**Extra programs**

Q1.Program to print squares of all numbers present in a list

# List of integer numbers

numbers = [1, 2, 4, 6, 11, 20]

# variable to store the square of each num temporary

sq = 0

# iterating over the given list

for val in numbers:

# calculating square of each number

sq = val \* val

# displaying the squares

print(sq)

**output**

1

4

16

36

121

400

**Function range()**

In the above example, we have iterated over a list using for loop. However we can also use a range() function in for loop to iterate over numbers defined by range().

**range(n)**: generates a set of whole numbers starting from 0 to (n-1).  
For example:  
range(8) is equivalent to [0, 1, 2, 3, 4, 5, 6, 7]

**range(start, stop)**: generates a set of whole numbers starting from start to stop-1.  
For example:  
range(5, 9) is equivalent to [5, 6, 7, 8]

**range(start, stop, step\_size)**: The default step\_size is 1 which is why when we didn’t specify the step\_size, the numbers generated are having difference of 1. However by specifying step\_size we can generate numbers having the difference of step\_size.  
For example:  
range(1, 10, 2) is equivalent to [1, 3, 5, 7, 9]

Lets use the **range() function** in for loop:

Q2.Program to print the sum of first 5 natural numbers

# variable to store the sum

sum = 0

# iterating over natural numbers using range()

for val in range(1, 6):

# calculating sum

sum = sum + val

# displaying sum of first 5 natural numbers

print(sum)

Output:

15

## Q3.Nested For loop in Python

When a for loop is present inside another for loop then it is called a nested for loop. Lets take an example of nested for loop.

for num1 in range(3):

for num2 in range(10, 14):

print(num1, ",", num2)

Output:

0 , 10

0 , 11

0 , 12

0 , 13

1 , 10

1 , 11

1 , 12

1 , 13

2 , 10

2 , 11

2 , 12

2 , 13

Q4.

num = 1

# loop will repeat itself as long as

# num < 10 remains true

while num < 10:

print(num)

#incrementing the value of num

num = num + 3

Output:

1

4

7

### Q5. **Iterating over a list**

#list of items

py\_list = ['Apple','Mango','Guava','Pineapple']

i = 1

#Iterating over the list

for item in py\_list:

print ('Item ',i,' is ',item)

i = i+1

**Output**

Item 1 is Apple

Item 2 is Mango

Item 3 is Guava

Item 4 is Watermelon

### Q6. **Iterating over a Tuple**

#Tuple of items

tuple\_prime = (2,3,5,7)

print ('These are the first four prime numbers ')

#Iterating over the tuple

for item in tuple\_prime:

print (item)

**Output**

These are the first four prime numbers

2

3

5

7

### **Q7.Python for loop : Iterating over a String**

#declare a string to iterate over

py\_string = 'YOLO'

#Iterating over the string

for letters in py\_string:

print (letters)

**Output**

Y

O

L

O

### Q8. **Python for loop : Iterating over a dictionary**

#creating a dictionary

bikes = {"Royal\_Enfield":"Continental","Kawasaki":"Ninja","Yamaha":"R1"}

#Iterating over the dictionary to print keys

print ('Keys are:')

for keys in bikes:

print (keys)

#Iterating over the dictionary to print values

print ('Values are:')

for models in bikes.values():

print(models)

**Output**

Keys are:

Royal\_Enfield

Kawasaki

Yamaha

Values are:

Continental

Ninja

R1

Q9.

### **Python for loop and range( ) function**

#simple for loop using range()

for x in range(4):

print x

#for loop to iterate over a list using range()

py\_list = ['Soccer','Cricket','Golf']

for item in range(len(py\_list)):

print (py\_list[item],' is a outdoor sport.')

**Output**

This script will generate following output.

0

1

2

3

Soccer is outdoor sport.

Cricket is outdoor sport.

Golf is outdoor sport.

Q10.

### **Python while loop:**

#program to display 1 to 9

i = 1

while (i < 10):

print (i)

i = i+1

**Output**

1

2

3

4

5

6

7

8

9

Q11.Write a program to find the length of the string "refrigerator" without using **len** function.

a = "refrigerator"

count = 0

**for** i **in** a:

count = count+1

**print** count

Q12. Write a program to check if the letter 'e' is present in the word 'Umbrella'.

**print** 'e' **in** 'Umbrella'

Q13. Write a program to check if the word 'orange' is present in the "This is orange juice".

a = "This is orange juice"

**print** 'orange' **in** a.split()

Q14. Write a program to check if a given string is a Palindrome.  
A palindrome reads same from front and back e.g.- aba, ccaacc, mom, etc.

a = input()

*#a[:] will give the whole string*

**print** a[:]

*#a[::-1] -1 is step. It will reverse the string*

**print** a[::-1]

**print** a == a[::-1]

*#There are lot of other ways to solve this problem*