Welcome to Python Fundamentals

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In this module, we are going to establish or review our skills in Python programming. In this notebook we are going to cover:

- Variables and Data Types
- Operations
- Input and Output Operations
- Logic Control
- Iterables
- Functions

Variable and Data Types

Variable is a reserved memory location that can be used to store objects or any values you want to store in it[1].

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Operations

When the existance of a variable had veen known it can now begin to operate with by assigning a value into the variable.

Arithmetic

The Arithmetic operators are used to perform math operations through programming[2]. There are also libraries that are useful when dealing with more complicated math problems or equations[2].

[ ] ↳ *8 cells hidden*

Assignment Operations

Assignment operators are used to assign values to the variables [3]

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Comparators

Comparators operators are used to compare two values [3]

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Logical

Logical operators are used to combine conditional statements [3]

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I/O

To get an input to a user to do this Python had provided an input() function[3].

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Looping Statements

While

While loop statements is stated that the first condition to execute the loop is needed to be true, otherwose, the statement within the loop may never be executed[4].

```
## while loops
i, j = 0, 10
while(i<=j):
    print(f"{i}\t|\t{j}")
    i+=1
```

For

For loop is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string). With the for loop we can execute a set of statements, once for each item in a list, tuple, set etc [4]

```
# for(int i=0; i<10; i++){
# printf(i)
# }

i=0
for i in range(10):
    print(i)
```

```
playlist = []
print('Now Playing:\n')
for song in playlist:
    print(song)
```

Flow Control

A Flow controls are statements that tells the machine which block of codes to run in order[5].

Condition Statements

```
numeral1, numeral2 = 12, 12
if(numeral1 == numeral2):
    print("Yey")
elif(numeral1>numeral2):
    print("Hoho")
else:
    print("Aww")
print("Hip hip")
```

Functions

A function is a block of code which only runs when it is called. You can pass data, known as parameters, into a function and can return data as a result[6].

```
# void DeleteUser(int userid){
#     delete(userid);
# }

def delete_user (userid):
    print("Successfully deleted user: {}".format(userid))

def delete_all_users ():
    print("Successfully deleted all users")
```

```
userid = 0
delete_user(0)
delete_all_users()
```

```
def add(addend1, addend2):
    return addend1 + addend2

def power_of_base2(exponent):
    return 2**exponent
```

Lambda Functions

```
x = 4
```

```
def f(x):
  return 2*(x*x)-1
f(x)
```

```
g = lambda x: 2*(x*x)-1
print(g(x))
```

```
'''
Create a grade calculator that computes for the semestral grade of a course.
Students could type their names, the name of the course, then their prelim,
midterm, and final grade.
The program should print the semestral grade in 2 decimal points and should
display the following emojis depending on the situation:
happy - when grade is greater than 70.00
laughing - when grade is exactly 70.00
sad - when grade is below 70.00
'''



def calculator():
      name = input("Enter your name: ")
      course = input("Enter your course: ")
      pre = float(input("Input your prelim grade: "))
      mid = float(input("Input your midterm grade: "))
      fin = float(input("Input your final grade: "))
      fin = (pre * .30) + (mid * .30) + (fin *.40)

      happy, lol, sad = "\U0001F600","\U0001F923","\U0001F619"

```

```
24
25      if (fin > 70):
26        print("Ohayo! {}, your semestral grade is: {:.2f} {}{}".format(name, fin, happy, happy))
27      elif(fin== 70):
28        print("Ohayo! {}, your semestral grade is: {:.2f} {}{}".format(name, fin, lol, lol))
29      elif(fin < 70):
30        print("Ohayuo! {}, your semestral grade is: {:.2f} {}{}".format(name, fin, sad, sad))
31
32 calculator()
```

```
Enter your name: Lorenzo
Enter your course: CpE
Input your prelim grade: 89.99
Input your midterm grade: 91.10
Input your final grade: 90.69
Ohayo! Lorenzo, your semestral grade is: 90.60 😀😀
```

Reference

[1] Guru99(2021). *Python Variables: How to Define/Declare String Variable Types*. Online.

[2] Geek University(2019). *Arithmetic operators*. Online.

[3] W3schools (2021). *W3schools: Python Operators*. Online.

[4] W3schools (2021). *W3schools: Python For Loops*. Online.

[5] O'Reilly(2021). *Control Flow Statements*. Online.

[6] W3schools (2021). *W3schools: Python Functions*. Online.


```
1
```