Mentoring Program

Python

/* WHERE THERE IS A SHELL, THERE IS A WAY */

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01.
Python overview

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What is python ?

Python is an interpreted, high-level, general-purpose, object-oriented programming language.
It is well known for its simple syntax, which brought him very close to normal human speech, and for its large community.

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Python use cases

01 Cybersecurity

02 Web development

03 Web scraping

04 IA

05 Scripting / automation

06 Software development

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Python use cases in cybersecurity

- Web application attacks
- Network scanning
- Penetration testing
- Developing exploits
- Digital forensics

Life cycle of a python program

Source Code → Byte Code → Runtime

02.
General format

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Imports

Functions

Main program

```
import os, time
from math import cos

def add(x,y):
    return x+y

def sub(x,y):
    return x-y

x = 2
y = 3
print(add(x,y))
```

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03.
Hello world

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Python Setup

- Linux : You probably already have python installed.
- Windows :
  - Download from : https://www.python.org/downloads/
  - Follow the instructions and make sure to check the add to path option.
  - Download pip from : https://bootstrap.pypa.io/get-pip.py
  - Run python3 on the downloaded file.
- You can use whatever IDE or Text editor you like

Hello world

- Create a file called hello.py
- Open the file using your editor or IDE
- Write : print(“hello Mentoring program”)
- Save the file.
- Go to the terminal (where you have created the file) and type : python3 hello.py

04.
Variables

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Variables

- In python, variables are defined the moment that a value has been assigned to them
- The type of the variable is determined by its content
- Everything is an object

Data types

- Integers : var = 4
- Float : var = 4.5
- String : var = “This is a string” or var = ‘This is a string’
- Boolean : var = True or var = False
- List : var = [2, “string” , True, 5.4, [“a”]]
- Dictionary : var = {key : value}

Input

- You can read user input from stdin using the function : input()
- The result of input will be a string
- You can write something before reading the input by providing a string as an argument to the input function : input(“Name : “) → Name :

Challenge 1

Read the user name and age and then print :
“Welcome, user_name. You were born in year_of_birth.”

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05.
Flow control

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Loops

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For loops (1/2)

```
for i in range(start, end, step):
    # do some stuff here

# default start = 0
# default step = 1
# the condition is : i < end
```

For loops (2/2)

```
shellsec_members = ["ouxs", "chenx3n", "hfz", "m0kr4n3", "habs", "haithem"]

for member in shellsec_members :
    print(member)
```

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While loop

```
while condition :
    # do things

i = 0
while i < 10 :
    print(i)
    i+=1
```

Challenge 2

Decode the flag

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Conditional statement

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If statement

```
if condition :
    # do stuff
elif second condition :
    # do other stuff
elif third condition :
    # do other other stuff
else :
    # do the left stuff
```

Conditional operators

- Greater than : x > y
- Lower than : x < y
- Equal : x == y
- Great or equal / lower or equal : x >= y / x <= y
- Different : x != y
- And : X and Y
- Or : X or Y
- Not : not X
- Include : x in y

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Challenge 3

Decrypt the flag (it’s caesar cipher, rot13)

Functions

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Functions

```
def function_name(arg1, arg2, arg3):
    # do some actions here
    # return something if necessary

# to call a function
function_name(arg1, arg2, arg3)
```

06.
Bonus

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Resources

01 Books

- https://olinux.net/wp-content/uploads/2019/01/python.pdf

Time for questions

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