MIT/ITE 1213 – Fundamentals of Programming

Tutorial – 04

Python Looping Constructs

There are main types of python conditional statements.

1) for

2) while

==

1) for

'For' loop is used for iterating over a sequence.

Try out the following examples using Google Colabs.

Ex:-

(a)
```python
fruits = ["apple", "banana", "cherry"]
for x in fruits:
        print(x)
```

(b)

Exit the loop when x is "banana":

```python
fruits = ["apple", "banana", "cherry"]

for x in fruits:

        print(x)

        if x == "banana":

                break
```

(c)

Exit the loop when x is "banana", but this time the break comes before the print:

fruits = ["apple", "banana", "cherry"]

for x in fruits:

      if x == "banana":

           break

      print(x)

2) While

With the while loop we can execute a set of statements as long as a condition is true.

See the following examples and identify their use in each case.

(a)

Print i as long as i is less than 6:

```
i = 1
while i < 6:
        print(i)
        i += 1
```

(b)

With the break statement we can stop the loop even if the while condition is true:

Exit the loop when i is 3:

i = 1

while i < 6:

      print(i)

      if i == 3:

           break

      i += 1

(c)

With the continue statement we can stop the current iteration, and continue with the next:

Continue to the next iteration if i is 3:

```python
i = 0
while i < 6:
        i += 1
        if i == 3:
                continue
        print(i)
```

EXERCISE

According to the above practiced examples write the short programs using python for the given scenarios.

1) Print numbers from 1 to 5 using a for loop.
2) Print squares of numbers from 1 to 5.
3) Print each letter in the word "Python".
4) Print numbers from 1 to 10 but skip number 5.
5) Print numbers from 1 to 5 using a while loop.
6) Countdown from 5 to 1.
7) Print even numbers from 2 to 10.
8) Print all fruits except "banana" from the list ["apple", "banana", "cherry"].
9) Calculate and print the factorial of 5 using a for loop.
10) Print all numbers divisible by 5 between 5 and 30.

11) You are working as a software engineer for a small grocery store's inventory management system. The store has a list of fruits that are currently available: ["apple", "banana", "cherry", "mango", "banana", "orange"].

Your manager gives you the following tasks:

1. **Display all available fruits** one by one using a loop.

2. **Stop listing fruits** immediately if you encounter "banana" for the first time.

3. **Modify your code** so that instead of stopping, it **skips all bananas** and continues printing the rest of the fruits.

4. Finally, create a feature where the user can **enter a fruit name** and the program will **loop through the word** to display its letters individually.

Write Python code to complete these tasks.