Plotting in Python
OOP(II)
Second Class

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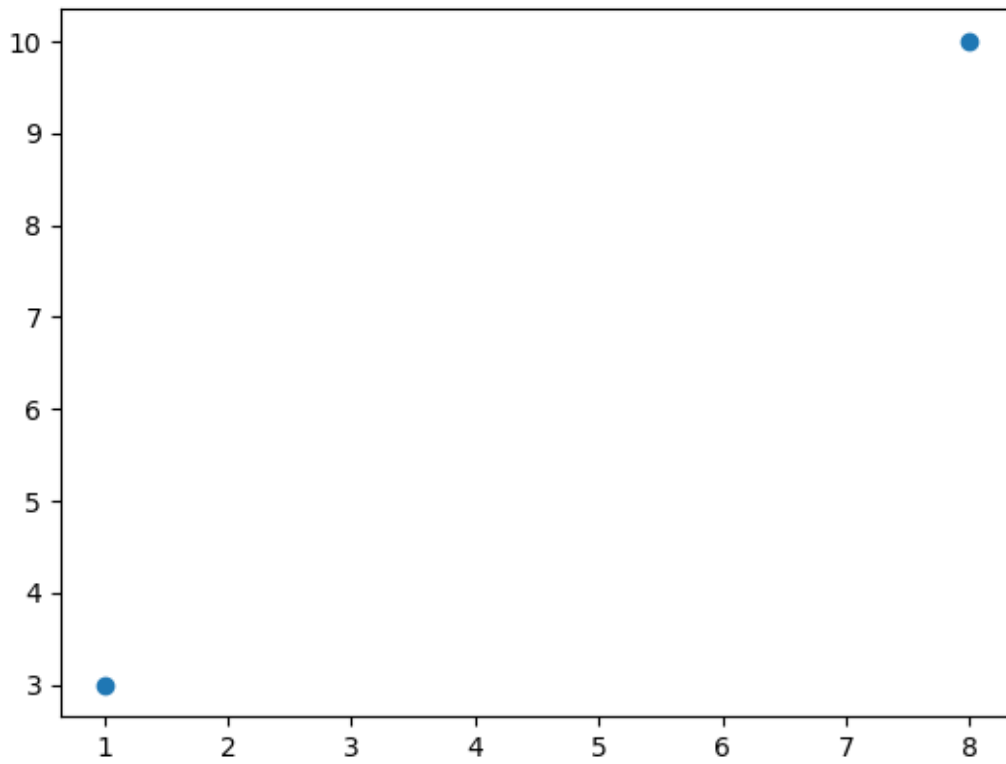23/3/2022

Plotting Without Line

Example

Draw two points in the diagram, one at position (1, 3) and one in position (8, 10):

```python
import matplotlib.pyplot as plt
import numpy as np

xpoints = np.array([1, 8])
ypoints = np.array([3, 10])

plt.plot(xpoints, ypoints, 'o')
plt.show()
```

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Multiple Points

You can plot as many points as you like, just make sure you have the same number of points in both axis.
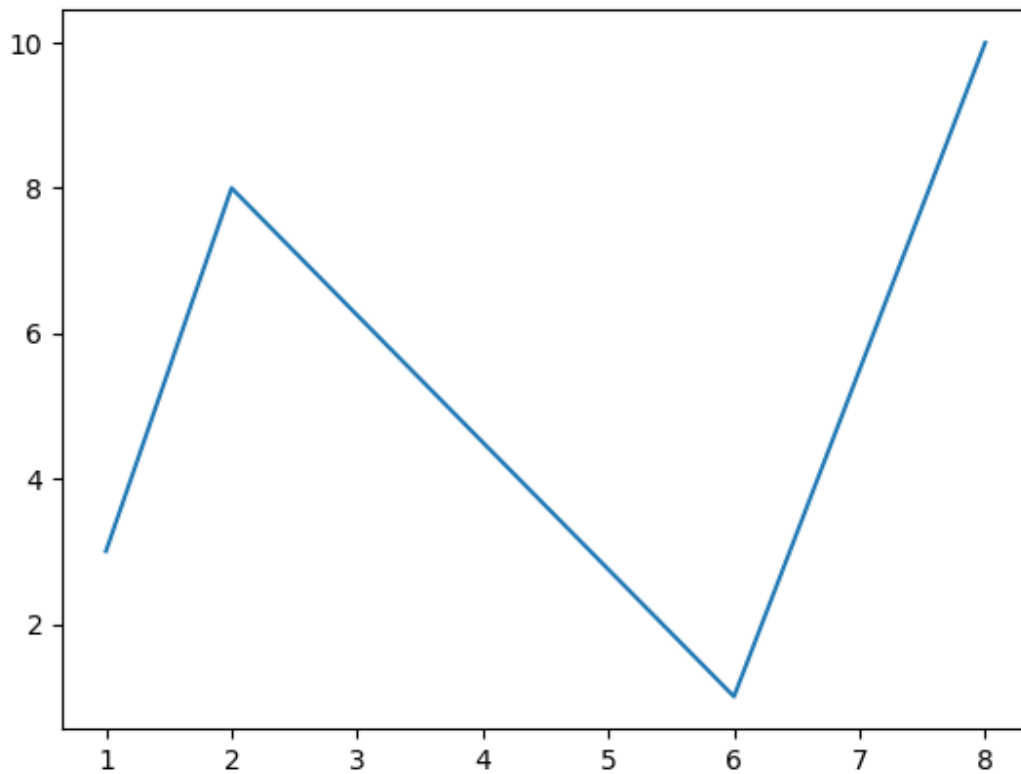
Example

Draw a line in a diagram from position (1, 3) to (2, 8) then to (6, 1) and finally to position (8, 10):

```
import matplotlib.pyplot as plt
import numpy as np

xpoints = np.array([1, 2, 6, 8])
ypoints = np.array([3, 8, 1, 10])
```

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```
plt.plot(xpoints, ypoints)
plt.show()
```


Default X-Points

If we do not specify the points in the x-axis, they will get the default values 0, 1, 2, 3, (etc. depending on the length of the y-points.
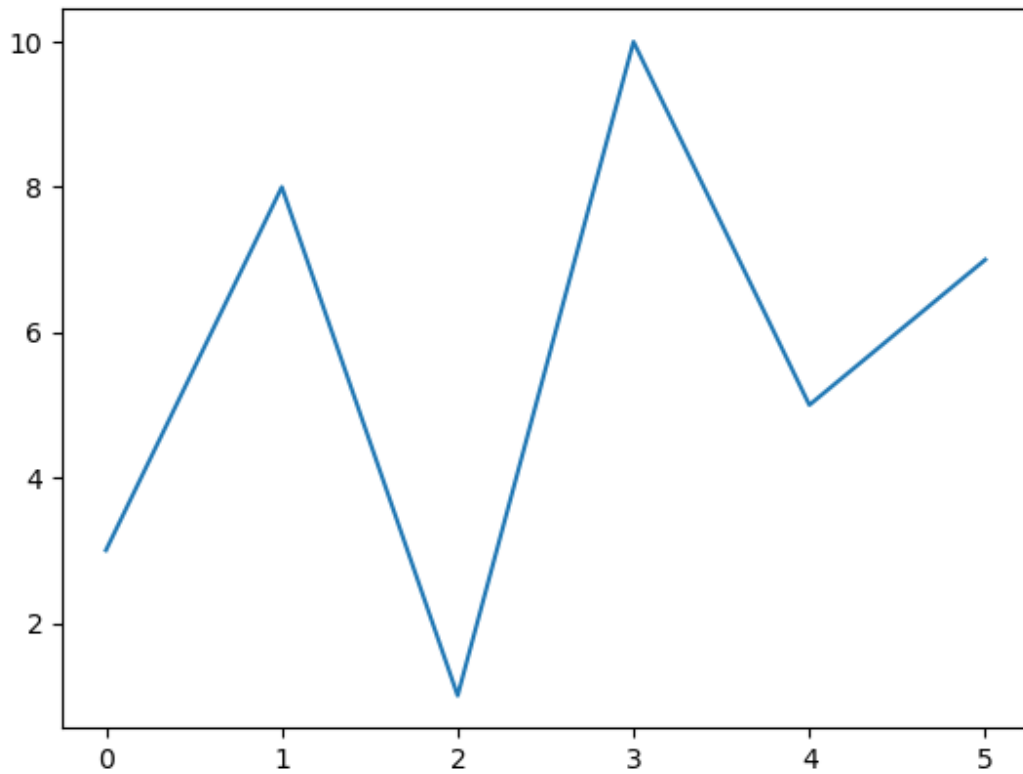
So, if we take the same example as above, and leave out the x-points, the diagram will look like this:

Example

Plotting without x-points:

```
import matplotlib.pyplot as plt
import numpy as np
```

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```
ypoints = np.array([3, 8, 1, 10, 5, 7])

plt.plot(ypoints)
plt.show()
```


The **x-points** in the example above is [0, 1, 2, 3, 4, 5].

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Markers

You can use the keyword argument `marker` to emphasize each point with a specified marker:
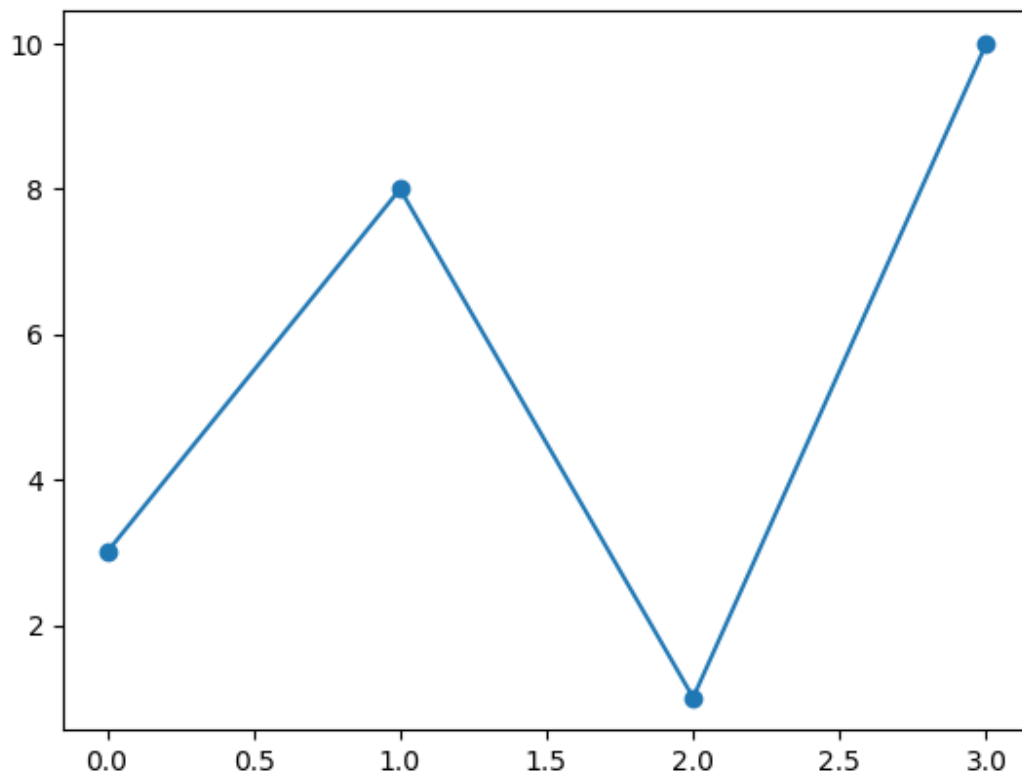
Example

Mark each point with a circle:

```
import matplotlib.pyplot as plt
import numpy as np

ypoints = np.array([3, 8, 1, 10])

plt.plot(ypoints, marker = 'o')
plt.show()
```

Marker Reference

You can choose any of these markers:

Marker	Description
'o'	Circle
'*'	Star

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'.'	Point
','	Pixel
'x'	X
'X'	X (filled)
'+'	Plus
'P'	Plus (filled)
's'	Square
'D'	Diamond
'd'	Diamond (thin)
'p'	Pentagon
'H'	Hexagon

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'h'	Hexagon
'v'	Triangle Down
'^'	Triangle Up
'<'	Triangle Left
'>'	Triangle Right
'1'	Tri Down
'2'	Tri Up
'3'	Tri Left
'4'	Tri Right
'|'	Vline
'_'	Hline

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