Assignment 12

Rishav Sharma

Q1. Create following Line Charts using matplotlib. Define title, x label, y label and legends whenever applicable.

year = [2011, 2012, 2013, 2014, 2015]

minTemp = [28, 31, 32, 27, 35]

maxTemp = [38, 41, 43, 36, 39]

avgTemp = [31, 37, 34, 32, 37]

a)create chart of year wise minimum temprature

b)create chart of year wise minimum, maximum and average temprature (multiple lines in single plot)

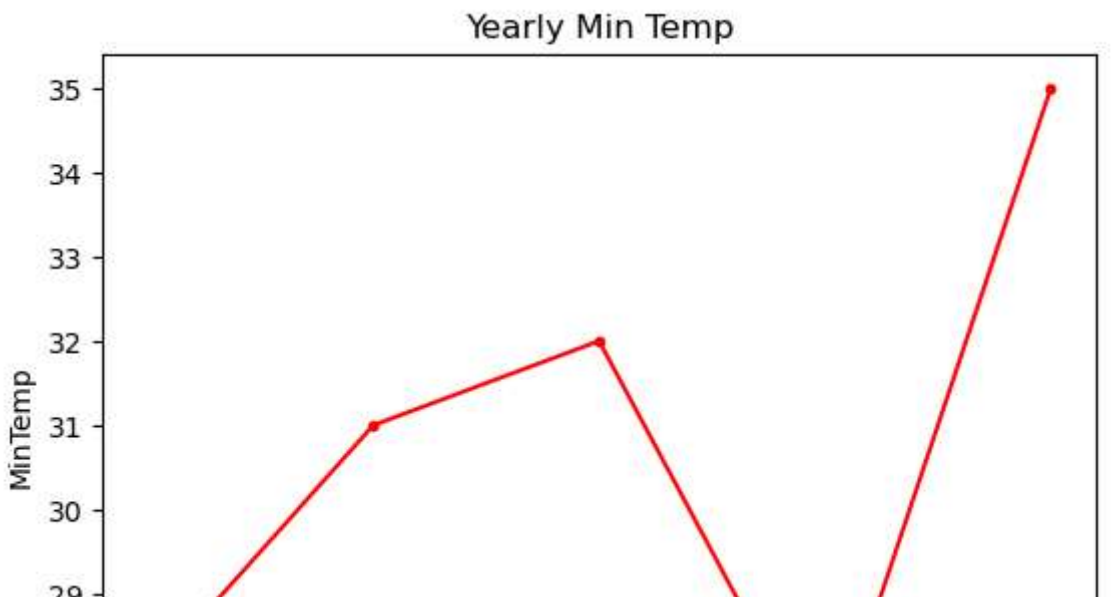
c)create subplots: year vs minTemp, year vs maxTemp and year vs avgTemp

In [80]:
```
import matplotlib
import matplotlib.pyplot as plt
```

a) Create chart of year wise minimum temprature Year wise Minimum temperature

In [81]:
```
year = [2011, 2012, 2013, 2014, 2015]

minTemp = [28, 31, 32, 27, 35]

maxTemp = [38, 41, 43, 36, 39]

avgTemp = [31, 37, 34, 32, 37]

plt.plot(year,minTemp,'r.-')
plt.xlabel("Year")
plt.ylabel("MinTemp")
plt.title("Yearly Min Temp")
```

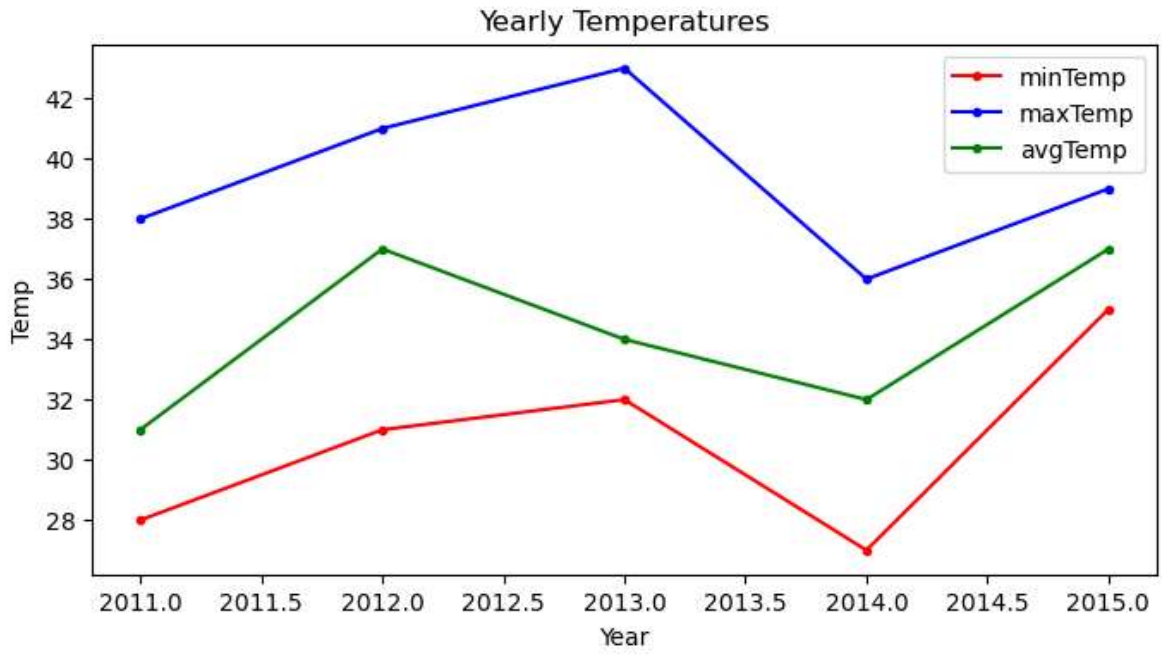
Out[81]:
```
Text(0.5, 1.0, 'Yearly Min Temp')
```



b)create chart of year wise minimum, maximum and average temprature (multiple lines in single plot)

In [82]:
```
fig,axes=plt.subplots(figsize=(8,4))
axes.plot(year,minTemp,'r.-',label="minTemp")
axes.plot(year,maxTemp,'b.-',label="maxTemp")
axes.plot(year,avgTemp,'g.-',label="avgTemp")
axes.set_xlabel("Year")
axes.set_ylabel("Temp")
axes.set_title('Yearly Temperatures')
axes.legend(loc=1)
```

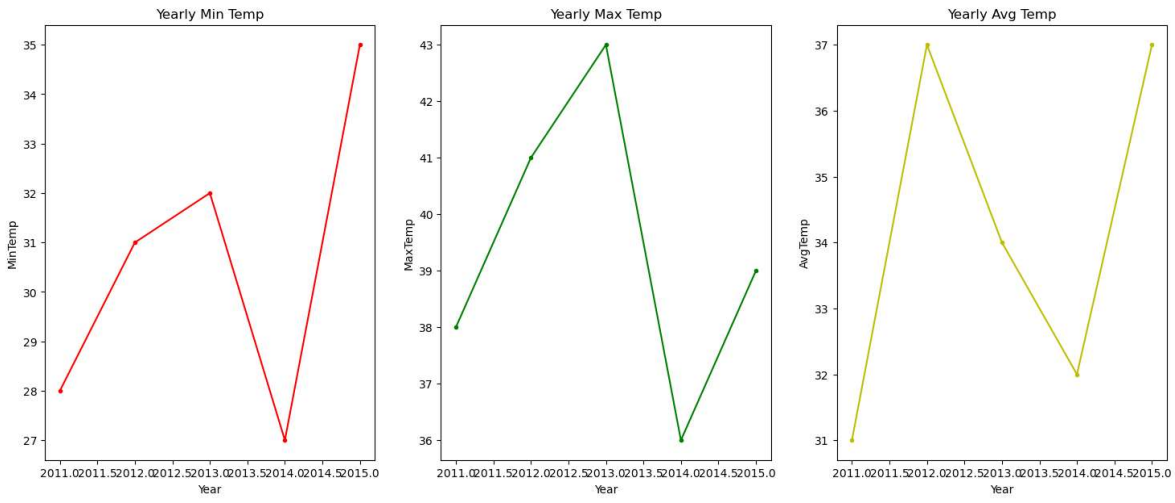
Out[82]:
```
<matplotlib.legend.Legend at 0x2812b67a610>
```



c)create subplots: year vs minTemp, year vs maxTemp and year vs avgTemp

In [83]:
```
plt.figure(figsize=(18,7))
plt.subplot(1,3,1)
plt.plot(year,minTemp,'r.-')
plt.xlabel('Year')
plt.ylabel('MinTemp')
plt.title('Yearly Min Temp')
plt.subplot(1,3,2)
plt.plot(year,maxTemp,'g.-')
plt.xlabel('Year')
plt.ylabel('MaxTemp')
plt.title('Yearly Max Temp')
plt.subplot(1,3,3)
plt.plot(year,avgTemp,'y.-')
plt.xlabel('Year')
plt.ylabel('AvgTemp')
plt.title('Yearly Avg Temp')
```

Out[83]:
```
Text(0.5, 1.0, 'Yearly Avg Temp')
```



Q2. Visualize Company Sales Data (excel file is attached). Define title, x label, y label and legends whenever applicable.

a)Read Total profit of all months and show it using a line plot

b)Get total profit of all months and show line plot with the following Style properties

```
Generated line plot must include following Style properties: -
```

i)Line Style dotted and Line-color should be red

ii)Show legend at the lower right location.

iii)X label name = Month Number

iv)Y label name = Sold units number

v)Add a circle marker.

vi)Line marker color as red

vii)Line width should be 3

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

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

In [84]:
```
import pandas as pd
data= pd.read_csv('company_sales_data.csv',low_memory=False)
data
```

Out[84]:

	month_number	facecream	facewash	toothpaste	bathingsoap	shampoo	moisturizer	total_
0	1	2500	1500	5200	9200	1200	1500	
1	2	2630	1200	5100	6100	2100	1200	
2	3	2140	1340	4550	9550	3550	1340	
3	4	3400	1130	5870	8870	1870	1130	
4	5	3600	1740	4560	7760	1560	1740	
5	6	2760	1555	4890	7490	1890	1555	
6	7	2980	1120	4780	8980	1780	1120	
7	8	3700	1400	5860	9960	2860	1400	
8	9	3540	1780	6100	8100	2100	1780	
9	10	1990	1890	8300	10300	2300	1890	
10	11	2340	2100	7300	13300	2400	2100	
11	12	2900	1760	7400	14400	1800	1760	

a)Read Total profit of all months and show it using a line plot

In [85]:
```
y=data["total_profit"]
x=data['month_number']
plt.plot(x,y,'r.-')
plt.xlabel("Months")
plt.ylabel("Total Profit")
plt.title("Profit per Month")
```

Out[85]:
```
Text(0.5, 1.0, 'Profit per Month')
```

b)Get total profit of all months and show line plot with the following Style properties

```
Generated line plot must include following Style properties: -

i)Line Style dotted and Line-color should be red
```

ii)Show legend at the lower right location.

iii)X label name = Month Number

iv)Y label name = Sold units number

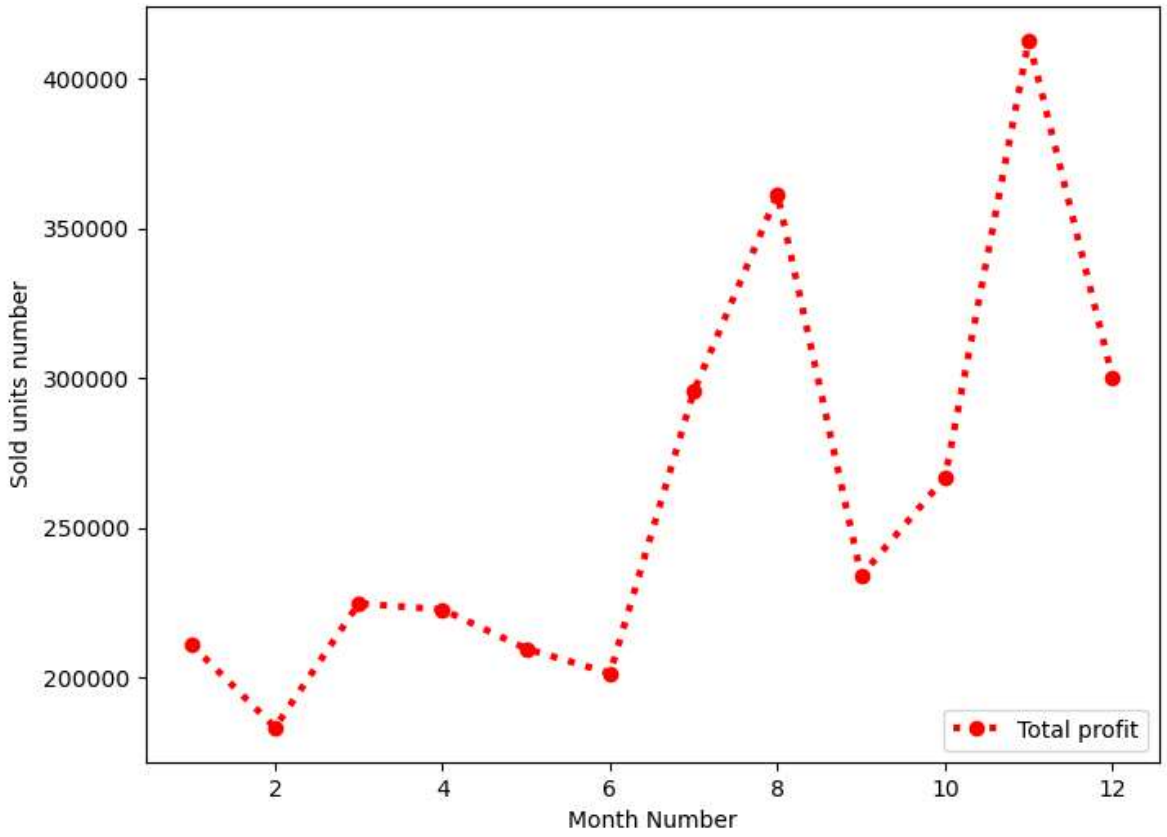
v)Add a circle marker.

vi)Line marker color as red

vii)Line width should be 3

In [86]:
```
plt.figure(figsize=(8,6))
plt.plot(x,y,color="red",label='Total profit',lw=3,linestyle=':',marker='o',m
plt.xlabel('Month Number')
plt.ylabel('Sold units number')
plt.legend(loc=4)
```

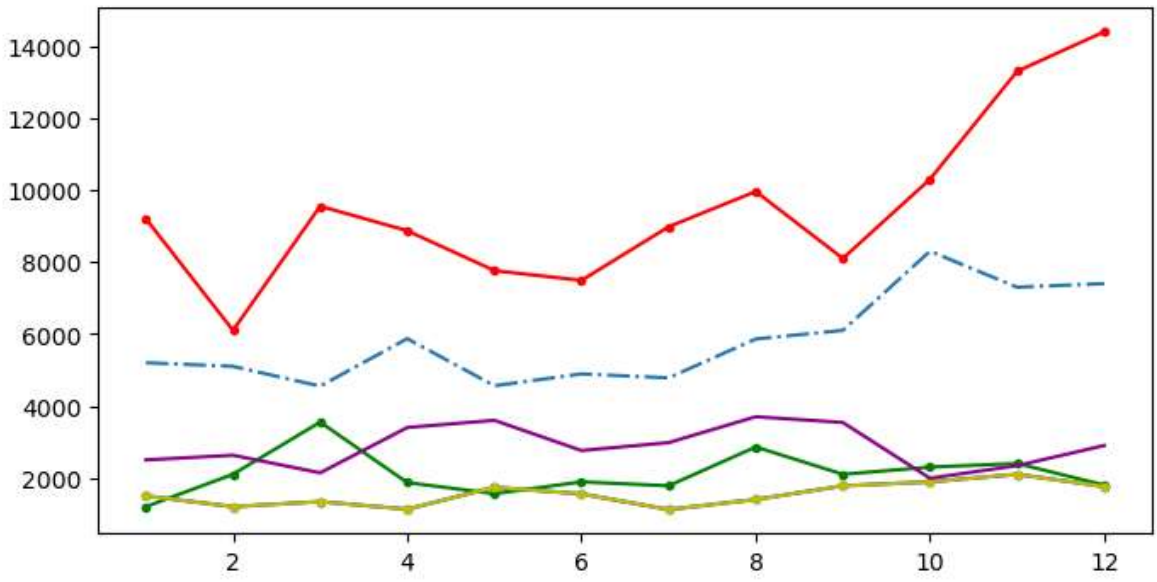
Out[86]: <matplotlib.legend.Legend at 0x2812afd8cd0>



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

In [91]:
```
a=data['bathingsoap']
b=data['facewash']
c=data['facecream']
d=data['toothpaste']
e=data['shampoo']
f=data['moisturizer']
fig,axes=plt.subplots(figsize=(8,4))
axes.plot(x,a,'r.-',label="minTemp")
axes.plot(x,b,'b.-',label="maxTemp")
axes.plot(x,e,'g.-',label="avgTemp")
axes.plot(x,f,'y.-',label="minTemp")
axes.plot(x,c,color="#8B008B",label="maxTemp")
axes.plot(x,d,ls='-.',label="avgTemp")
```

Out[91]: [<matplotlib.lines.Line2D at 0x2812bda8130>]



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

In [78]:
```
plt.figure(figsize=(12,5))
plt.subplot(1,2,1)
plt.plot(x,a,'r.-')
plt.xlabel('Months')
plt.ylabel('No. of units of Bathing Soap')
plt.title('Bathing Soap Sales')
plt.subplot(1,2,2)
plt.plot(x,b,'b.-')
plt.xlabel('Months')
plt.ylabel('No. of units of Facewash')
plt.title('Facewash Sales')
```

Out[78]:
```
Text(0.5, 1.0, 'Facewash Sales')
```