How can I draw arrows in Matplotlib?

Authored by

stats writer

April 22, 2024

Matplotlib is a powerful library used for creating visualizations in Python. One of its many features includes the ability to draw arrows on plots. To draw arrows in Matplotlib, the user can utilize the "arrow()" function which takes in parameters such as the starting and ending coordinates of the arrow, its width, length, and color. Additionally, Matplotlib provides the option to customize the appearance of the arrow, such as changing the arrowhead style or adding a text label. This functionality allows for precise and clear annotations on plots, making it a valuable tool for data analysis and presentation.

Draw Arrows in Matplotlib

To draw arrows in Matplotlib, you can use thematplotlib.pyplot.arrow function, which uses the following syntax:

matplotlib.pyplot.arrow(x, y, dx, dy)

where:

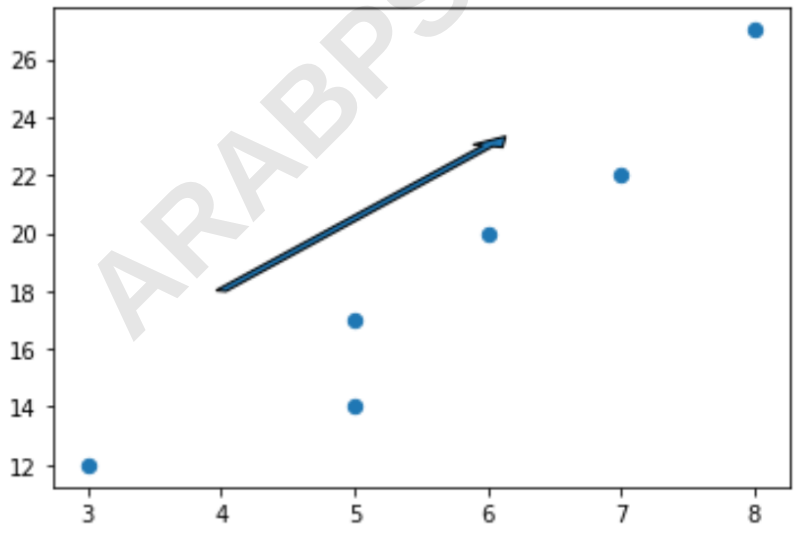
x, y: The x and y coordinates of the arrow basedx, dy: The length of the arrow along the x and y direction

This tutorial provides several examples of how to use this function in practice.

Example 1: Draw a Single Arrow

The following code shows how to draw a single arrow on a Matplotlib plot:

```
import matplotlib.pyplotas plt

#define two arrays for plotting
A =
B =

#create scatterplot, specifying marker size to be 40
plt.scatter(A, B, s=40)

#add arrow to plot
plt.arrow(x=4, y=18, dx=2, dy=5, width=.08)

#display plot
plt.show()
```

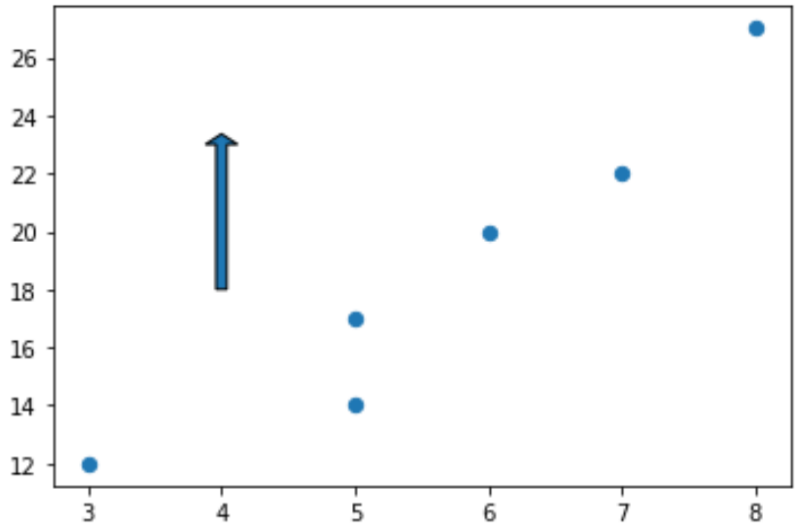


Note that we can set dx=0 to create a vertical arrow and

dy=0 to create a horizontal arrow.

For example, here's how to create a vertical arrrow:

```
import matplotlib.pyplotas plt

#define two arrays for plotting
A =
B =

#create scatterplot, specifying marker size to be 40
plt.scatter(A, B, s=40)

#add arrow to plot
plt.arrow(x=4, y=18, dx=0, dy=5, width=.08)

#display plot
plt.show()
```



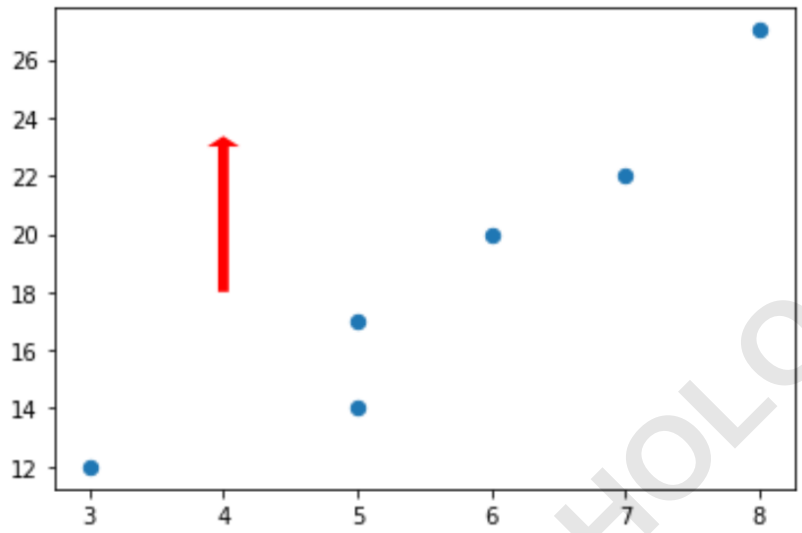
Example 2: Style an Arrow

By default, an arrow in Matplotlib is blue with black edges but we can easily change this by using the facecolor and edgecolor arguments:

```
import matplotlib.pyplotas plt

#define two arrays for plotting
A =
B =

#create scatterplot, specifying marker size to be 40
plt.scatter(A, B, s=40)

#add arrow to plot
plt.arrow(x=4, y=18, dx=0, dy=5, width=.08,
```

facecolor='red', edgecolor='none')

#display plot
plt.show()



Example 3: Add Annotations to Arrows

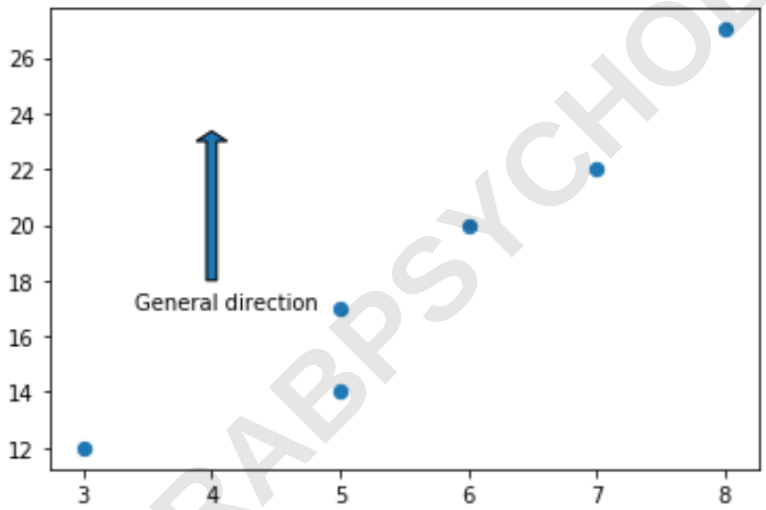
The following code shows how to add an annotation underneath an arrow on a Matplotlib plot:

import matplotlib.pyplotas plt

#define two arrays for plotting
A =
B =

#create scatterplot, specifying marker size to be 40

```
plt.scatter(A, B, s=40)

#add arrow to plot
plt.arrow(x=4, y=18, dx=0, dy=5, width=.08)

#add annotation
plt.annotate('General direction', xy = (3.4, 17))

#display plot
plt.show()
```



How to Plot Circles in Matplotlib (With Examples)

How to Draw Rectangles in Matplotlib (With Examples)