

PRACTICAL: 1

Develop programs for introduction of python and IDLE.

Develop programs to understand conditional statements of python.

PROGRAM 1: Introduction to python and IDLE command line mode and script mode.

SOLUTION:

Python:

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together.

Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance.

Python supports modules and packages, which encourages program modularity and code reuse.

The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

Python IDLE:

IDLE (Integrated Development and Learning Environment) is an integrated development environment (IDE) for Python.

The Python installer for Windows contains the IDLE module by default.

IDLE is not available by default in Python distributions for Linux.

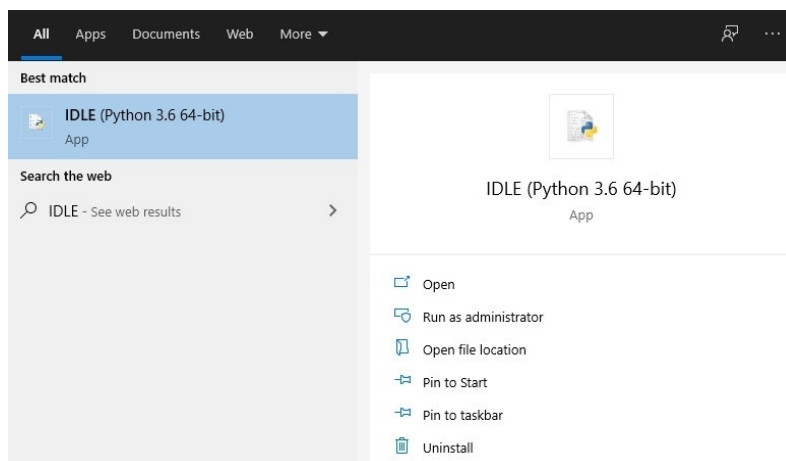
It needs to be installed using the respective package managers.

IDLE can be used to execute a single statement just like Python Shell and also to create, modify, and execute Python scripts.

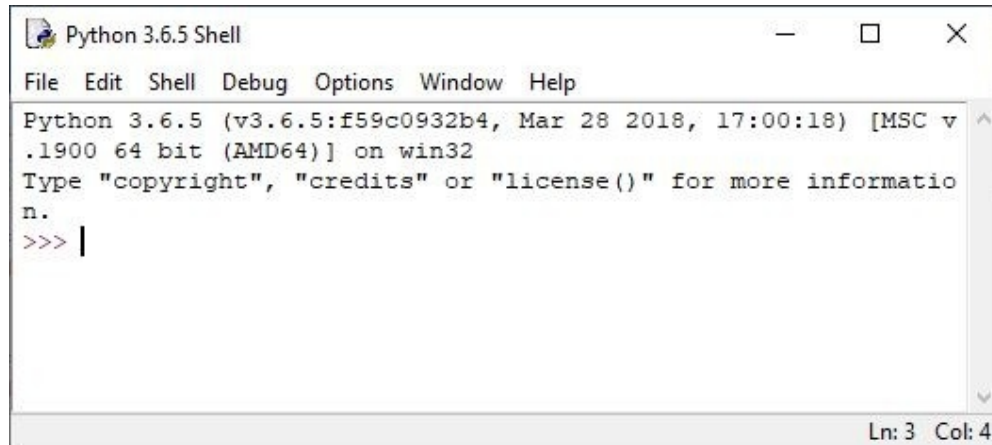
IDLE provides a fully-featured text editor to create Python script that includes features like syntax highlighting, autocompletion, and smart indent.

It also has a debugger with stepping and breakpoints features.

To start an IDLE interactive shell, search for the IDLE icon in the start menu and double click on it.



This will open IDLE, where you can write and execute the Python scripts, as shown below.



The screenshot shows a Windows-style window titled "Python 3.6.5 Shell". It has a menu bar with "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main text area displays the following information: "Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD64)] on win32", followed by "Type 'copyright', 'credits' or 'license()' for more information." and a prompt ">>> |". The status bar at the bottom right indicates "Ln: 3 Col: 4".

There are two types of mode of IDLE:

1. Command Line Mode
2. Script Mode

1. Command Line Mode:

If you want to write a small piece of Python code, then using the command line IDLE is beneficial.

For that, you need to open the command prompt from the start menu and there the path where Python.exe is located is required to find.

Then go to that directory in the command prompt and run the '.py' file or enter the python commands.

Here is the example how to execute in Command line mode.

2. Script Mode:

If you need to write a long piece of Python code or your Python script spans multiple files, interactive mode is not recommended.

Script mode is the way to go in such cases.

In script mode, you write your code in a text file then save it with a .py extension which stands for "Python".

Note that you can use any text editor for this, including Sublime, Atom, notepad++, etc.

If you are in the standard Python shell, you can click "File" then choose "New" or simply hit "Ctrl + N" on your keyboard to open a blank script in which you can write your code.

You can then press "Ctrl + S" to save it.

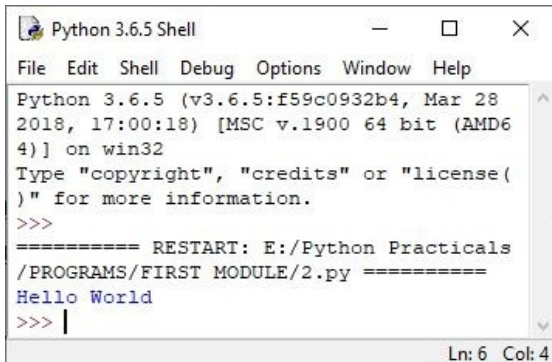
After writing your code, you can run it by clicking "Run" then "Run Module" or simply press F5.

PROGRAM 2: Write a program to print "Hello World" in python using both the modes of IDLE.

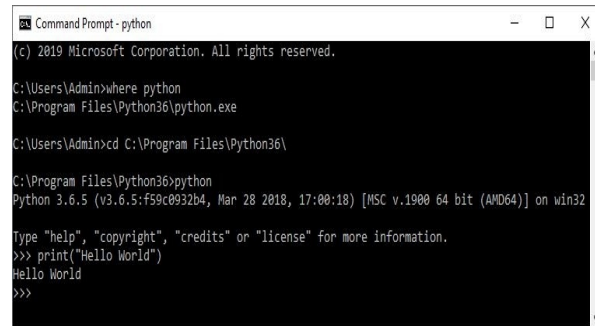
SOLUTION:

```
print('Hello World')
```

OUTPUT:



```
Python 3.6.5 Shell
File Edit Shell Debug Options Window Help
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:/Python Practicals /PROGRAMS/FIRST MODULE/2.py =====
Hello World
>>> |
```



```
Command Prompt - python
(c) 2019 Microsoft Corporation. All rights reserved.
C:\Users\Admin>where python
C:\Program Files\Python36\python.exe
C:\Users\Admin>cd C:\Program Files\Python36\
C:\Program Files\Python36>python
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print("Hello World")
Hello World
>>>
```

PROGRAM 3: Write a program to find the maximum number out of 3 numbers

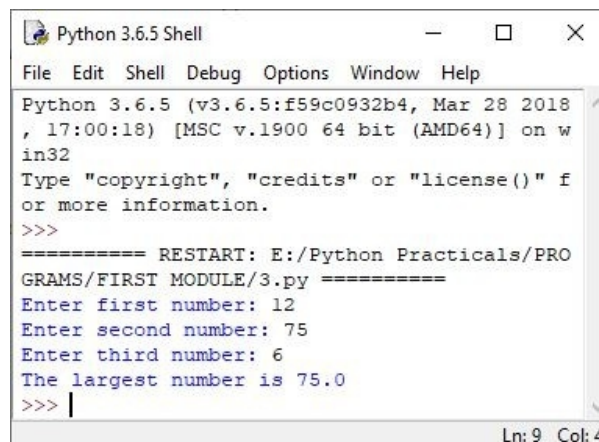
SOLUTION:

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
num3 = float(input("Enter third number: "))
```

```
if (num1 >= num2) and (num1 >= num3):
    largest = num1
elif (num2 >= num1) and (num2 >= num3):
    largest = num2
else:
    largest = num3
```

```
print("The largest number is", largest)
```

OUTPUT:



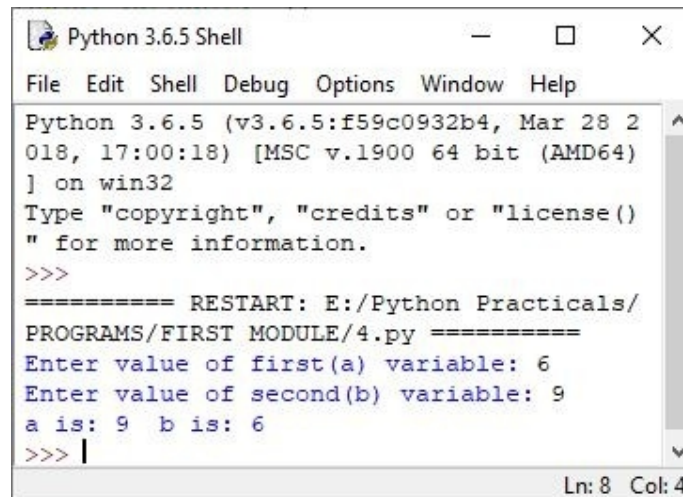
```
Python 3.6.5 Shell
File Edit Shell Debug Options Window Help
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:/Python Practicals/PROGRAMS/FIRST MODULE/3.py =====
Enter first number: 12
Enter second number: 75
Enter third number: 6
The largest number is 75.0
>>> |
```

PROGRAM 4: Write a program to swap the values of two variables without using temporary variable.

SOLUTION:

```
a=int(input("Enter value of first(a) variable: "))
b=int(input("Enter value of second(b) variable: "))
a=a+b
b=a-b
a=a-b
print("a is:",a," b is:",b)
```

OUTPUT:



```
Python 3.6.5 Shell
File Edit Shell Debug Options Window Help
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:/Python Practicals/PROGRAMS/FIRST MODULE/4.py =====
Enter value of first(a) variable: 6
Enter value of second(b) variable: 9
a is: 9 b is: 6
>>> |
```

PROGRAM 5: Write a program to implement calculator.

SOLUTION:

```
# Function to add two numbers
def add(num1, num2):
    return num1 + num2
# Function to subtract two numbers
def subtract(num1, num2):
    return num1 - num2
# Function to multiply two numbers
def multiply(num1, num2):
    return num1 * num2
# Function to divide two numbers
def divide(num1, num2):
    return num1 / num2
print("Please select operation -\n"
      "1. Add\n"
      "2. Subtract\n"
      "3. Multiply\n"
      "4. Divide\n")
# Take input from the user
```

```
select = int(input("Select operations form 1, 2, 3, 4 :"))
number_1 = int(input("Enter first number: "))
number_2 = int(input("Enter second number: "))
if select == 1:
    print(number_1, "+", number_2, "=",
          add(number_1, number_2))
elif select == 2:
    print(number_1, "-", number_2, "=",
          subtract(number_1, number_2))
elif select == 3:
    print(number_1, "*", number_2, "=",
          multiply(number_1, number_2))
elif select == 4:
    print(number_1, "/", number_2, "=",
          divide(number_1, number_2))
else:
    print("Invalid input")
```

OUTPUT:

```
Please select operation -
1. Add
2. Subtract
3. Multiply
4. Divide

Select operations form 1, 2, 3, 4 :1
Enter first number: 2
Enter second number: 4
2 + 4 = 6

Please select operation -
1. Add
2. Subtract
3. Multiply
4. Divide

Select operations form 1, 2, 3, 4 :2
Enter first number: 4
Enter second number: 2
4 - 2 = 2

Please select operation -
1. Add
2. Subtract
3. Multiply
4. Divide

Select operations form 1, 2, 3, 4 :3
Enter first number: 10
Enter second number: 4
10 * 4 = 40

Please select operation -
1. Add
2. Subtract
3. Multiply
4. Divide

Select operations form 1, 2, 3, 4 :4
Enter first number: 20
Enter second number: 2
20 / 2 = 10.0
```