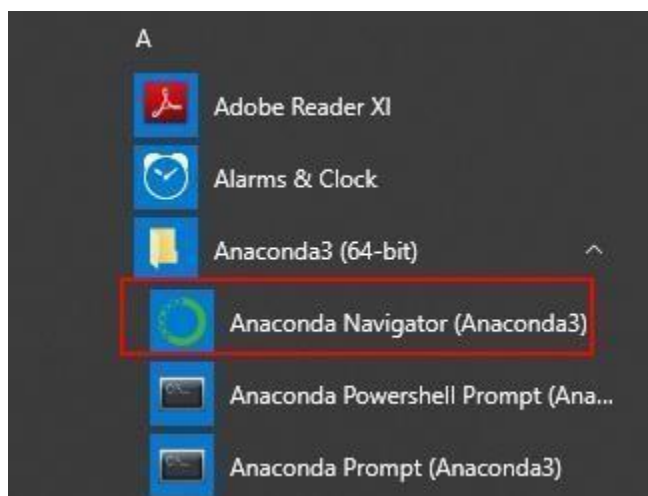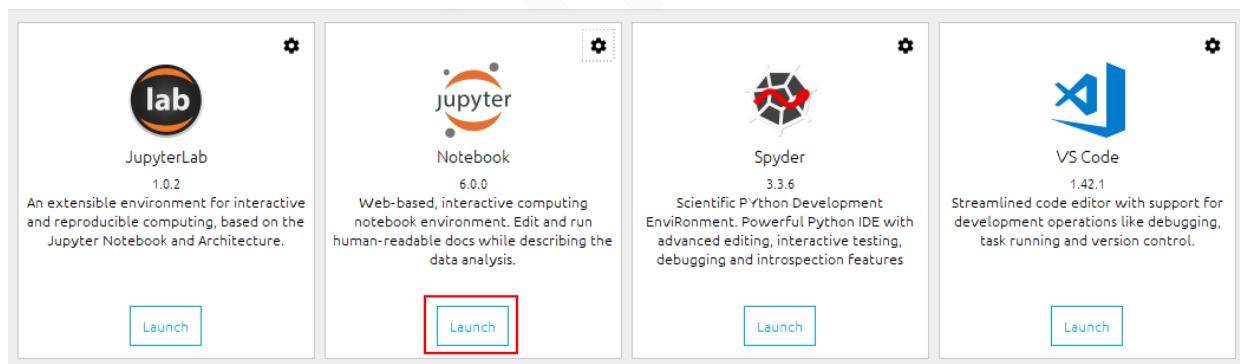# Module 6: Hands-On: 5

Create different kinds of graphs and plots:
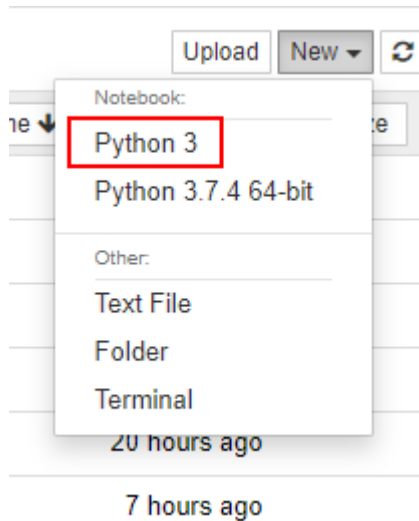
Step 1: Open Anaconda Navigator

Step 2: Click on Launch button under Jupyter Notebook

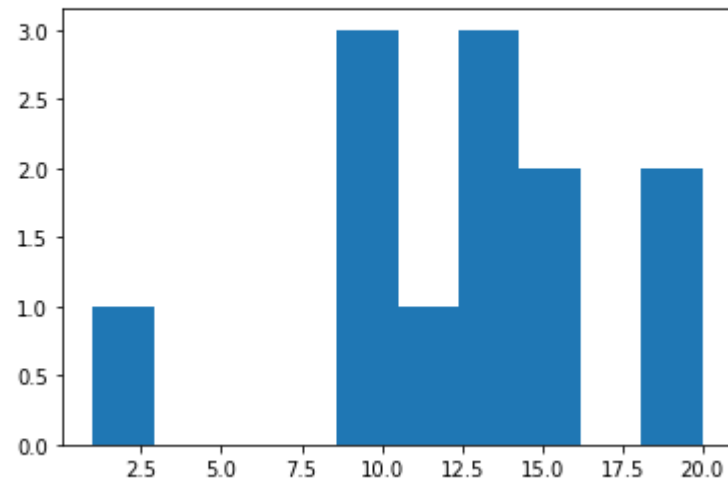**Step 3:** After the notebook opens click on New and Python 3

Step 4: Import matplotlib.pyplot and numpy by typing the following code in the notebook and run it by pressing shift + enter

```
In [1]: import matplotlib.pyplot as plt
        import numpy as np
```

Step 5: Run the following code to create a histogram by passing in data
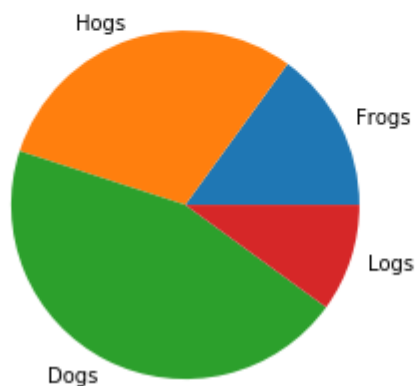
```
In [7]: plt.hist([10, 15, 15, 10, 20, 20, 1, 14, 10, 14, 12, 14])
        plt.show()
```


Step 6: Run the following code to create a pie chart by passing in sizes of slices of pies with their labels

```
In [8]: labels = ['Frogs', 'Hogs', 'Dogs', 'Logs']
        sizes = [15, 30, 45, 10]

        plt.pie(sizes, labels=labels)
        plt.show()
```

Step 7: Run the following code to create a bar graph

```
In [22]: labels = ['Jane', 'John', 'James', 'Johnny']
         x_pos = np.arange(len(labels))
         data = [55, 25, 28, 45]

         plt.bar(x_pos, data)

         plt.xticks(x_pos, labels)

         plt.xlabel('Name')
         plt.ylabel('Age')
         plt.title('Name vs Age')

         plt.show()
```

Step 7.1: Create labels, data and position for x_axis to be plotted

```
In [22]: labels = ['Jane', 'John', 'James', 'Johnny']
         x_pos = np.arange(len(labels))
         data = [55, 25, 28, 45]

         plt.bar(x_pos, data)

         plt.xticks(x_pos, labels)

         plt.xlabel('Name')
         plt.ylabel('Age')
         plt.title('Name vs Age')

         plt.show()
```

Step 7.2: Plot bar graph using x_pos and data

```
In [22]:  labels = ['Jane', 'John', 'James', 'Johnny']
          x_pos = np.arange(len(labels))
          data = [55, 25, 28, 45]

          plt.bar(x_pos, data)

          plt.xticks(x_pos, labels)

          plt.xlabel('Name')
          plt.ylabel('Age')
          plt.title('Name vs Age')

          plt.show()
```

Step 7.3: Set xticks on the x axis positions using the labels

```
In [22]:  labels = ['Jane', 'John', 'James', 'Johnny']
          x_pos = np.arange(len(labels))
          data = [55, 25, 28, 45]

          plt.bar(x_pos, data)

          plt.xticks(x_pos, labels)

          plt.xlabel('Name')
          plt.ylabel('Age')
          plt.title('Name vs Age')

          plt.show()
```

Step 7.4: Set xlabel, ylabel and title

```
In [22]: labels = ['Jane', 'John', 'James', 'Johnny']
         x_pos = np.arange(len(labels))
         data = [55, 25, 28, 45]

         plt.bar(x_pos, data)

         plt.xticks(x_pos, labels)

         plt.xlabel('Name')
         plt.ylabel('Age')
         plt.title('Name vs Age')

         plt.show()
```

Step 7.5: Show the plot

```
In [22]: labels = ['Jane', 'John', 'James', 'Johnny']
         x_pos = np.arange(len(labels))
         data = [55, 25, 28, 45]

         plt.bar(x_pos, data)

         plt.xticks(x_pos, labels)

         plt.xlabel('Name')
         plt.ylabel('Age')
         plt.title('Name vs Age')

         plt.show()
```

Step 7.6: Run the code using Shift + Enter and observe the output

Name vs Age