CSC 445, Spring 2018, Assignment 1

Purpose: Python Scripting

Due: 4:30pm, Thursday, February 8, 2018

Program 1: Plotting data

Create a Python script named `p1.py` that does the following:

1. Implement the function $f(x) = cos(x)exp(x)$

2. Plot the graph of the function f in the interval $[-2\pi, 2\pi]$

3. Save the plot as a PNG file

Program 2: Generating random data

Create a Python script named `p2.py` that does the following:

1. Create a vector with 100,000 random variables which are normally distributed with a mean of 5.0 and a standard deviation of 2.0. The `numpy.random.normal` function can be used to draw random samples from a normal distribution.

2. Create a vector with 100,000 random variables which are uniformly distributed between 0 and 10. The `nump.random.uniform` function can be used to draw samples from a uniform distribution.

3. Compute the mean and standard deviation of the each vector and print the results.

4. Plot a histogram for each vector on a separate plot. The `matplotlib.pyplot.hist` function can be used to plot histograms.