Experiment No : 03

Aim : Write python programs to understand Looping in Python (while loop, for loop, nested loops)

Description :

In a programming language, a loop is a statement that contains instructions that continually repeats until a certain condition is reached.

Loops help us remove the redundancy of code when a task has to be repeated several times. With the use of loops, we can cut short those hundred lines of code to a few. Suppose you want to print the text "Hello, World!" 10 times. Rather than writing a print statement 10 times, you can make use of loops by indicating the number of repetitions needed.

Types Of Loops

1. For loop
2. While loop
3. Nested loops

Implementation :

# while loop

# while loop. particular statements

#(block of code needed to be reaptedly run, till a certain condition meet,

#certain condition should be specified) when while condition false,all respective statements will not execute.

#it will come out of while loop.

#loop running forever.even condition specified.

```
""""

a=10

while a<20:

  print("yes")

""""

# in order to avoid this , increment variable like this.

a=10

while a<20:

  print("yes")

# in every iteration variable a value is increment by one it will not go to forever loop.

  a=a+1

 # a++

# decrement

a=20

while a>10:

  print("yes")

  a=a-1

# break statement.it is not  nessar condition is false.
```

```
 # condition true or false and break encounter, control come out of while
loop.

a=20

while a>10:

  print("yes")

  a=a-1

  if a==15:

    break



a=20

while a>10:

  print("yes")

  a=a-1

  if a==19:

    break

# continue statement encounter,  currrent iteration  skip and jump to next
iteration of while loop.

a=20

while a>10:

  a=a-1
  if a==19:
    continue
  print("yes")
# else with while. if while condition is true all the statements inside body of while will execute.
#but else keeps no condition , when control goes to else , it will print only statement.
a=20
while a>10:
 print("yes")
 a=a-1
else:
 print("no")
```

```
#output
```

```
# For loop, nested loops
# for loop is diifFerant in python
#for loop used for iterative of sequence(list,tuple,set,dictionary) can be string (sequence of character)
# in while loop iterative variable like a is assigned in the beginning. but for loop , not required.
# sequence needed in for loop.let us consider list.
b=[1,2,3,4,5]
#list b
# 5 iteration.after control will outside of for loop. variable a body of for loop
#automatically increment
for a in b:
 print(a)


# take string
for a in "shridhar":
 print(a)
```

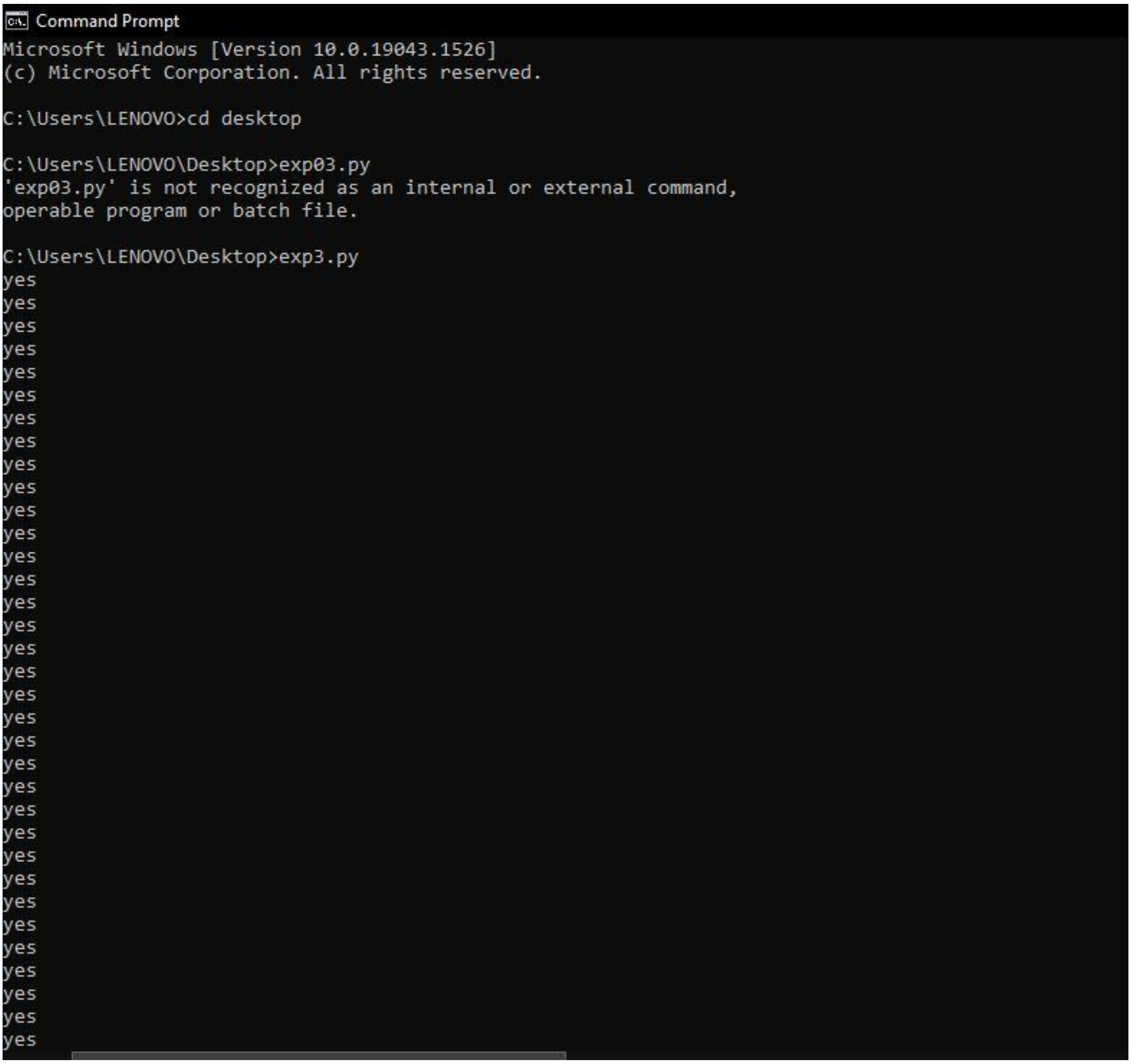
```
# break statement when encounter .for loop stop there. and control will ,outside of for loop
for a in "shridhar":
 if a=="d":break
 print(a)


#continue
#current iteration stop. print only after d
for a in "shridhar":
 if a=="d":continue
 print(a)
# for range of values. example 5 times run.
# run 0 to  n-1
for a in range(5):
 print(a)
#let's start from 2
for a in range(2,5):
# By default increment 1 value
```

```
 print(a)
#increment 2 iteration values. lets start from 2
for a in range(2,5,2):
 print(a)

#nested for loop(for loop inside another for loop).
x=[1,2,3,4,5]
y=[6,7,8,9]
#outer for loop( initial value 1)
for a in x:
#inner for loop(initial value 6)
  for b in y:
#print initial values 1,6
#  execute complete  inner for loop, then control goes to outer for loop.
# increment value of outer for loop.then it goes to inner for loop.
   print(a,b)
```

Output :

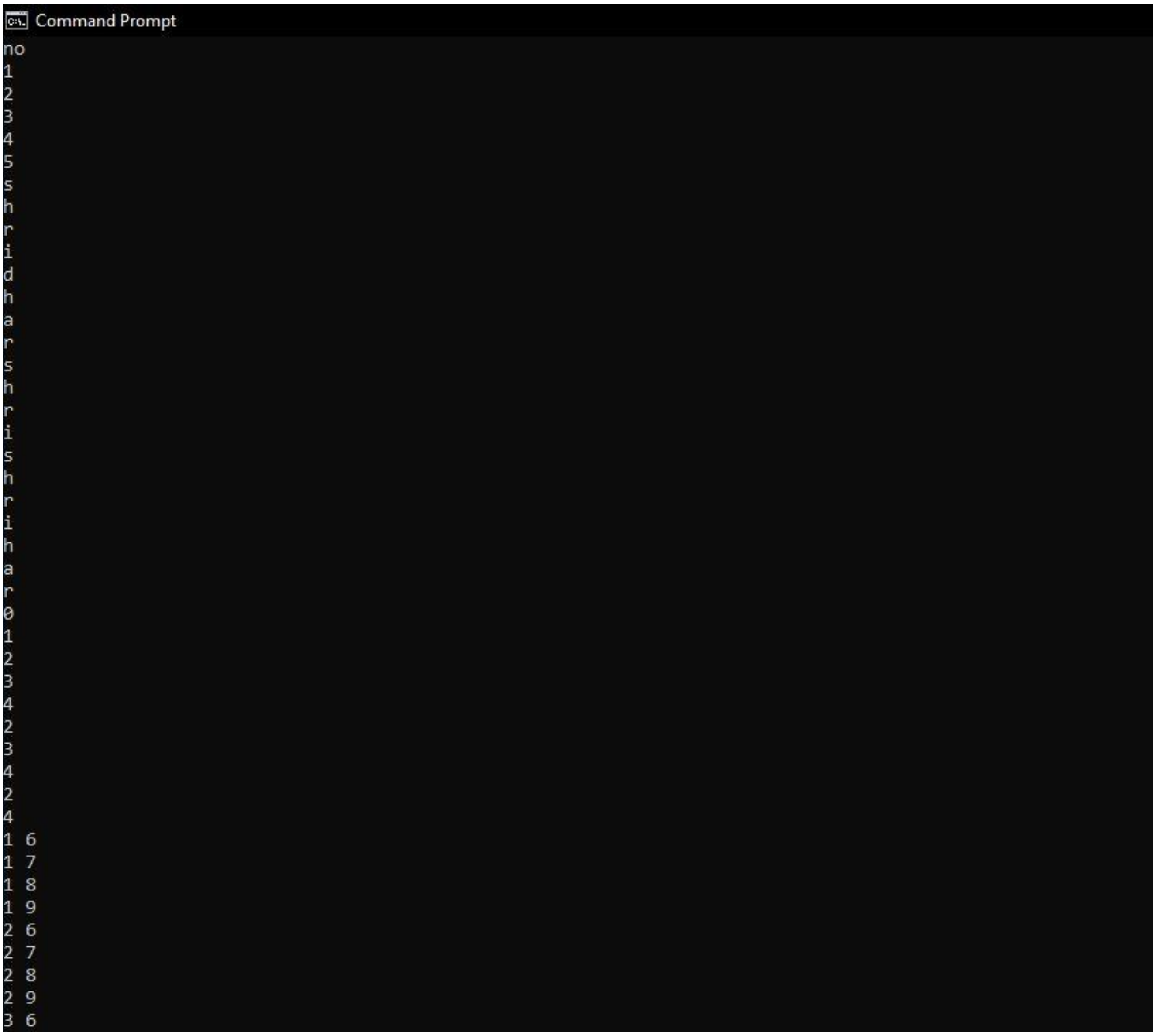


```
Microsoft Windows [Version 10.0.19043.1526]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LENOVO>cd desktop

C:\Users\LENOVO\Desktop>exp03.py
'exp03.py' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\LENOVO\Desktop>exp3.py
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
yes
```



```
no
1
2
3
4
5
s
h
r
i
d
h
a
r
s
h
r
i
s
h
r
i
h
a
r0
1
2
3
4
2
3
4
2
4
1 6
1 7
1 8
1 9
2 6
2 7
2 8
2 9
3 6
```

Conclusion : Therefore we have successfully implemented the Looping in Python (while loop, for loop, nested loops).