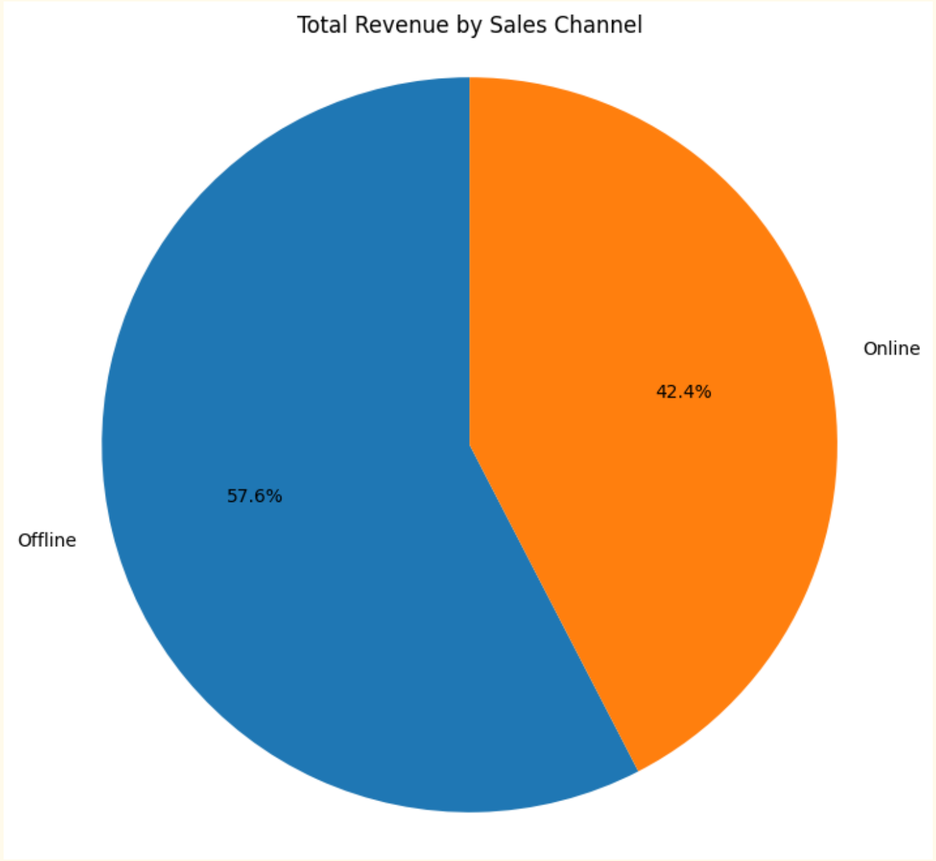

Total Units Sold by Year and Month
Total Units Sold
0
5000
10000
15000
20000
(2010, 2)
(2011, 6)
(2012, 7)
(2013, 9)
(2014, 10)
(2016, 5)
Year-Month

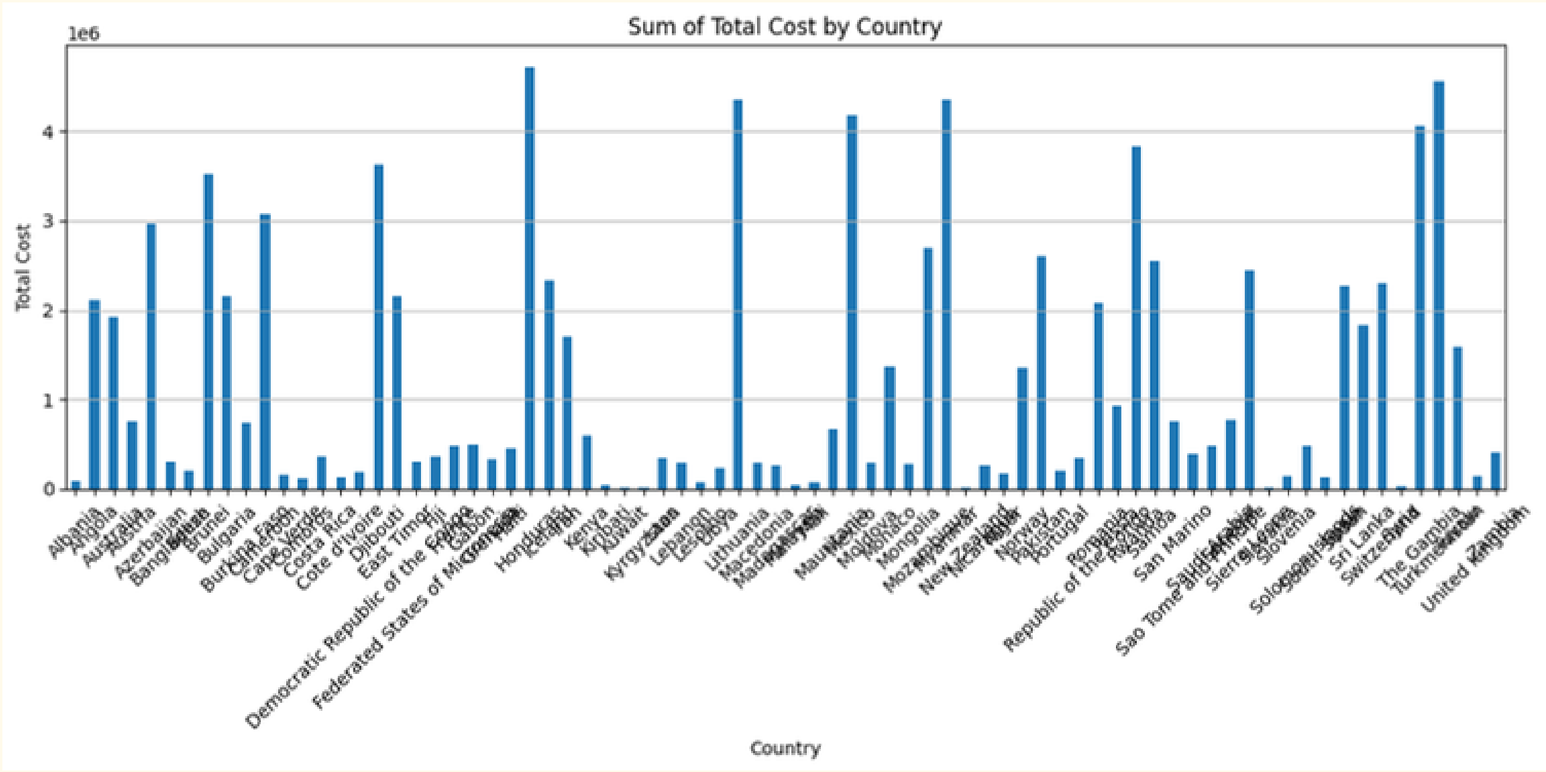

Sales Channel Distribution by Region
Sales Channel
Offline
Online
Count
0
5
10
15
20
25
30
35
Asia
Australia and Oceania
Central America and the Caribbean
Europe
Middle East and North Africa
North America
Sub-Saharan Africa
Region

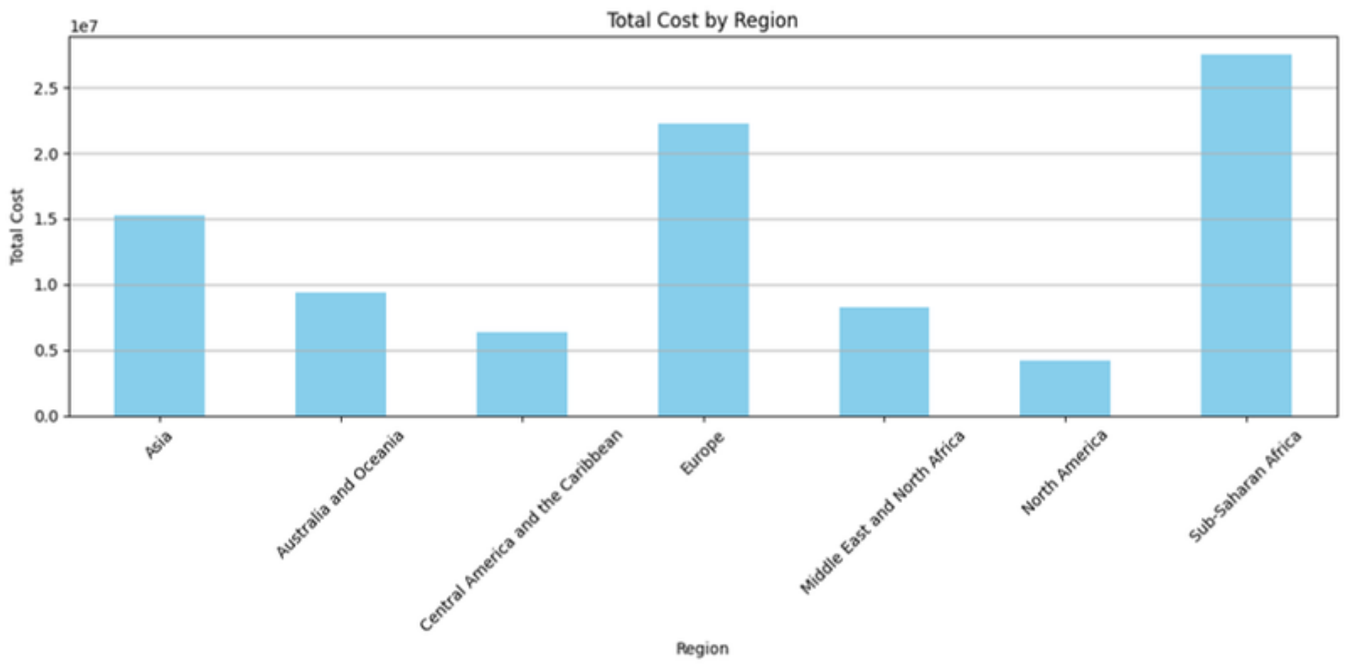

Order Priority Distribution
M
H
21.0%
30.0%
22.0%
C
27.0%
L

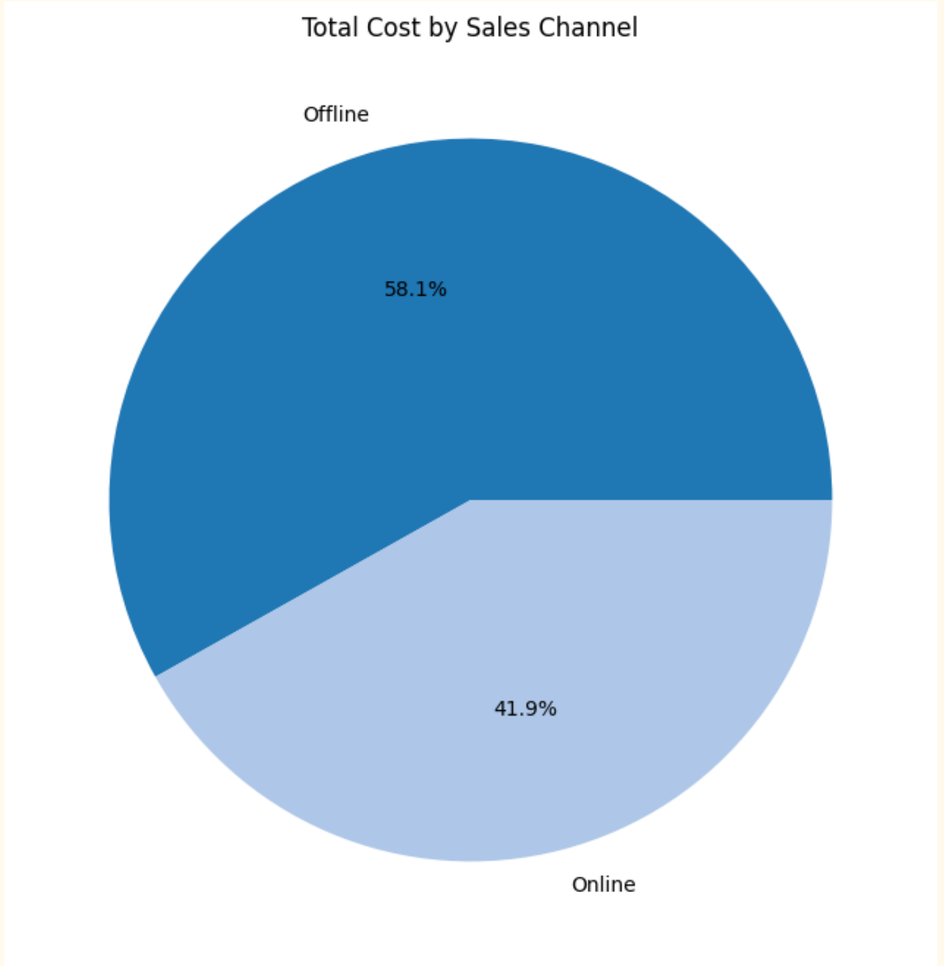

Total Profit Over Time
1e6
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Total Profit
2010
2011
2012
2013
2014
2015
2016
2017
Order Date

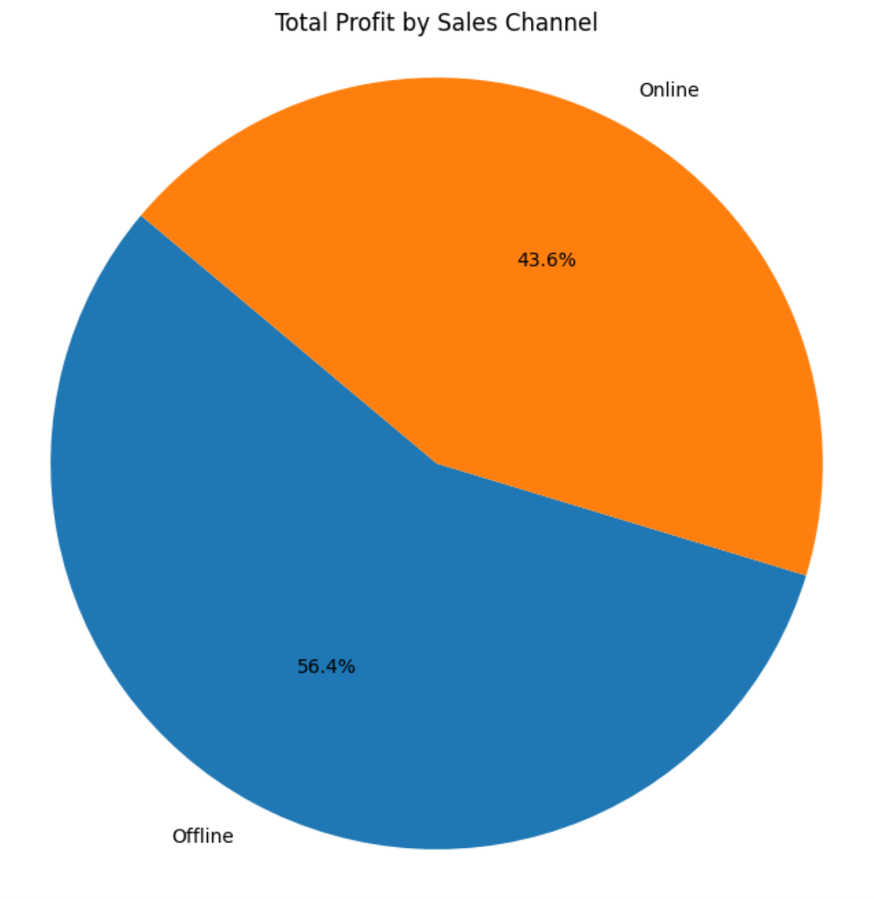

Total Profit by Country (Top 10)
1e6
2.5
2.0
1.5
1.0
0.5
0.0
Total Profit
Djibouti
Myanmar
Pakistan
Samoa
Honduras
Iceland
Azerbaijan
Switzerland
Mexico
Rwanda
Country

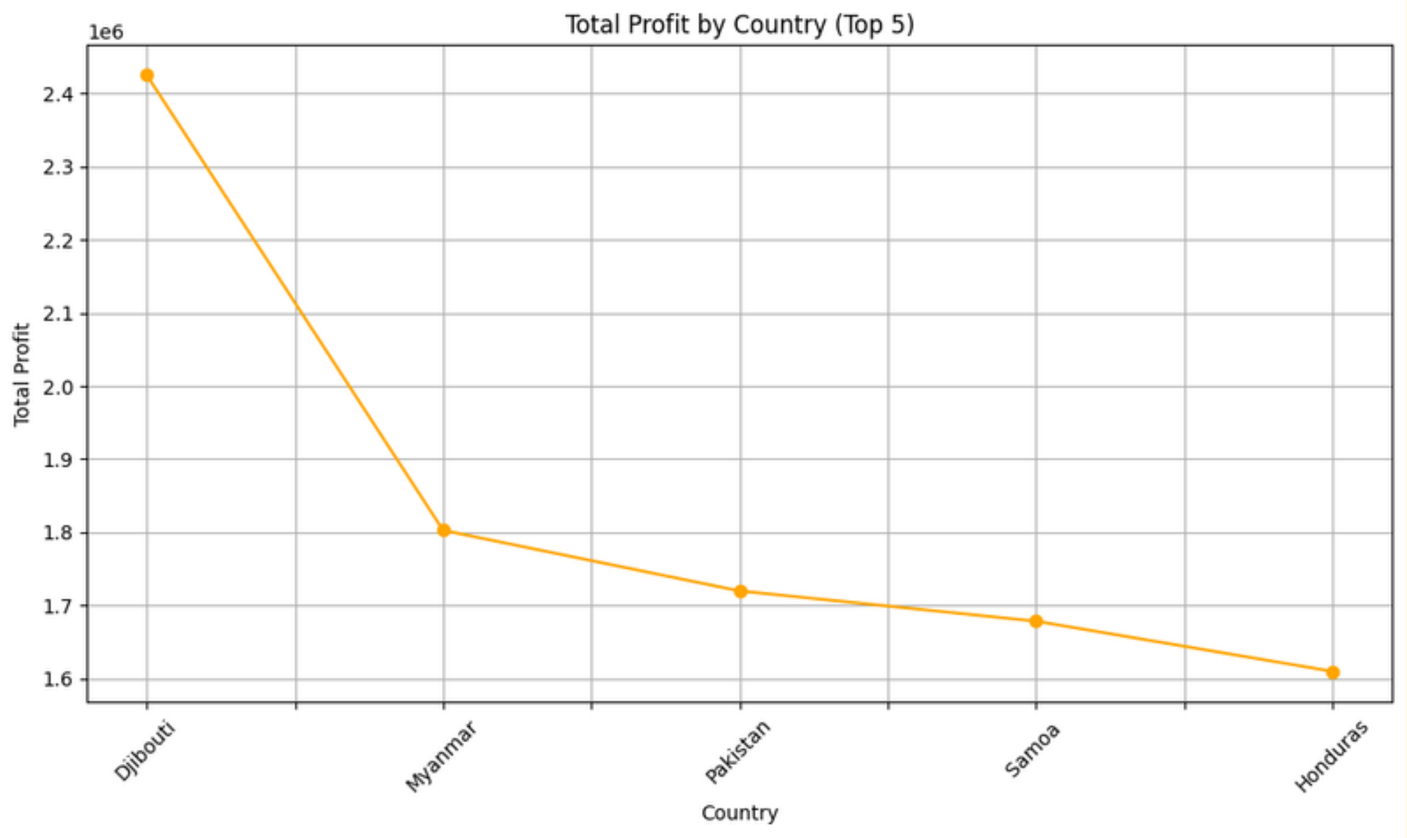

Total Revenue by Sales Channel
Online
Offline
42.4%
57.6%


Sum of Total Cost by Country
1e6
Total Cost
0
1
2
3
4
Country


Total Cost by Region
1e7
2.5
2.0
1.5
1.0
0.5
0.0
Total Cost
Asia
Australia and Oceania
Central America and the Caribbean
Europe
Middle East and North Africa
North America
Sub-Saharan Africa
Region


Total Cost by Sales Channel
Offline
58.1%
41.9%
Online


Total Profit by Sales Channel
Online
43.6%
56.4%
Offline

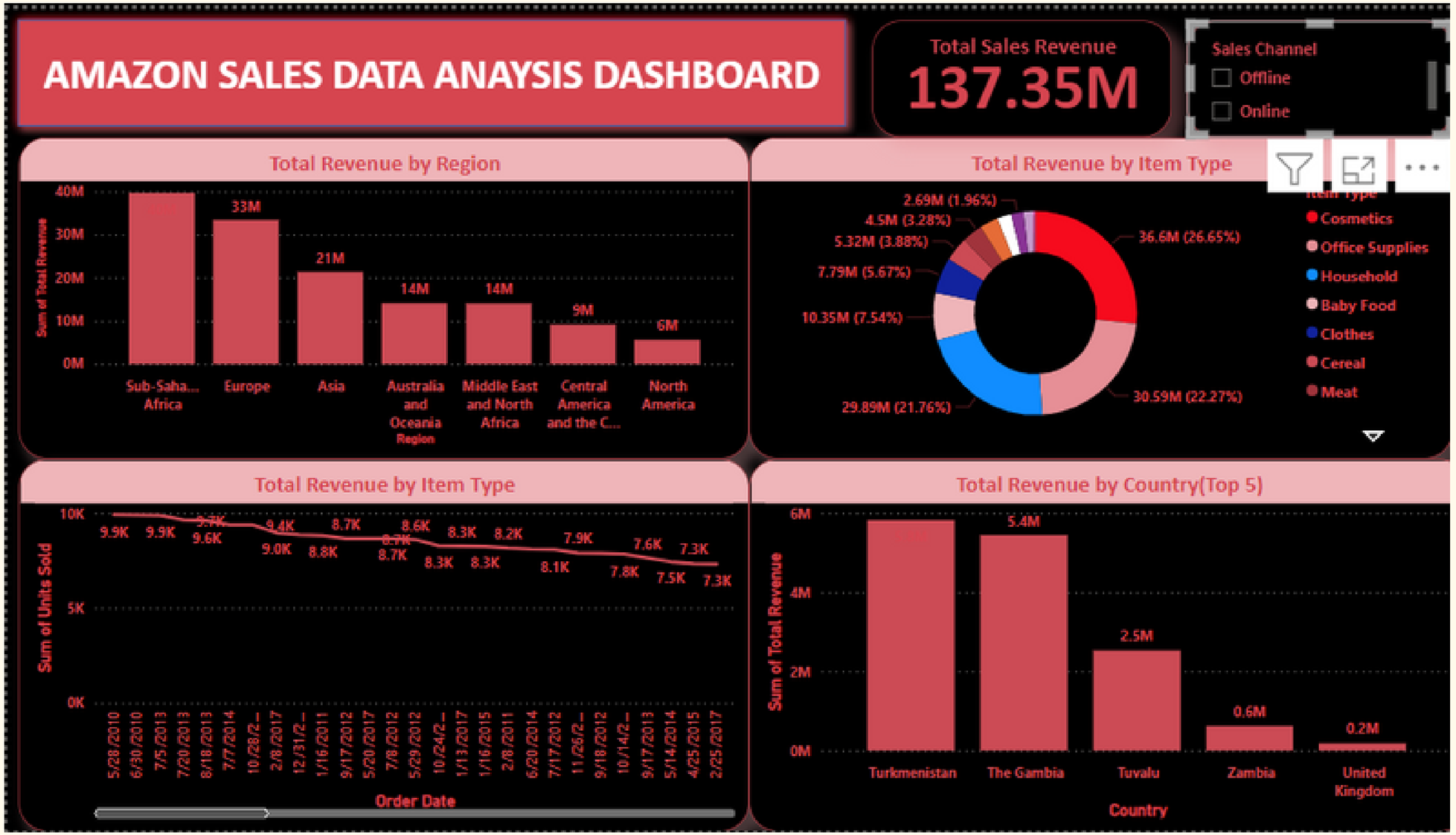

Total Profit by Country (Top 5)
1e6
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
Total Profit
Djibouti
Myanmar
Pakistan
Samoa
Honduras
Country

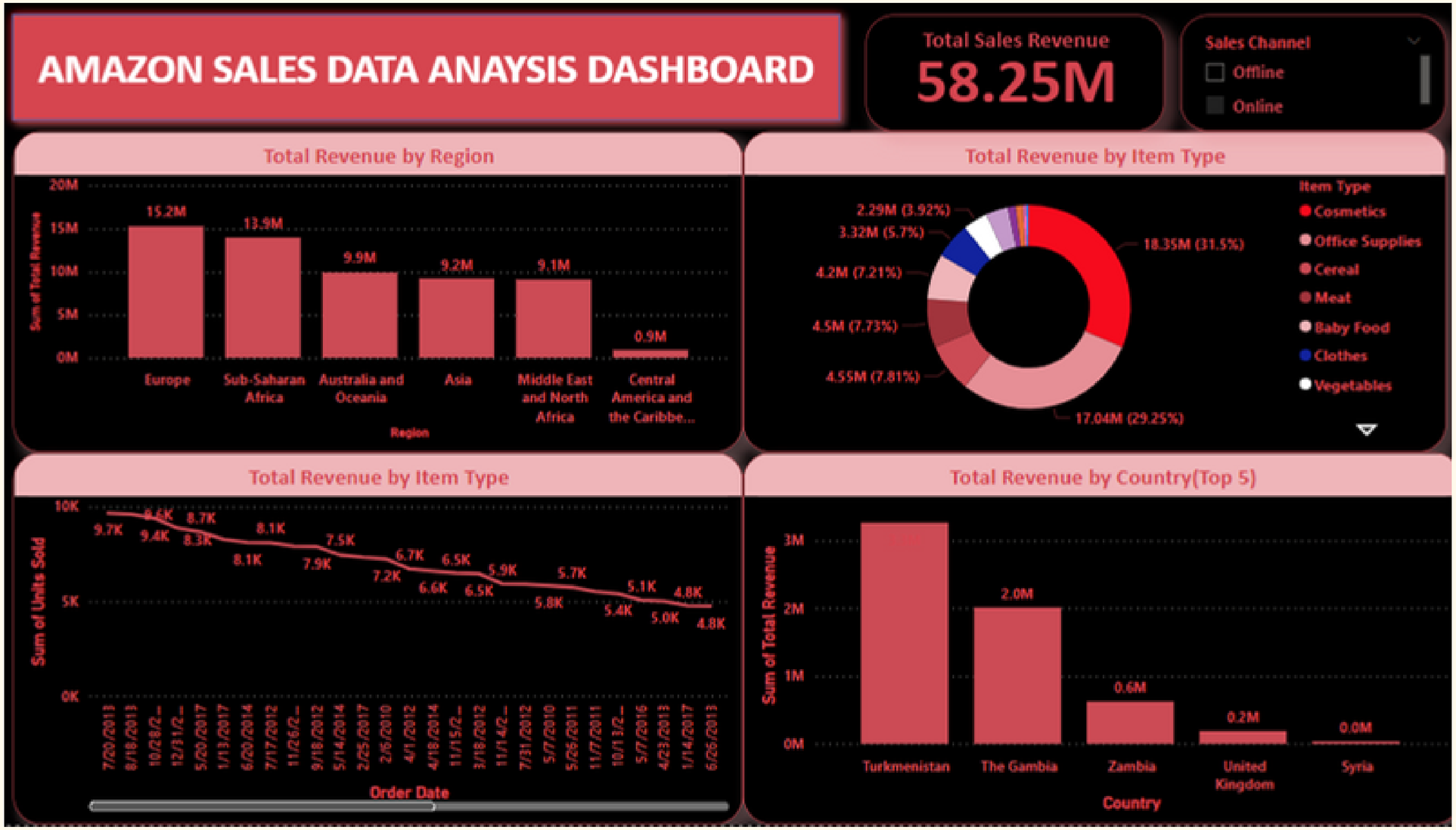
KEY METRICES

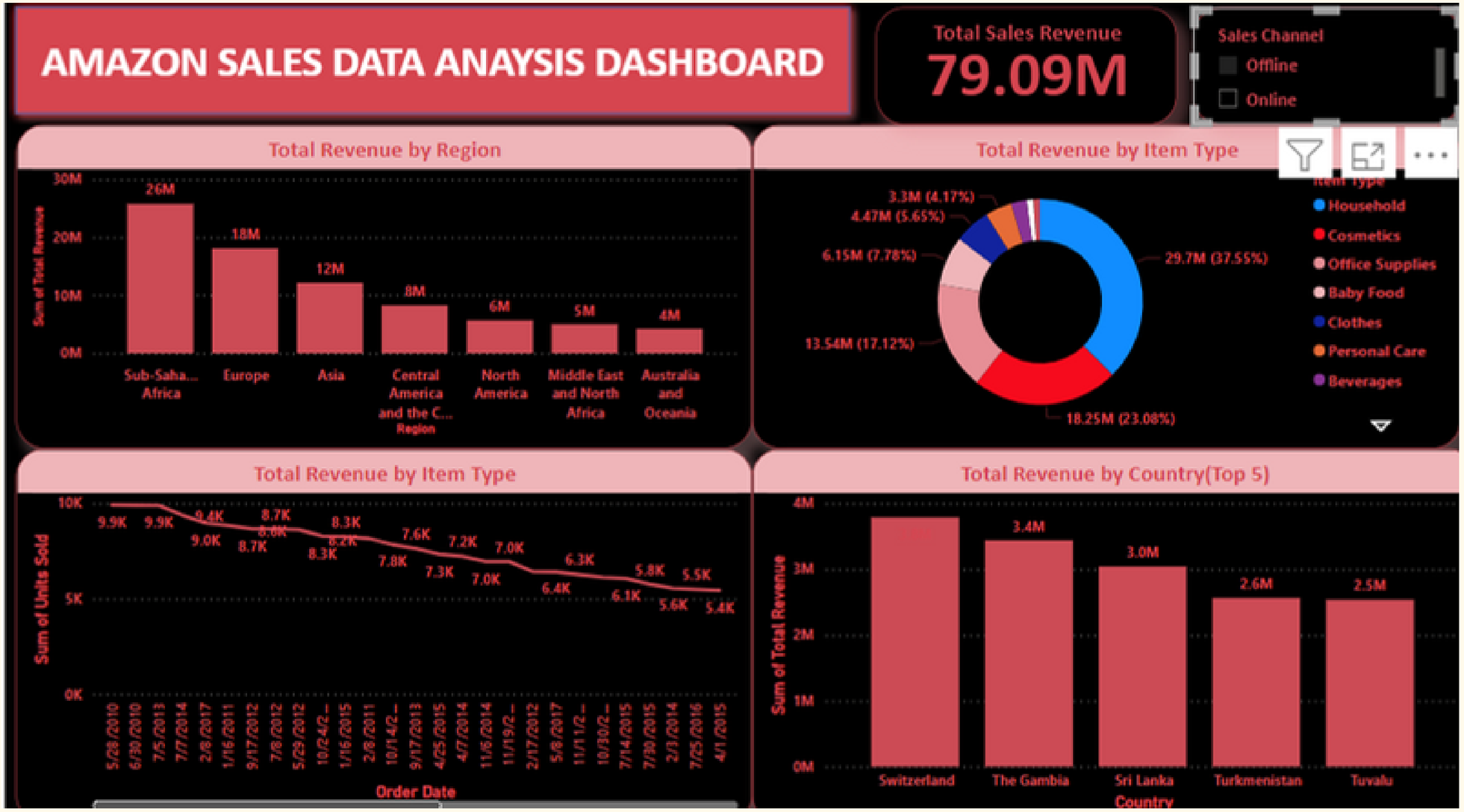
- Total profit is $44.17 million,total cost is $93.18 million,total sales revenue is $137.35 million,average unit price is $276.76 million ,average unit cost is $191.048,total units sold are 512871.
- Total sales revenue is maximum in year 2012 and month february and minimum in year 2011,month august.
- Total sales revenue ,total cost and total profit are maximum in Sub-saharan africa region.
- Cosmetics had the highest total sales revenue and fruits had the lowest total sales revenue.
- Maximum total units sold in year Jly 2012 and minimum in June 2011.
- The ‘H’ order priority gave highest sales.

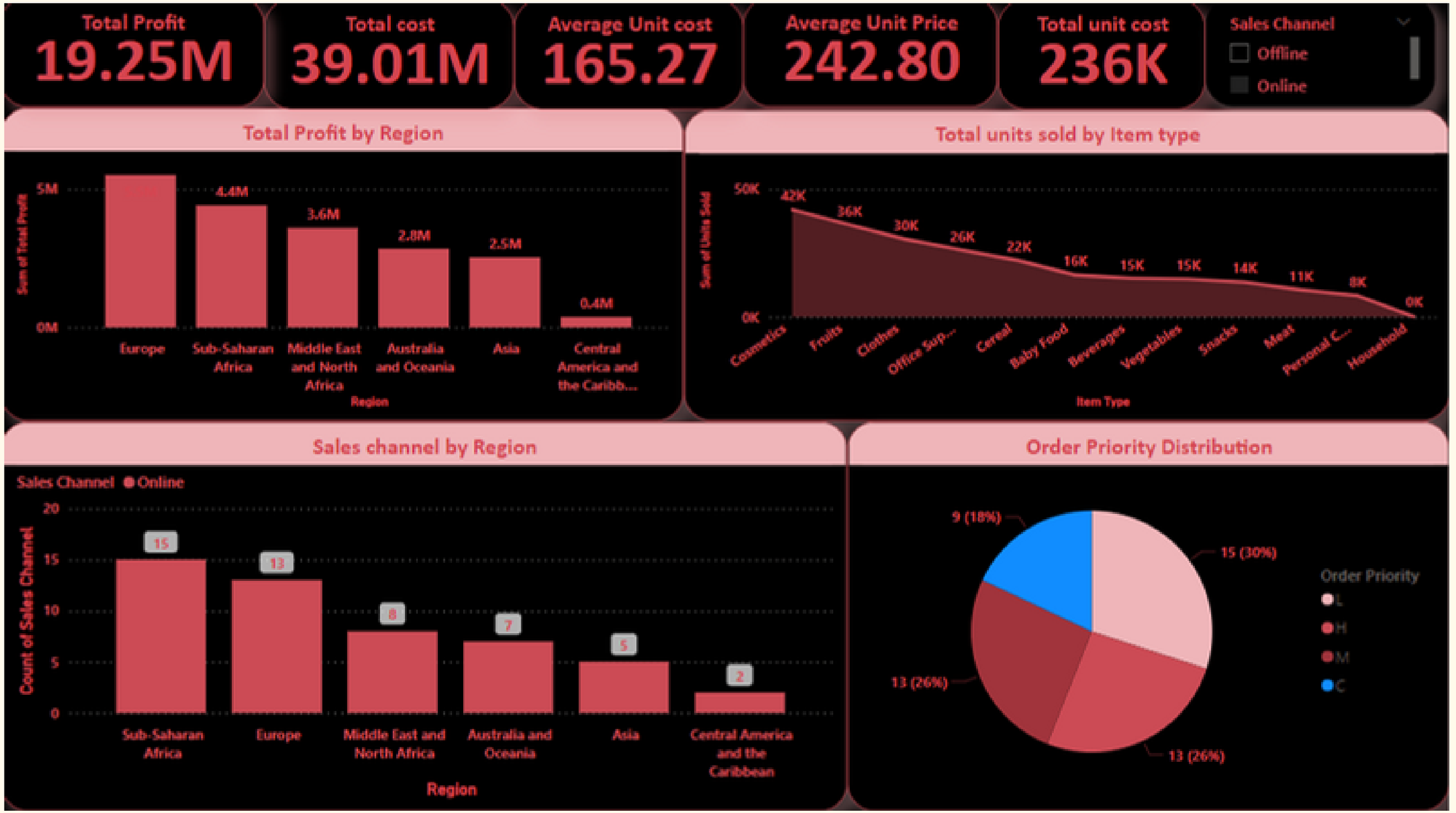
- **Highest profit is in Djibouti country.**
- **Majority of people prefer “offline channel” for buying products.**

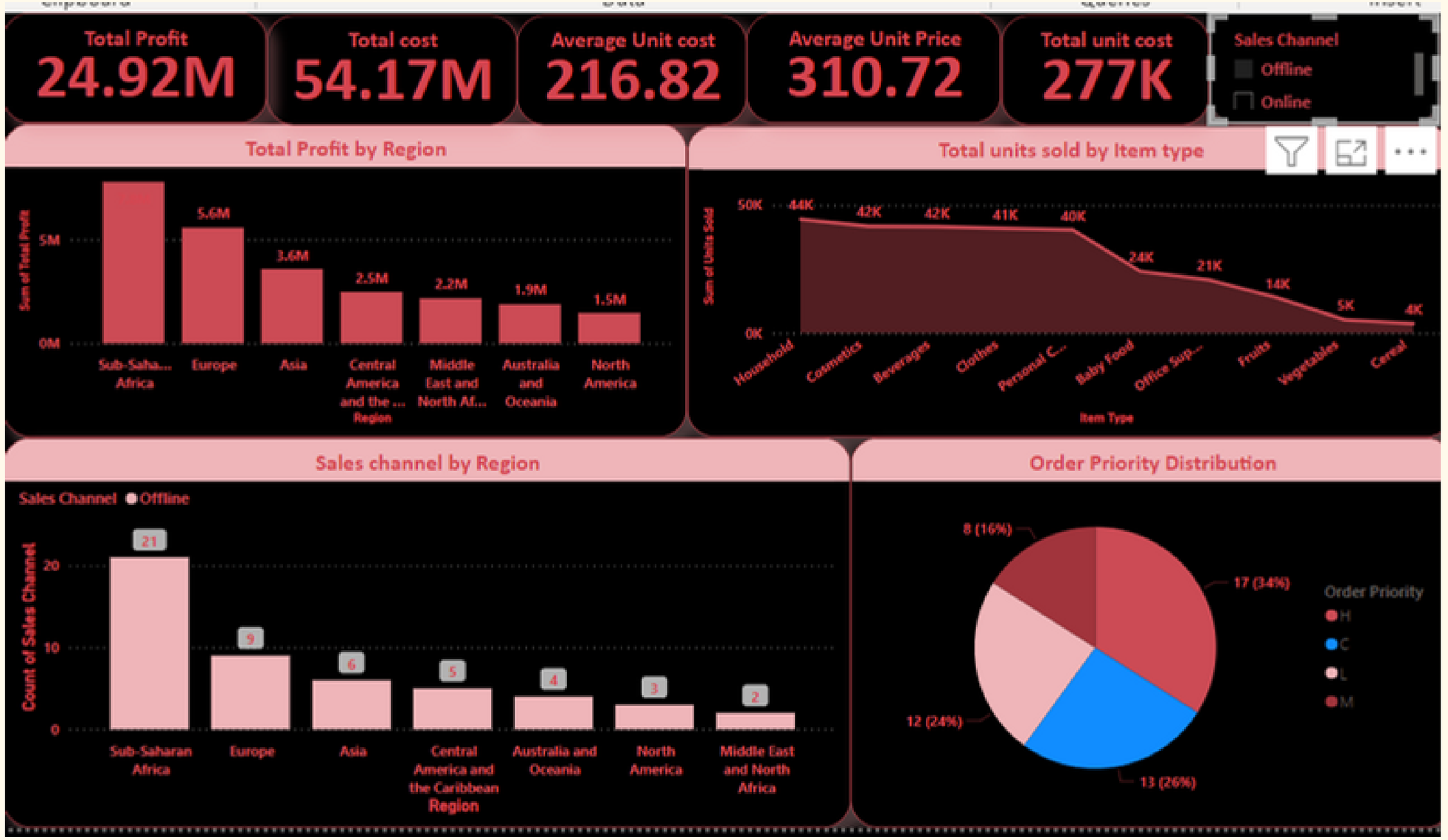
DASHBOARDS

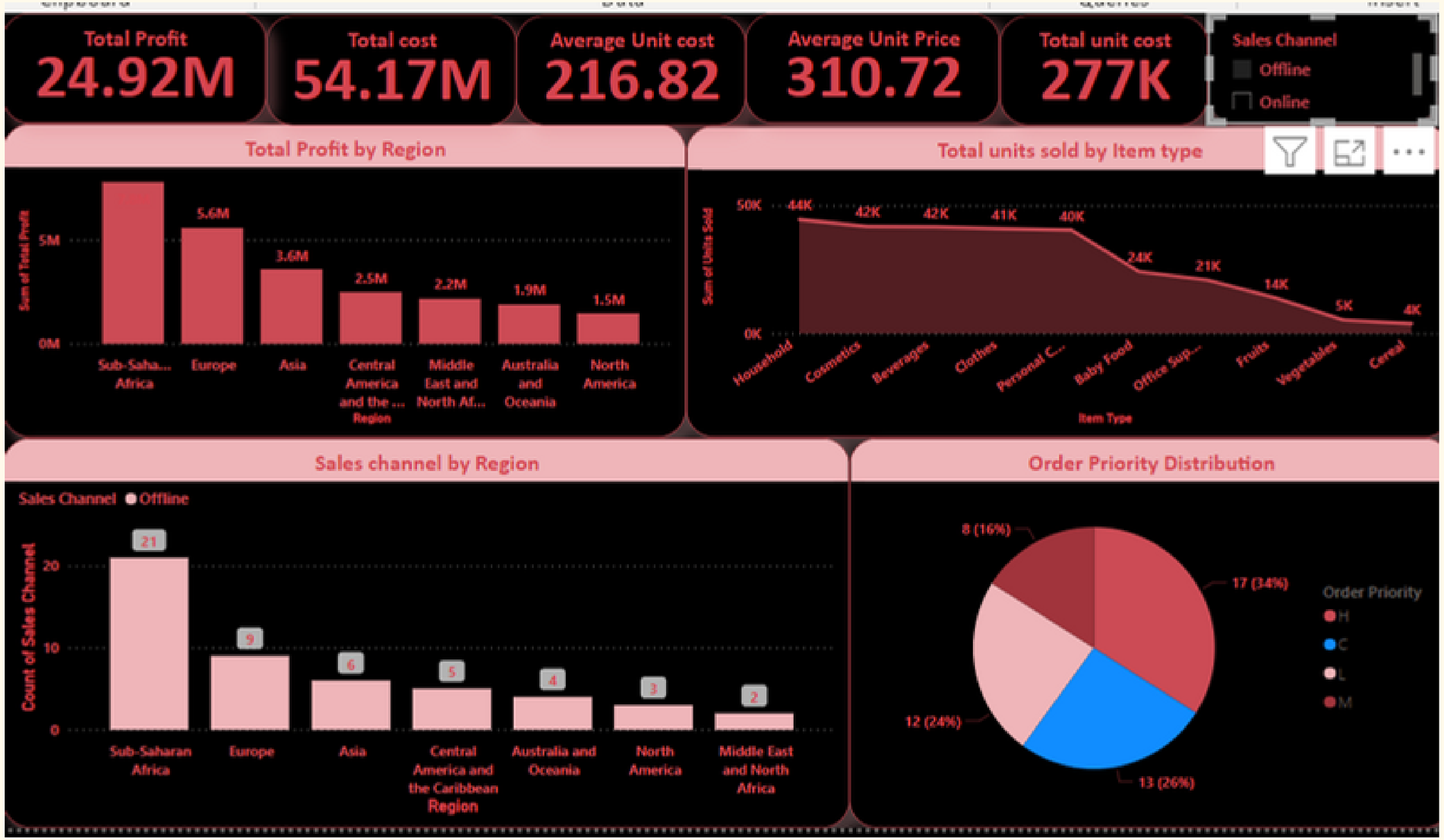

AMAZON SALES DATA ANAYSIS DASHBOARD
Total Sales Revenue
137.35M
Sales Channel
Offline
Online
Total Revenue by Region
Sum of Total Revenue
40M
30M
20M
10M
0M
33M
21M
14M
14M
9M
6M
Sub-Saha... Africa
Europe
Asia
Australia and Oceania Region
Middle East and North Africa
Central America and the C...
North America
Total Revenue by Item Type
2.69M (1.96%)
4.5M (3.28%)
5.32M (3.88%)
7.79M (5.67%)
10.35M (7.54%)
29.89M (21.76%)
30.59M (22.27%)
36.6M (26.65%)
Item Type
Cosmetics
Office Supplies
Household
Baby Food
Clothes
Cereal
Meat
Total Revenue by Item Type
Sum of Units Sold
10K
5K
0K
9.9K
9.9K
9.6K
9.4K
9.0K
8.8K
8.7K
8.7K
8.6K
8.7K
8.3K
8.3K
8.3K
8.2K
8.1K
7.9K
7.8K
7.6K
7.5K
7.3K
7.3K
5/28/2010
6/30/2010
7/5/2013
7/20/2013
8/18/2013
7/7/2014
10/28/2...
2/8/2017
12/31/2...
1/16/2011
9/17/2012
5/20/2017
7/8/2012
5/29/2012
10/24/2...
1/13/2017
1/16/2015
2/8/2011
6/20/2014
7/17/2012
11/26/2...
9/18/2012
10/14/2...
9/17/2013
5/14/2014
4/25/2015
2/25/2017
Order Date
Total Revenue by Country(Top 5)
Sum of Total Revenue
6M
4M
2M
0M
5.4M
2.5M
0.6M
0.2M
Turkmenistan
The Gambia
Tuvalu
Zambia
United Kingdom
Country


AMAZON SALES DATA ANAYSIS DASHBOARD
Total Sales Revenue
58.25M
Sales Channel
Offline
Online
Total Revenue by Region
Sum of Total Revenue
20M
15M
10M
5M
0M
15.2M
13.9M
9.9M
9.2M
9.1M
0.9M
Europe
Sub-Saharan Africa
Australia and Oceania
Asia
Middle East and North Africa
Central America and the Caribbe...
Region
Total Revenue by Item Type
2.29M (3.92%)
3.32M (5.7%)
4.2M (7.21%)
4.5M (7.73%)
4.55M (7.81%)
18.35M (31.5%)
17.04M (29.25%)
Item Type
Cosmetics
Office Supplies
Cereal
Meat
Baby Food
Clothes
Vegetables
Total Revenue by Item Type
Sum of Units Sold
10K
5K
0K
9.7K
9.4K
8.7K
8.3K
8.1K
8.1K
7.5K
7.9K
6.7K
7.2K
6.5K
6.6K
5.9K
6.5K
5.7K
5.8K
5.1K
5.4K
4.8K
5.0K
4.8K
7/20/2013
8/18/2013
10/28/2...
12/31/2...
5/20/2017
1/13/2017
6/20/2014
7/17/2012
11/26/2...
9/18/2012
5/14/2014
2/25/2017
2/6/2010
4/1/2012
4/18/2014
11/15/2...
3/18/2012
11/14/2...
7/31/2012
5/7/2010
5/26/2011
11/7/2011
10/1/2...
5/7/2016
4/23/2013
1/14/2017
6/26/2013
Order Date
Total Revenue by Country(Top 5)
Sum of Total Revenue
3M
2M
1M
0M
2.0M
0.6M
0.2M
0.0M
Turkmenistan
The Gambia
Zambia
United Kingdom
Syria
Country


AMAZON SALES DATA ANAYSIS DASHBOARD
Total Sales Revenue
79.09M
Sales Channel
Offline
Online
Total Revenue by Region
Sum of Total Revenue
30M
20M
10M
0M
26M
18M
12M
8M
6M
5M
4M
Sub-Saha... Africa
Europe
Asia
Central America and the C...
North America
Middle East and North Africa
Australia and Oceania
Region
Total Revenue by Item Type
3.3M (4.17%)
4.47M (5.65%)
6.15M (7.78%)
13.54M (17.12%)
29.7M (37.55%)
18.25M (23.08%)
Household
Cosmetics
Office Supplies
Baby Food
Clothes
Personal Care
Beverages
Total Revenue by Item Type
Sum of Units Sold
10K
5K
0K
9.9K
9.9K
9.4K
9.0K
8.7K
8.7K
8.6K
8.3K
8.2K
8.3K
7.8K
7.6K
7.3K
7.2K
7.0K
7.0K
6.4K
6.3K
6.1K
5.8K
5.6K
5.5K
5.4K
5/28/2010
6/30/2010
7/5/2013
7/7/2014
2/8/2017
1/16/2011
9/17/2012
7/8/2012
5/29/2012
10/24/2...
1/15/2015
2/8/2011
10/14/2...
9/17/2013
4/25/2015
4/7/2014
11/6/2014
11/19/2...
2/17/2012
5/8/2017
11/11/2...
10/30/2...
7/14/2015
7/30/2015
2/3/2014
7/25/2016
4/1/2015
Order Date
Total Revenue by Country(Top 5)
Sum of Total Revenue
4M
3M
2M
1M
0M
3.4M
3.0M
2.6M
2.5M
Switzerland
The Gambia
Sri Lanka
Turkmenistan
Tuvalu
Country


Total Profit
19.25M
Total cost
39.01M
Average Unit cost
165.27
Average Unit Price
242.80
Total unit cost
236K
Sales Channel
Offline
Online
Total Profit by Region
Sum of Total Profit
5M
0M
4.4M
3.6M
2.8M
2.5M
0.4M
Europe
Sub-Saharan Africa
Middle East and North Africa
Australia and Oceania
Asia
Central America and the Caribb...
Region
Total units sold by Item type
Sum of Units Sold
50K
0K
42K
36K
30K
26K
22K
16K
15K
15K
14K
11K
8K
0K
Cosmetics
Fruits
Clothes
Office Sup...
Cereal
Baby Food
Beverages
Vegetables
Snacks
Meat
Personal C...
Household
Item Type
Sales channel by Region
Sales Channel Online
Count of Sales Channel
20
15
10
5
0
15
13
8
7
5
2
Sub-Saharan Africa
Europe
Middle East and North Africa
Australia and Oceania
Asia
Central America and the Caribbean
Region
Order Priority Distribution
9 (18%)
15 (30%)
13 (26%)
13 (26%)
Order Priority
L
H
M
C


Total Profit
24.92M
Total cost
54.17M
Average Unit cost
216.82
Average Unit Price
310.72
Total unit cost
277K
Sales Channel
Offline
Online
Total Profit by Region
Sum of Total Profit
5M
0M
5.6M
3.6M
2.5M
2.2M
1.9M
1.5M
Sub-Saha... Africa
Europe
Asia
Central America and the ... Region
Middle East and North Af...
Australia and Oceania
North America
Total units sold by Item type
Sum of Units Sold
50K
0K
44K
42K
42K
41K
40K
24K
21K
14K
5K
4K
Household
Cosmetics
Beverages
Clothes
Personal C...
Baby Food
Office Sup...
Fruits
Vegetables
Cereal
Item Type
Sales channel by Region
Sales Channel
Offline
Count of Sales Channel
20
10
0
21
9
6
5
4
3
2
Sub-Saharan Africa
Europe
Asia
Central America and the Caribbean Region
Australia and Oceania
North America
Middle East and North Africa
Order Priority Distribution
8 (16%)
17 (34%)
12 (24%)
13 (26%)
Order Priority
H
C
L
M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Sub-Saharan Africa
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Asia
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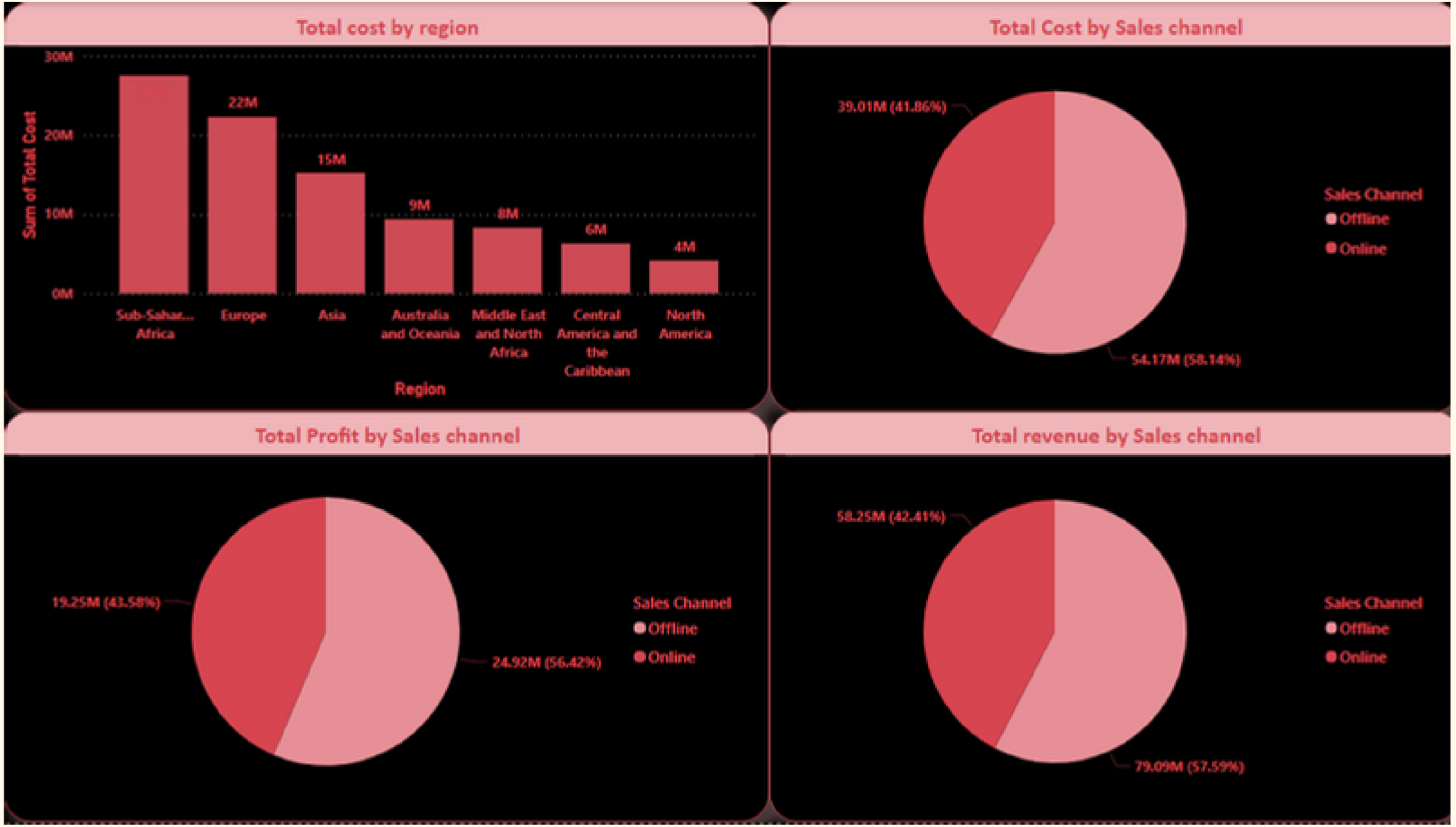
Australia and Oceania
North America
Middle East and North Africa
Order Priority Distribution
8 (16%)
17 (34%)
12 (24%)
13 (26%)
Order Priority
H
C
L
M

Total Profit by Order date
Sum of Total Profit
2.0M
1.5M
1.0M
0.5M
0.0M
1.72M
1.54M
1.49M
1.37M
1.25M
1.15M
1.05M
0.89M
0.83M
0.77M
0.73M
0.70M
0.64M
0.63M
0.58M
0.58M
0.53M
0.50M
0.46M
0.44M
0.41M
0.40M
0.37M
0.34M
0.31M
0.29M
0.26M
0.25M
0.23M
7/5/2013
7/20/2013
12/31/2...
9/17/2012
2/8/2017
11/26/2...
1/16/2015
2/6/2010
4/7/2014
11/19/2...
11/6/2014
11/15/2...
10/24/2...
5/28/2010
2/10/2012
4/1/2012
5/29/2012
10/11/2...
5/20/2017
10/21/2...
6/30/2010
5/14/2014
11/7/2011
4/23/2011
2/1/2013
12/30/2...
4/23/2013
1/13/2017
4/18/2014
9/18/2012
10/14/2...
4/25/2015
2/3/2014
7/17/2012
2/16/2012
2/23/2015
6/26/2013
10/30/2...
11/26/2...
11/14/2...
3/18/2012
2/25/2017
7/25/2016
5/26/2012
10/27/2...
3/25/2013
7/31/2012
5/22/2017
8/2/2014
10/13/2...
2/4/2015
1/14/2017
6/8/2012
6/13/2012
8/22/2012
9/15/2011
1/4/2011
5/2/2014
Order Date
Total profit by Country(Top 5)
Sum of Total Profit
1.0M
0.5M
0.0M
1.27M
0.95M
0.23M
0.05M
The Gambia
Turkmenistan
Tuvalu
Zambia
United Kingdom
Country
Total cost by Country(Top 5)
Sum of Total Cost
4M
2M
0M
4.6M
4.1M
1.6M
0.4M
0.1M
Turkmenistan
The Gambia
Tuvalu
Zambia
United Kingdom
Country


Total cost by region
30M
20M
10M
0M
Sum of Total Cost
22M
15M
9M
8M
6M
4M
Sub-Sahar... Africa
Europe
Asia
Australia and Oceania
Middle East and North Africa
Central America and the Caribbean
North America
Region
Total Cost by Sales channel
39.01M (41.86%)
54.17M (58.14%)
Sales Channel
Offline
Online
Total Profit by Sales channel
19.25M (43.58%)
24.92M (56.42%)
Sales Channel
Offline
Online
Total revenue by Sales channel
58.25M (42.41%)
79.09M (57.59%)
Sales Channel
Offline
Online

THANK YOU