Length of a list -

```
fruits = ["apple", "banana", "cherry",
          "dragonfruit"]
for idx in range(0, len(fruits)):
    print(fruits[idx])
```

range(0,4,1)

o/p ⇒ apple
banana
cherry
dragonfruit

Range based for loop -

range(, ,)

range is an iterable datatype

by default = 0 ← start number, end number, step size → by default = 1

- To access elements from an iterable, we should iterate on it.

```
for element in range(0,10,2):
    print(element)
```

o/p ⇒ 0 2 4 6 8 (even number)

- Print the element along with its index in a list.

```
fruits = ["apple", "banana", "cherry", "dragonfruit"]
for idx in range(len(fruit)):
    print(idx, fruit[idx])
```

range(0,4,1)

o/p ⇒
0 apple
1 banana
2 cherry
3 dragonfruit

- Given list of student marks, the total marks in an exam and pass percentage as well, filter the students who passed and failed.

```
student_marks = [200, 350, 160, 400, 450]
total_marks = 500
pass_percentage = 40
pass_students = [ ]
fail_students = [ ]
for mark in student_marks:
    percentage = (mark / total marks) x 100
    if (percentage >= 40):
        passed_students.append(mark) (or) passed_students.append
                                         (mark, percentage)
    else:
        failed_students.append(mark) (or) failed_students.append
                                         (mark, percentage)
print(passed_students)
print(failed_students)
```

o/p ⇒ [220, 350, 400, 450] [160]

output ⇒
[[220, 44.0], [350, 70.0], [400, 80.0], [450, 90.0]]
[[160, 32.0]]

Session-4

Single line if-else statement:

code1 if condition else code2

(condition: True → code1, false → code2)

Ex- x = True if 5<2 else false

o/p ⇒ false

x = "5 is less than 2" if 5<2 else "5 is greater than 2"

print(x)

o/p ⇒ 5 is greater than 2

a = [10, 20, 30, 40, 50]

search_element = 60

x = "Element exists" if search_element in a else "Element doesn't exist"

print(x)

o/p ⇒ element doesn't exist.

Type Casting: converting one datatype to another datatype

- Given a number is float, convert it into an integer.
- Given a number is string, convert it into an integer.

Ex- x = 4.2

x_int = int(x)

print(x_int)

o/p ⇒ 4

x = "4.2"

x_float = float(x)

print(x_float)

o/p ⇒ 4.2

Write a python program to check whether a given number is positive or negative

x = int(input("Enter a number:"))

print("Given number is positive") if x>0 else print("Given number is negative")

o/p ⇒ Enter a number: -25

Given number is negative.

break, continue -

break - after break, no instruction will execute

```
fruits = ["apple", "banana", "cherry", "mango"]
search_fruit = "cherry"
for fruit in fruits:
    print(fruit)
    if fruit == search_fruit:
        print("fruit found")
        break
print("outside loop")
```

o/p ⇒ apple
banana
cherry
fruit found
outside loop

Continue -

```
fruits = ["apple", "banana", "cherry", "mango",
          "cherry", "cherry"]
search_fruit = "cherry"
for fruit in fruits:
    if fruit == search_fruit:
        print("fruit found")
        continue
print("outside loop")
```

o/p ⇒ (cherry) fruit found
fruit found
fruit found
outside loop

for-else loop -

→ else block only executes when the loop ends successfully without any intermediate termination due to break statement.

```
items = ["pen", "pencil", "stylus", "tablet"]
for item in items:
    print(item)
else:
    print("loop completed")
```

o/p ⇒
pen
pencil
stylus
tablet
loop completed

Pass keyword –

- Using pass keyword, we can create an empty block.

While loop –

- Used for looping over an iterable

Ex =
```
a = [10,20,30,40,50]
idx = 0
while(idx<len(a)):
    print(a[idx])
    idx += 1
```
⇒ without this line of code, the while loop runs infinitely

o/p ⇒
10
20
30
40
50

```
a = [10,20,30,40,50]
idx = 0
while(idx < len(a)):
    print(a[idx])
```

Infinite loop

o/p ⇒
10
10
⋮

```
fruits = ["apple", "banana", "cherry", "mango",
          "cherry", "cherry"]
search_fruit = "cherry"
count = 0
while (count < len(fruits)):
    print(fruits[count])
    if (fruits[count] == search_fruit):
        print("fruit found")
        break
    count += 1
print("loop completed")
```

o/p ⇒
apple
banana
cherry
fruit found
loop completed