

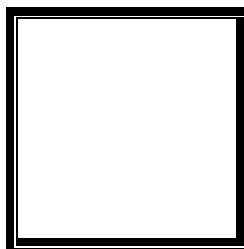


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LINEAR ALGEBRA

Laboratory No. # 1
PYTHON FUNDAMENTALS



Score

CRITERIA	Exceeds Expectations	Meets Expectations	Needs Improvement	Unsatisfactory
Functionality (60 points)				
Completeness (20 points)				
Structure (20 points)				

Remarks: _____

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Date Performed:

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Date Submitted

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Objective

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

1. Variables and Data Types
2. Operations
3. Input and Output Operations
4. Logic Control
5. Iterables
6. Functions

Algorithm

1. Type the main title of this activity as "Python Fundamentals"
2. On your GitHub, create a repository name Linear Algebra 58019
3. On your Colab, name your activity as Python Exercise 1.ipynb and save a copy to your GitHub repository

Coding Activity 1

A. Variable and Data Types

```
x = 1
a,b = 0, -1

type(x)

y = 1.0
type(y)

x = float(x)
type(x)

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

s_int = int(s)
s_int
```

B. Arithmetic Operations

```
a,b,c,d = 2.0, -0.5, 0, -32
```



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Addition

$S = a + b$

S

Subtraction

$D = b - d$

D

Multiplication

$P = a * d$

P

Division

$Q = c / a$

Q

Exponentiation

$E = a ** b$

E

Modulo

$mod = d \% a$

mod

C. Assignment Operations

G, H, J, K = 0, 100, 2, 2

$G += a$

G

$H -= d$

$J *= 2$

J

$K **= 2$

K



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D. Comparators

```
res_1, res_2, res_3 = 1, 2.0, "1"  
true_val = 1.0  
  
## Equality  
res_1 == true_val  
  
## Non-equality  
res_2 != true_val  
  
## Inequality  
t1 = res_1 > res_2  
t2 = res_1 < res_2/2  
t3 = res_1 >= res_2/2  
t4 = res_1 <= res_2  
t1
```

E. Logical

```
res_1 == true_val  
  
res_1 is true_val  
  
res_1 is not true_val  
  
p, q = True, False  
conj = p and q  
conj  
  
p, q = True, False  
disj = p or q  
disj  
  
p, q = True, False  
nand = not(p and q)  
nand  
  
p, q = True, False  
xor = (not p and q) or (p and not q)  
xor
```

F. Input and Output Operations



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```
print("Hello World")

cnt = 1

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

print(f"{string}, Current count is: {cnt}")

sem_grade = 82.243564657461234
name = ""
print("Hello {}, your semestral grade is: {}".format(name, sem_grade))

w_pg, w_mg, w_fg = 0.3, 0.3, 0.4
print("The weights of your semestral grades are:\n\t{:.2%} for Prelims\n\t{:.2%} for Midterms, and\n\t{:.2%} for Finals.".format(w_pg, w_mg, w_fg))

x = input("enter a number: ")
x

name = input("Kimi no nawa: ")
pg = input("Enter prelim grade: ")
mg = input("Enter midterm grade: ")
fg = input("Enter finals grade: ")
sem_grade = None
print("Hello {}, your semestral grade is: {}".format(name, sem_grade))
```



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G. Looping Statements

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

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

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

H. Flow Control

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

I. Functions

```
# 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")
```



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A. Variable and Data Types

```
[ ] x = 1
    a,b = 0, -1

    type(x)

int
```

```
[ ] y = 1.0
    type(y)

float
```

```
[ ] x = float(x)
    type(x)

float
```

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

str
```

```
[ ] s_int = int(s)
    s_int

0
```

B. Arithmetic Operations

```
[ ] a, b, c, d = 2.0, -0.5, 0, -32

    # Addition
    S = a + b
    S

1.5
```

```
[ ] # Subtraction
    D = b - d
    D

31.5
```

```
[ ] # Multiplication
    P = a * d
    P

-64.0
```

```
[ ] # Division
    Q = c / a
    Q

0.0
```

```
[ ] # Exponentiation
    E = a ** b
    E

0.7071067811865476
```

```
[ ] # Modulo
    mod = d % a
    mod

0.0
```



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C. Assignment Operations

```
[ ] G, H, J, K = 0, 100, 2, 2
```

```
G += a  
G
```

2.0

```
[ ] H -= d  
H
```

132

```
[ ] J *= 2  
J
```

4

```
[ ] K **= 2  
K
```

4

D. Comparators

```
[ ] res_1, res_2, res_3 = 1, 2.0, "1"  
true_val = 1.0
```

```
# Equality  
res_1 == true_val
```

True

```
[ ] # Non-equality  
res_2 != true_val
```

True

```
[ ] t1 = res_1 > res_2  
t1
```

False

```
[ ] t2 = res_1 < res_2/2  
t2
```

False

```
[ ] t3 = res_1 >= res_2/2  
t3
```

True

```
[ ] t4 = res_1 <= res_2  
t4
```

True



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E. Logical

```
[ ] res_1 == true_val  
True
```

```
[ ] res_1 is true_val  
False
```

```
[ ] res_1 is not true_val  
True
```

```
[ ] p, q = True, False  
  
# Logical AND  
conj = p and q  
conj  
  
False
```

```
▶ p, q = True, False  
  
# Logical OR  
disj = p or q  
disj  
  
True
```

```
[ ] p, q = True, False  
  
# Logical NAND  
nand = not (p and q)  
nand
```

```
▶ p, q = True, False  
  
# Logical XOR  
xor = (not p and q) or (p and not q)  
xor  
  
True
```

F. Input and Output Operations

```
[ ] print("Hello World")  
  
cnt = 1  
  
Hello World
```

```
[ ] string = "Hello World"  
print(string, ", Current run count is:", cnt)  
cnt += 1  
  
Hello World , Current run count is: 1
```

```
[ ] print(f"{string}, Current count is: {cnt}")  
  
Hello World, Current count is: 2
```

```
[ ] sem_grade = 82.243564657461234  
name = "Paging Mabagsik A. NakNiMayor"  
print("Hello {}, your semestral grade is: {}".format(name, sem_grade))  
  
Hello Paging Mabagsik A. NakNiMayor, your semestral grade is: 82.24356465746123
```

```
[ ] w_pg, w_mg, w_fg = 0.3, 0.3, 0.4  
print("The weights of your semestral grades are:\n\\t{:.2%} for Prelims\n\\t{:.2%} for Midterms, and\n\\t{:.2%} for Finals.".format(w_pg, w_mg, w_fg))  
  
print("Ang baba naman ma'am :< ")  
  
The weights of your semestral grades are:  
30.00% for Prelims  
30.00% for Midterms, and  
40.00% for Finals.  
Ang baba naman ma'am :<
```

```
[ ] x = input("enter a number: ")  
x  
enter a number: 7  
7
```

```
[ ] name = input("Kimi no nawa: ")  
pg = input("Enter prelim grade: ")  
mg = input("Enter midterm grade: ")  
fg = input("Enter finals grade: ")  
sem_grade = None  
print("Hello {}, your semestral grade is: {}".format(name, sem_grade))  
  
Kimi no nawa: Alipin ni Twainy  
Enter prelim grade: 1  
Enter midterm grade: 1  
Enter finals grade: 1  
Hello Alipin ni Twainy, your semestral grade is: None
```

