CSCI 127: Joy and Beauty of Data

Lecture 14: numpy

Reese Pearsall

Snowmester 2020

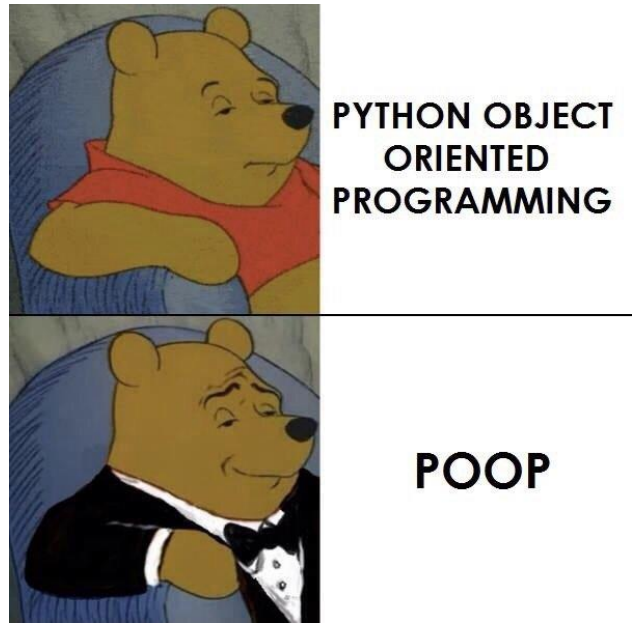
https://reesep.github.io/classes/127/main.html

Announcements

Final week!!! ☹☹☹

Lots of stuff happening this week…..

← Reese right now…



Announcements

Monday (Today)

Numpy and Numpy Arrays

After today, you should be able to get started on Lab 9

Announcements

Tuesday January 5th

Matplotlib

Program 4 is due @ 11:59 PM

After Tuesday, you should be able to finish lab 9

Announcements

Wednesday January 6th

Pandas (won’t be covered on the final exam)

Lab 9 Due @ 11:59 PM

Office Hours will be moved to 3-6 PM that day

Announcements

Thursday January 7th

Review Day

Review Session @ 11:00 AM in my Webex Room

Lab 10 Due @ 11:59 PM

- Either come to review session, or do two of any example test question

Final Exam Overview and Review Session Recording will be posted

Announcements

Friday January 8th

Final Exam

Posted @ 6 AM
Due @ 11:59 PM

Outline posted under Thursday's Notes

- Final exam will be very similar to Midterm exam, but will be slightly longer

There will be one short conclusion/goodbye video posted on that day. It will be a required viewing

Announcements

Grades

Grades should be getting updated very soon…

1 on 1 meeting grades are mostly updated

I will be doing the “Watching Online Lectures” grades (10%) later this week

Announcements

Course Evaluations

You are able to fill out the course/instructor evaluation for the class

These are super important to me…

Please take some time to fill them out this week

- If you screenshot and show that you fill out the course eval, I will add 3% to your final exam grade
- If 90%+ of the class fills out the course evaluation, then I will give the class a bonus of some kind

Numpy Module

Numpy is a **module** that we can import into our programs

Numpy gives us access to a data structure called an **array**

- You can think of an array as a more efficient implementation of a list

Numpy must be installed before you can use it:

Windows: **python -m pip install numpy**
Mac: **pip3 install --user numpy**

Arrays

An array is very similar to a list, but…

Arrays are a fixed size

Arrays can only contain one kind of data type

Arrays	Lists
Fixed Size	Can continually increase/decrease size
Can only have one data type	Can mix and match data types
Accesses elements using indices	Accesses elements using indices

Why use numpy arrays?

Numpy arrays are much more **efficient**. Knowing the size of the data structure and what data type it will contain takes up less **space** and makes accessing elements in the data structure take less **time**

The numpy module also comes with many helpful functions for data analysis and scientific computations