Exercises

Mastering Python
الدرس #7
MatPlotLib & Numpy

By:

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Exercises

1. Write a NumPy program to create and print an array of 10 zeros, 10 ones, 10 fives.

2. Write a NumPy program to create and print an array of the integers from 30 to 70.

3. Write a NumPy program to create and print an array of all the even integers from 30 to 70.

4. Write a NumPy program to create and print a 3x3 identity matrix.

5. Write a NumPy program to generate and print a random number between 0 and 1

6. Write a NumPy program to create and print a 3X4 array using and iterate over it.

Exercises

7. Write a NumPy program to create and print a vector with values from 0 to 20 and change the sign of the numbers in the range from 9 to 15

8. Write a NumPy program to multiply and print the values of two given vectors (x = [1, 8, 3, 5], y= np.random.randint(0, 11, 4)

9. Write a NumPy program to find and print the number of rows and columns of a given matrix, and print the matrix

10. Write a NumPy program to create a 3x3x3 array filled with arbitrary values and print the result.

Exercises

11. If a = np.array([9, -1, 2, 5]) , b = np.array([1, -6, 0, 10]) , c = np.array([[1, 8, 2, 5],[3,1,7,9]])

Find the following :

```
print("a-b: ",a-b)
print("a*b: ",a*b)
print("a.dot(b): ",a.dot(b))
print("a*2: ",a*2)
print("np.sin(a): ",np.sin(a))
print("a<3: ",a<3)
print("a.sum(): ",a.sum())
print("a.sum(axis=0): ",a.sum(axis=0))
print("c.sum(): ",c.sum())
```
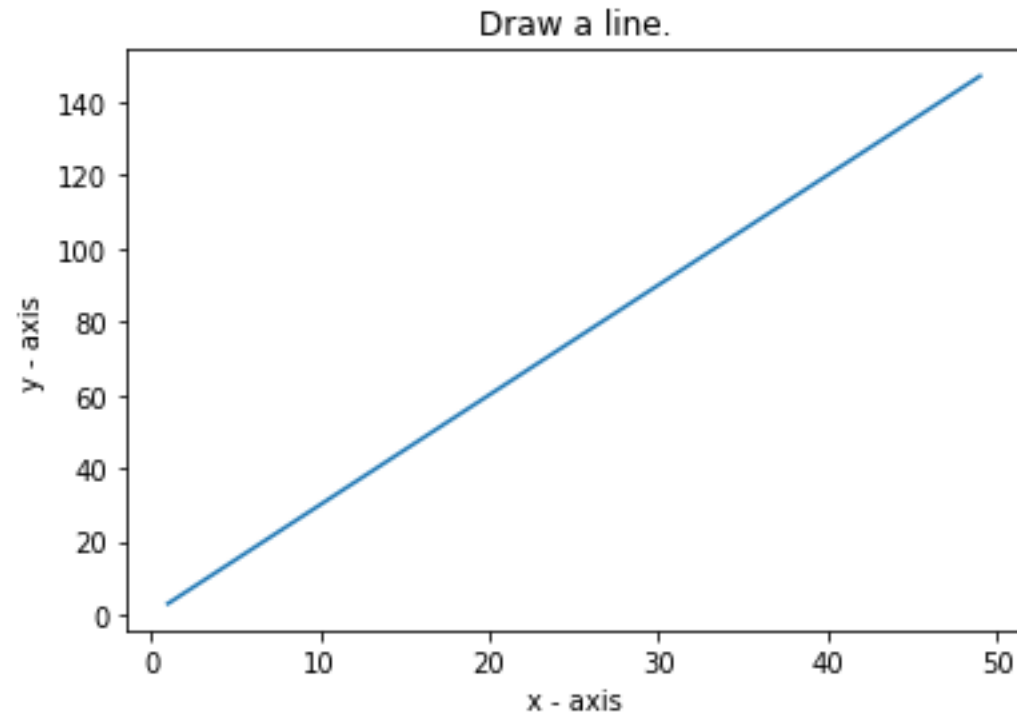
```
print("c.sum(axis=0): ",c.sum(axis=0))
print("a.min(): ",a.min())
print("a.max(): ",a.max())
print("a.mean(): ",a.mean())
print("a average(): ",np.average(a))
print("a median(): ",np.median(a))
print("a std(): ",np.std(a))
print("a var(): ",np.var(a))
print("c.cumsum(): ",c.cumsum())
print("a[1:2] :  ",a[1:2])
print("a[2:] :  ",a[2:])
print("c[-1] :  ",c[-1])
```

Exercises

12. Write a Python program to draw a line with the following x and y

X = range(1, 50), Y = [value * 3 for value in X]

Title = 'Draw a line', y Label is = 'y-axis',x Label is = 'x-axis'

13. Write a Python program to plot two or more lines on same plot with

line 1 points

x1 = [10,20,30]

y1 = [20,40,10]

line 2 points
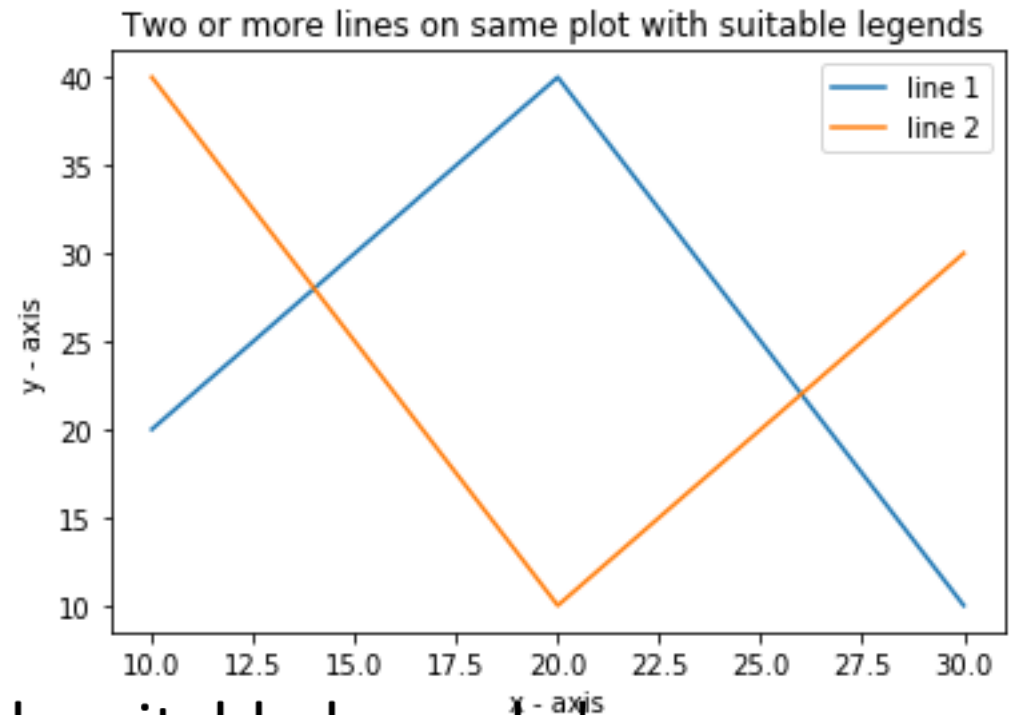
x2 = [10,20,30]

y2 = [40,10,30]

Xlabel='x - axis'

Ylabel='y - axis'

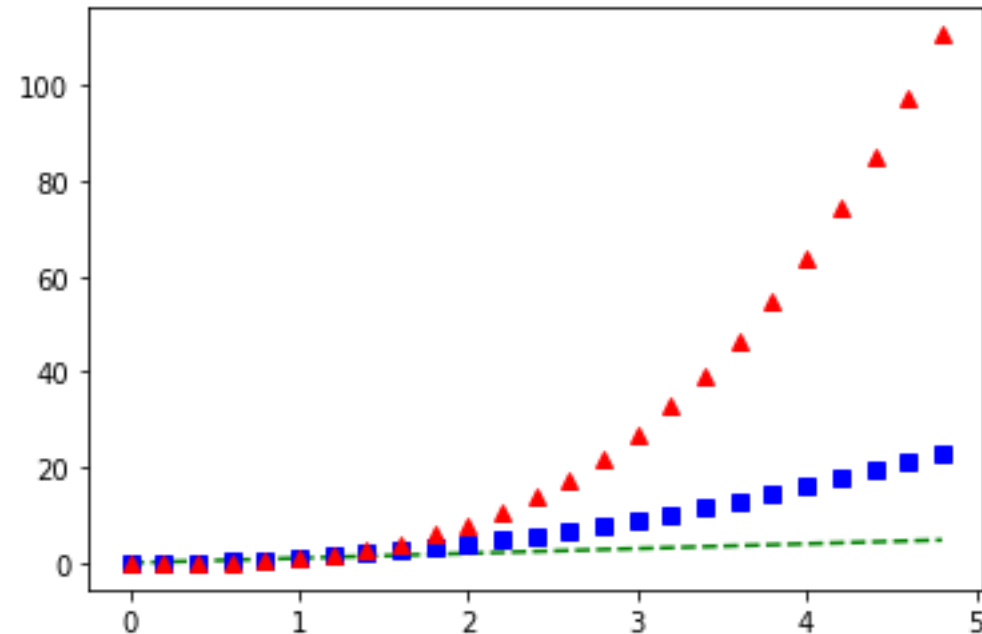Title='Two or more lines on same plot with suitable legends'

14. Write a Python program to plot the below figure with two lines (t,t2) on same plot with
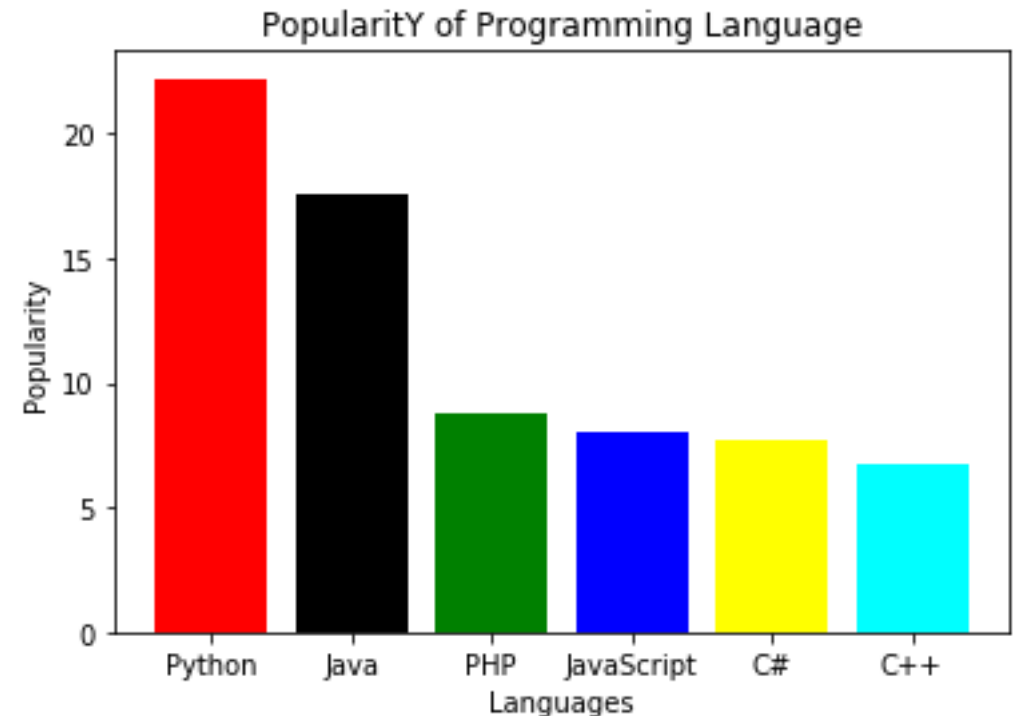
t = np.arange(0., 5., 0.2)

t2= t**2

Exercises

15. Write a Python programming to display the following bar chart of the popularity of programming Languages

x = ['Python', 'Java', 'PHP', 'JavaScript', 'C#', 'C++']

popularity = [22.2, 17.6, 8.8, 8, 7.7, 6.7]

End of the lesson

Thank You

Master in Software Engineering

Hussam Hourani has over 25 years of Organizations Transformation, VROs, PMO, Large Scale and Enterprise Programs Global Delivery, Leadership, Business Development and Management Consulting. His client experience is wide ranging across many sectors but focuses on Performance Enhancement, Transformation, Enterprise Program Management, Artificial Intelligence and Data Science.