AI/HUB

Lesson 2

Functions & Comparison Operators

SUMMARY

For this lesson, we will be reviewing the comparison operators used in Python syntax. As well as, their ability to be applied within functions using **'if-elif-else'** statements, **'for'** loops, and **'while'** loops.

IF-ELSE STATEMENTS

```
if test expression:
    Body of if
else:
    Body of else
```

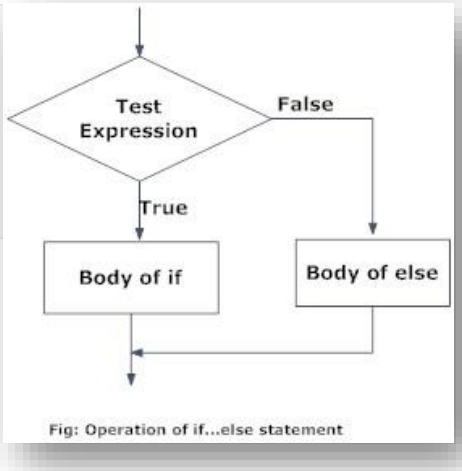


Fig: Operation of if...else statement

IF-ELIF-ELSE STATEMENTS

```
if test expression:
    Body of if
elif test expression:
    Body of elif
else:
    Body of else
```

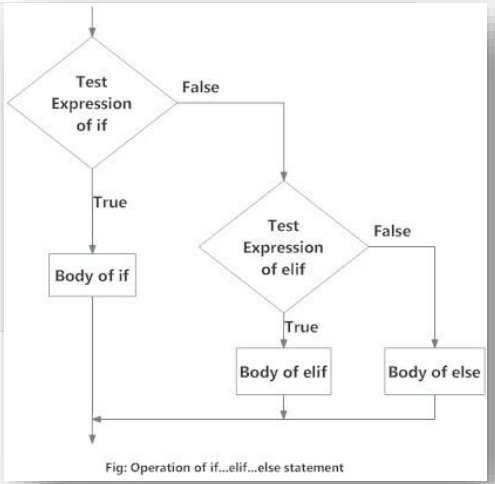


Fig: Operation of if...elif...else statement

COMPARISON & LOGICAL OPERATORS

Comparison Operators

Operator	What it means
==	Equal to
!=	Not equal to
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

Logical Operators

Operator	What it means	What it looks like
and	True if both are true	`x and y`
or	True if at least one is true	`x or y`
not	True only if false	`not x`

```
# logical example
print((-0.2 > 1.4) and (0.8 < 3.1))      # One original expression is False
print((7.5 == 8.9) or (9.2 != 9.2))      # Both original expressions are False
print(not(-5.7 <= 0.3))                  # The original expression is True

# conditional comparison example
if foo == 'abc' and bar == 'bac' or zoo == '123':
    # do something
```

FOR LOOPS

```
# List of numbers
numbers = [6, 5, 3, 8, 4, 2, 5, 4, 11]

# Variable to store the sum
sum = 0

# Iterate over the list
for val in numbers:
        sum = sum+val

# Output: The sum is 48
print("The sum is", sum)

# List of strings
genre = ['pop', 'rock', 'jazz']

# Range function
# Iterate over the list using index
for i in range(len(genre)):
        print("I like", genre[i])

# Output:
# I like pop
# I like rock
# I like jazz
```

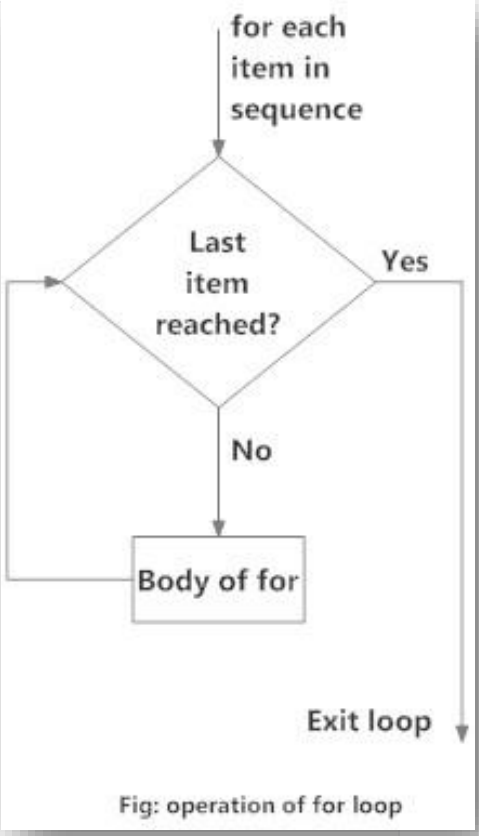


Fig: operation of for loop

WHILE LOOPS

```
n = 10

# initialize sum and counter
sum = 0
i = 1

while i <= n:
    sum = sum + i
    i = i+1    # update counter

# print the sum
print("The sum is", sum)
```

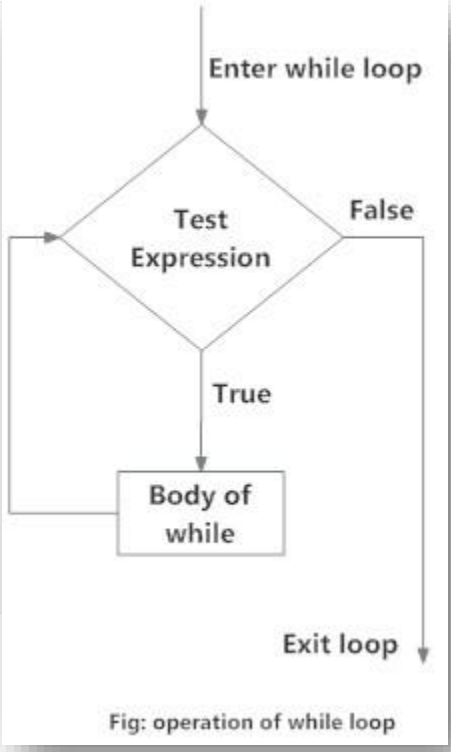
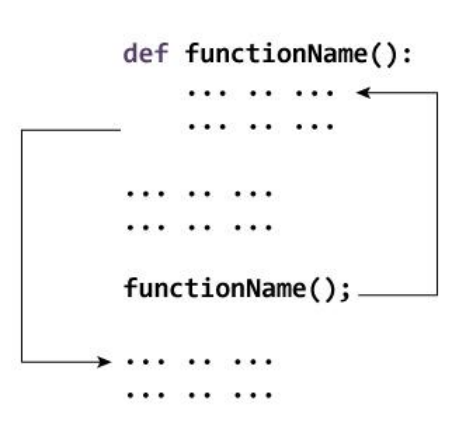


Fig: operation of while loop

DEFINING FUNCTIONS

```
name = 'Billy'
def greet(name):
    """This function greets
       the person whose name
       was passed in as a parameter."""
    print("Hello, " + name + ". Good morning!")
```



EXERCISE YOUR PYTHON

1. **Write a Python program to print only the *even* numbers from the provided list.**

   SAMPLE LIST: [1, 2, 3, 4, 5, 6, 7, 8, 9]

   EXPECTED RESULT: [2, 4, 6, 8]

2. **Write a Python function that checks whether a string is a palindrome or not.**

NOTE

A palindrome is a word, phrase, or sequence that reads the same backward as forward (i.e. "madam" or "nurses run")

CHALLENGE

Write a Python function that prints out the first 'n' rows of Pascal's triangle.

Sample Pascal's Triangle