

Harrisburg University of Science & Technology

CISC 504 Principles of Programming Languages

Assignment 7.2: Becoming Pythonic Part 2

Instructions:

- Use as many code cells as you need to implement the tasks in below.
- Submit a Jupyter Notebook (iPython) doc including a 5 minutes walk-through recording (a YouTube recordings is highly recommended.)
- **DO NOT JUST SUBMIT THE NOTEBOOK**

(1) Using Random Numbers to Find the Value of Pi

You are going to create a Monte Carlo style experiment to estimate the value of mathematical pi. A Monte Carlo style experiment is a technique that is used for approximating a numerical solution using random numbers.

In this experiment, you are going to generate a random point on the X,Y axis where both X and Y are between 0 and 1. Using those points you can plug them into the equations, $\sqrt{x^2 + y^2}$. If the result of that equation is less than 1, then the point is inside a circle that exists as the point 0,0 as its center with a radius of 1. You can then multiply the number of points within the circle by four and divided that by the total points to get an estimate for pi.

We want you to make a generator function that can calculate this value.

HINT: First understand the mathematics of what the question is asking. Next write the method as a standard Python function. Finally refactor the function to be a generator function that uses the **yield** keyword.

(2) Regular Expressions

In this assignment, you are going to find all the people in a list of customers that have an "X" in their name. Use the regular expression module to determine who all in the following customers has an "X" in their name.

Xander Harris, Jennifer Smith, Timothy Jones, Amy Alexandrescu, Peter Price, and Weifung Xu.

Print out your results.

In []: