Day 1 @January 2, 2024

Topics

1. Variables, inputs and outputs in Python
2. Operators and data types
3. Loops
4. Functions
5. Object oriented programming

How we will be studying:

- Lecture and I will write down notes
- Give an activity for you to program
- Kahoot quizes
- Homework exercise

Why Python?

- Applications are made in Python
- Python to mod Minecraft
- Web development
- Instagram was built using Python
- Python is also used to build AI
- Python is very easy to understand and program in
- Python is very versatile

- Python helps you understand programming concepts and apply them to different programming languages as well

What is a programming language?

- Telling the computer what to do
- Tell computers what to do
- JavaScript (HTML and CSS)
- Java
- C, C++
- Rust, Haskell

Variables:

- Variables store values/information in your code
- You can use variables in your program
- Their value can be changed throughout code
- Conventions: way of doing things
- Python conventions
- variable names should explain their purpose

- snake case variable names are used: you separate words by underscore
- time of day: time_of_day
- Variables store different types of values (data types)

program that stores the time of the day:

```
# variable_name = variable_value
number_of_steps  = 10
age = 12



video_paused = True
video_paused = False


time_of_day = "Morning"

#few hours later .....

time_of_day = "Afternoon"

time_of_day = "apple"
```

Print statements:

- Allows your program to output something
- You can print text or variable values
- Allows your computer to say stuff

Input statements:

- Allows the user to input a value

- it ALWAYS gives you back a string

Data Types:

- What is the type of your value
- 5 + 10 = 15
- 10 * 2 = 20

Numbers

- Whole numbers: 1,2,3,4,5……..
- Negative whole numbers: …….-5,-4,-3, -2, -1
- Decimal: Numbers with decimal point: 1.2, 3.14, 2.12, 1.666666666666, 1.3

Python equivalents

Whole numbers → Integers (Negative and positive whole numbers)

Decimal numbers → Floats

Text

- word, collection of words(sentences) , alphabet
- Python calls text as strings
- a (char) → “1”, “2” “a”, “b”
- Apple (word)
- I like apples (sentence)
- All of these are text
- Python will treat all of these lines as text
- Text(strings) are enclosed in quotation marks (“”)

Boolean values

- Binary values: True or False are the only two acceptable values
- Use them for loops and conditional statements(if else statements)

Type conversions:

- Convert from one type to another
- String to Integer
- Integer to String
- “1” → 1
- “1234” → 1234
- “1Abc” → x (not possible)
- int→ Integer : converts a string to an integer
- str → Strings: converts an integer to a string

Project 1:

We want to build a program that takes two numbers and outputs their sum

- Take two numbers as input and store them in variables
- Change the numbers inputted into integers
- Add the two numbers together and store in a variable
- print the variable storing the sum using print

```
number_one = int(input("Can you please enter the first number
number_two = int(input("can you please input the second numbe

sum_two = number_one + number_two
print(f"The sum of {number_one} and {number_two} is {sum_two}
```

F strings:

- Add variable value to your strings
- starts with an f

```
value = "Ahmed"
value2= "another value"
print(f"hi my name is {value} {value2}")
```