**Practicing Control Flow:**

1. Create a new Kaggle notebook and import numpy. Define a new integer variable called N\_points and set it equal to 1000. Define another integer variable called counter and set it equal to zero. Create two empty lists called xList and yList.
2. Write some code to generate a random number between -1 and 1 like so: X = np.random.uniform(-1, 1). Do the same for a variable called Y.
3. Now, let’s think about X and Y as coordinates on the coordinate plane, (X, Y). For each of N\_points = 1000 iterations, generate a new X and Y coordinate. Append the X and Y values to their respective lists. Then, check if X2 + Y2 < 1. If it is, add one to the variable called counter.
4. After all N\_points = 1000 iterations, print out the value of the counter variable. How many points fell inside the circle?
5. Plot xList and yList along with the code at the bottom of this page to visualize the result.
6. What fraction of the points fall within the circle if N\_points is changed to 10,000?

import numpy as np

import matplotlib.pyplot as plt #plotting

angles = np.linspace(0, 2\*np.pi, 100)

Xcircle = np.cos(angles)

Ycircle = np.sin(angles)

plt.plot(Xcircle, Ycircle, '-')

plt.plot() #plot your points here

plt.xlabel("X")

plt.xlabel("Y")

plt.gca().set\_aspect('equal')

plt.show()