

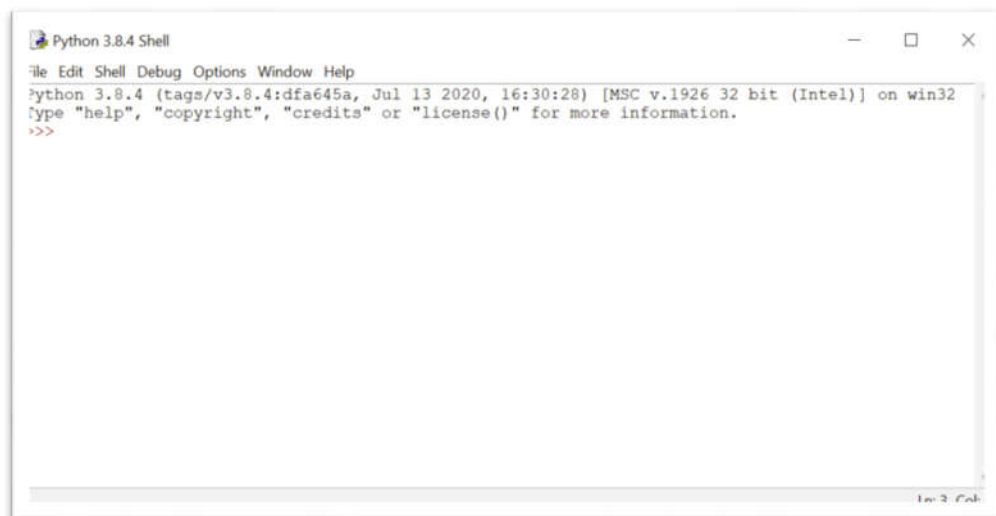
1st practical work

All students are invited to do the following:

- Install the latest version of Python 3 on your computer: <https://www.python.org/downloads/windows/>
Run the Installer



- Open **IDLE**, Python's built-in **I**ntegrated **D**evelopment and **L**earning **E**nvironment.
1-Click the Start menu and locate the Python folder.
2- Open the folder and select IDLE



Write a Python Program

IDLE's interactive window contains a **Python shell**, which is a textual user interface used to interact with the Python language. You can type a bit of Python code into the interactive window and press Enter to immediately see the results.

The `>>>` symbol in the last line is called the **prompt**. This is where you'll write your code

Note : for a program (a set of instructions) in python Idle : click: **file--New**. if you want to run your program click : **Run -- Run Module** from the menu in editor window.

1- Comments:

Comments are used to explain the code and are ignored by the Python interpreter. You can use the `#` symbol for single-line comments.

```
>>> # Nothing to do , it's just a comment
```

```
# .....
```

2- Shell as a calculator**a) Type and explain the result of these operations?**

```

>>> 5 + 2          # .....
>>> 10 - 2         # .....
>>> 6 * 2          # .....
>>> 8 / 3          # .....
>>> 10 // 3        # .....
>>> 5 % 2          # .....
>>> 5 ** 2         # .....
>>> 9 ** 0.5       # .....
>>> 5 and 0        # .....
>>> 1 or 1         # .....
>>> (5 + 1 * 3) + 2 # .....
>>> 5 + 3 ** 2 * 2  # .....
>>> 5 + 3 + *2 * 2  # .....
>>> 5 + 3 ** 2 / 0  # .....

```

b) Command Print .

To print strings to console or echo some data to console output, use Python inbuilt print() function. **Type and explain the result ?**

```

>>> print('hello world')          # .....
>>> print('5 + 3 ** 2 ', 5 + 3 ** 2) # .....
>>> print('5 + 3 ** 2 ', 5 + 3 ** 2, sep = '=') # .....
>>> print('hello world', end='.')   # .....
>>> print('hello', end='\n'); print('world', end='.') # .....

```

what is the role of semi colon(;)?

3- built-in Functions:

some builtin functions in python. Type the following and explain each result ?

```

>>> abs(-1.5)      # .....
>>> bin(24)        # .....
>>> chr(65) ;ord('m') # .....
>>> chr(ord('m')+1) # .....
>>> chr(ord('B')-1) # .....
>>> str(65)        # .....
>>> min([-1.5,2,3.1,10,12]) # .....
>>> max([-1.5,2,3.1,10,12]) # .....
>>> sum([-1.5,2,3.1,10,12]) # .....
>>> format(0.000152,'E')   # .....
>>> format(0.152,'%')     # .....
>>> int(3.41)            # .....

```

3- Using the editor : Type, save and run this program. What does this program do?

```

import time
seconds = 10
while seconds > 0:
    print(f"Time remaining: {seconds} seconds")
    time.sleep(1)    # Delay for 1 second
    seconds -= 1

print("Time's up!")

```

Primitives Variables

In Python, **variables** are names that can be assigned and store (in memory) a value and then used to refer to that value throughout your code.

Python variables do not need explicit declaration to reserve memory space. The declaration happens automatically when you assign a value to a variable. The equal sign (=) is used to assign values to variables.

1- Create variables : Give the answer of the following :

- Create a variable named **Var1** and assign the value **"Hello"** to it
.....
- Create a variable named **X1** and assign the **Real value 2** to it
.....
- explain the purpose of **type** function using this command : **type(2.5)**
.....
- `x = 5 ; print (x)`
.....
- `x = 5 ; print(x , type (x) , sep = ' is type of ')`
.....
- `z , x = 5 , 0 ; print(z , ' ', x)`
.....
- `x = int (20) ; print (type (x))`
.....
- `y = 20.5 ; print (y , type (y) , sep = ' is type of ')`
.....
- `y = float (20.5) ; print (y , type (y) , sep = ' is type of ')`
.....
- `S= "Hello, World" ; print (S , type (S) , sep = ' is type of ')`
.....
- `L= True ; print (L , type (L) , sep = ' is type of ')`
.....
- `L = str ("True") ; print (type (L))`
.....
- `a=10 ; b= a + 2; c = a + b ; print (a , b, c, sep=' '))`
.....
- `a=10 ; a= a + 1; print (a)`
.....
- `a=5; b=10 ; c=3; b+=1 ; c**=2; a-=1; print (a, b, c, sep=(' '))`
.....
- `a=5; b=10 ; c=a; a=b ; b = c ; print ('a become ', a , ' and b = ', b)`
.....
- `a = 8.5; b=1.2 ; a = a + b; b = a-b ; a = a - b; print ('a become ', a , ' and b = ', b)`
.....
- `a = 6; b=(a+3)*2 ; a = a + b+4; b = (b+2)*3 ; print ('a = ', a , ' and b = ', b)`
.....