Python 101

Computer Science Club x Education Club

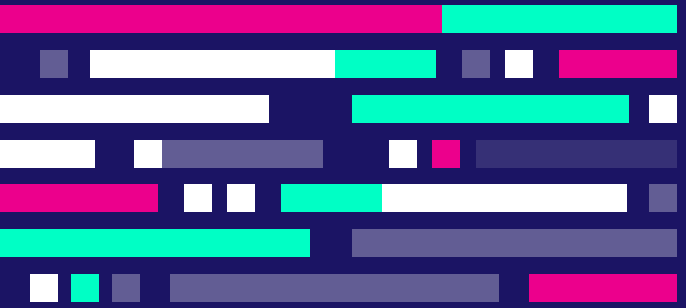
A bit about myself

- Kamil Abi Haidar
- Senior Computer Science Student
- Secretary of the Computer Science Club @ LAU Beirut
- Backend Web Developer
- Huge fans of cats

TABLE OF CONTENTS

01

What is Python?



Python is…

A general purpose programming language used for a variety reasons. It is user friendly, with simple syntax and increasing popularity.
Python is used for AI, Machine Learning, Web Development, Data Science etc…

02

Python Syntax


Hello World!

Print Statements

```
print(“Hello World!)
print(“Kamil is awesome”)
print(“Kamil is 20 years old”)
```

Data types

Python supports multiple data types…

1. Integers: int ## -> 12
2. Decimals/floats : float ## -> 3.1415
3. Characters: char ## -> ‘a’
4. Strings: str -> “Kamil”
5. Booleans: bool (True or False)
6. Lists: list() ## -> [1,2,3,4,5]

Variables

Variables

```
## this code is an example
a = 12
b = ‘Kamil’
print(b)
## variable names are case
sensitive
B = ‘Hello World’
## b is not B
## you can modify variable values
## that’s why they are called
variables
b = ‘Someone’
print(b)
```

Math & Logic

Math Operands

Python supports math operands such as:

1. Addition: +
2. Subtraction: -
3. Integer Division: //
4. Decimal Division: /
5. Multiplication: *
6. Exponents: **
7. Increment: a+=b (a = a+b)

Logical Operators

Python supports logical operands (return a yes or no answer) such as:

1. AND
2. OR
3. IS_EQUAL (==)
4. IS_UNEQUAL (!=)
5. Greater than: a > b
6. Less than: a < b
7. Greater than or equal: a >= b
8. Less than or equal: a <= b

Strings & Lists

Strings

```
## this code is an example
my_name = ‘Kamil’
my_age = 20
my_salary = 12.50
print(my_name)
print(my_age)
print(my_salary)
## there’s a better way to do it
print(“My name is “,my_name,”and I am
“,my_age,” . I work as a DevOps engineer
and get paid “,my_salary,” $ per hour”)
```

Lists

```
## this code is an example
l = list()
## u can append into the list!
l.append(12)
l.append(1)
print(l)
## u can add and remove from the list
l.remove(12)
print(l)
```

Indexing

- Machines count from 0
- An element in a list or a string are “indexed”
- Each elements in the list or string is has a position. The position is from 0 to length-1

- EXAMPLE:

```
a = “Kamil”
print(a[1])
l = [1, 2, 3, 4, 5, 6, 7]
print(l[3])
## what is the output?
print(l[7])
```

Dictionaries

Dict()

```
## this code is an example
car = {
“brand”:”ford”,
“year”:1997,
“owner”:”Kamil”
}
Student = {
“Name”: “Kamil”,
“GPA”: 3.36,
“age”: 20
}
Computers = dict()
##u can add, remove and modify
car[‘horse_power’]=0
Student[‘Name’]=‘Youssef’
Student.pop(‘Name’)
```

Conditionals

IF

```
## this code is an example
b = ‘Kamil’
if (b == ‘Kamil’):
        print(“Awesome”)
```

Else

```
## this code is an example
b = ‘Kamil’
if (b == ‘Kamil’):
        print(“Awesome”)
else:
        print(“Nya2”)
```

Else-if (ELIF)

```
## this code is an example
b = ‘Kamil’
if (b == ‘Kamil’):
        print(“Awesome”)
elif(b == ‘Youssef’):
        print(“okay!”)
else:
        print(“bye”)
```

Repetition

This is bad…

```
##print all numbers 1 to 100
print(“1, 2, 3, 4, 5, 6, 7, 8, 9…)
```

For-Loop

```
##print all numbers 1 to 100
for i in range(1,101):
        print(i, end=‘ ‘)
##much better :D
```

While-Loop

```
##print all numbers 1 to 100
i = 0
while(i <= 100):
        print(i)
        i+=1
```

User Input

Input

```
##take input from the user
a = int(input())
b = input()
c = input(“Enter your name please:”)
```

Input + Loop

```
##take input from the user
a = int(input())
sum = 0
while(a != -1):
        sum+=a
        a = int(input())
print(sum)
```

Input + Loop + List

```
##take input from the user
a = int(input())
L = list()
sum = 0
while(a != -1):
        L.append(a)
        a = int(input())
print(L)
```

Functions

Redundant Code

```
##print all numbers 1 to 100
for i in range(1, 101)
        print(i)
##print all numbers from 3 to 340
for i in range (3,341):
        print(i)
##let's reuse code
```

Reuse Code

```
##print all numbers a to b
def Print(a, b):
        for i in range(a,b+1):
                print(i)
```

THANKS !

Do you have any questions?

Kamil.abihaidar@lau.edu