Data Visualization with Matplotlib

1 Line Plot - Bar Chart - Scatter Diagram - Histogram

1.1 Create the x variable with 200 elements from -10 to 10. Create the y variable which has the sine (np.sin()) of x.

Requirements:

- **Plot the curve**

[16]:
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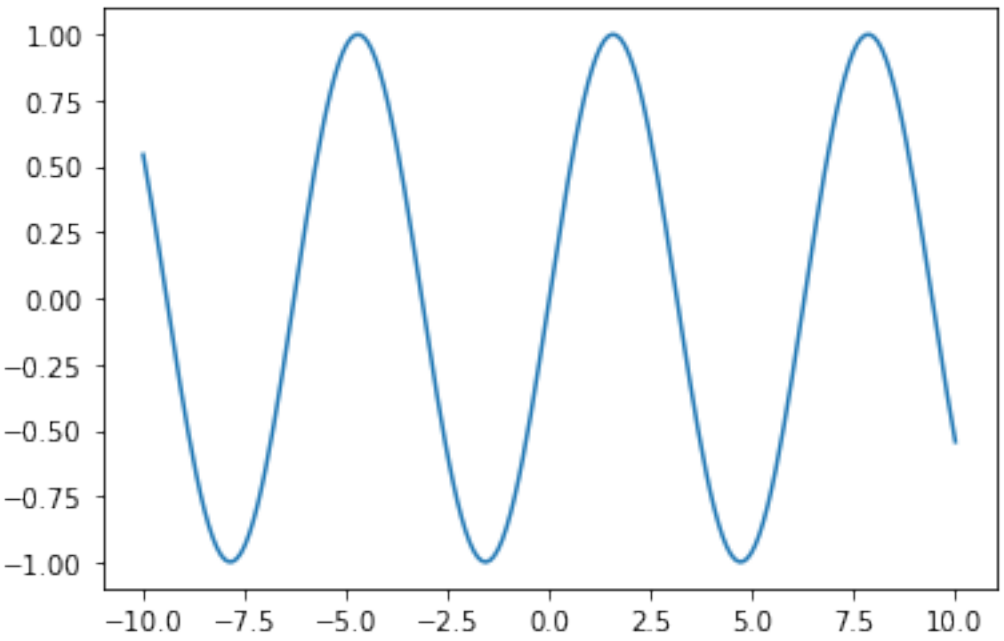
from matplotlib import pyplot as plt
import numpy as np
x = np.linspace(-10,10,200)
y = np.sin(x)
plt.plot(x,y)
plt.show()
```



- plot the elements of x (above exercise):
  - with an x
  - with a green o

[21]:
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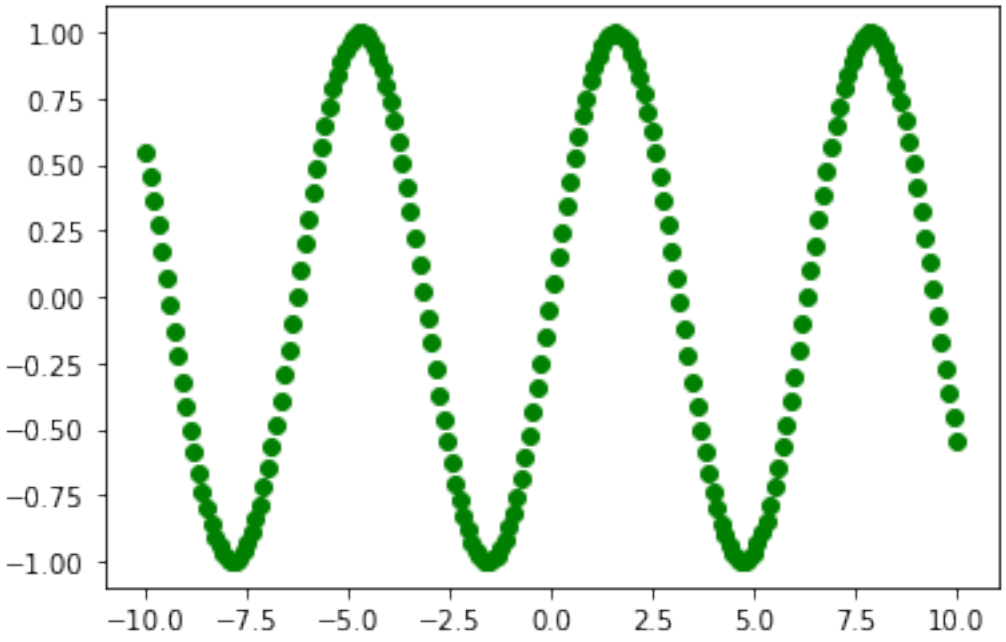

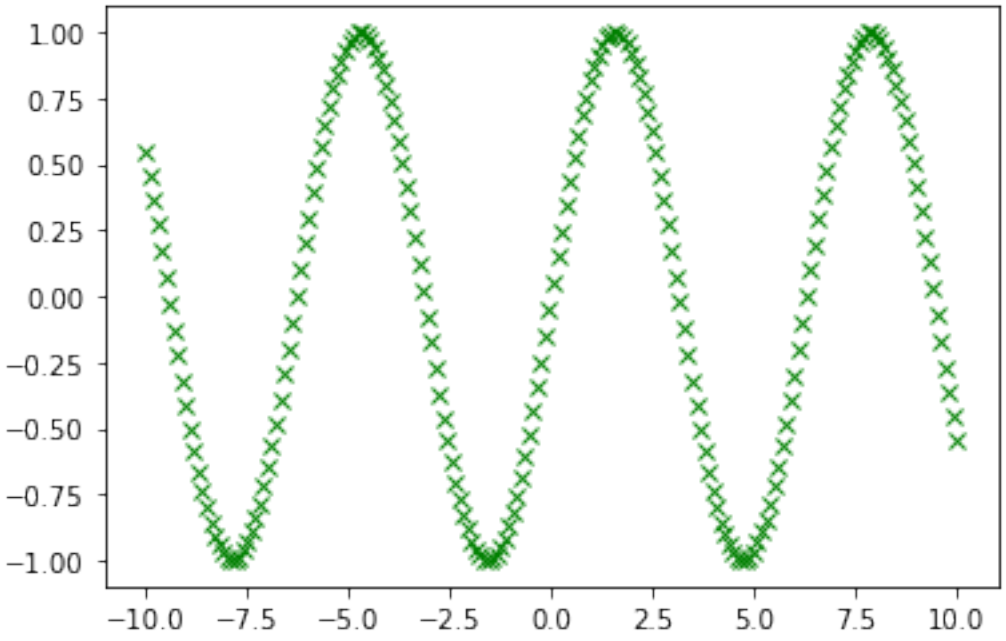

- Plot only the elements:
  - from the index 50 to 80
  - from the index 51 to 56

[22]:
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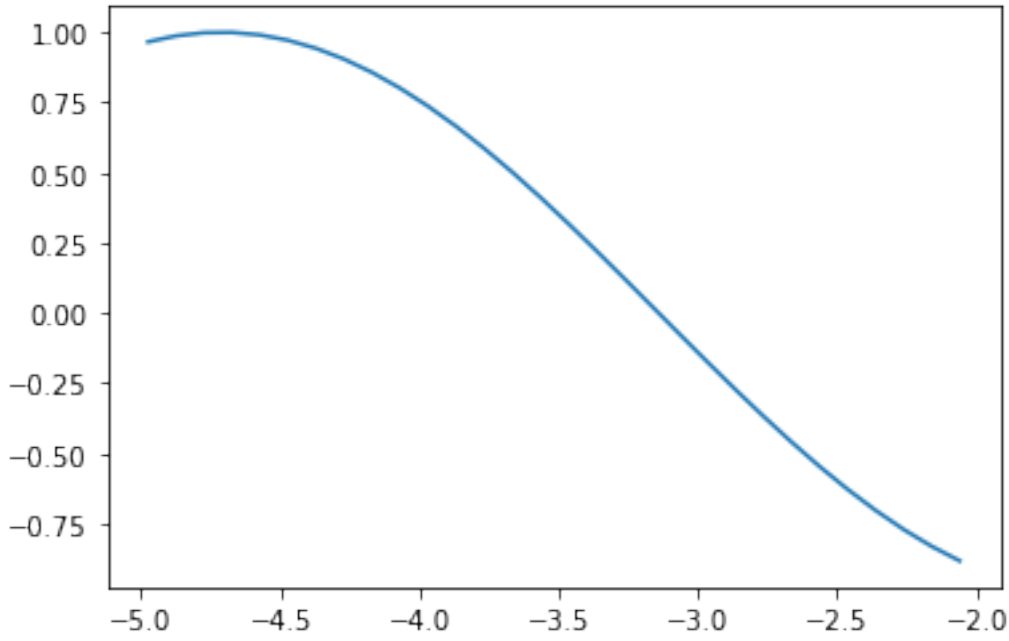
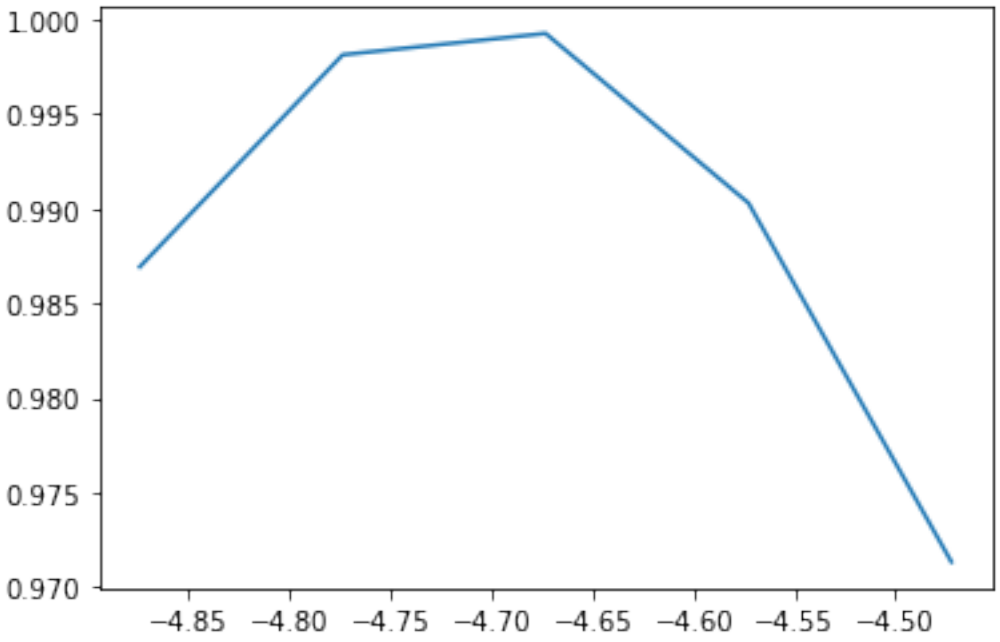
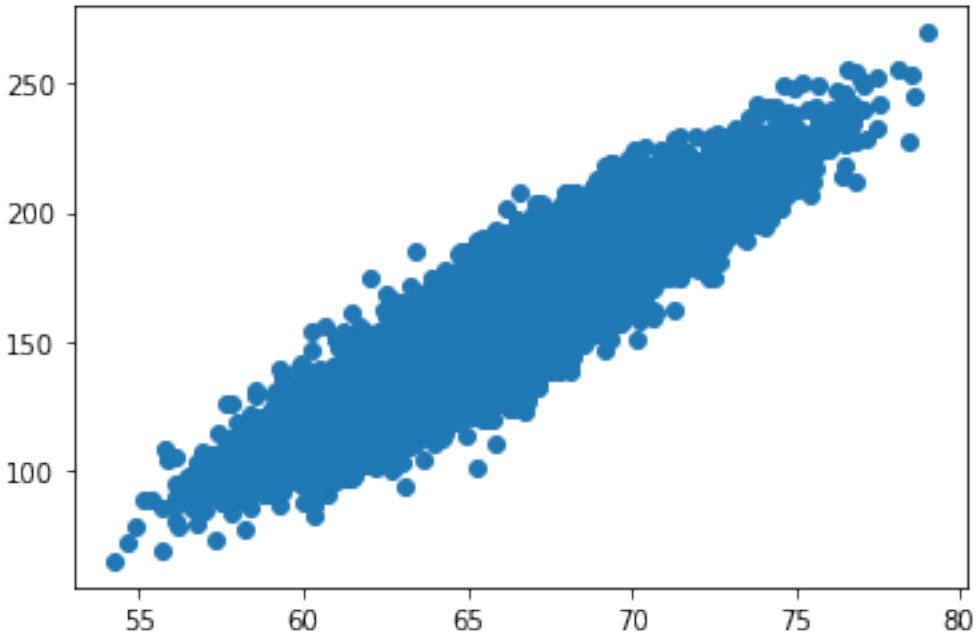




1.2 Given the dataset weight-height.csv. Generate plots described as follows:

- use df[].values to get a numpy array out of the data-frame columns
- plot the height vs weight

[23]:



- plot the male with blue and female with red in the same plot

[24]:
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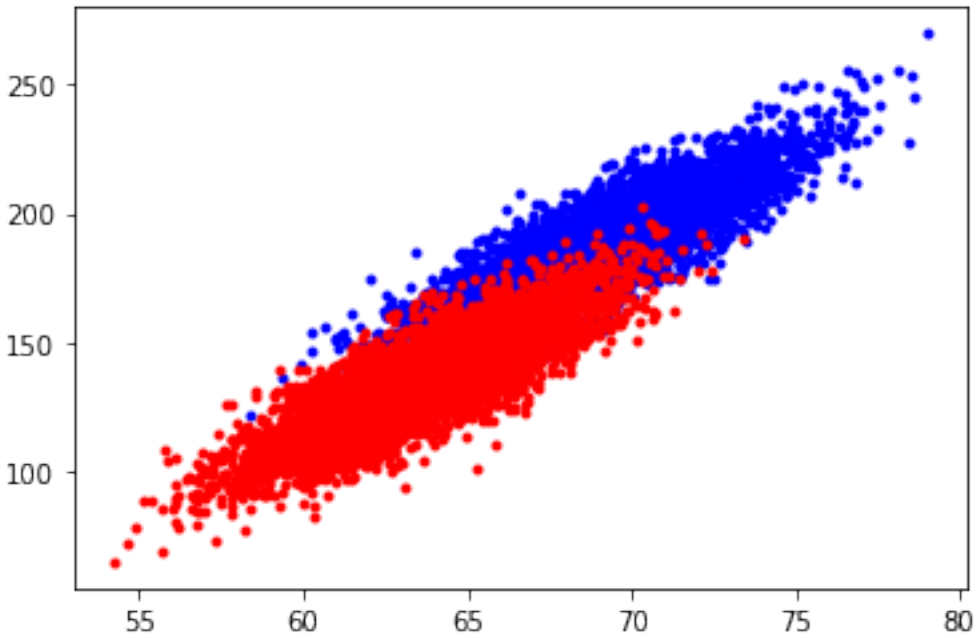

1.3 Given a csv file 'company-sales.csv'. Generate line plots describe as follows:

- Read the Total profit of all months and show it using a line plot.
- The Total profit data is provided for each month. Generated line plot must include the following properties:

  - X label name = Month Number
  - Y label name = Total profit

[37]:
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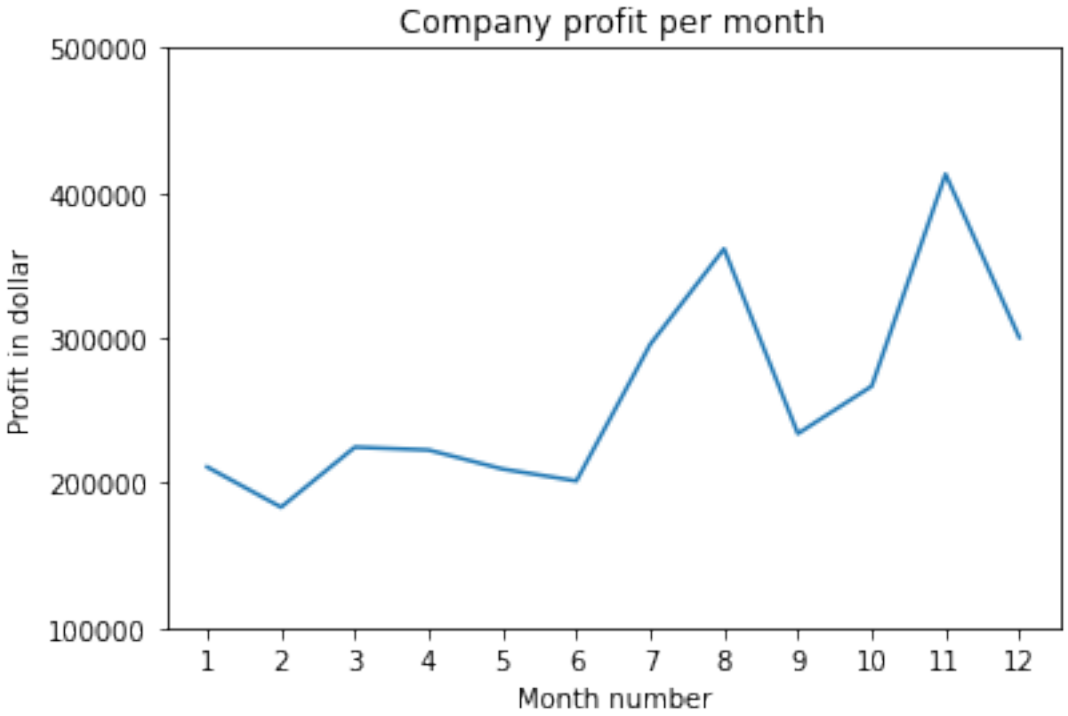

- Get Total profit of all months and show line plot with the following Style properties:
  - Line Style dotted and Line-color should be red
  - Show legend at the lower right location.
  - X label name = Month Number
  - Y label name = Sold units number
  - Add a circle marker. • Line marker color as read • Line width should be 3

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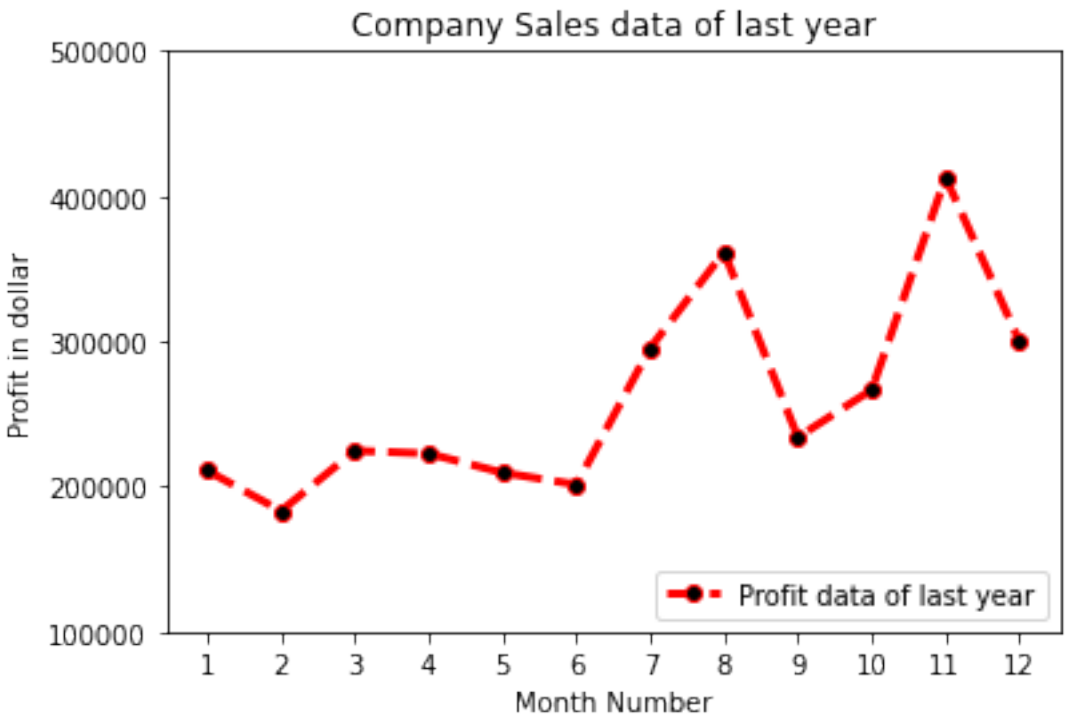

- Read all product sales data and show it using a multiline plot

[31]:
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- Read face cream and facewash product sales data and show it using the bar chart

[33]:
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import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv("company-sales.csv")
monthList = df ['month_number'].values
faceCremSalesData = df ['facecream'].values
faceWashSalesData = df ['facewash'].values
plt.bar([a-0.25 for a in monthList], faceCremSalesData, width= 0.25, label =␣
↪'Face Cream sales data', align='edge')
plt.bar([a+0.25 for a in monthList], faceWashSalesData, width= -0.25, label =␣
↪'Face Wash sales data', align='edge')
plt.xlabel('Month Number')
plt.ylabel('Sales units in number')
plt.legend(loc='upper left')
plt.title(' Sales data')
plt.xticks(monthList)
plt.grid(True, linewidth= 1, linestyle="--")
plt.title('Facewash and facecream sales data')
plt.show()
```

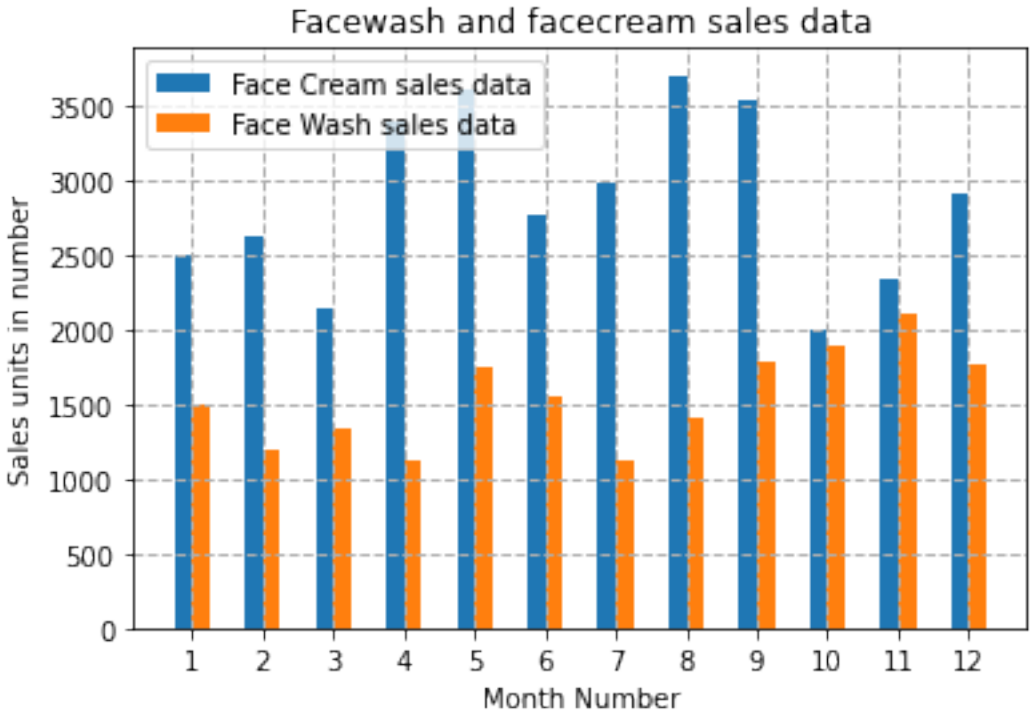

- Read the total profit of each month and show it using the histogram to see most common profit ranges

[35]:
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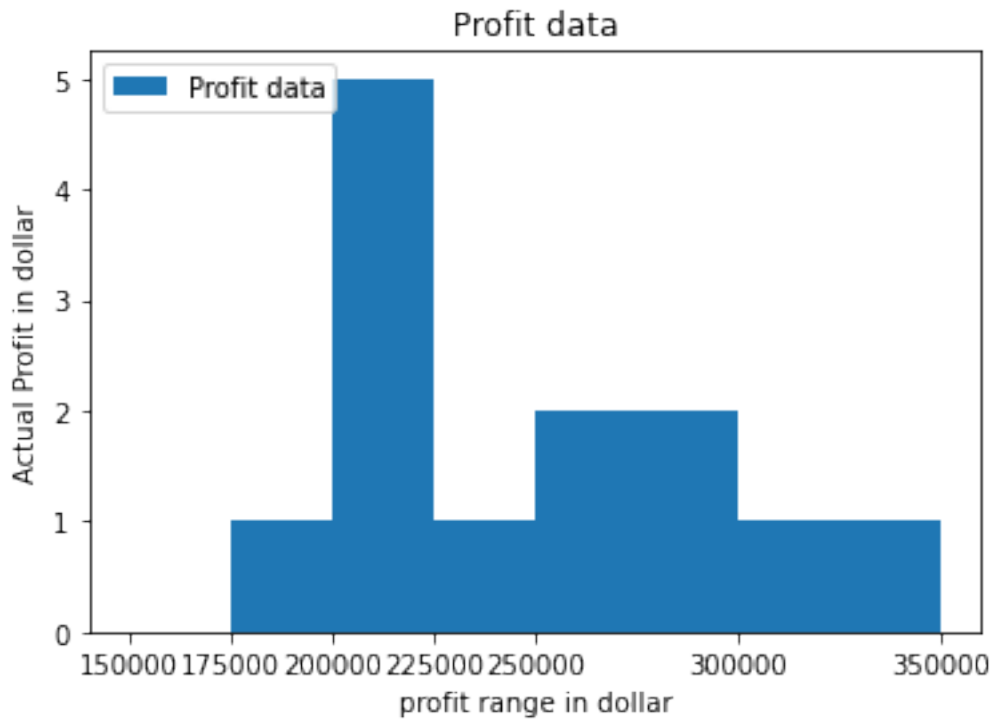

- Read Bathing soap facewash of all months and display it using the Subplot

[36]:
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