CS 112 Lab #2

Input, Strings, Type Casting & Arithmetic

Office Hour Location

O.H. will be in room ENGR 4201 Tuesday/Thursday 10:30-11:25 am & 1:30-2:30 pm Around 11 am on Tuesdays, move to lab room as ENGR 4201 is unavailable after 11

An item of notice

If you want to run your python file, you must be in the same directory where the file is located

Change directories by the cd command cd DirectoryName – go to a directory cd .. – go back a directory

1. cd Desktop

2. cd CS112

Sample Directory Tree Desktop CS112



Released Soon™

Getting user input

The input(...) function reads from stdin (standard input)

You can provide a prompt to a user when asking for input

input("What is your name? ")

C:\Users\naghm\Desktop\CS112GTA>python Test.py What is your name? Billy Bob You can assign the user input to a variable and then use that variable

x = input("What is your name? ") print("Hello " + x)

C:\Users\naghm\Desktop\CS112GTA>python Test.py What is your name? Bob the Builder Hello Bob the Builder

Strings

Strings are *objects* that exist in memory

The variable to which you assign the string to is a **pointer** to that string object in memory

Welcome = "Hello World"



Immutability of Strings

Strings are immutable – unable to be changed

When you receive a string, you'll be sure that it stays the same.

Why...?

Consider the hash table data structure and the hash function

The hash function takes a parameter and outputs an index within the hash table to store a key value pair

If one changes a string that has been previously hashed at an index, then the lookup function would not be able to find the string as the lookup function would map to another index!



String Concatenation

Concatenation is the combining of strings

Done through the + operator



There is also string formatting but **stick with string concatenation for now**

Type Casting

Type casting is converting one data format to another Explicit vs Implicit Type Conversion int() – cast to an int float() – cast to a float str() – cast to a string

```
x = int("5")
```

```
y = float("5")
```

print(x, y, z)

```
z = str(5)
```

```
C:\Users\naghm\Desktop\CS112GTA>python Test.py
5 5.0 5
```

Division

The division operator is indicated by // Gives you the quotient



C:\Users\naghm\Desktop\CS112GTA>python Test.py 2

Modulo

The modulo operator is indicated by % Used widely in Cryptography Gives you the remainder



C:\Users\naghm\Desktop\CS112GTA>python Test.py

Lab 2

Three parts that build on top of each other

Read the instructions carefully

There is an associated tester file – testerL2.py which your program will be ran against Make sure to also download tests.txt

Run the tester against your code via python testerL2.py gmason76_2B1_L2.py

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Submission due at end of lab – see me after submission for attendance check so you can get credit for the lab