Lrn&shr

LEARN PYTHON

LEARNING MODULE-2

PYTHON CONDITIONAL STATEMENTS

- if - else and elif Statement

- while Loop Statement

- for Loop Statement

- break Statement

- continue Statement

- pass Statement

if – else - elif Statement:

if statement- This is used to execute a block of statement based on the condition block. When the specified condition block satisfies expression; it executes, otherwise it exits. Example is shown in practice program1.

If-else statement- It allows the programmer to execute both condition blocks i.e. in case of true – it executes true expression and in case of false- executes false expression. Hence it can execute two or more than two blocks at a time. Example is shown in practice program 2.
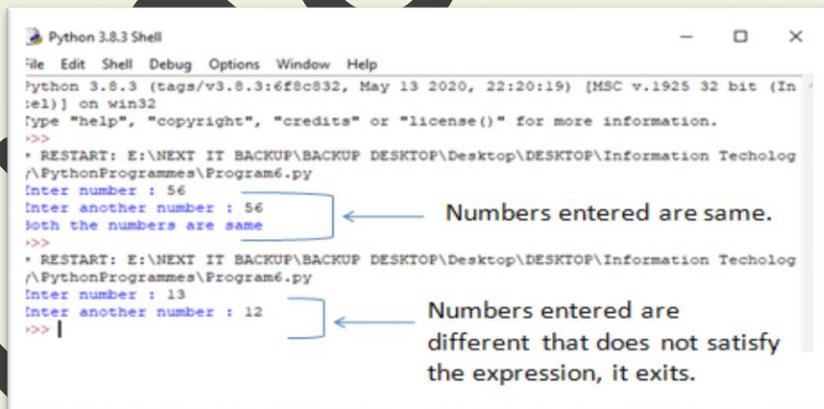
If-elif-else statement- This statement is used to check the number of condition blocks from start to end, and will only execute true block expression, as shown in practice program 3.

Practice Program 1-

Program to print whether numbers entered are same.

```
num1 = float(input("Enter number : "))

num2 = float(input("Enter another number : "))

if (num1==num2):

    print("Both the numbers are same")
```

Program Output **(executed twice to display both output)**

Numbers entered are same.

Numbers entered are different that does not satisfy the expression, it exits.

Practice Program 2-

Program to print the nationality by using 'if-else'.
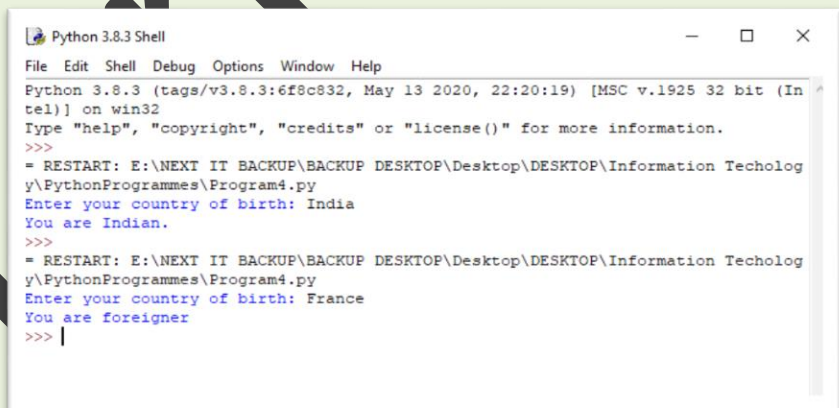
```
name=str(input("Enter your country of birth: "))

if name == "India" :

    print("You are Indian.")

else :

    print("You are foreigner")
```

PROGRAM OUTPUT (executed twice to display both output)

Practice Program 3-

Program to print birthstone based on month, using 'if-elif-else'.

```
mon=str(input("In which month were you born? : "))

if mon == "January":

   print("Your Birthstone is Garnet")

elif mon == "February":

   print("Your Birthstone is Amethyst")

elif mon == "March":

   print("Your Birthstone is Aquamarine")

elif mon == "April":

   print("Your Birthstone is Diamond")

elif mon == "May":

   print("Your Birthstone is Emerald")

elif mon == "June":

   print("Your Birthstone is Pearl")
```

contd......

```python
elif mon == "July":

    print("Your Birthstone is Ruby")

elif mon == "August":

    print("Your Birthstone is Peridot")

elif mon == "September":

    print("Your Birthstone is Sapphire")

elif mon == "October":

    print("Your Birthstone is Opal")

elif mon == "November":

    print("Your Birthstone is Topaz")

else :

    print("Your Birthstone is Turquoise")
```

PROGRAM OUTPUT (output based on months entered)

```
Python 3.8.3 Shell                                          —    □    X

File  Edit  Shell  Debug  Options  Window  Help

Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program7.py
In which month were you born? : March
Your Birthstone is Aquamarine
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program7.py
In which month were you born? : January
Your Birthstone is Garnet
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program7.py
In which month were you born? : December
Your Birthstone is Turquoise
>>>
```

Nestedif Statement:

When 'if' statement is used inside another 'if' statement, it is called 'Nestedif'. For instance –

If condition 1:

  If condition 2:

print statement1

else:

print statement2

Meaning -when condition1 satisfies the block than it prints statement 1. Otherwise it tests another condition block and continues till the block ends, refer Program 4:

Practice Program 4-

Program to compare two numbers by using 'Nestedif'.

```python
num1 = float(input("Enter first number : "))

num2 = float(input("Enter second number : "))

if (num1>num2):

    print("First Number is greater than all other two
numbers",num1,num2)

else:

    if (num1<num2):

        print("First Number is smaller than all other two
numbers",num1,num2)

    else:

        if (num1==num2):

            print("All numbers are same",num1,num2)
```
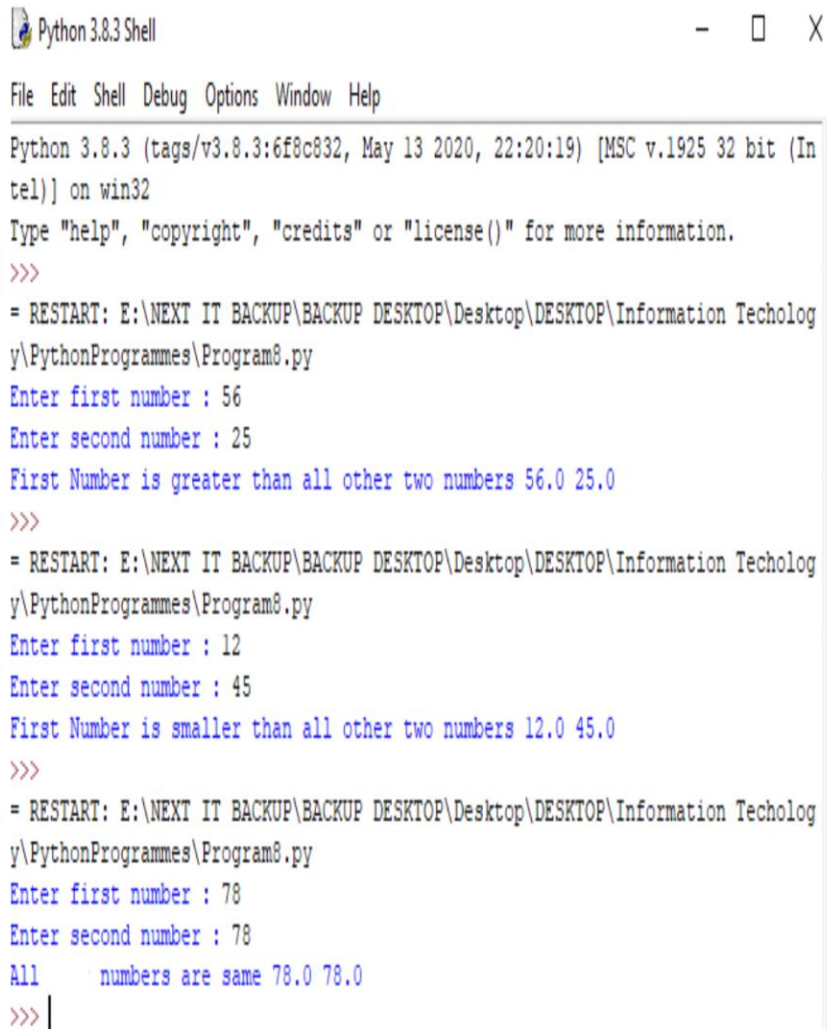
PROGRAM OUTPUT (Three different blocks output)

```
Python 3.8.3 Shell                                    —   □   X

File  Edit  Shell  Debug  Options  Window  Help

Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program8.py
Enter first number : 56
Enter second number : 25
First Number is greater than all other two numbers 56.0 25.0
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program8.py
Enter first number : 12
Enter second number : 45
First Number is smaller than all other two numbers 12.0 45.0
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program8.py
Enter first number : 78
Enter second number : 78
All     numbers are same 78.0 78.0
>>>
```

while statement:

With this loop, statement (s) can be executed based on the condition. You can execute one statement block or more statement blocks as per the condition. For example –
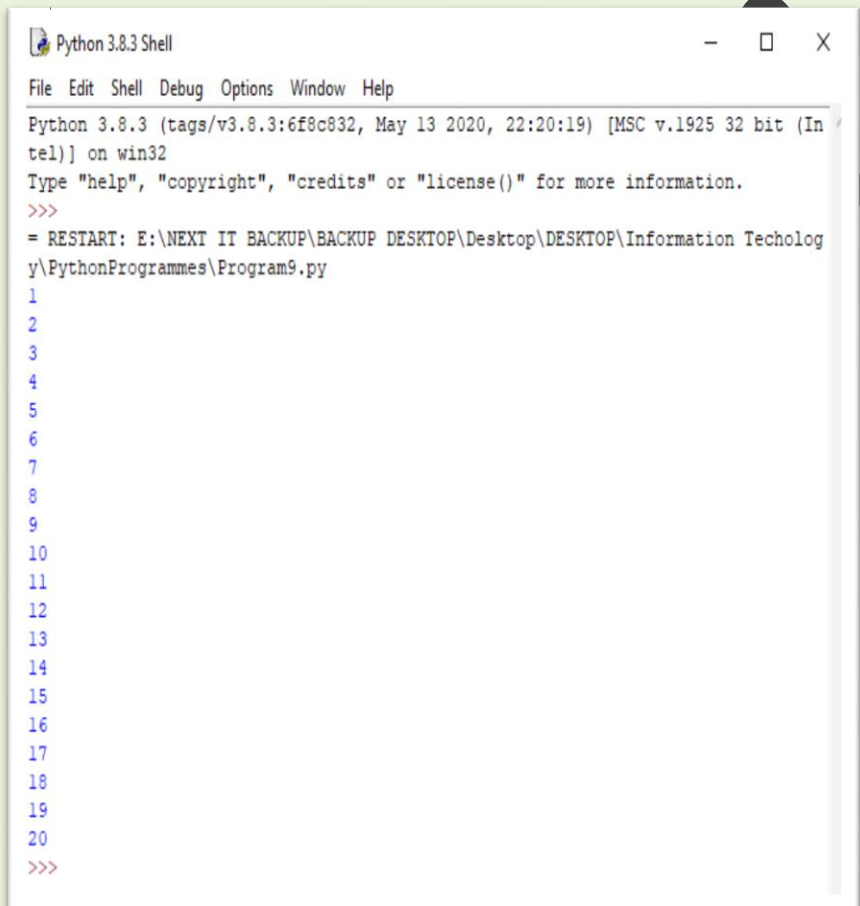
while (test condition)

loop counter

statement(s)

Practice Program 5-

Program to print numbers 1 to 20.

```
num=1
while num<=20:
    print(num)
    num=num+1
```

PROGRAM OUTPUT

```
Python 3.8.3 Shell                                              —    □    X

File  Edit  Shell  Debug  Options  Window  Help
Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program9.py
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
>>>
```

While loop terminates, when the value of 'num'
becomes 21.

for Loop Statement:

This statement repeats statement block as per the specified number of times. The syntax block of the loop uses two keywords – 'for' and 'in'. For example-
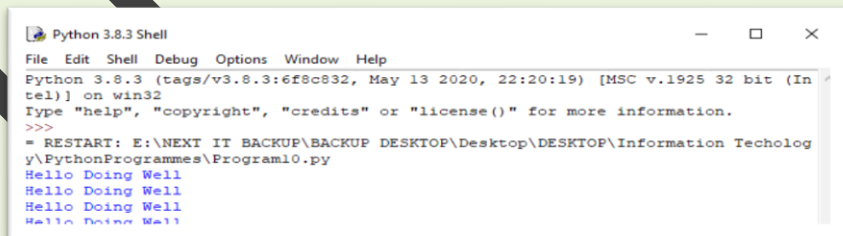
for <variable> in <sequence>:

Keywords

Practice Program 6-

Program to print 'Hello Doing Well' four times.

```
for num in [1,2,3,4]:

        print ("Hello Doing Well")
```

PROGRAM OUTPUT

```
Python 3.8.3 Shell                                              —    □    ×
File  Edit  Shell  Debug  Options  Window  Help
Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program10.py
Hello Doing Well
Hello Doing Well
Hello Doing Well
Hello Doing Well
```

break statement
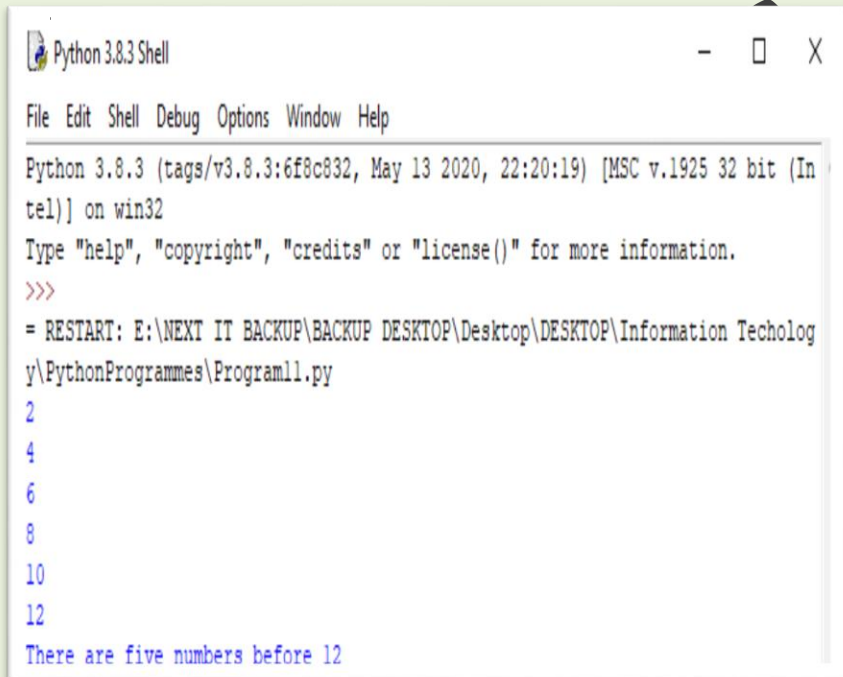
This statement is used to terminate the loop. Primarily, it is used inside a loop along with 'if' statement. When the block of statement becomes true, it terminates loop as shown in program 7:

Practice Program 7-

Program to print numbers given in a series, till it finds number -12.

```
for num in [2,4,6,8,10,12,14,16,18,20]:

        print (num)

        if(num==12):

                print ("There are five numbers before 12")

                break
```

PROGRAM OUTPUT

```
Python 3.8.3 Shell                                          –    □    X

File  Edit  Shell  Debug  Options  Window  Help
Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program11.py
2
4
6
8
10
12
There are five numbers before 12
```
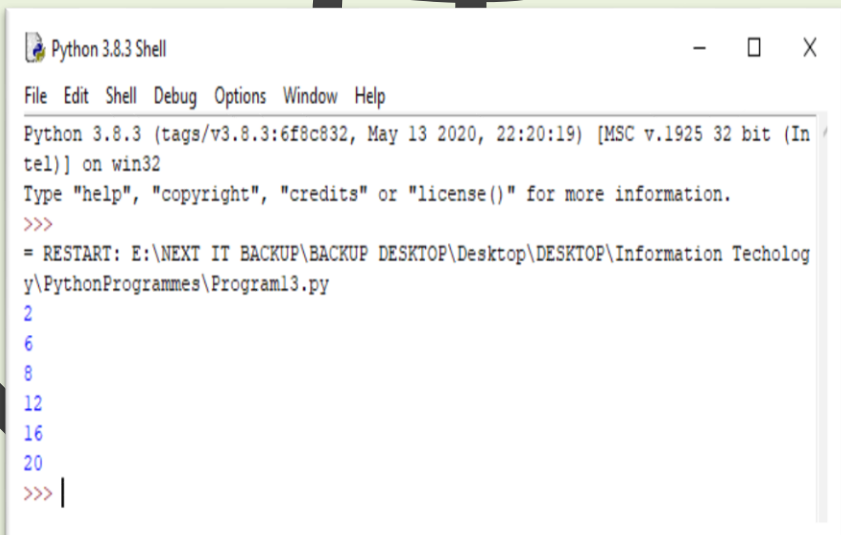
continue statement

This statement is opposite of break statement. If we use it inside a loop, it skips the block of statement and continues the loop till the next statement block as shown in program 8:

Practice Program 8-

Program to print numbers given in a series and skips three numbers - 4, 10, 18.

```
for num in [2,4,6,8,10,12,16,18,20]:

   if num == 4 or num == 10 or num == 18:

      continue

   print(num)
```

PROGRAM OUTPUT

```
Python 3.8.3 Shell                                    –    □    X
File  Edit  Shell  Debug  Options  Window  Help
Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program13.py
2
6
8
12
16
20
>>> |
```

pass Statement

This statement is a no operation statement or as a placeholder for future code. In other words, it is a null statement, when python interpreter reads the 'pass' statement; it ignores and moves further to the next statement. Let's consider Practice Program 8:

```
for num in [2,4,6,8,10,12,16,18,20]:

   if num == 4 or num == 10 or num == 18:

      pass

   print(num)
```

In place of continue, pass statement is added. Now output will (as shown below) display all numbers stored in the num variable.

PROGRAM OUTPUT


```
Python 3.8.3 Shell                                      —    □    X

File  Edit  Shell  Debug  Options  Window  Help
Python 3.8.3 (tags/v3.8.3:6f8c832, May 13 2020, 22:20:19) [MSC v.1925 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\NEXT IT BACKUP\BACKUP DESKTOP\Desktop\DESKTOP\Information Techolog
y\PythonProgrammes\Program14.py
2
4
6
8
10
12
16
18
20
>>>
```

Module (3) includes practice programs. Learners can independently execute the code and understand the functions of python language loops, statements etc.

Python can do

Desktop apps & Web apps   Data mining   Scientific computing

PRACTICE ACTIVITY

Write a Python Program for the following:

1. To find a number is odd and even.

2. To compare any three numbers using 'Nestedif' and test the following condition block and print-
   - First number is greater than second and third
   - Second number is greater than first and third
   - Third number is greater than first and second
   - In case of no match print "No Match Found"

3. To find a person's eligibility for salary increments based on following five criteria. (Use nestedif and if-elif-else)

Years of service	Increment in INR	Message 1 increment=1500
Years<5	1	You are eligible for
Years>=5 & <=7	2	one increment of
Years>=7 & <=10	4	INR ………
years>=10	6	

4. To print first five letters in the given string "PYTHON" (use break statement)

REFERENCED SOURCE

- www.python.org,

- Python Tutorial,

- Introduction to Computer Programming Python-
  Ebook

- Python Concepts by Wikiversity

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