

```

1 import csv
2 from google.colab import files
3 files.upload()
4
5 with open('passby_data.csv',encoding = 'UTF-8') as f:
6     reader = csv.DictReader(f)
7
8 #f = open('passby_data.csv', encoding = 'UTF-8')
9 # reader = csv.DictReader(f)
10
11 for i in reader:
12     print(row)
13 f.close()

```

...

파일 선택

선택된 파일 없음

Cancel upload

▼ Matplotlib 라이브러리

- 파이썬으로 데이터를 시각화 하는데 가장 많이 사용
- 2D형태의 그래프, 이미지 등을 그릴 때 사용
- <https://matplotlib.org>
- **import** matplotlib.pyplot as plt

```

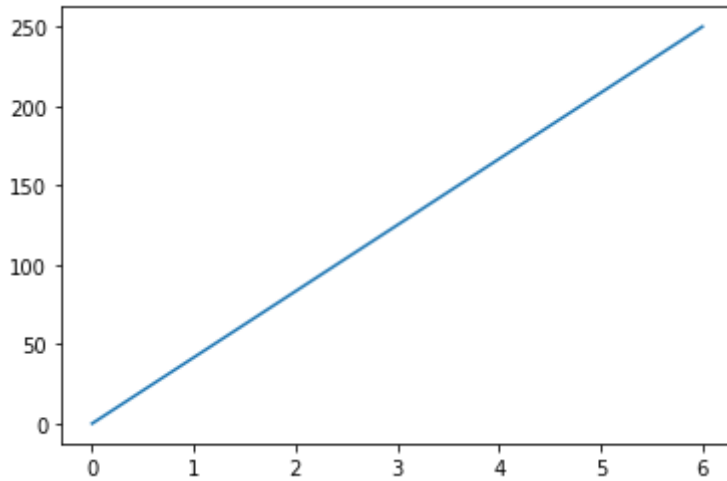
1 import matplotlib.pyplot as plt
2 plt.plot([10,20,30,40]) #직선 꺾은선
3 # plt.plot([x축 데이터],[y축 데이터])
4
5 plt.show() #표 보여주기

```



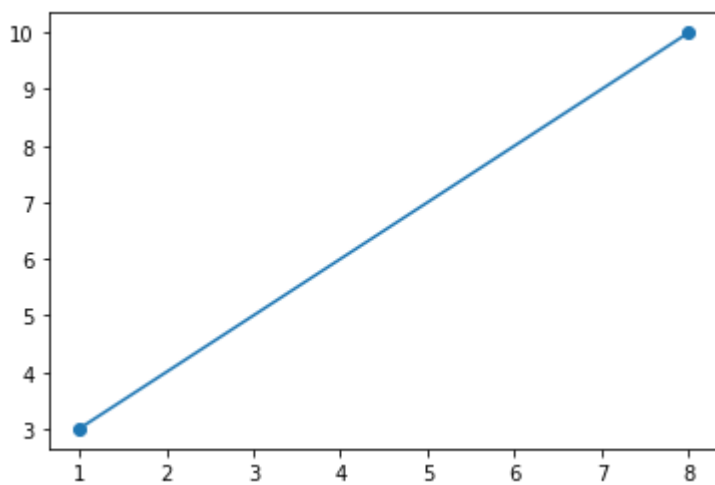
문제1

```
1 import matplotlib.pyplot as plt
2 plt.plot([0,6],[0,250])
3 plt.show()
```



문제2

```
1 import matplotlib.pyplot as plt
2 plt.plot([1,8],[3,10])
3 # plt.scatter([1,8],[3,10]) #각 끝을 점으로 표시
4 plt.show()
```



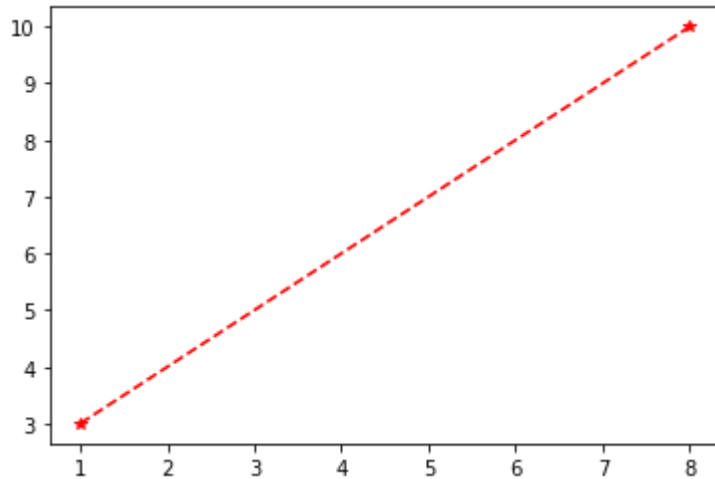
문제 3

```
1 import matplotlib.pyplot as plt
2 # plt.plot([1,8],[3,10],marker='*',ms=20, mec='r',mfc="r")
```

```

3 #marker = "마크 모양"
4 #ms(mark size) = 마크 크기
5 #mec(mark edge color) = "마크 테두리 색상"
6 #mfc(mark full color) = "마크 전체 색상"
7
8 #한번에 설정 = "모양선종류색상"
9 plt.plot([1,8],[3,10],'*--r')
10 plt.show()

```



문제 4

```

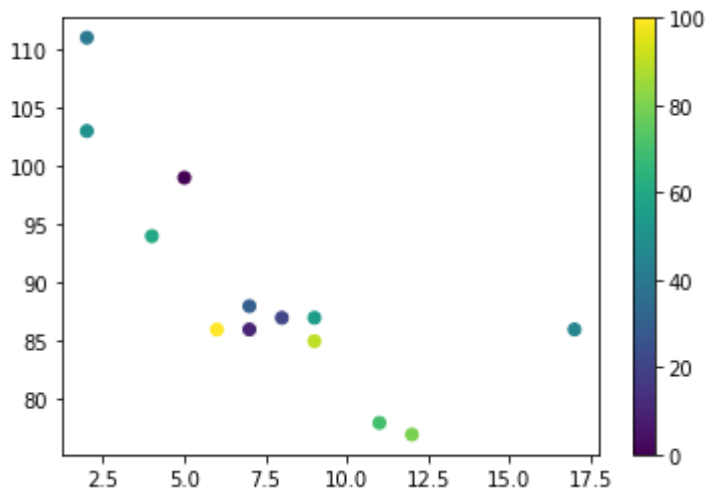
1 import matplotlib.pyplot as plt
2 import numpy as np
3 x1 = np.array([0,2,5,7])
4 y1 = np.array([3,8,1,10])
5 x2 = np.array([0,1,2,4])
6 y2 = np.array([6,2,7,11])
7 #x축 y축 선언
8 font1 = {'family':'serif','color':'blue','size':20}
9 font2 = {'family':'serif','color':'darkred','size':15} #폰트 선언
10
11 plt.plot(x1,y1,x2,y2)
12 plt.title("Sports Watch Data",fontdict=font1, loc ="left") #제목 loc(location)="위치"
13 plt.xlabel("Average Pulse",fontdict=font2) #x축 제목
14 plt.ylabel("Calorie",fontdict=font2)#y축 제목
15
16 plt.show()

```

Sports Watch Data

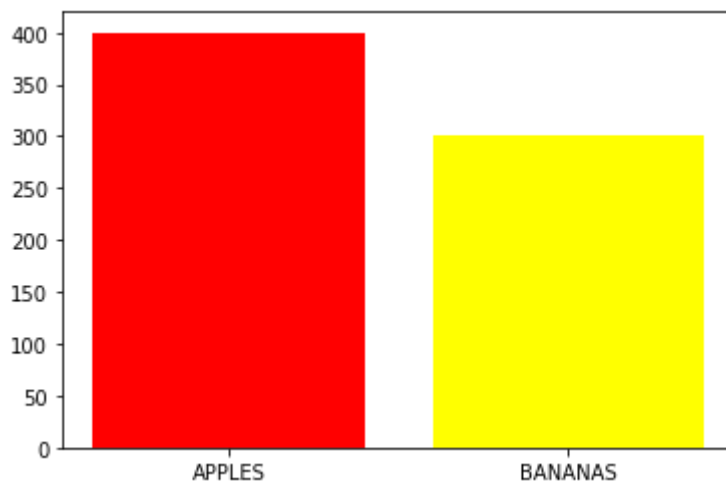


```
1 x = np.array([5,7,8,7,2,17,2,9,4,11,12,9,6])
2 y = np.array([99,86,87,88,111,86,103,87,94,78,77,85,86])
3 colors = np.array([0,10,20,30,40,45,50,55,60,70,80,90,100])
4 plt.scatter(x,y,c=colors,cmap='viridis')
5 plt.colorbar()
6 plt.show()
```



```
1 x1=['APPLES']
2 x2=['BANANAS']
3 y=[400]
4 y2=[300]
5 plt.bar(x1,y,color='red')
6 plt.bar(x2,y2,color='yellow')
```

<BarContainer object of 1 artists>



[A'B'C'C'] / [3, 8, 1, 10] 막대그래프

```
1 y = np.array([35, 25, 15, 10])
2 mylabels = ['Apples', 'Bananas', 'Cherries', 'Dates']
3 myexplode = [0, 2, 0, 0, 1, 0]
```

```
3 myexplode = [0.2,0,0.4,0]
4 plt.pie(y,labels=mylabels ,explode = myexplode)
5 plt.legend(loc="center")
6 plt.show()
```

