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## Welcome to Python Fundamentals

▼ 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

▼

```
a, b = 5, 5.0 c, d =  
"Hi", 'Hello' e =  
"Happy Birthday!" f  
= False
```

```
type(a)
```

```
int
```

```
type(b)
```

```
float
```

```
type(c)
```

```
str
```

```
type(d)
```

```
str
```

```
type(f)
```

```
bool
```

```
e[6] + e[1] + e[-2]
```

```
'Bay'
```

```
s,t,u = "0", '1',  
'one' type(s) str
```

```
P = 99.9  
[str(P), type(x)]  
  
['99.9', float]
```

```
Q = [1,2,"Pogi si James  
Luyon"] type(Q) list
```

```
R = (1,2, "Petmalu Lode")  
type(R) tuple
```

## Operations

### Arithmetic

```
z,x,y,w = 11.0, -0.78, 0, -64  
▼ v = 15
```

```
### Addition  
▼ A = z+x  
A
```

```
10.22
```

```
### Subtraction  
S = x-w  
S
```

63.22

```
### Multiplication
```

```
M = z*w
```

```
M
```

```
-704.0
```

```
### Division
```

```
D = y/z
```

```
D
```

```
0.0
```

```
### Floor Division
```

```
FD = v//z
```

```
FD
```

```
1.0
```

```
### Exponentiation
```

```
Ex = z**v
```

```
Ex
```

```
4177248169415651.0
```

```
### Modulo
```

```
MD = w%z
```

```
MD
```

## 2.0 Assignment

## Operations

```
L, M, N, O = 6, 78, 4, 4
```

```
L += z
```

```
L
```

```
17.0
```

```
M -= z
```

```
M
```

```
67.0
```

```
N *= 5
```

```
N
```

```
20
```

```
0 **= 5
```

```
0
```

```
1024
```

```
3/2
```

```
1.5
```

```
3//2
```

```
1
```

## Comparators

```
## Equality
```

```
1==1
```

```
True
```

```
1==2
```

```
▼ False
```

```
## Non-equality
```

```
1!=2
```

```
True
```

```
## Oh the great there's no error here lol
```

```
Luyon = "Pogi"
```

```
Luyon == "Pogi"
```

```
True
```

```
# Is 2 greater than 3?
```

```
2 > 3
```

```
False
```

```
# Is 2 less than 3?
```

```
2 < 3
```

```
True
```

```
# Is 1 greater than or equal to 2?
```

```
1 >= 2
```

```
False
```

```
# Is 2 less than or equal to 2?
```

```
2 <= 2
```

```
True
```

## Logical

```
Luyon = "Pogi"
```

```
Katotohanan = "Pogi"
```

```
Pangit = "Pangit"
```

```
Luyon == Katotohanan
```

```
True
```



```
Luyon is Pangit
```

```
## HAHAAHAHA
```

```
False
```

```
Luyon is not Pangit
```

```
True
```

```
p, q = True,
```

```
False conj = p
```

```
and q conj
```

```
False
```

```
p, q = True,
```

```
False disj = p or
```

```
q disj
```

```
True
```

```
p, q = True, False
nand = not(p and q)
nand
```

```
True
```

```
p, q = True, False xor = (not p and
q) or (p and not q) xor
```

```
True
```

## I/O

```
name = input() print("Hello Mars!") print("Ano
kasunod ng Mars?") print("Syempre Jupiter
HAHAHAHA Hi",name , "!")
```

```
Matt Hello
Mars!
Kasunod ng Mars
Syempre Jupiter HAHAHAHA Hi Matt !
```

```
cnt = 1
```

```
▼ string = "Hello Mars" print(string, ",
Current run count is:", cnt) cnt += 1
```

```
Hello Mars , Current run count is: 2
```

```
print(f"{string}, Current count is: {cnt}") Hello Mars, Current count is: 3
```

```
pogi_points = 99.99 sex_epal = 99.99 name = "James Matthew Luyon"
print("Hello {}, your pogi points is: {}".format(name, pogi_points))
print("And your sex appeal is: {}".format(sex_epal), "Wow
HAHAHAHAHAHA")
```

```
Hello James Matthew Luyon, your pogi points is: 99.99
And your sex appeal is: 99.99 Wow HAHAHAHAHAHA
```

```
trial_1, trial_2, trial_3 = 0.21, 0.5, 1.01
print("Mga chance na maging kayo ng crush mo:\
\n\t{:.2%} if lagi kayong magka-usap\
\n\t{:.2%} kapag umamin ka sa kanya, and\
\n\t{:.2%} kapag type ka din niya.".format(trial_1, trial_2, trial_3))
```

```
Mga chance na maging kayo ng crush mo:
    21.00% if lagi kayong magka-usap
    50.00% kapag umamin ka sa kanya, and    101.00%
    kapag type ka din niya.
```

```
Input = input("enter a character/string: ")
```

```
Input
```

```
enter a character/string: Wag susuko kaya natin to future inhinheyo
'Wag susuko kaya natin to future inhinheyo'
```

```
name = input("Enter your Nickname: ") pg
= float(input("Enter prelim grade: ")) mg
= float(input("Enter midterm grade: "))
fg = float(input("Enter finals grade: "))
sem_grade = ((pg*0.3)+(mg*0.3)+(fg*0.4))
print("Hello Koya{}", your semestral grade is: {}".format(name, sem_grade))
```

```
Enter your Nickname: Matt
Enter prelim grade: 92
Enter midterm grade: 89
Enter finals grade: 95
Hello KoyaMatt, your semestral grade is: 92.3
```

## Looping Statements

### While

```
## while loops
i = int(input("Input integer:")) while i > 0:
    print("$"*i)    i-=1
```

```
Input integer:5
$$$$$
$$$$$
$$$
$$
$ $
```

```
i = 0
while i==0:
    x = int(input("Quiz: What is 10 times 4:
"))    if x == 40:        i+=1        else:
        print("Wrong! Try Again!")
print("Tumpak! at Dahil dyan meron kang Jacket!!!!")
```

```
Quiz: What is 10 times 4: 2
Wrong! Try Again!
```

Quiz: What is 10 times 4: 5

Wrong! Try Again!

Quiz: What is 10 times 4: 40 Correct!

## For

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

```
Pre_advice = ["LCD","CNS","AIDA","Intro to HDL","CW","Rizal","PE4"]  
for i in  
Pre_advice:  
print(i)
```

```
LCD  
CNS  
AIDA  
Intro to HDL  
CW  
Rizal  
PE4
```

```
for i in "Hello World":  
print(i)  
H  
e  
l  
l  
o  
W  
o  
r  
l  
d
```

```
list(range(1,5))
```

```
[1, 2, 3, 4]
```

```
num = int(input("Input: "))  
for i in range(1,11):  
print(num, "*", i, "=", num*i)
```

```
Input: 5  
5 * 1 = 5  
5 * 2 = 10
```



```
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45 5
* 10 = 50
```

## Flow Control

### Condition Statements

```
Grade = float(input("Input Grade: "))
if(Grade >=
90):
print("A")
elif(Grade
>=80):
print("B")
elif(Grade
>=70):
print("C")
elif(Grade
>=60):
print("D")
```



```
p ( )  
else:  
print("F")
```

```
Input Grade: 69  
D
```

```
answer = int(input("Input any  
number:")) text="" if answer > 10:  
    text = "greater than"  
elif answer < 10:  
    text = "less than"  
  
print(answer,"is",text,"10.")
```

```
Input any number:5  
5 is less than 10.
```

## Functions

```
# creating basic functions in python  
def inhinyero(future, job):  
    print("I am future {}, and my field of expertise is in {}".format(future,job))  
    inhinyero("Computer Engineer","Artificial  
Intelligence")
```

```
I am future Computer Engineer, and my field of expertise is in Artificial Intelligence
```

```
def addition(*var_args):  
    answer = 0  
    for i in var_args:  
        answer +=i  
    return answer  
  
addition(5,3)
```

```
8
```

## Lambda Functions

```
xx = 4
```

```
lf1 = lambda xx: xx + 2
```

▼ lf(6)

8

```
lf2 = lambda xx,yy: xx + yy
```

```
lf2(5,6)
```

11

...

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 ''' happy, lol, sad =

"\U0001F600", "\U0001F923", "\U0001F619"

```
#Alright lets to this student_name = input("Enter your Name: ") course =
input("Enter your course: ") prelim_g = float(input("Enter your Prelim Grade: "))
midterm_g = float(input("Enter your Midterm Grade: ")) finals_g =
float(input("Enter your Final Grade: ")) sem_g =
((prelim_g*0.3)+(midterm_g*0.3)+(finals_g*0.4)) print("Hello Klasmeyt {}, your
semestral grade is: {}".format(student_name, sem_g)) if(sem_g > 70):
    print("My grade is greater than 70
yey!")    print("\U0001F600") elif(sem_g ==
70):
    print("My grade is exactly 70
great!")    print("\U0001F923") else:
    print("My grade is lower than 70 aw!")
print("\U0001F619")
```

Enter your Name: Mat

Enter your course: BS Computer Engineering

Enter your Prelim Grade: 58

Enter your Midterm Grade: 69

Enter your Final Grade: 68

Hello Klasmeyt Mat, your semestral grade is:

65.3 My grade is lower than 70 aw! 😞

Thank you for joining and reading my jupyter notebook ^\_^

**Github Repo: <https://github.com/ReyesCarl/AIDA>**