Marwadi University	Marwadi University Faculty of Engineering and Technology Department of Information and Communication Technology	
Subject: Data Visualization and Dashboard (01CT0410)	Aim: Draw the Stacked Line chart using plotly, matplotlib and seaborn libraries in python on random dataset.	
Experiment No: 06	Date: 05-02-2024	Enrollment No: 92200133030

Aim: Draw the Stacked Line chart using plotly, matplotlib and seaborn libraries in python on random dataset

IDE: Excel, Tableau, Spyder IDE

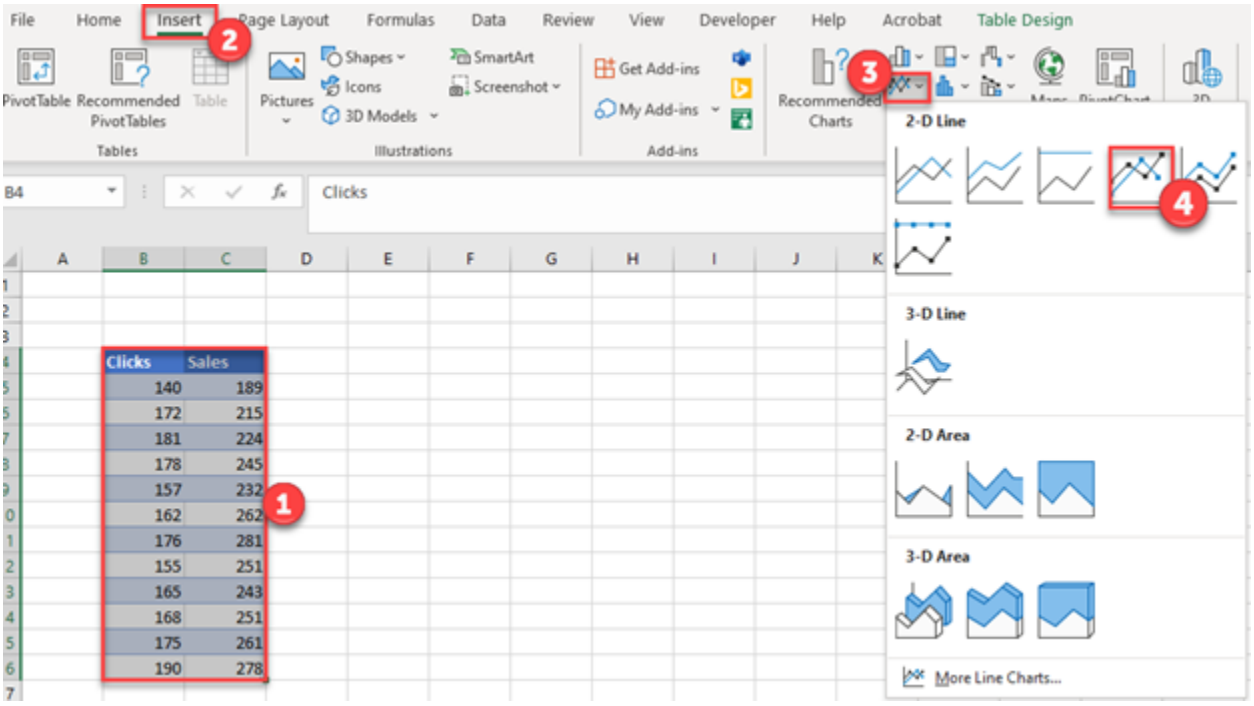
Theory:

Stacked Line Chart

Stacked Line charts show the contribution to trends in the data. This is done by stacking lines on top of each other. Stacked Line charts are used with data which can be placed in an order, from low to high. The charts are used when you have more than one data column which all add up to the total trend.

Creating Graph from Two Sets of Original Data

1. Highlight both series
2. Click Insert
3. Select Line Graph
4. Click Line with Markers



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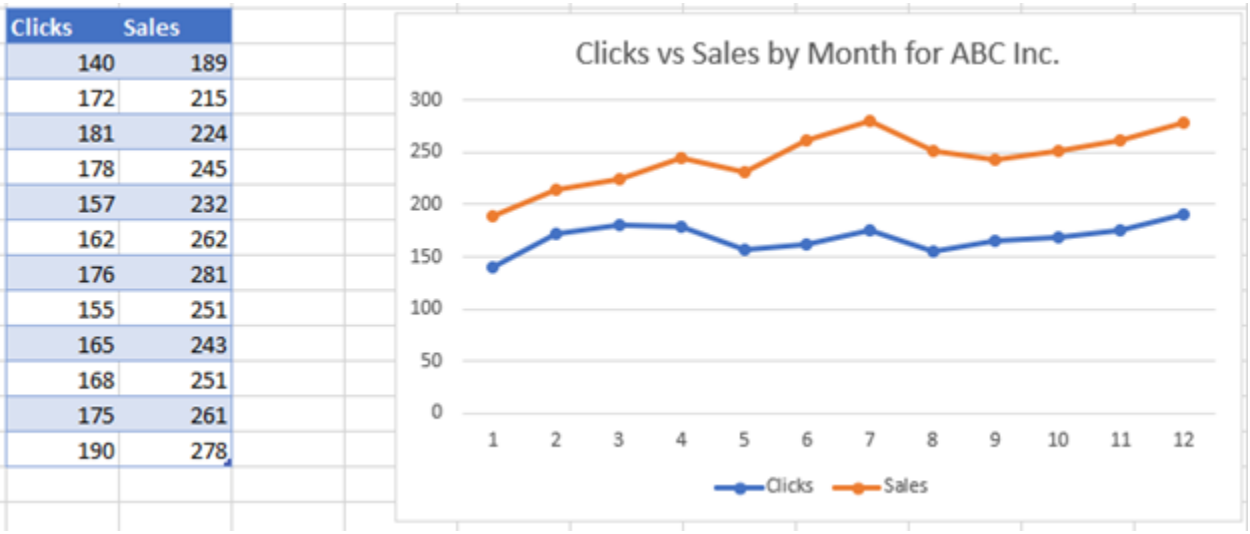
Final Graph with Multiple Lines

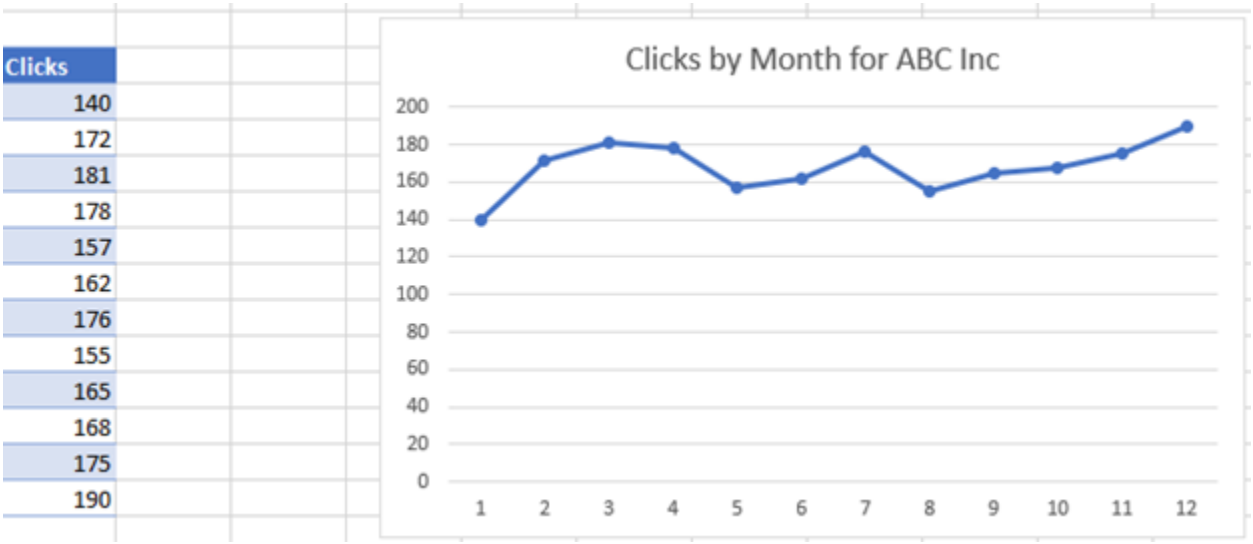
Below you can see what the graph looks like as we compare how clicks change and sales change in the same period. This can help determine if there are trends among the two datasets.



Clicks	Sales
140	189
172	215
181	224
178	245
157	232
162	262
176	281
155	251
165	243
168	251
175	261
190	278

Adding to Graph in Order to Create Multiple Lines Graph

Instead of the scenario above, in this section, we'll show what to do if you want to add to the graph to create a multiple lines graph. We'll start with a single line graph below and show how to add another dataset.



Clicks
140
172
181
178
157
162
176
155
165
168
175
190

1. Right click on the graph
2. Click Select Data

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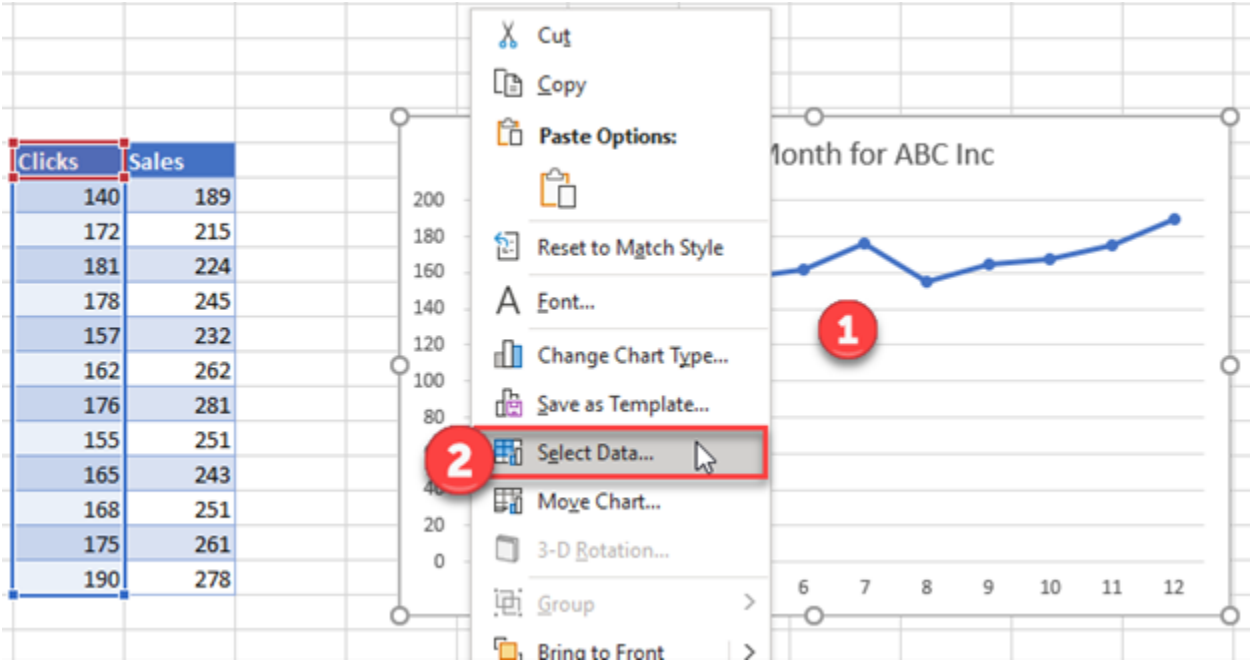
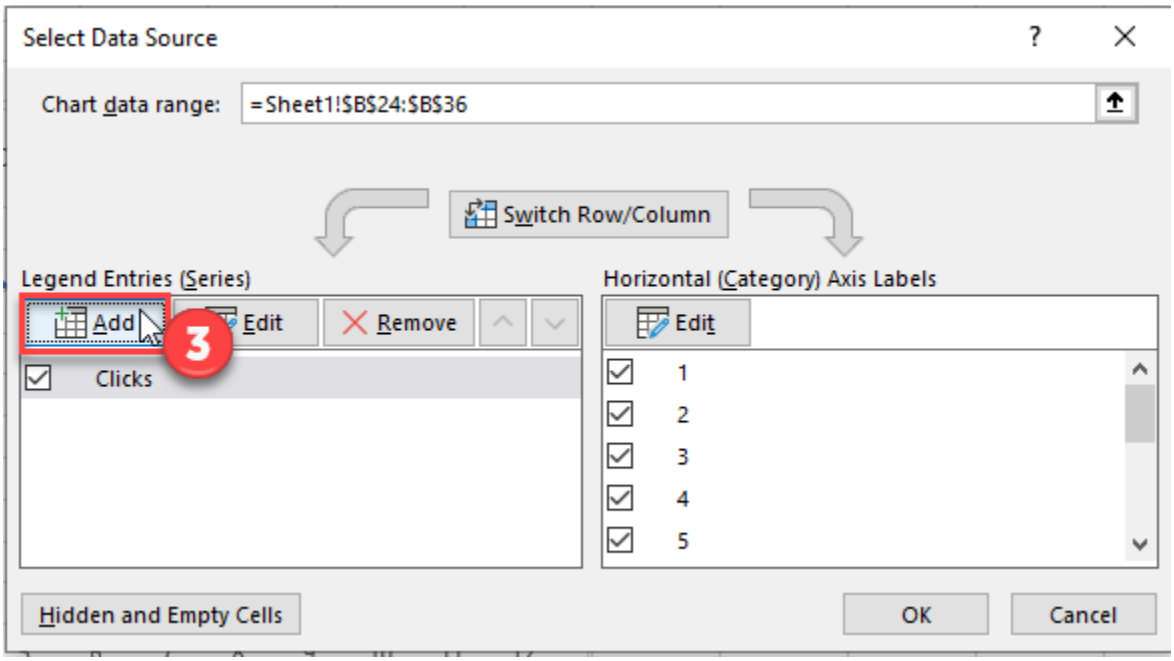


3. Click Add under Series



4. Select Series Name with updated header for new series
5. Select Series Values with updated values for new series

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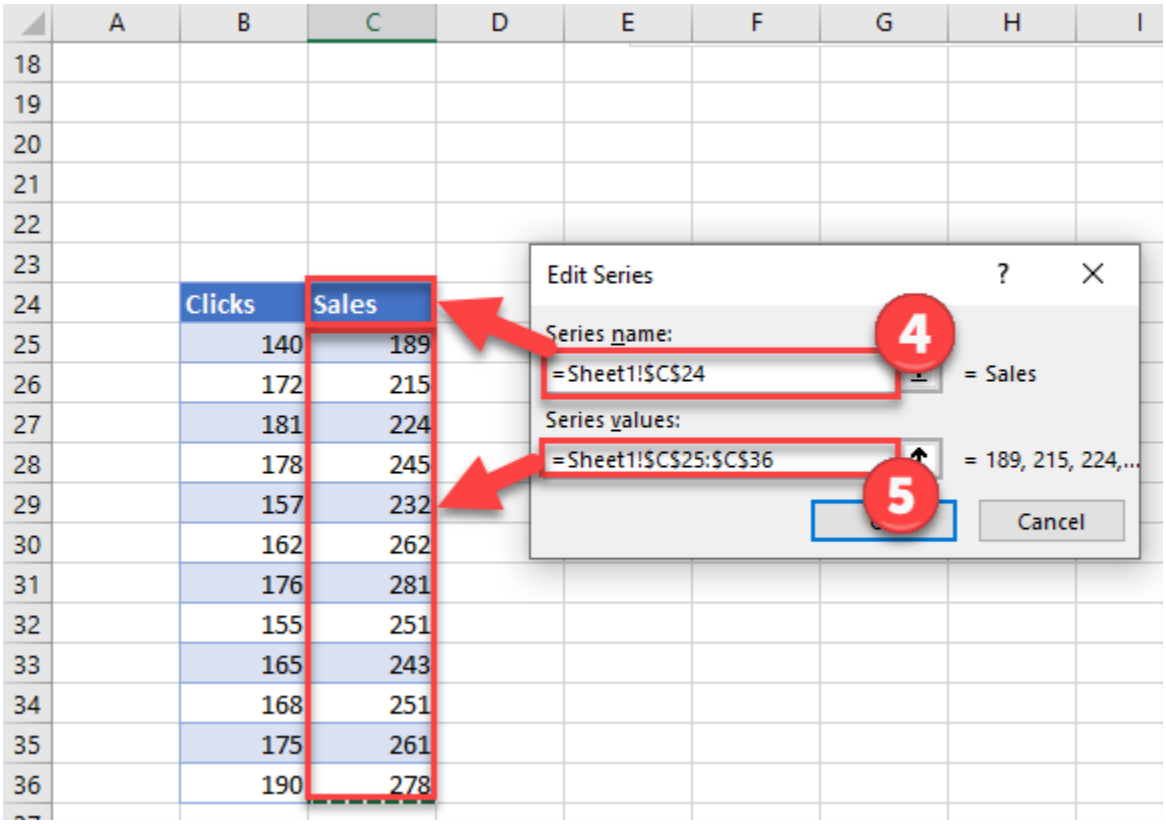

Clicks	Sales
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172	215
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157	232
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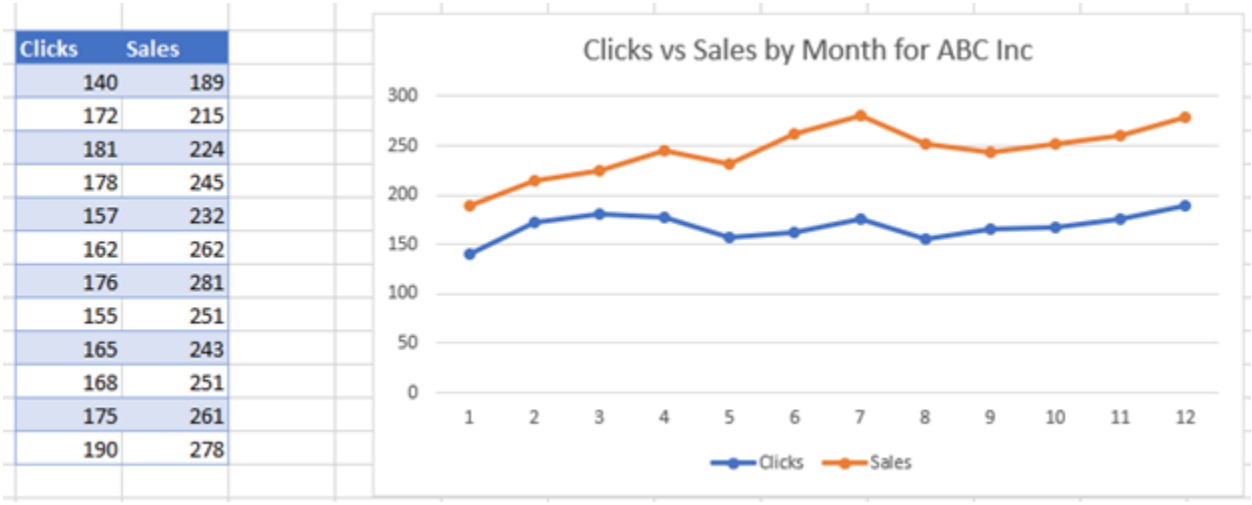
Final Graph with Multiple Lines



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Pre Lab Exercise:

a. How do I create a stacked line chart in Excel?

b. How can I add data labels to the stacked line chart in Excel?

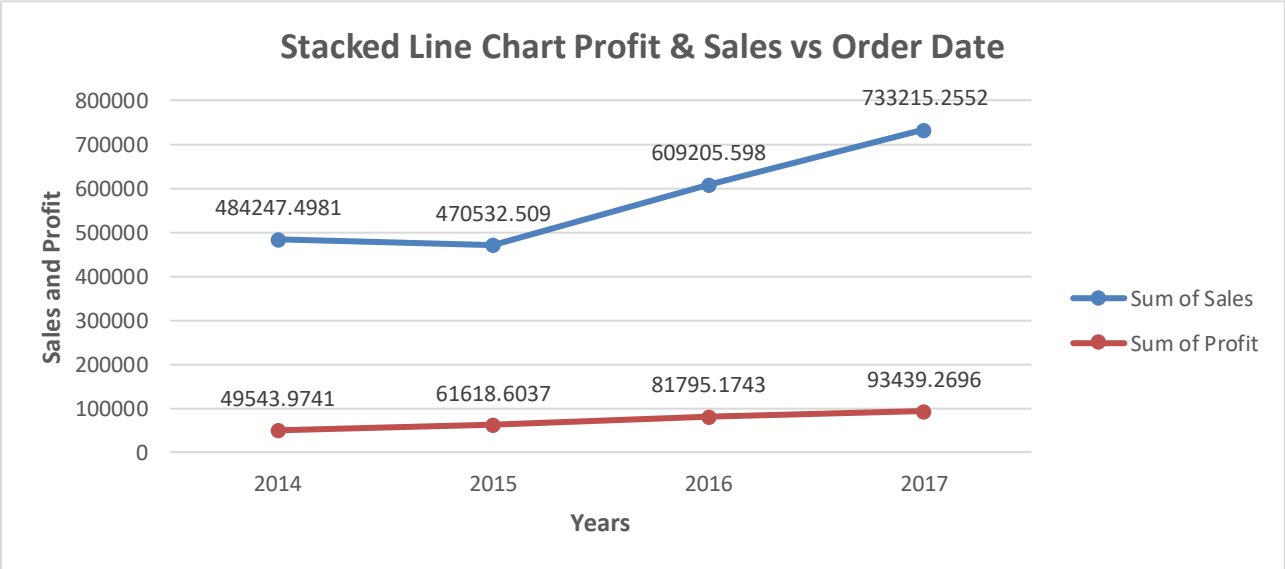
c. How to change the colors of individual lines in a stacked line chart?

Pre-Lab Tasks:

Perform the following tasks using Excel:

Task 1: Draw Stacked line chart using superstore data (Order Date vs. Sales & Profit)

Results:-



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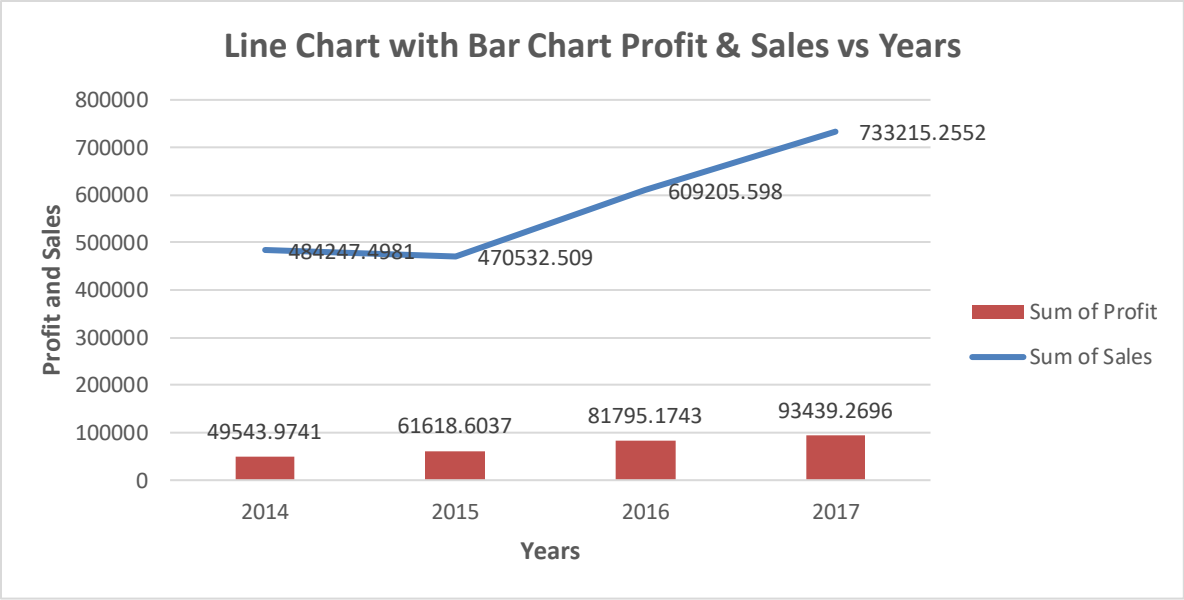
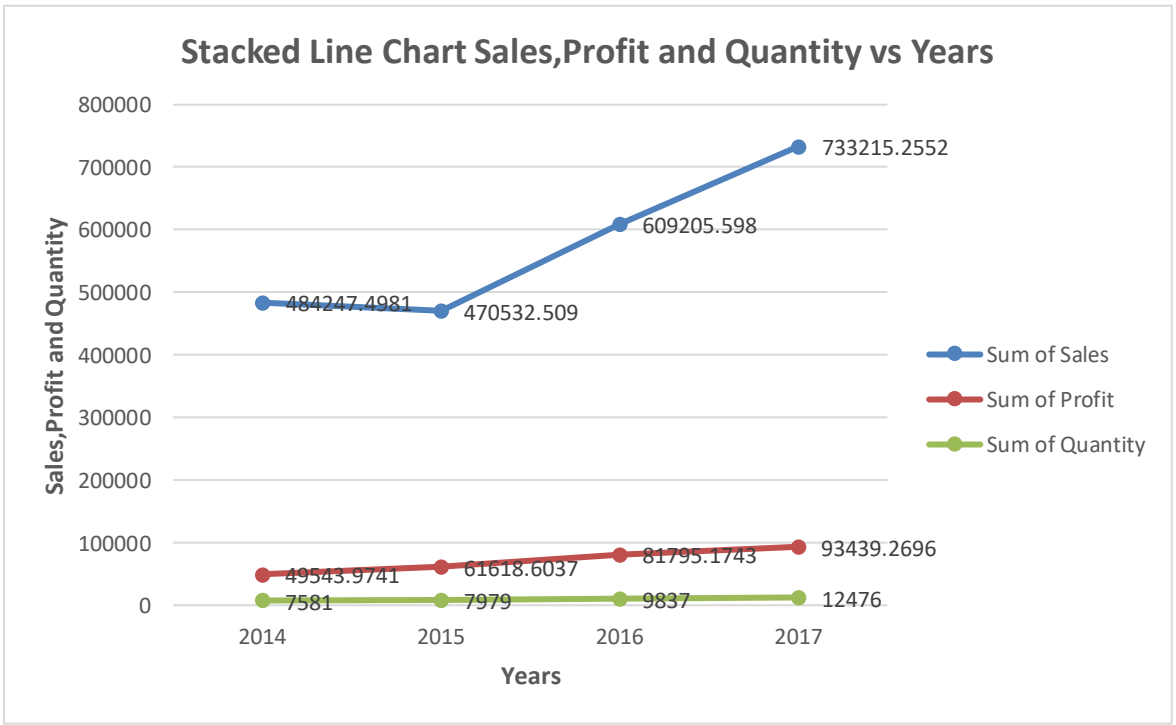
Task 2: Draw line chart with bar chart using superstore data (Order Date vs. Sales (Profit bar chart)) (Considered Measure name dimension))

Results:-



Task 3: Draw Stacked line chart using superstore data (Order Date vs. Sales, Profit, Quantity)

Results:-



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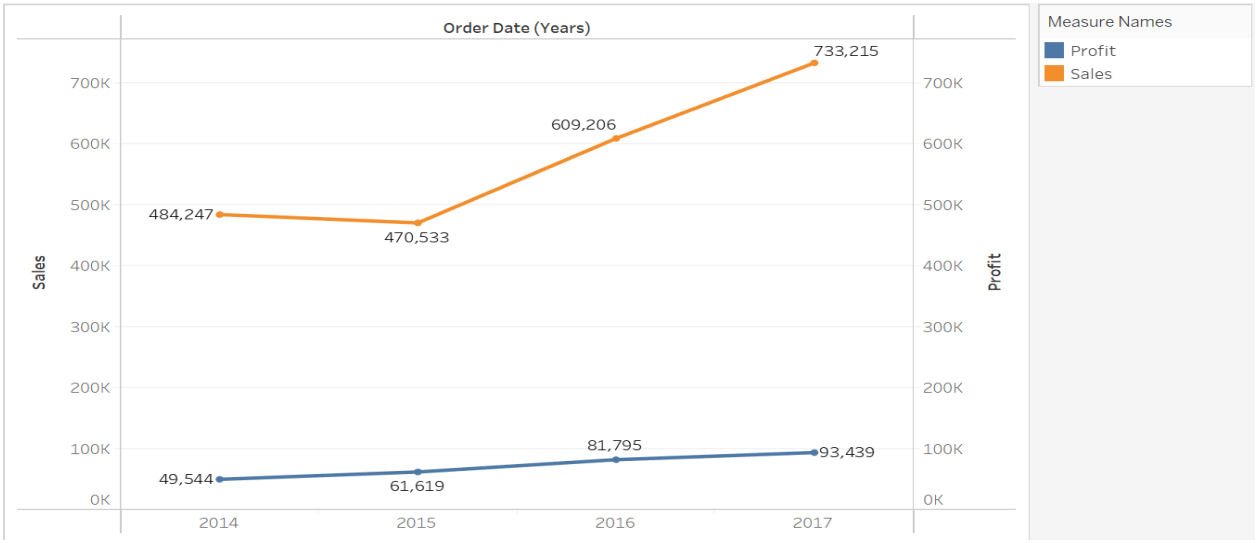
In-Lab Tasks:

Perform the following tasks using Tableau:

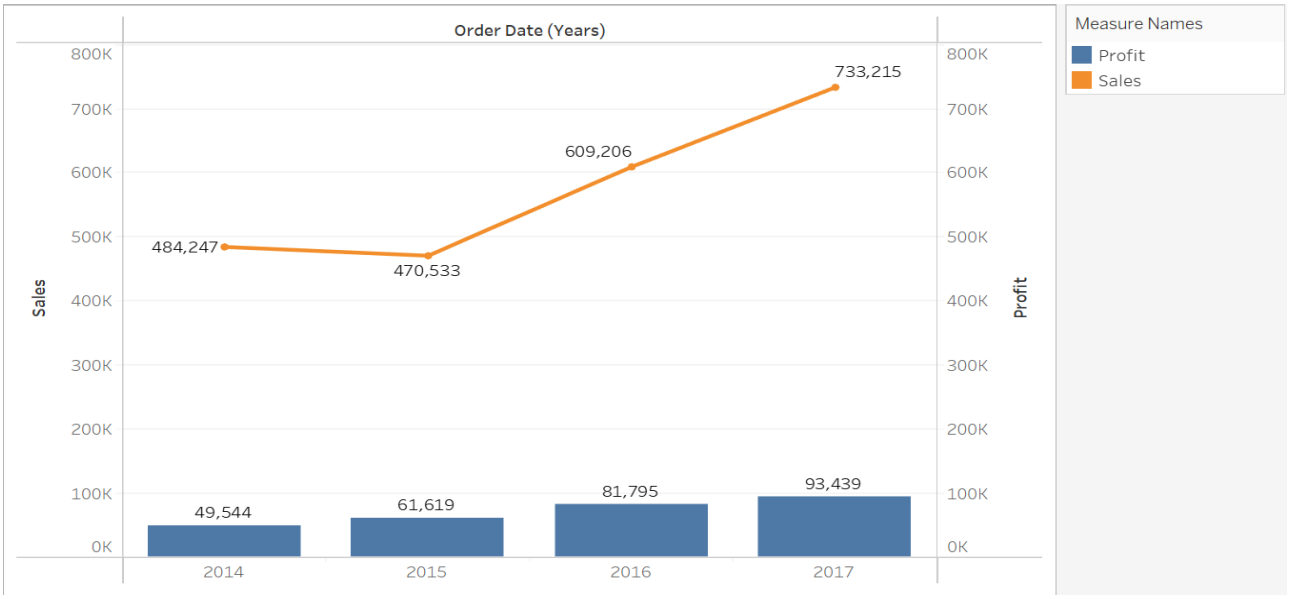
Task 1: Draw Stacked line chart using superstore data (Order Date vs. Sales & Profit)

Results:-



Task 2: Draw line chart with bar chart using superstore data (Order Date vs. Sales (Profit bar chart)) (Considered Measure name dimension))

Results:-



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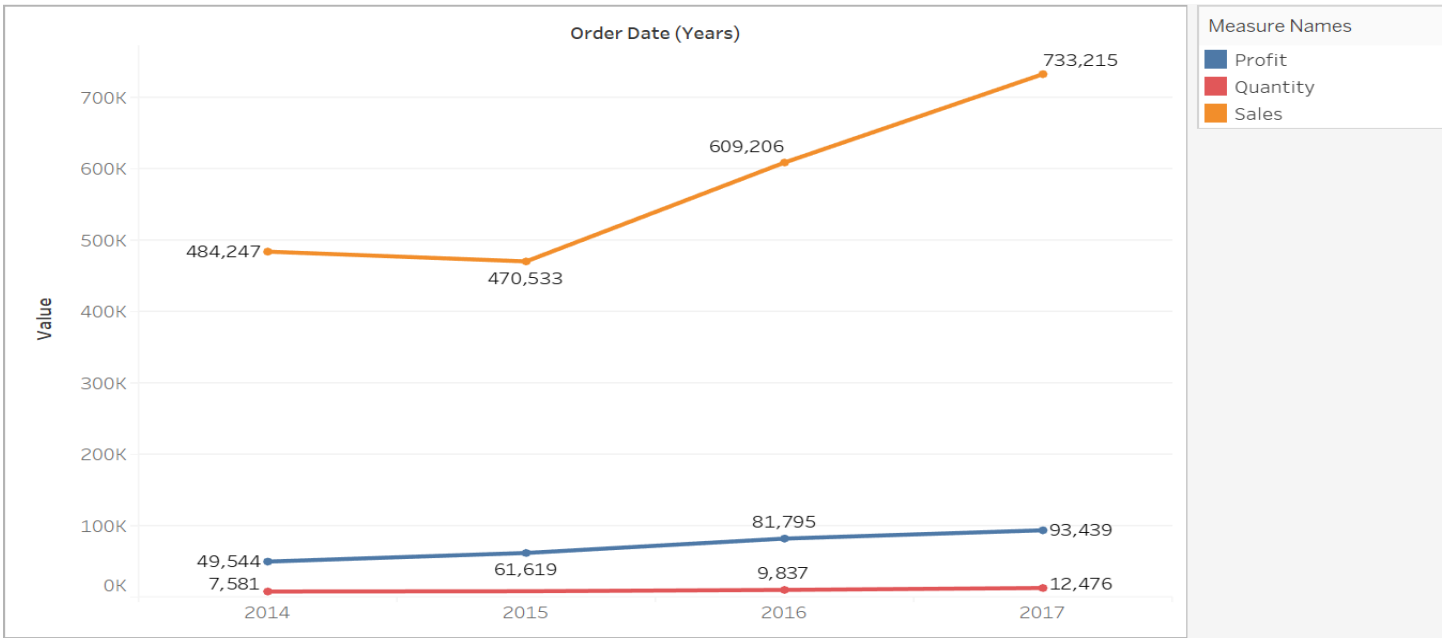
Task 3: Draw Stacked line chart using superstore data (Order Date vs. Sales, Profit, Quantity)

Results:-



Post-Lab Tasks:

Perform the following tasks using Python:

Pre-Requisites :-

```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd

Dataset = pd.read_excel('D:/Aryan Data/Usefull Data/Semester - 4/Data Visulization and Dashboards/Lab Manual/Exp-6 Creating Line chart multiple/Sample - Superstore.xlsx','Orders')
```

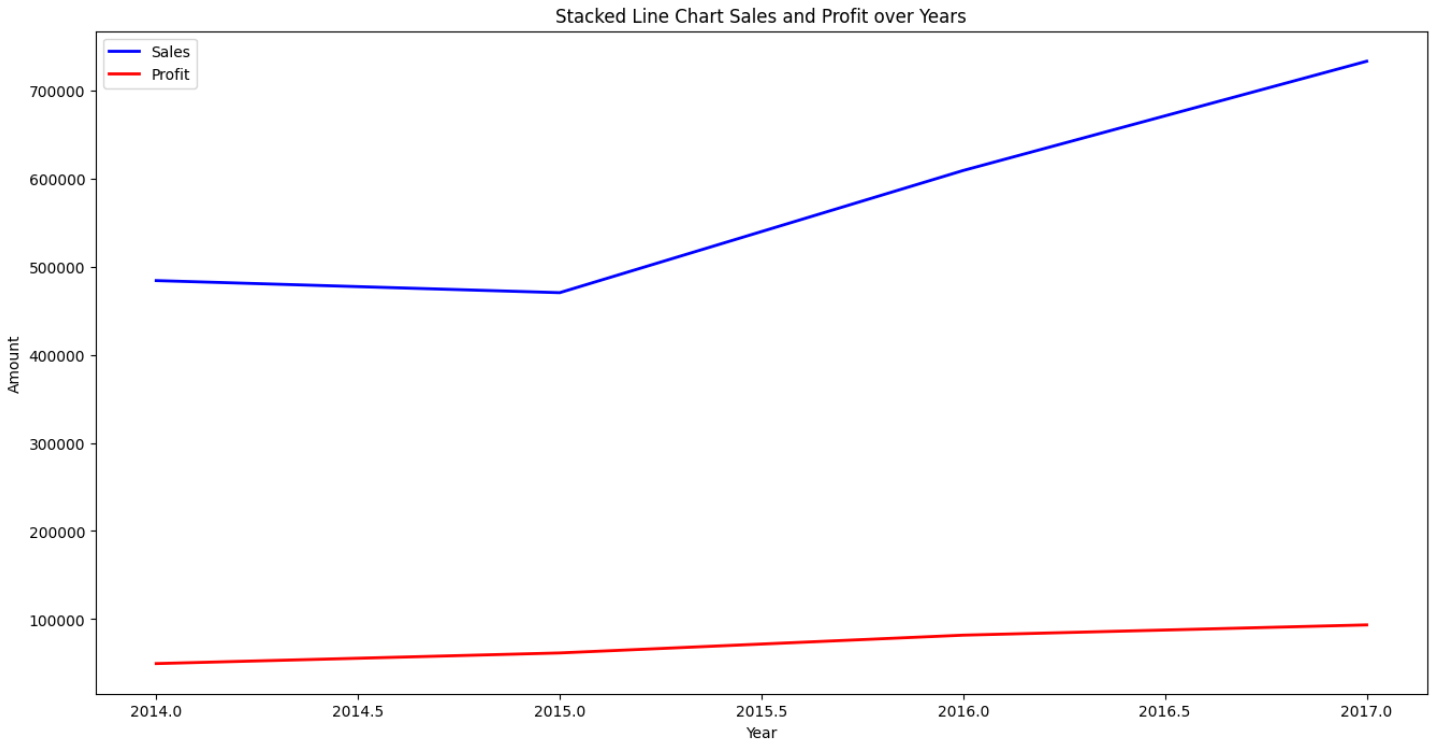
Task 1: Draw Stacked line chart using superstore data (Order Date vs. Sales & Profit)

Code :-

```
plt.figure(figsize=(16, 8))
Years = sorted(set(Dataset['Year']))
Sales = Dataset.groupby('Year')['Sales'].sum()
Profit = Dataset.groupby('Year')['Profit'].sum()
plt.plot(Years, Sales, color='blue', linewidth=2, label='Sales')
plt.plot(Years, Profit, color='red', linewidth=2, label='Profit')
```

```
plt.legend()
plt.xlabel('Year')
plt.ylabel('Amount')
plt.title('Stacked Line Chart Sales and Profit over Years')
plt.show()
```

Results:-



Task 2: Draw line chart with bar chart using superstore data (Order Date vs. Sales (Profit bar chart)) (Considered Measure name dimension))

Code :-

```
plt.figure(figsize=(16, 8))
Years = sorted(set(Dataset['Year']))
Sales = Dataset.groupby('Year')['Sales'].sum()
Profit = Dataset.groupby('Year')['Profit'].sum()
plt.bar(Years, Profit, color='red',width=0.5,label='Profit')
plt.plot(Years, Sales, color='blue', linewidth=2, label='Sales')
plt.title('Combined Line and Bar Chart: Sales & Profit over Time')
plt.legend()
plt.show()
```

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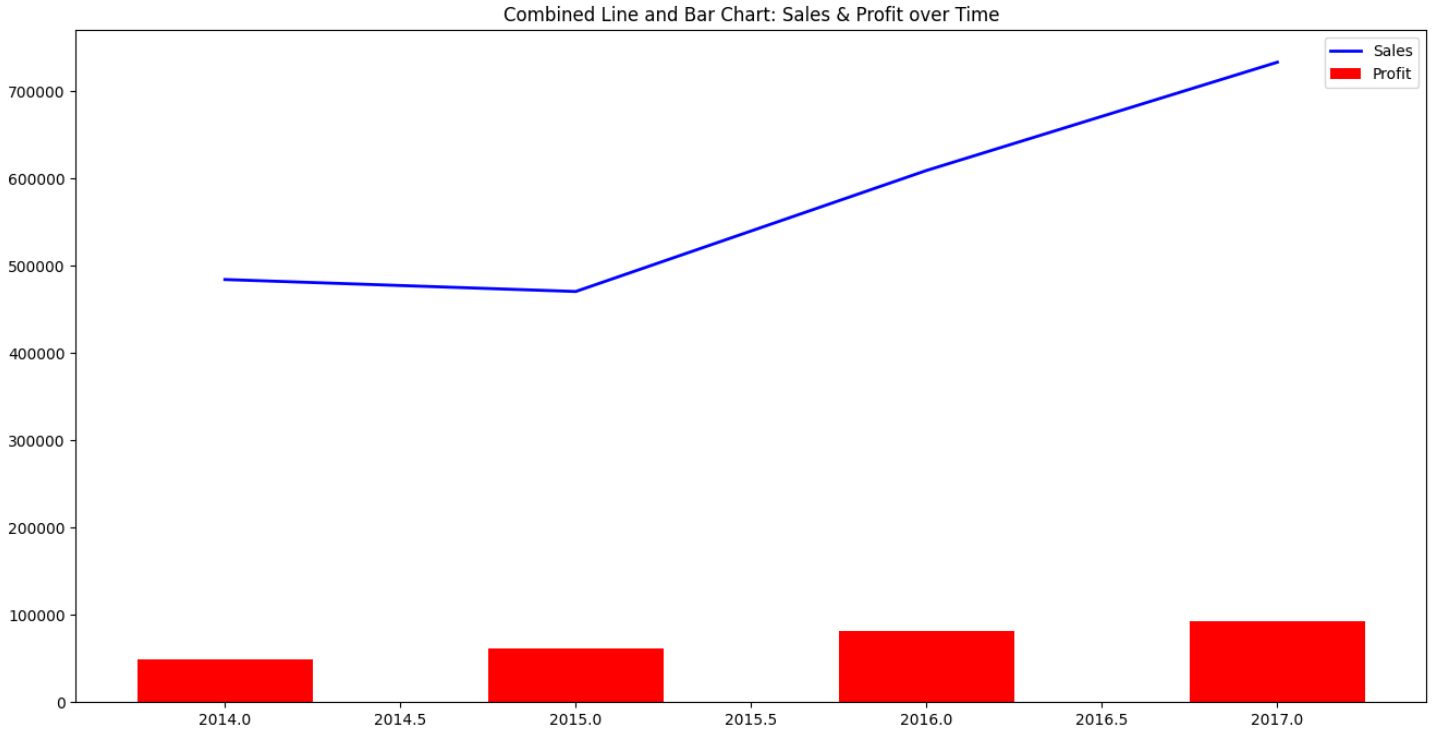
Results:-



Task 3: Draw Stacked line chart using superstore data (Order Date vs. Sales, Profit, Quantity)

Code :-

```
plt.figure(figsize=(16, 8))
Years = sorted(set(Dataset['Year']))
Sales = Dataset.groupby('Year')['Sales'].sum()
Profit = Dataset.groupby('Year')['Profit'].sum()
Quantity = Dataset.groupby('Year')['Quantity'].sum()
plt.plot(Years, Sales, color='blue', linewidth=2, label='Sales')
plt.plot(Years, Profit, color='red', linewidth=2, label='Profit')
plt.plot(Years,Quantity, color='green', linewidth=2, label='Quantity')
plt.legend()
plt.xlabel('Year')
plt.ylabel('Amount')
plt.title('Stacked Line Chart for Sales,Profit and Quantity over Year')
plt.show()
```

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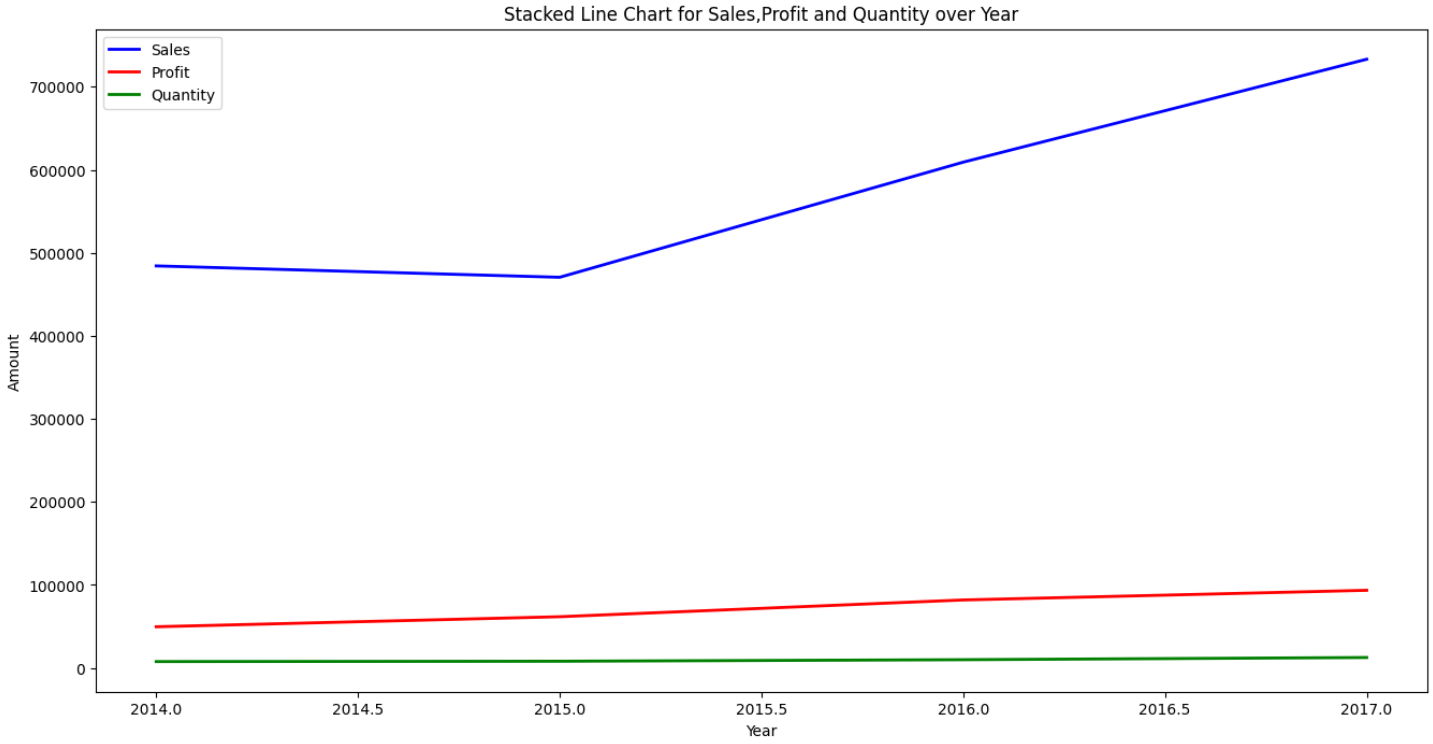

Reference Link: https://help.tableau.com/current/pro/desktop/en-us/qs_combo_charts.htm

Observation and Result Analysis:

Write the final observation and process corresponding to each task

1. _____
2. _____
3. _____

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Post Lab Exercise:

Python Implementation

Reference Link: https://www.kaggle.com/code/alaasedeeq/superstore-analysis-with-cufflinks-clustering?scriptVersionId=69225428