Assignment -1 (Arjun Vankani)

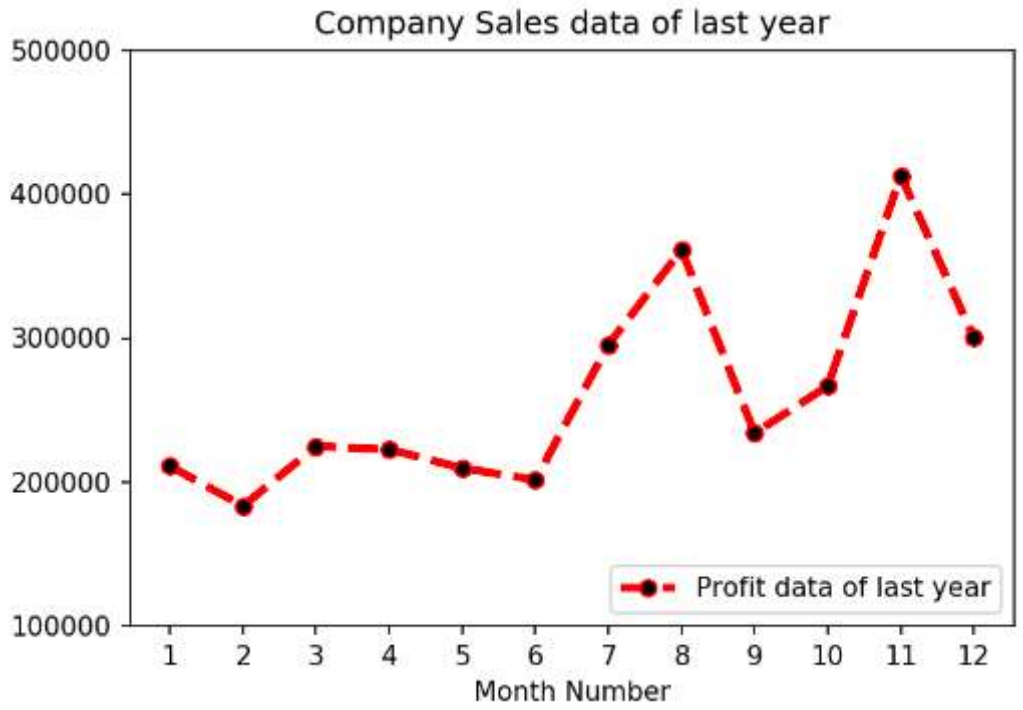
Matplotlib is a Python 2D plotting library that produces high-quality charts and figures, which helps us visualize extensive data to understand better

In this exercise we will be using Matplotlib to visualize Company Sales Data

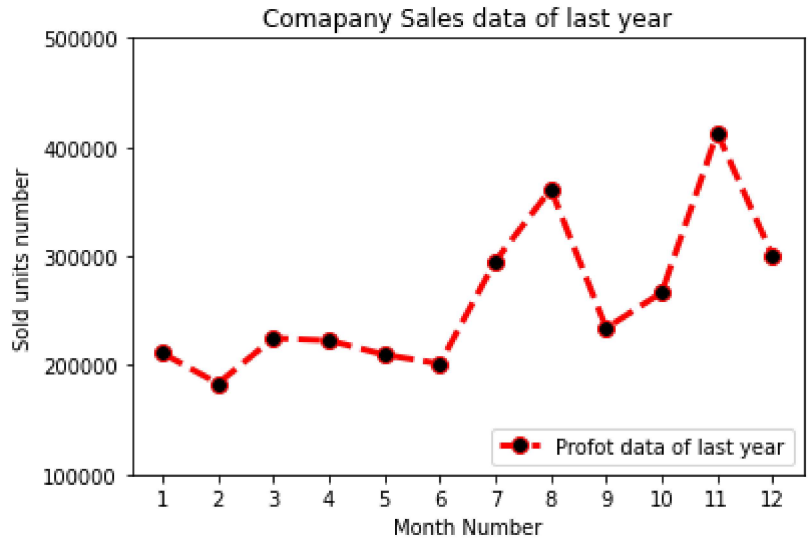
In [1]:
```
month_number=[1,2,3,4,5,6,7,8,9,10,11,12]
facecream = [2500,2630,2140,3400,3600,2760,2980,3700,3540,1990,2340,2900]
facewash = [1500,1200,1340,1130,1740,1555,1120,1400,1780,1890,2100,1760]
toothpaste=[5200,5100,4550,5870,4560,4890,4780,5860,6100,8300,7300,7400]
bathingshop=[9200,6100,9550,8870,7760,7490,8980,9960,8100,10300,13300,14400]
shampoo=[1200,2100,3550,1870,1560,1890,1780,2860,2100,2300,2400,1800]
moisturizer=[1500,1200,1340,1130,1740,1555,1120,1400,1780,1890,2100,1760]
total_units=[21100,18330,22470,22270,20960,20140,29550,36140,23400,26670,41280,30020]
total_profit=[211000,183300,224700,222700,209600,201400,295500,361400,234000,266700,412800,300200]
```

Exercise 1: Plot total profit of all months using line plot with the following Style properties:

1) Line Style dotted and Line-color should be red 2) Show legend at the lower right location. 3) X label name = Month Number 4) Y label name = Sold units number 5) Add a circle marker. 6) Line marker color as red 7) Line width should be 3

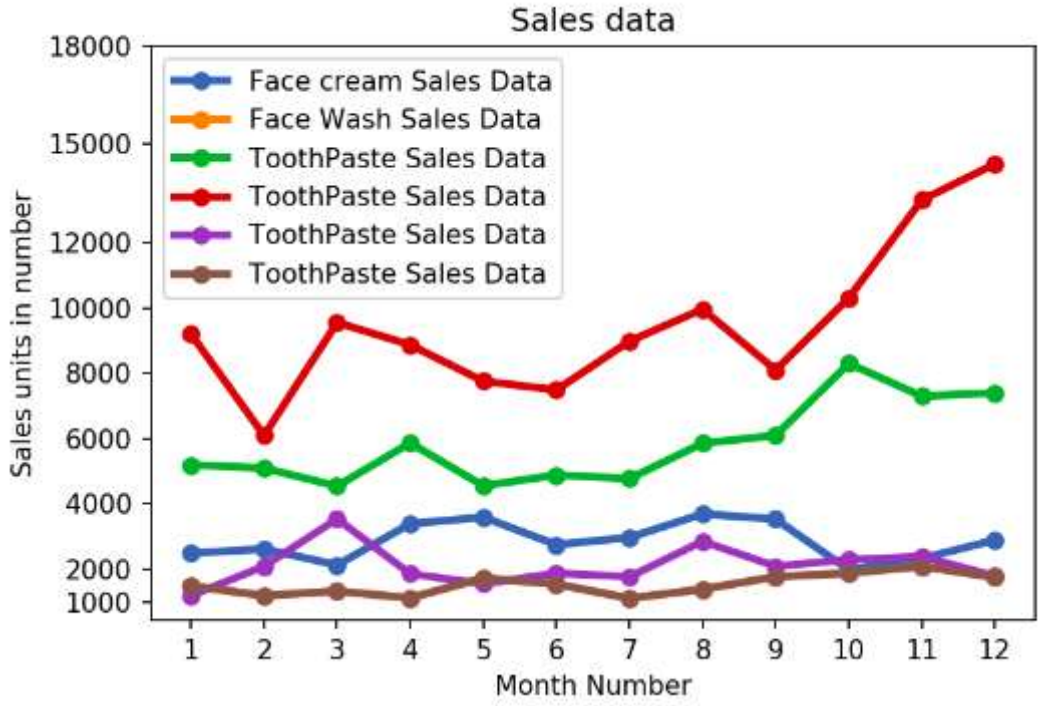


In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
y = np.array([100000,200000,300000,400000,500000])
plt.plot(month_number,total_profit,linestyle='dashed',marker='.',markerfacecolor='black',linewidth=3,color='red',markersize=16)
plt.xticks(month_number)
plt.yticks(y)
plt.xlabel("Month Number")
plt.ylabel("Sold units number")
plt.legend(["Profot data of last year"],loc = 'lower right')
plt.title("Comapany Sales data of last year")
plt.show()
```



Exercise 2: Plot all product sales data using a multiline plot

Display the number of units sold per month for each product using multiline plots. (i.e., Separate Plotline for each product).

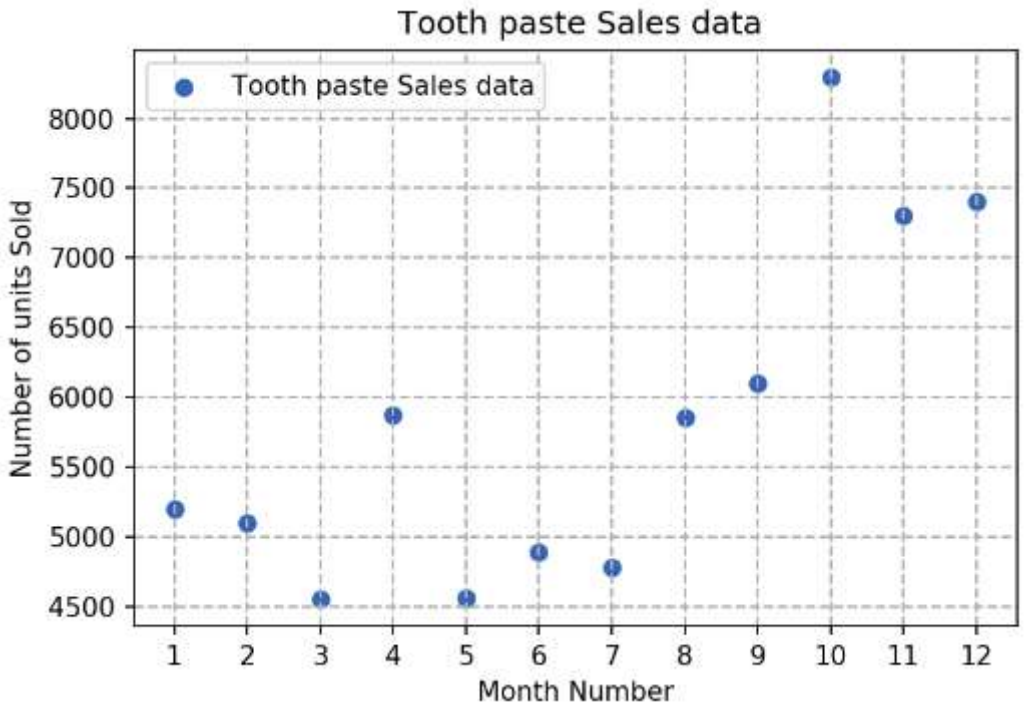


In [3]:

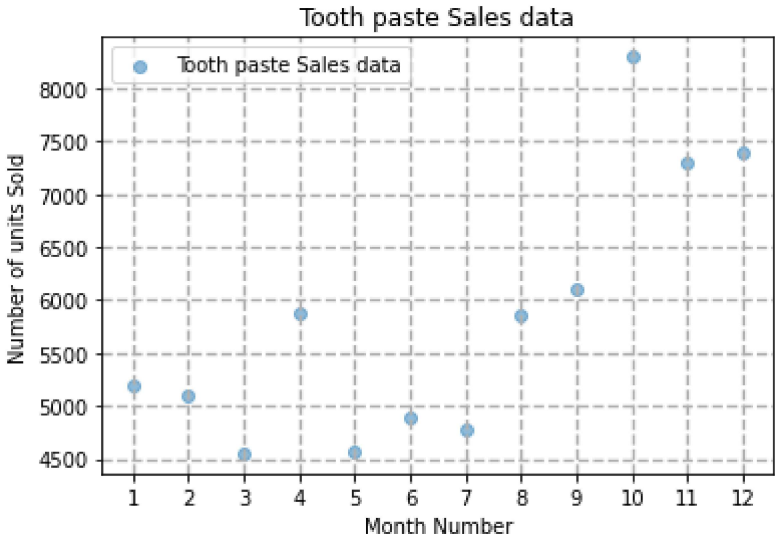
```
plt.figure(figsize=(9, 5))
lines = ['facewash','facecream','toothpaste','bathingshop','shampoo','moisturizer']


plt.plot(month_number, facewash, 'o-', color='red', label='Face Wash Sales Data')

plt.plot(month_number, facecream, 'o-', color='blue', label='Face Cream Sales Data')

plt.plot(month_number, toothpaste, 'o-', color='green', label='Face Wash Sales Data')

plt.plot(month_number, bathingshop, 'o-', color='red', label='Bathing Shop Sales Data')

plt.plot(month_number, shampoo, 'o-', color='purple', label='Shampoo Sales Data')

plt.plot(month_number, moisturizer, 'o-', color='brown', label='Moisturizer Sales Data')

plt.xlabel("Month Number")
plt.ylabel("Sales units in number")

plt.title("Comapany Sales data of last year")
plt.xticks(month_number)
plt.legend()
plt.title('Sales data')
plt.show()
```


Sales data
Face Wash Sales Data
Face Cream Sales Data
Face Wash Sales Data
Bathing Shop Sales Data
Shampoo Sales Data
Moisturizer Sales Data
Sales units in number
14000
12000
10000
8000
6000
4000
2000
1
2
3
4
5
6
7
8
9
10
11
12
Month Number

Ecercise 3: Read toothpaste sales data of each month using a scatter plot. Also, add a grid in the plot. gridline style should “–“.

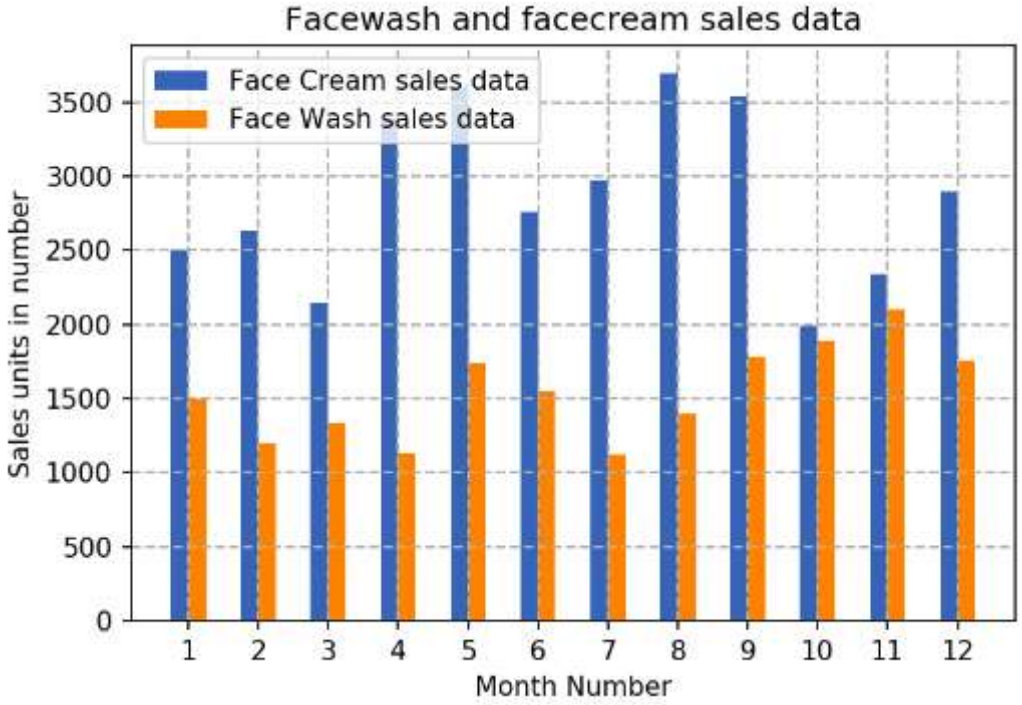


In [4]:
```
plt.scatter(month_number, toothpaste,  alpha=0.5)
plt.xticks(month_number)
plt.grid(True, linewidth = "1.4", linestyle = "--")
plt.xlabel("Month Number")
plt.ylabel("Number of units Sold")
plt.legend(["Tooth paste Sales data"])
plt.title("Tooth paste Sales data")
plt.show()
```

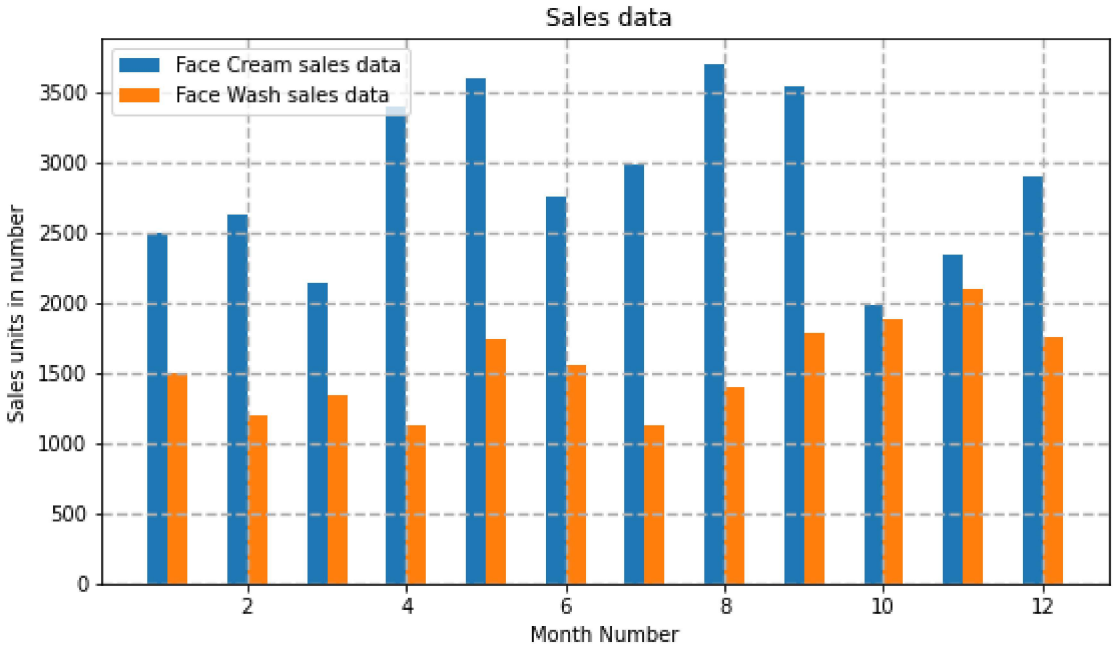


Exercise 4: Plot face cream and facewash product sales data using the bar chart.

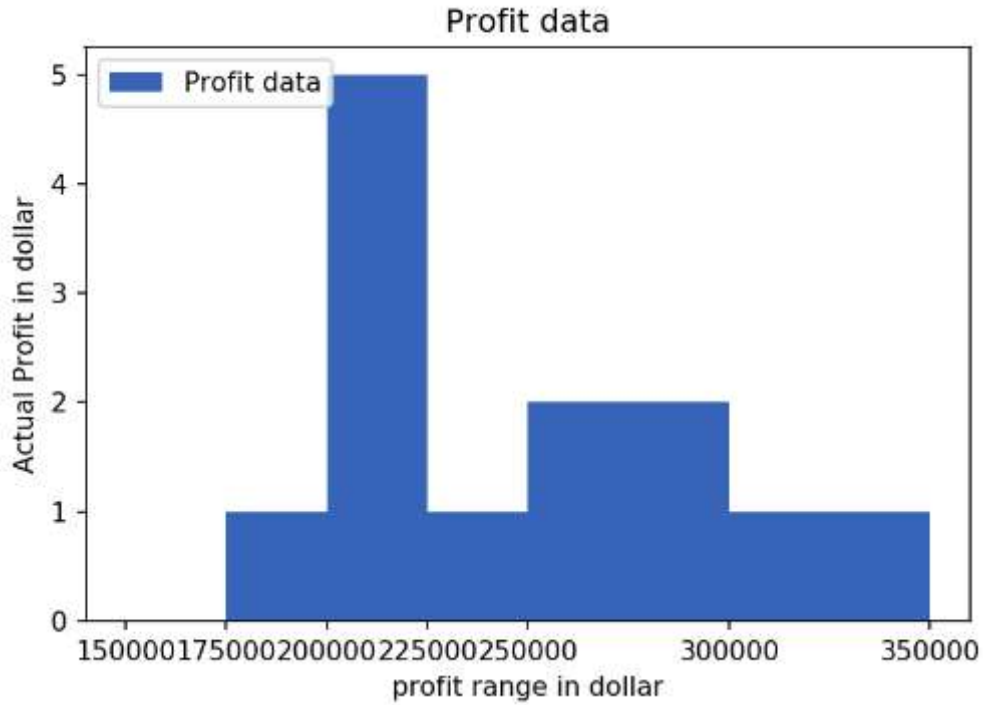
The bar chart should display the number of units sold per month for each product. Add a separate bar for each product in the same chart



In [5]:
```
plt.figure(figsize=(9, 5))

plt.bar([a-0.25 for a in month_number], facecream, width= 0.25, label = 'Face Cream sales data', align='edge')
plt.bar([a+0.25 for a in month_number], facewash, 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.grid(True, linewidth = "1.4", linestyle = "--")
plt.show()
```

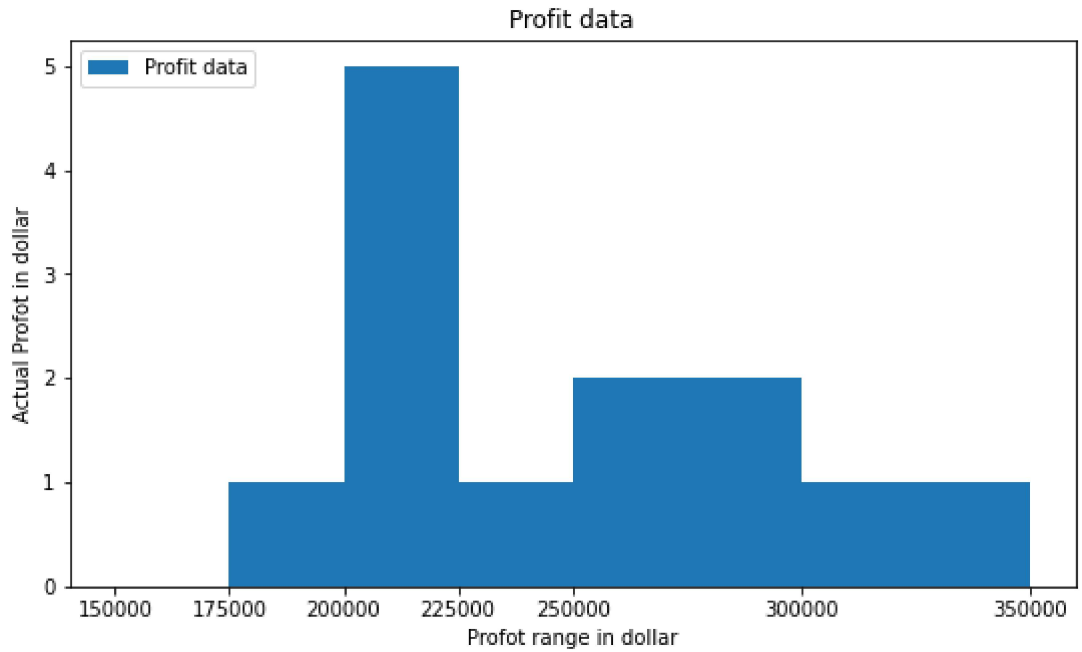


Exercise 5: Plot the total profit of each month using the histogram to see the most common profit ranges

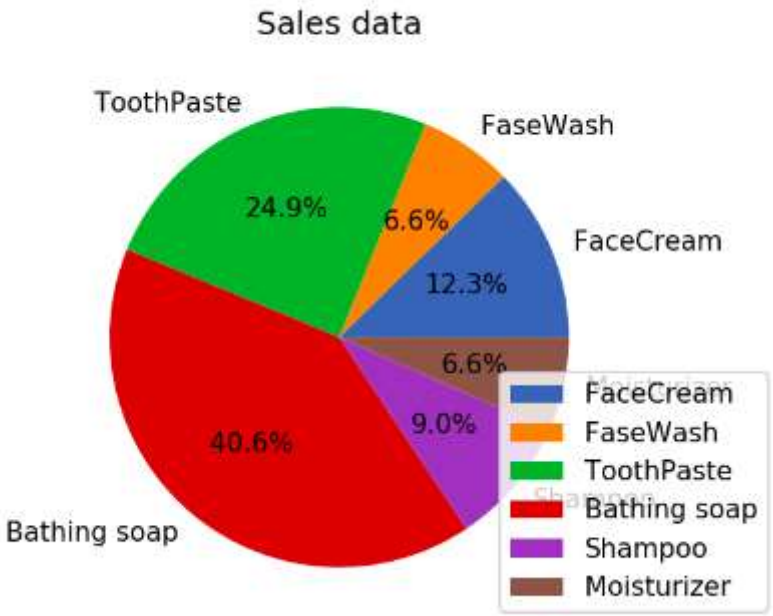


In [6]:
```
plt.figure(figsize=(9, 5))
labels = ['low', 'average', 'Good', 'Best']

x = [150000, 175000, 200000, 225000, 250000, 300000, 350000]
plt.hist(total_profit,x,label = 'Profit data')

plt.ylabel('Actual Profot in dollar')
plt.xlabel('Profot range in dollar')
plt.title(' Sales data')
plt.xticks(x)
plt.legend(loc='upper left')
plt.title('Profit data')
```

Out[6]: Text(0.5, 1.0, 'Profit data')



Exercise 6: Plot total sale data for last year for each product using a Pie chart



In [7]:
```
labels = ['FaceCream', 'FaseWash', 'ToothPaste', 'Bathing soap', 'Shampoo', 'Moisturizer']
sales = [sum(facecream), sum(facewash),  sum(toothpaste),  sum(bathingshop), sum(shampoo),  sum(moisturizer)]
plt.axis("equal")
plt.pie(sales, labels=labels, autopct='%1.1f%%')
plt.legend(loc='lower right')
plt.title('Sales data')
plt.show()
```

In [ ]:

In [ ]: