

CSCI 127: Joy and Beauty of Data

Lecture 3: Intro to Python and Data Types

Reese Pearsall
Summer 2021

<https://reese.github.io/classes/summer2021/127/main.html>

Announcements

Lab 1 due Wednesday 5/12 (tomorrow) 11:59 PM

-> After today, you will be able to finish it

-> A video has been posted that goes over the assignment

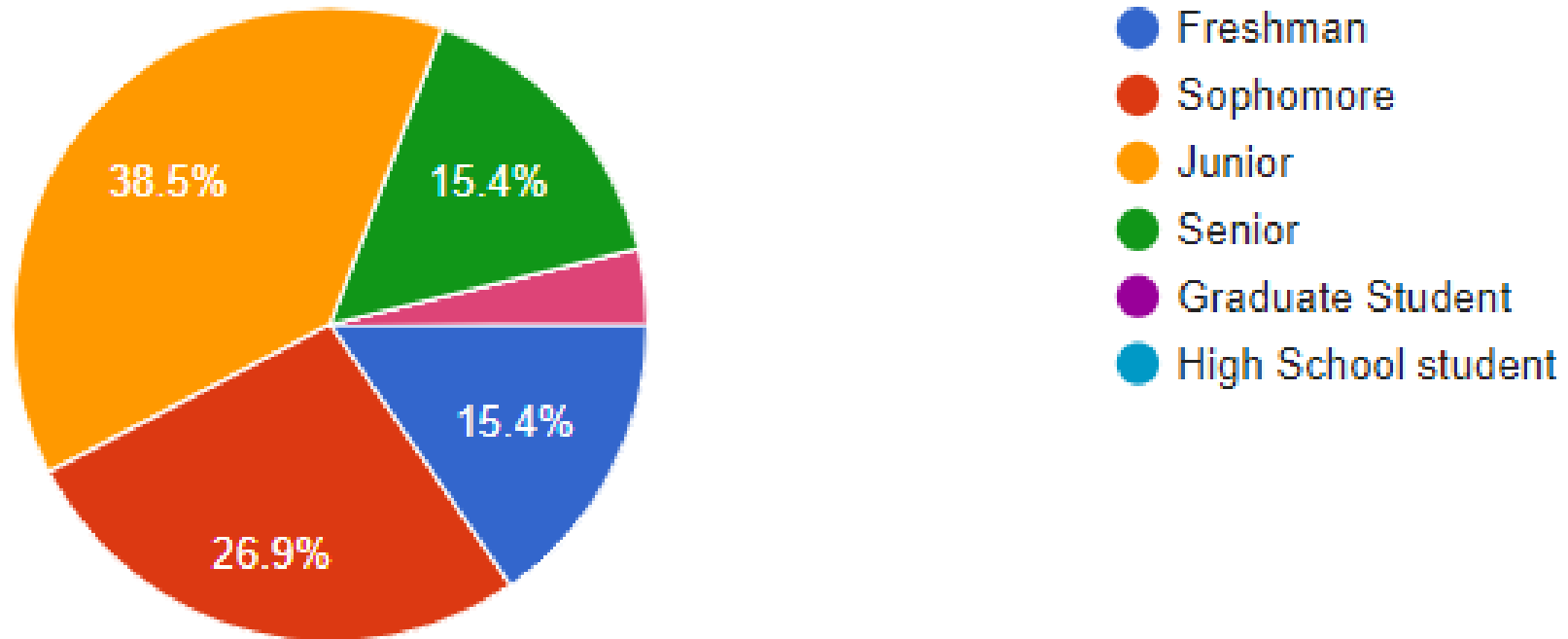
Office Hours and Virtual Help Sessions moving to Zoom instead of Webex

All times and due dates are in **MOUNTAIN TIME**

Today

Installing Python, Data Types, Variables, User Input

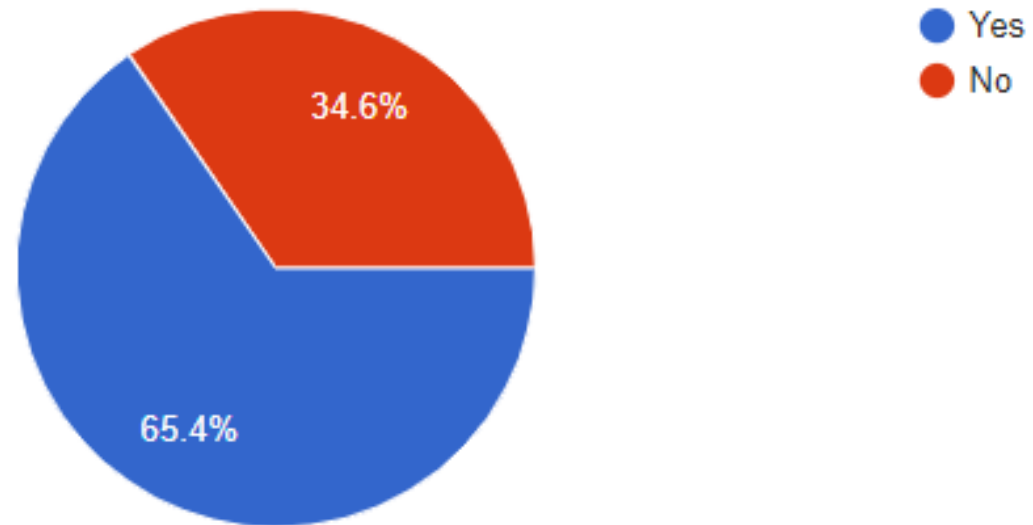
Questionnaire Results



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Have you taken a computer programming class before?

26 responses



Questionnaire Results

Most people seem to prefer asynchronous (*I am glad to hear this 😊*)

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Lots of people seem to not enjoy online classes (hard time learning, focusing, procrastination, motivation, ...)

I understand your concerns (I feel the same way!)... I will keep this in mind 😊

Questionnaire Results

Most people seem to prefer asynchronous (*I am glad to hear this* 😊)

Lots of people seem to not enjoy online classes (hard time learning, focusing, procrastination, motivation, ...)

I understand your concerns (I feel the same way!)... I will keep this in mind 😊

Lots of people in this class are also working full time or part time jobs

I don't want this class to interfere with that!

Python Installation

I will on Windows, but the process on Mac is very similar

(Wednesday) Announcements

Lab 1 Due TONIGHT @ 11:59 PM (**this is mountain time**)
-> A video has been posted that goes over the assignment

When you learn how display
hello world in Python



Today

Formatting Outputs, Intro to Functions

Integers (whole numbers) `int`

Floating Point Numbers (decimals) `float`

Strings (words, or anything surrounded in “ ”) `str`

There are more Data types we will talk about later

Data Types

7

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7

Integer

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Integer

“Reese”

Data Types

7 Integer

“Reese” String

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4.1111

Data Types

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"The FitnessGram Pacer Test is a multistage aerobic capacity test that progressively gets more difficult as it continues. The 20-meter pacer test will begin in 30 seconds. Line up at the start. The running speed starts slowly but gets faster each minute after you hear this signal bodeboop. A sing lap should be completed every time you hear this sound. ding Remember to run in a straight line and run as long as possible. The second time you fail to complete a lap before the sound, your test is over. The test will begin on the word start. On your mark. Get ready!... Start. ding "

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Integer

This is a variable, it could be int,
string, or float

"100"

String

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String

Operators

Add / Concatenation (+)

Subtraction (-)

Multiplication (*)

Division (/)

Integer Division (//)

Power ()**

Modulus (%) (Remainder)

Increment (+=) $x += 1 \quad \leftrightarrow \quad x = x + 1$

Decrement (-=) $x -= 1 \quad \leftrightarrow \quad x = x - 1$

User Input

```
variable_name = input("Enter prompt here")
```

Note: the resulting value will **always** be a string

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More practice

Change Counter Program

Write a program that will ask for the number of quarters, dimes, nickels and pennies. The program will calculate the total value of that change.

Cost per square inch for a Pizza

Write a program that will calculate the cost per square inch of a circular pizza, given its diameter (inches) and price.

The formula for area of a circle is $(\pi) * r^2$

Formatting

Formatting

1 2 3 4 5 6 7 8 9 10

Left align with 10 spaces of padding `{:<10}.format("hello")`

h	e	l	l	o					
----------	----------	----------	----------	----------	--	--	--	--	--

Right align with 10 spaces of padding `{:>10}.format("hello")`

					h	e	l	l	o
--	--	--	--	--	----------	----------	----------	----------	----------

Center with 10 spaces of padding `{:^10}.format("dogs")`

			d	o	g	s			
--	--	--	----------	----------	----------	----------	--	--	--

Formatting

Left align with 10 spaces of padding `"{:<10}".format("hello")`

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--	--	--	--	--	---	---	---	---	---

Center with 10 spaces of padding `"{: ^10}".format("dogs")`

			d	o	g	s			
--	--	--	---	---	---	---	--	--	--

Truncating decimal places

```
num = 37.22222222
```

Only allow 3 decimal places: `"{: .3f}".format(num)`