Histograms

matplotlib

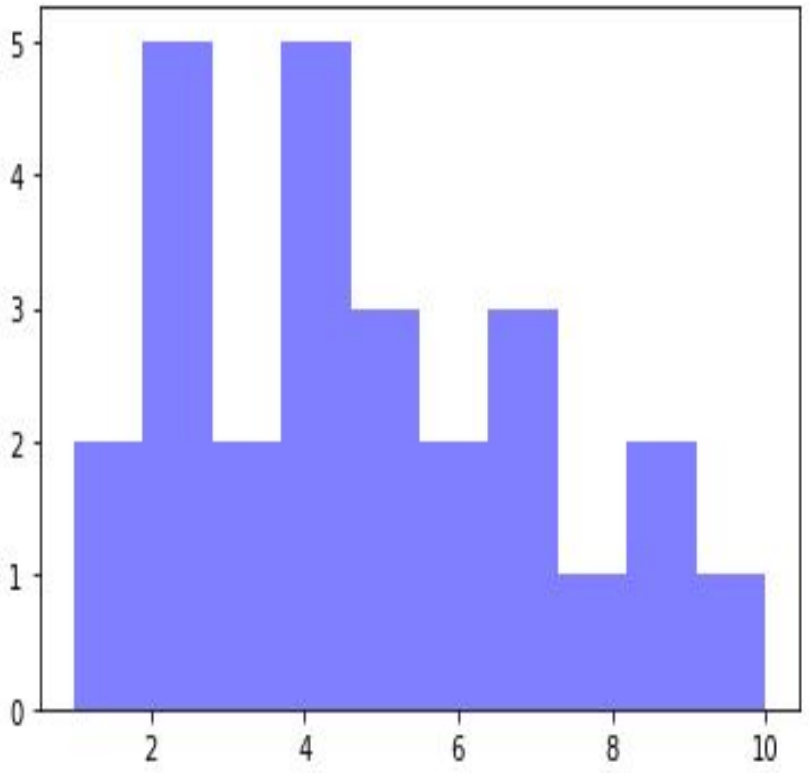
INTERNSHIPSTUDIO

```
#generate fake data
x = [2,1,6,4,2,4,8,9,4,2,4,10,6,4,5,7,7,3,2,7,5,3,5,9,2,1]

#plot for a histogram
plt.hist(x, bins = 10, color='blue', alpha=0.5)
plt.show()
```

Added two new arguments.

- Bins — is an argument specific to a histogram and allows the user to customize how many bins they want.
- Alpha — is an argument that displays the level of transparency of the data points.



BoxPlot

matplotlib

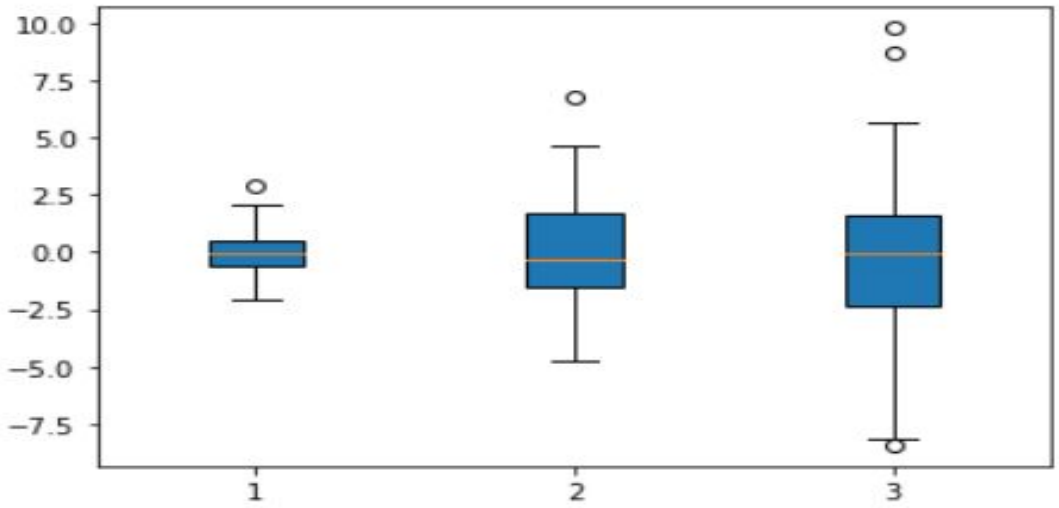
INTERNSHIPSTUDIO

In Matplotlib we can create a Box plot using the `boxplot` method. In this method, we are passing a 2d array `data` and by passing `patch_artist=True` boxes in the graph are filled with colours.

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

data = [np.random.normal(0, std, 100) for std in range(1, 4)]

# rectangular box plot
plt.boxplot(data,patch_artist=True);
```



Pie Chart

matplotlib

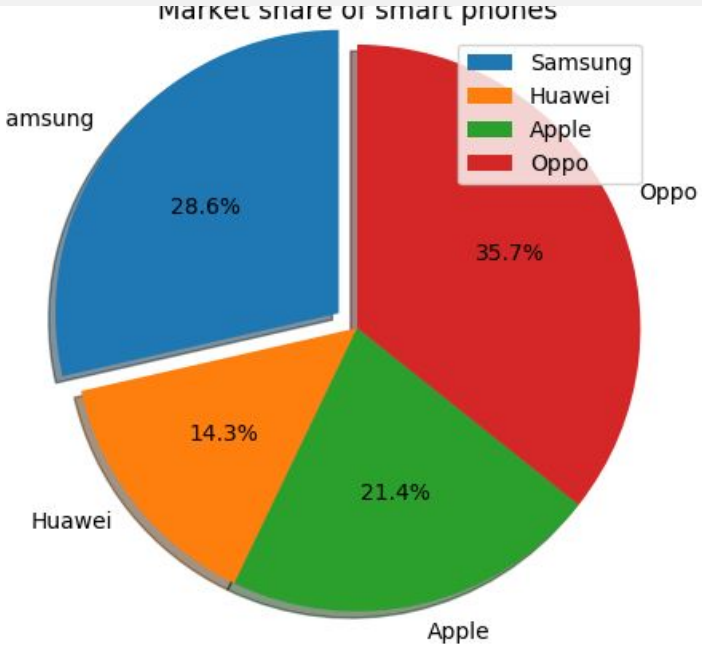
INTERNSHIPSTUDIO

A **pie chart** (or a circle **chart**) is a circular statistical graphic, which is divided into slices to illustrate numerical proportions. In a **pie chart**, the arc length of each slice (and consequently its central angle and area), is proportional to the quantity it represents.

pie( ) function is used to plot the pie-chart graph.

```
plt.pie (proportions, labels = items, colors=colors, startangle=90,
shadow = True, explode = (0, 0, 0.1, 0),radius = 1.2,
autopct = '%1.1f%%')
```

- **explode** : array-like, optional, default
- **labels** : list, optional, default: None
- **colors** : array-like, optional, default: None
- **autopct** : None (default), string, or function, optional
- **shadow** : bool, optional, default: False
- **startangle** : float, optional, default: None
- **radius** : float, optional, default: None



PyPlot

matplotlib

INTERNSHIPSTUDIO

The pyplot API- matplotlib.pyplot

- Is a collection of command style functions that make Matplotlib work like MATLAB
- Each pyplot function makes some change to a figure: e.g., creates a figure, creates a plotting area, plots some lines in a plotting area, decorates the plot with labels, etc.
- pyplot is mainly intended for interactive plots and simple cases of programmatic plot generation.

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

x = np.arange(0, 5, 0.1);
y = np.sin(x)
plt.plot(x, y)
```

matplotlib

INTERNSHIPSTUDIO

Q.1 Can we flip the Bar Grap horizontally using Matplotlib?

Q.2 What is PyPlot?

Q.3 How can we draw Scatter Plots using Matplotlib?

Q.4 How can we draw Histogram using Matplotlib?

Q.5 How can we draw Pie chart using Matplotlib?

Thank You