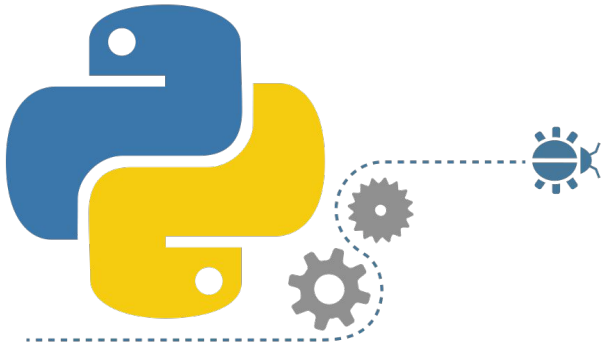
Python

By Adele, Taisha and Mariana

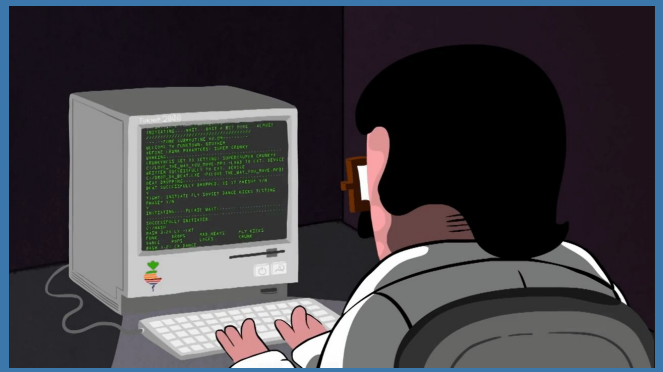


What is Python?

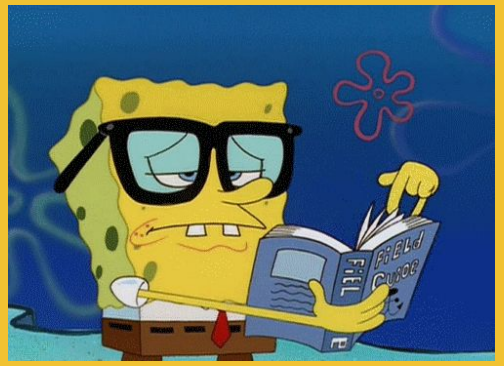
- Python is a programing language used to communicate with computers
- Python uses lists of instructions (called programs) that the coder puts in to tell the computer what to do.
- By making the programs and lists of things through Python, we can make the computer carry out various actions

How did we use Python?

- We use a program called IDLE or “integrated development environment”, to write and run our created programs
- IDLE is just a software that makes it way easier to code and test it out
- We got to make many fun games that we were able to play, and have others play, with IDLE



What did we learn?



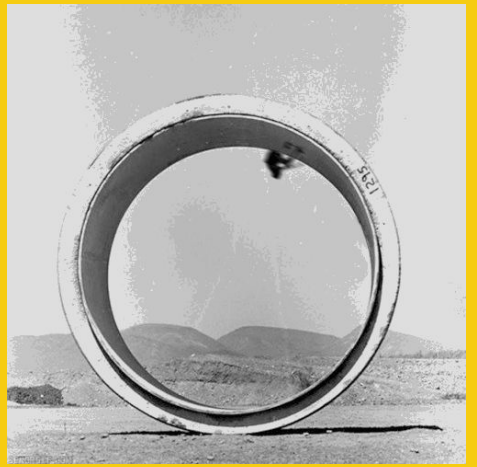
- We learned about:
  - Syntax: is like the spelling and grammar of the programming language
  - Variables: a data item that may take on more than one value during the program
  - Functions: a type of procedure or routine used to represent a algorithm
  - Type Casting: a way to change from one data type to another
  - Boolean Condition: a data type that has two values (either true or false)
  - Conditionals: features of a programming language which perform different actions depending on the whether boolean condition evaluates true or false
  - And Much More!

Control Structures

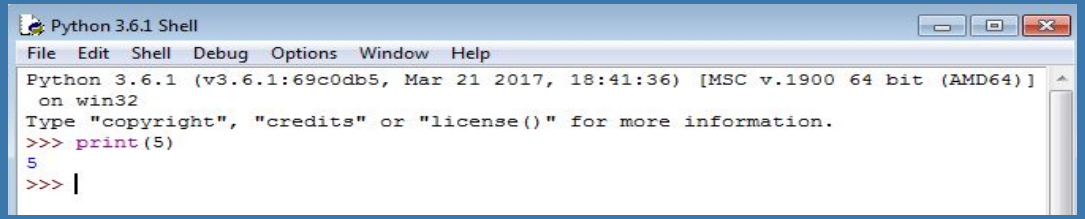
- Is a block of program that analyzes variables and chooses a direction in which to go based on given parameters
  - If/Else statement are control structures.
- If/Else statements are statements that perform an action and checks what actions to do
  - Ex. If (it is hot out):
    - Wear T Shirt
  - Else
    - Wear Sweater

Loops

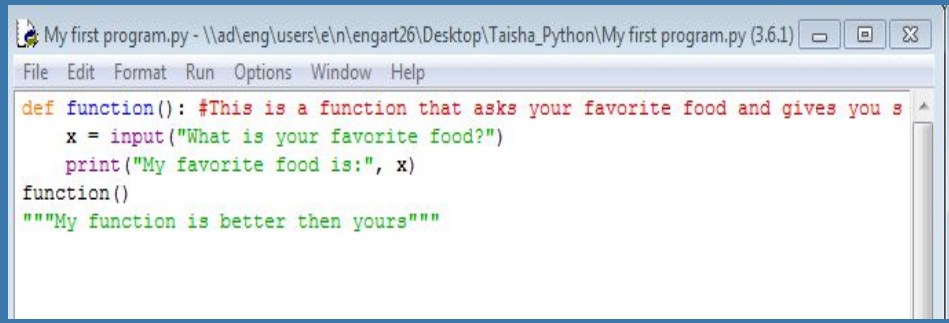
- Loops are used for when you want to repeat a block of code either forever or a specified amount of time
- There are two different types of loops that we used:
  - For loops: they are used to execute the block of code for a fixed amount of time.
  - While loops: they are similar to the for loop, except they will run until the condition is no longer met.

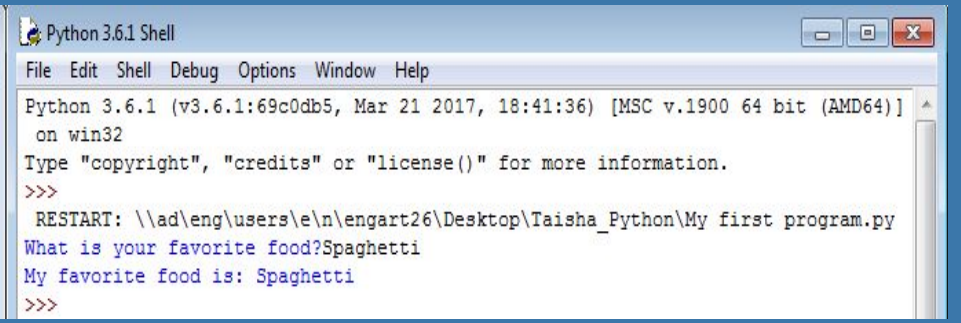


Types of Functions



- Built-in Functions
  - Essentially commands that are premade for you to use in python
  - Such as “print()” and “input()”
- The Print Function
  - The most basic command of Python used to show the the value of an “expression”
  - An expression is any combination of symbols that represent a value.
- Ex. Typing in *“print(5)”* will print the integer “5”
- The Input Function
  - Simply using a variable (like x) and assigning a output



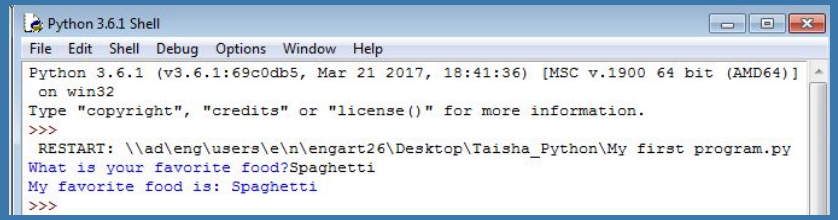


Conditional Operators

Operator	Description	Example A = 1, B = 2
==	Checks if the value of two variables are equal or not, if yes then condition become true	A == B is not true
!=	Checks if the value of two variables are equal or not, if values are not equal then condition becomes true.	A != B is true.
>	Checks if the value of the left variable is greater than the value of the right, if yes then the condition is true	A > B is not true
<	Checks if the value of the right variable is greater than the value of the left, if yes then the condition is true	A < B is true
>=	Checks if the value of left variable is greater than or equal to the value of the right variable, if yes then condition becomes true	A >= B is not true.
<=	Checks if the value of left variable is greater than or equal to the value of right variable, if yes then condition becomes true.	A <= B is true.

What did we create in Python?

- Along with learning the basics of this language, we got to create some spectacular programs:
  - A program to ask a question about the user and answer back.
  - A mad lib game.
  - A change adder game
  - An adventure
  - And lastly, a decoder and encoder



The Change Adder

- The change adder is a program that we created that could count the amount of money you had based on the amount of coins you input

change adder.py - \\ad\eng\users\e\n\engart26\Desktop\Taisha_Python\change adder.py (3.6.1)

File Edit Format Run Options Window Help

```
def cents():
    x = input("How many pennies do you have?")
    print("Pennies:",x)
    y = input("How many nickels do you have?")
    print("Nickels:",y)
    z = input("How many dimes do you have?")
    print("Dimes:",z)
    q = input("How many quarters do you have?")
    print("Quarters:",q)
    x = int(x)*1
    y = int(y)*5
    z = int(z)*10
    q = int(q)*25
    t = (x+y+z+q)/100
    print("$",t)
```

Python 3.6.1 Shell

File Edit Shell Debug Options Window Help

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 18:41:36) [MSC v.1900 64 bit (AMD64)]
 on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: \\ad\eng\users\e\n\engart26\Desktop\Taisha_Python\change adder.py =
>>> cents()
How many pennies do you have?5
Pennies: 5
How many nickels do you have?9
Nickels: 9
How many dimes do you have?3
Dimes: 3
How many quarters do you have?7
Quarters: 7
$ 2.55
>>>
```

Decoder and Encoder

- The decoder and encoder writes encrypted messages using Caesar's Cipher Pseudo Code and can decode them as well
  - Caesar's Cipher is a code created with 2 sets of the alphabet one is normal and one has a shift. The shift is used to create a secret message
  - For example with a shift of one, A is now B and B is now C

Caesar Cipher Pseudocode.py - \\ad\eng\users\e\n\engart26\Desktop\Taisha_Python\Caesar Cipher ...

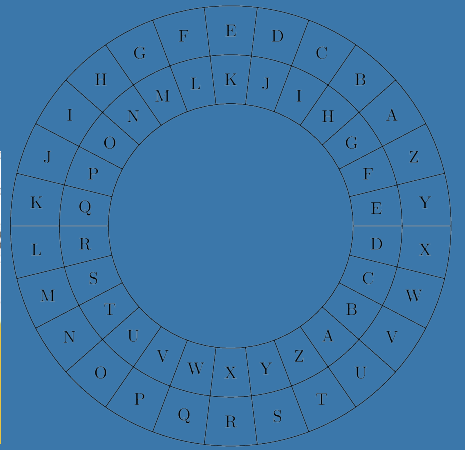
File Edit Format Run Options Window Help

```
def code():
    message = input("What is your message?")
    message = str.lower(message)
    shift = input("What is your shift?")
    shift = int(shift)
    string = message
    result = ""
    for x in range(0, len(string)):
        value = ord(string[x]) + shift
        if value > 122:
            value = value - 26
        result = result + chr(value)
    print(result)
```

Python 3.6.1 Shell

File Edit Shell Debug Options Window Help

```
Python 3.6.1 (v3.6.1:69c0db5, Mar 21 2017, 18:41:36) [MSC v.1900 64 bit (AMD64)]
 on win32
Type "copyright", "credits" or "license()" for more information.
>>>
 RESTART: \\ad\eng\users\e\n\engart26\Desktop\Taisha_Python\Caesar Cipher Pseudo
code.py
>>> code()
What is your message?TheArtemisProject
What is your shift?4
xlievxiqmwtvsnigx
>>>
```



- http://gph.is/2cU2VYb
- https://media.giphy.com/media/ZVik7pBtu9dNS/giphy.gif
- https://gettrendygifs.wordpress.com/2016/06/23/new-trending-gif-tagged-transparent-money-make-it/
- https://i.stack.imgur.com/py1E0.png
- http://www.sfamionline.net/_wp_generated/wpb651787e.gif
- https://gradeslam.org/blog_images/237/studying.gif
- https://wiki.python.org/moin/ForLoop
- https://wiki.python.org/moin/WhileLoop
- http://www.eggbeater.ca/images/blog-images/1ae0.gif
- http://media.giphy.com/media/XMZqtJZWGsUZq/giphy.gif
- https://media.giphy.com/media/26BREnyYXsPOxlUKk/giphy.gif


python
TM
powered