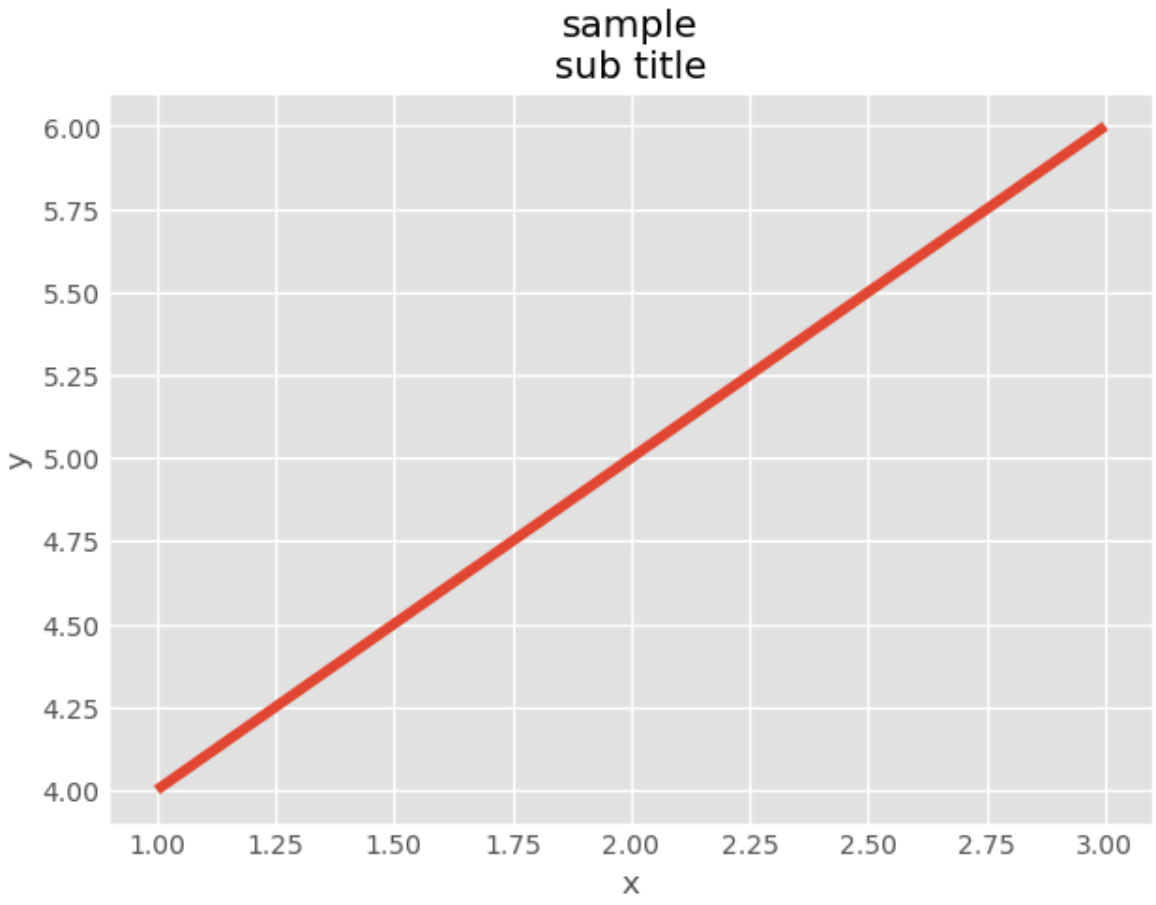
# ## Hi, I am Mohammad Kahkeshani and in this notebook I have tried to draw important diagrams with simple example

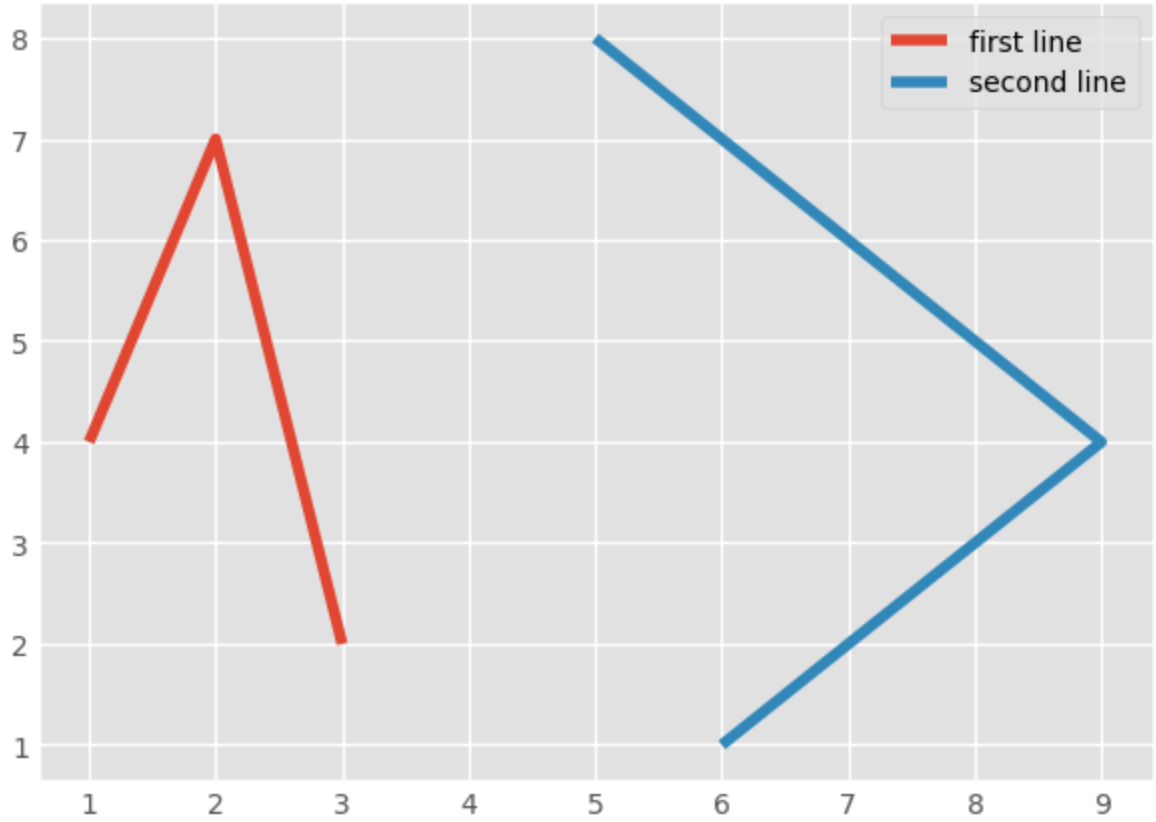
In [28]:
```
import matplotlib.pyplot as plt
import numpy as np
import csv
```

In [29]:
```
#very simple plot

plt.plot([1,2,3],[4,5,6])
plt.xlabel('x')
plt.ylabel('y')
plt.title('sample\nsub title')
plt.show()
```



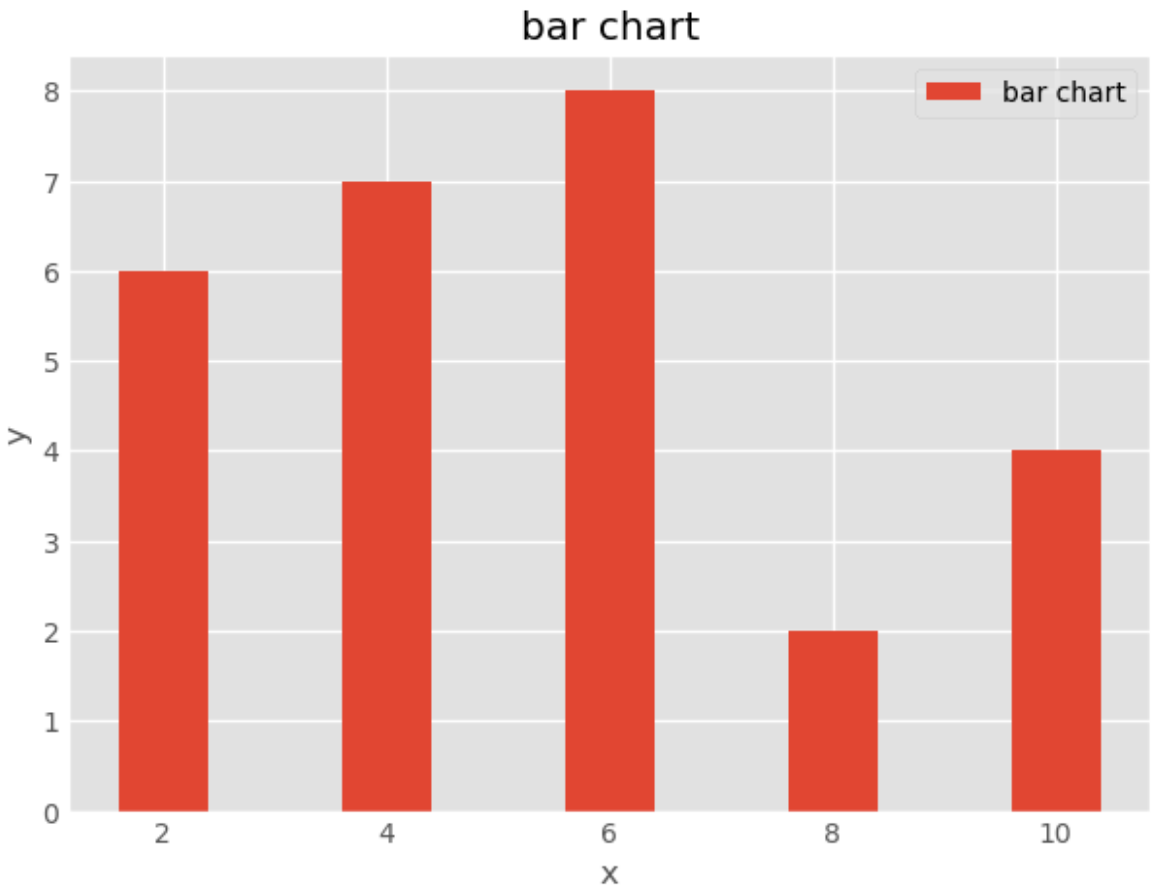
In [30]:

```
#Legend graph
x = [1,2,3]
y = [4,7,2]
x1 = [5,9,6]
y1 = [8,4,1]
plt.plot(x,y, label = 'first line')
plt.plot(x1,y1, label = 'second line')
plt.legend()
plt.show()
```



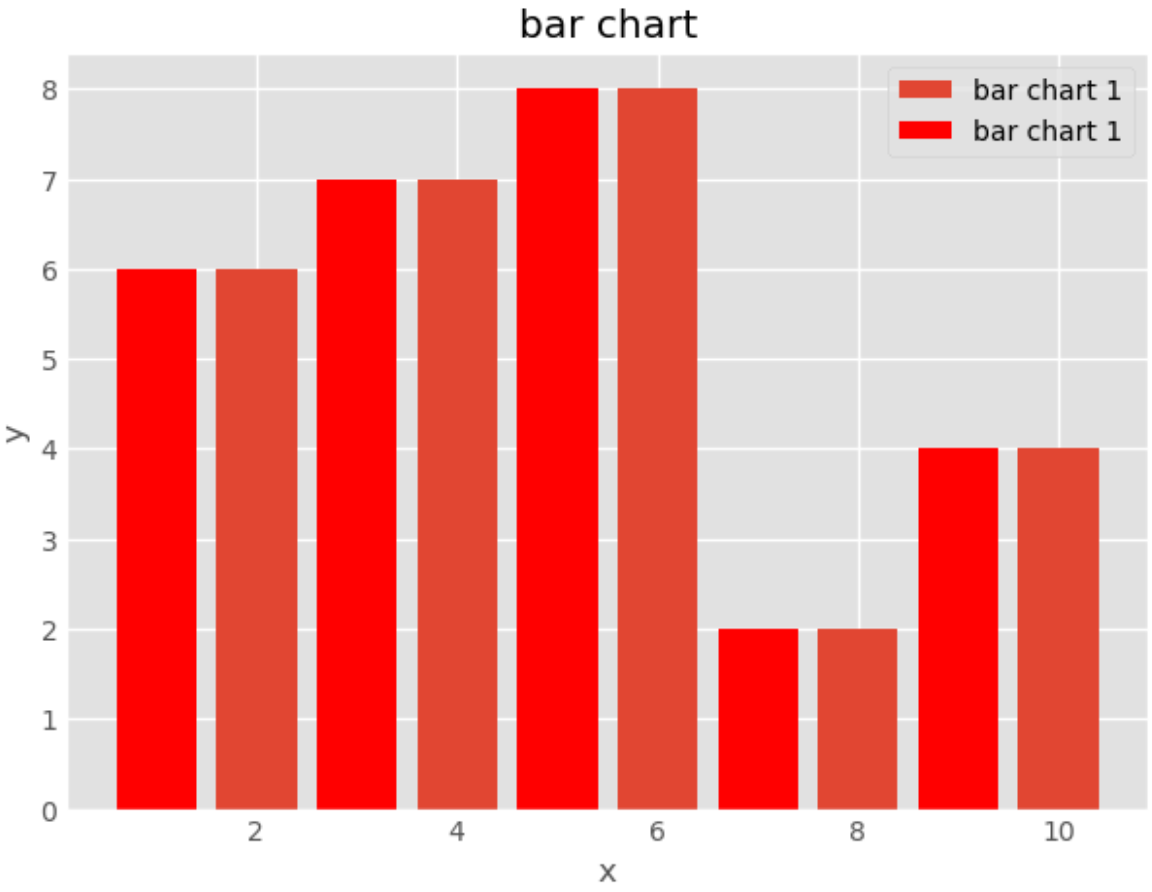
In [31]:

```
# plot a barchart
x = [2, 4, 6, 8, 10]
y = [6, 7 ,8, 2, 4]
plt.bar(x,y, label = 'bar chart')
plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.title('bar chart')
plt.show()
```



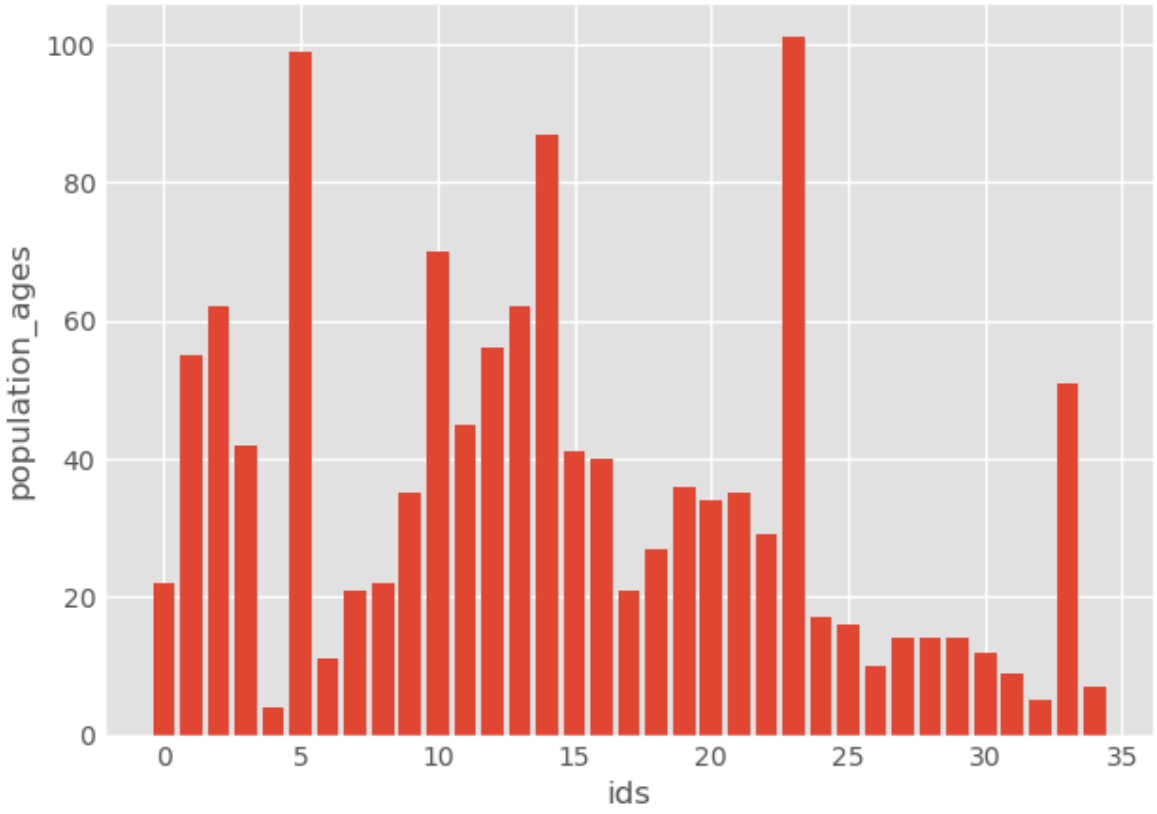
In [32]:

```
# plot a double barchart
x = [2, 4, 6, 8, 10]
y = [6, 7 ,8, 2, 4]
x1 = [1, 3, 5, 7, 9,]
y1 = [7, 8, 2, 4, 2]
plt.bar(x, y, label = 'bar chart 1')
plt.bar(x1, y, label = 'bar chart 1', color = 'red')
plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.title('bar chart')
plt.show()
```



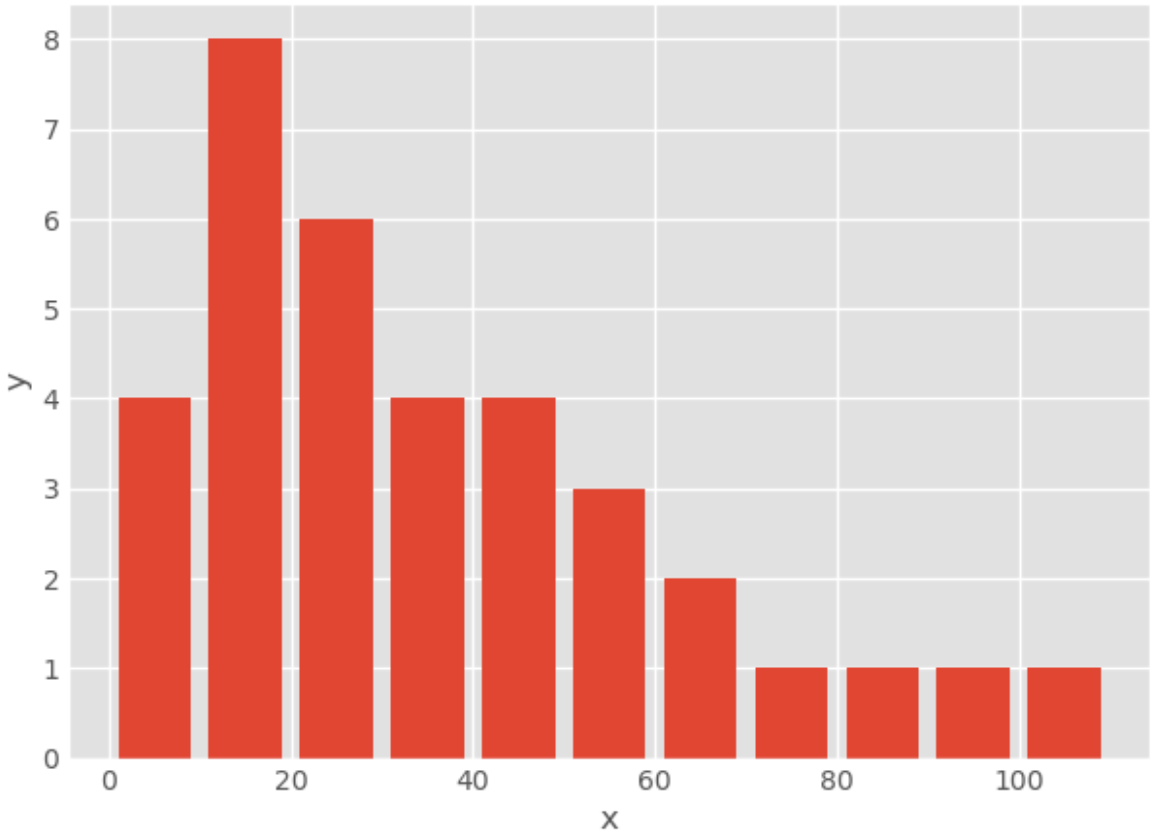
In [33]:

```
# plot a histogram whit bar method
population_ages = [22,55,62,42,4,99,11,21,22,35,70,45,56,62,87,41,40,21,27
ids = [x for x in range(len(population_ages))]
plt.bar(ids, population_ages)
plt.xlabel('ids')
plt.ylabel('population_ages')
plt.show()
```



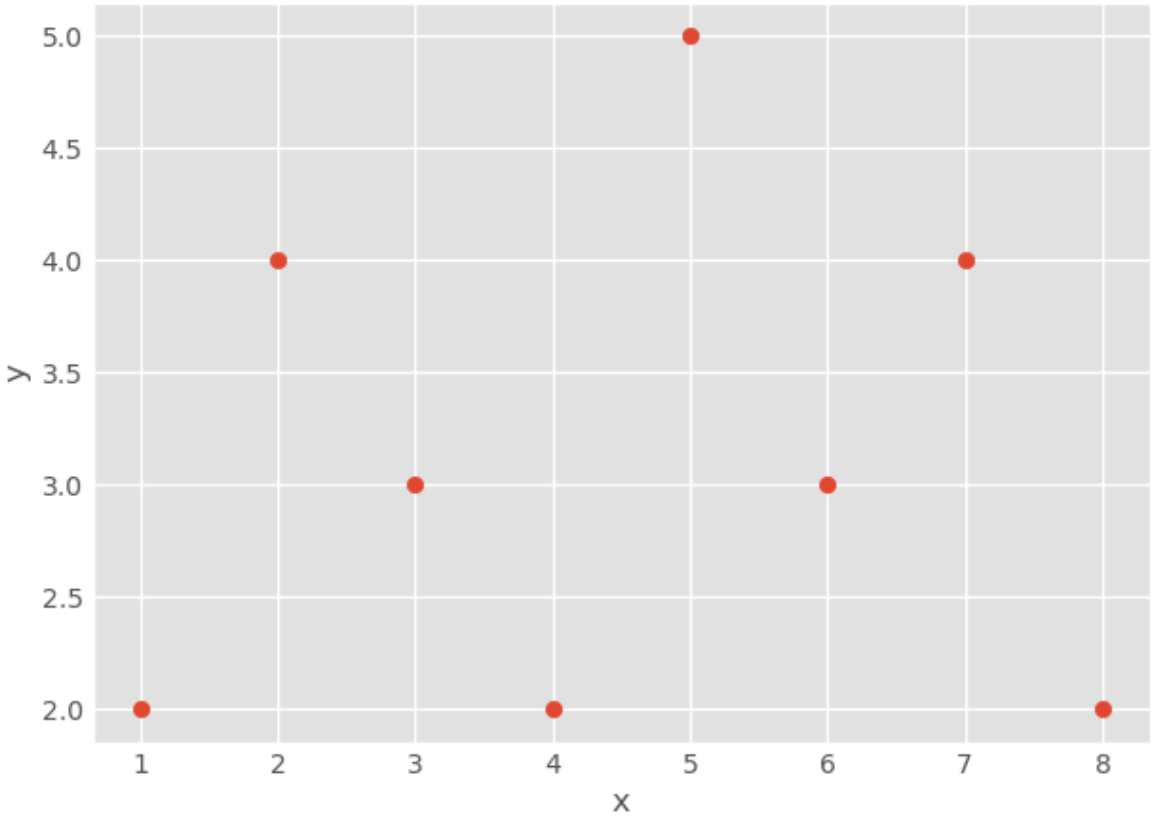
In [34]:

```
# plot a histogram with hist method
population_ages = [22,55,62,42,4,99,11,21,22,35,70,45,56,62,87,41,40,21,2
bins = [0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110]
plt.hist(population_ages, bins, histtype='bar', rwidth= 0.8)
plt.xlabel('x')
plt.ylabel('y')
plt.show()
```



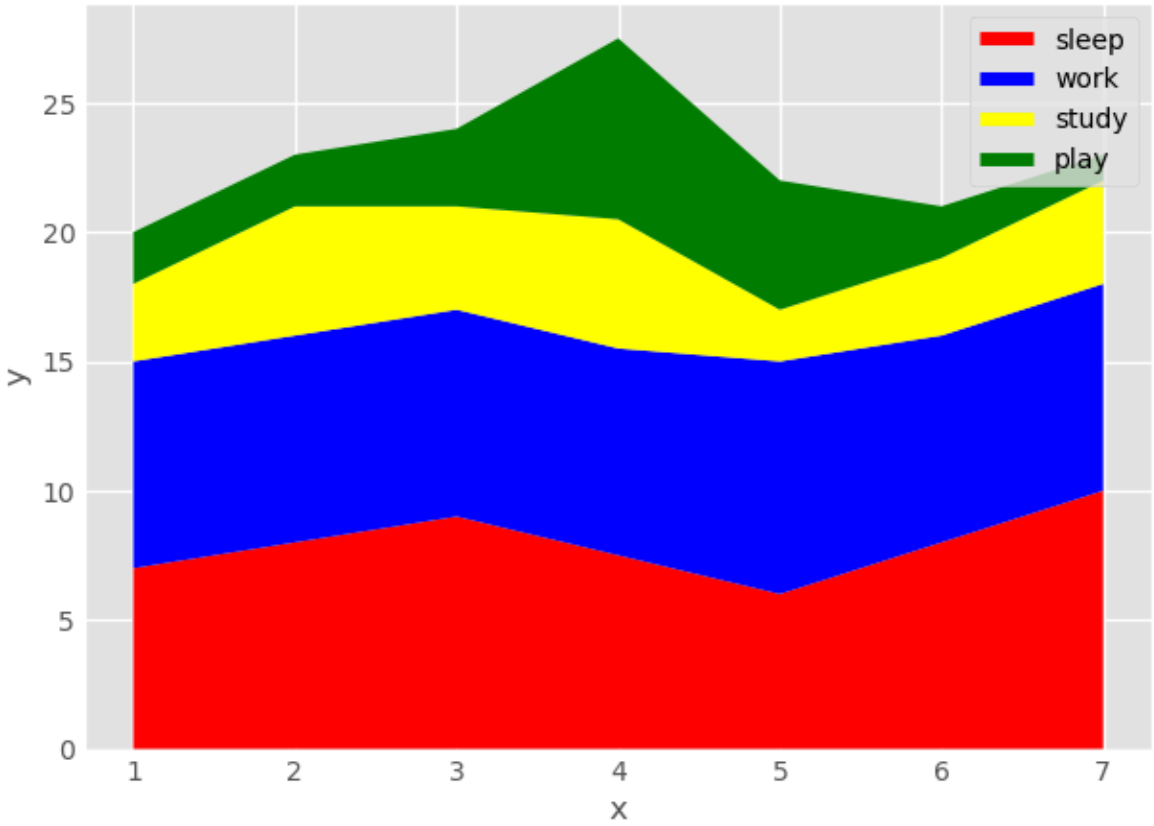
In [35]:

```
# make a scotter
x = [1, 2, 3, 4, 5, 6, 7, 8,]
y = [2, 4, 3, 2, 5, 3, 4, 2,]
plt.scatter(x, y, label = 'test')
plt.xlabel('x')
plt.ylabel('y')
plt.show()
```



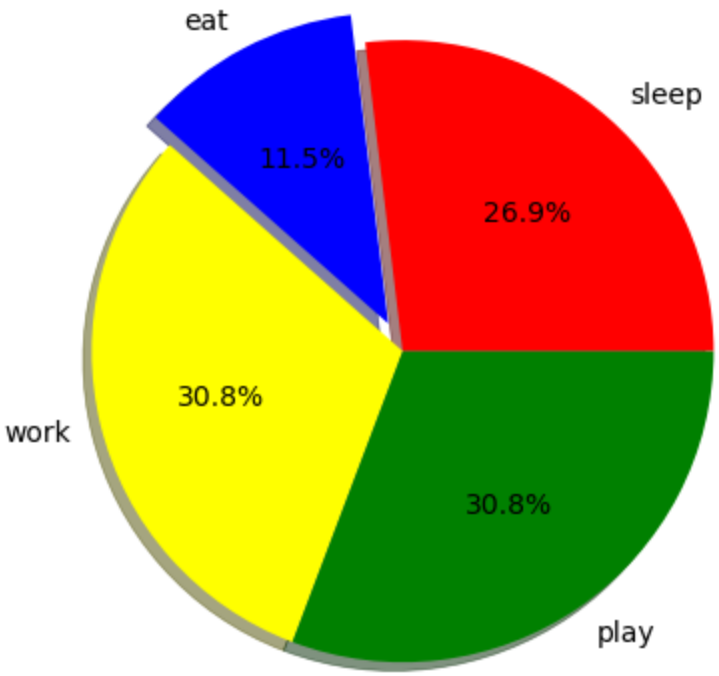
In [36]:

```
# stack plots
# weekly activity
days = [1, 2, 3, 4, 5, 6, 7,]
sleep = [7, 8, 9, 7.5, 6, 8, 10,]
work = [8, 8, 8, 8, 9, 8, 8,]
study =[3, 5, 4, 5, 2, 3, 4,]
play = [2, 2, 3, 7, 5, 2, 1,]

plt.plot([],[] , color = 'red', label = 'sleep', linewidth = 5)
plt.plot([],[] , color = 'blue', label = 'work', linewidth = 5)
plt.plot([],[] , color = 'yellow', label = 'study', linewidth = 5)
plt.plot([],[] , color = 'green', label = 'play', linewidth = 5)

plt.stackplot(days, sleep, work, study, play, colors = ['red', 'blue', 'ye
plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.show()
```



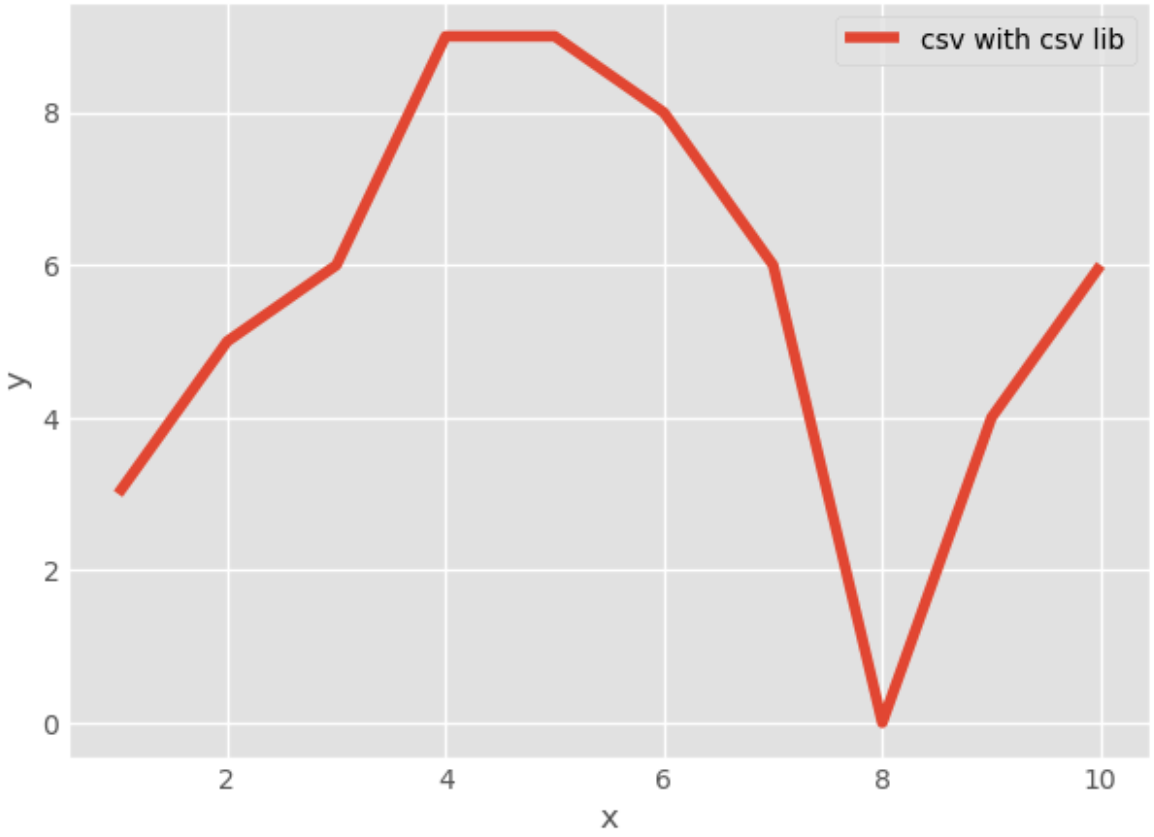
In [37]:

```
# draw a pychart
# a day activity
slice_a_day = [7, 3, 8, 8,]
activities = ['sleep', 'eat', 'work', 'play',]
plt.pie(slice_a_day, labels= activities, colors= ['red', 'blue', 'yellow',
plt.show()
```

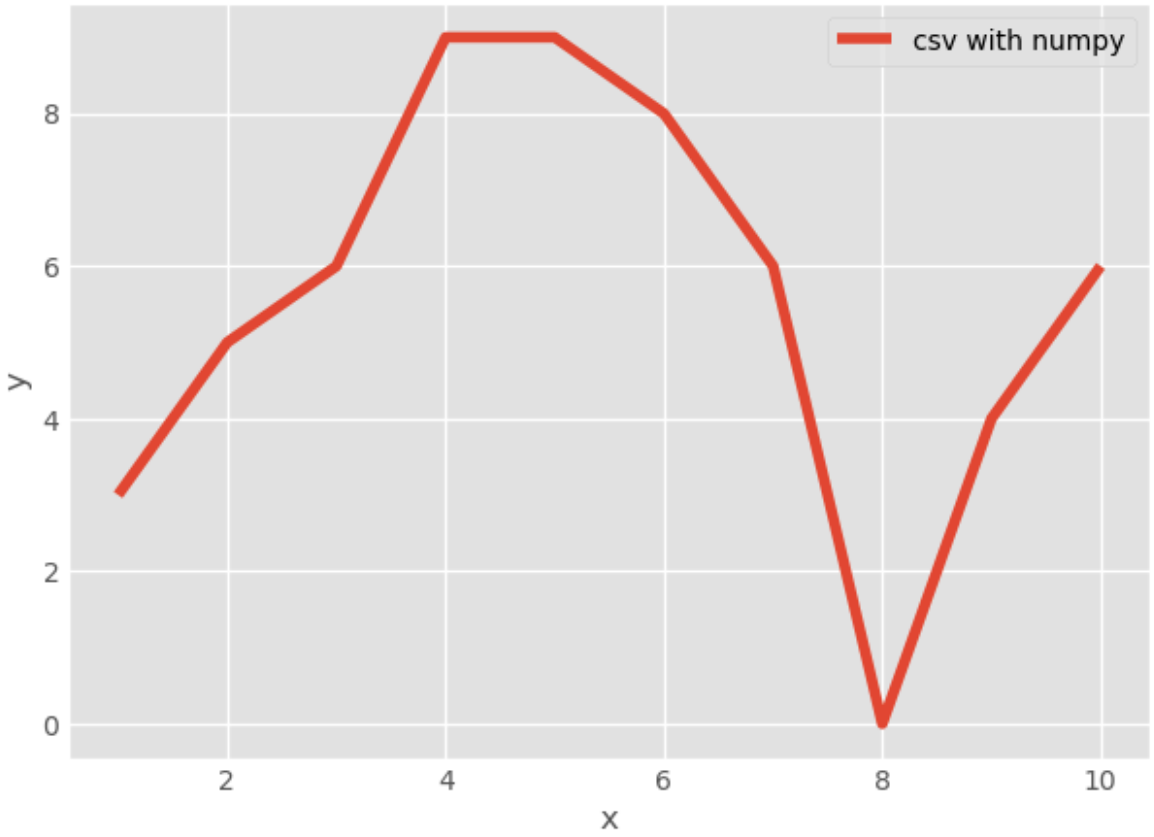


In [38]:

```
# read a csv with python csv lib
x = []
y = []

with open('csv_file.txt', 'r') as csvfile:
    plots = csv.reader(csvfile, delimiter = ',')
    for row in plots:
        x.append(int(row[0]))
        y.append(int(row[1]))
plt.plot(x, y, label = 'csv with csv lib')
plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.show()
```



In [39]:
```
# read csv with Numpy
x, y = np.loadtxt('csv_file.txt', delimiter = ',', unpack = True)
plt.plot(x, y, label = 'csv with numpy')
plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.show()
```




# example for a plot

**The average salary of people who work as programmers compared to their age and comparing it with Python programmers and js developers**

In [44]:

```
# meadian developers salaries by age
# age is x axis
dev_x = [25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35,]

# average salary is y axis for all developers
dev_y = [38496, 42000, 46752, 49320, 53200, 56000, 60275, 62316, 64928, 68

# python developers income
py_dev_y = [45372, 48876, 53850, 57287, 63016, 65985, 70003, 70000, 71496,

# js developers income
js_dev_v = [37810, 43715, 46823, 49293, 53437, 56373, 62375, 66674, 68745,

plt.plot(dev_x, dev_y, label = 'all developers' , color = 'm', linestyle =
plt.plot(dev_x, py_dev_y, label = 'python developers' , color = 'b', lines
plt.plot(dev_x, js_dev_v, label = 'js developers' , color = 'y', linestyle

# more attributes
plt.grid() #for grid your plot
plt.style.use('ggplot')
# plt.savefig('myplot.png') for save your plot in Current directory

plt.xlabel('Median developers age')
plt.ylabel('average of salary')
plt.title('Calculation of the ratio of age to income of programmers')
plt.legend()
plt.show()
```