Nested Looping Statements

A looping statement within looping statement is called nested looping statements.

These nested looping statements can be,

- 1. Nested for loop
- 2. Nested while loop

Nested for

for loop inside for loop is called nested for loop nested for loop allows repeating for loop number of times.

Syntax:

```
for variable-name in iterable/collection:
for variable-name in iterable/collection:
statement-1
statement-2
```

Example:

```
# Write a program to genrate tables from 1 to 10 for num in range(1,11): # 1 2 3 4 5 6 7 8 9 10 for i in range(1,11): # 1 2 3 4 5 6 7 8 9 10 print(f'{num}x{i}={num*i}')
```

Output

```
1 \times 1 = 1
```

1x2=2

1x3=3

1x4=4

1x5=5

1x6=6

1x7 = 7

```
1x8=8

1x9=9

1x10=10

2x1=2

2x2=4

2x3=6

2x4=8

2x5=10

2x6=12

2x7=14

2x8=16

....
```

Example:

Write a program to generate prime numbers from 2 to 20

```
for num in range(2,21): # 2 3 4 5 6 7 8 9 10 ... 20 Outer Loop
    c=0
    for i in range(1,num+1): # Inner Looping Statement
        if num%i==0:
            c=c+1
    if c==2:
        print(f'Prime {num}')
```

Output

Prime 2

Prime 3

Prime 5

Prime 7

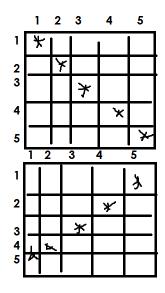
Prime 11

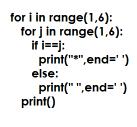
Prime 13

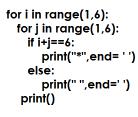
Printing Patterns

for i in range(1 print(i,end=' '	_	5	
for i in range(1 print(i)	,6): 1 2 3 4 5		
for i in range(1,6): for j in range(1,6): print(j,end=' ') for i in range(1,6): for j in range(1,6): print(i,end=' ') print()	1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	for i in range(5,0,-1): for j in range(1,6): print(i,end=' ') print() for i in range(1,6): for j in range(1,i+1): print(i,end=' ') print()	1 2 3 4 5 5 5 5 5 5 4 4 4 4 4 4 3 3 3 3 3 3 2 2 2 2 2 2 2 1 1 1 1 1 1 1 2 1 1 2 3 4 5 3 3 3 3 3 4 4 4 4 4 4 4 5 5 5 5 5 5 5
5 5 5 5 5 4 4 4 4 4 3 3 3 2 2 1 1 1 2 3 4 5 1 1 2 3 4 5 1 2 3 4 5	for i in range(5,0,-1): for j in range(1,i+1): print(i,end=' ') print() for i in range(1,6): for j in range(1,i+1): print(j,end=' ') print()	1 2 3 4 for 1 2 3 1 2 pr 1 1 2 3 4 5 for 1 2 3 4 5 for 1 3 4 5 for 1 5	in range(5,0,-1): r j in range(1,i+1): print(j,end=' ') int() i in range(1,6): r j in range(1,6): j>=i: print(j,end=' ') else: print(' ',end=' ') int()

```
2 3 4 5
  1
                         for i in range(5,0,-1):
                                                        1 * 3 * 5
                                                                         for i in range(1,6):
5
               5
                          for j in range(1,6):
                                                        1 * 3 * 5
                                                                           for j in range(1,6):
4
             4 5
                            if i>=i:
                                                        1 * 3 * 5
                                                                            if j%2==0:
3
            4 5
                              print(j,end=' ')
                                                        1 * 3 * 5
                                                                               print("*",end=' ')
2
                           else:
                                                        1 * 3 * 5
1
       2
          3
                              print(' ',end=' ')
                                                                               print(j,end=' ')
                           print()
                                                                           print()
                   for i in range(1,6):
                                                                1
                                                                       for i in range(1,6):
 1
                    for j in range(1,i+1):
                                                            2
                                                              1
                                                                          for j in range(5,0,-1):
 * *
                      if i%2==0:
                                                         3 2 1
                                                                             if j<=i:
 333
                        print("*",end=' ')
                                                       4 3 2 1
                                                                              print(j,end=' ')
  * * * *
                      else:
                                                     4 3 2 1
                                                                             else:
 55555
                         print(i,end=' ')
                                                                              print(' ',end=' ')
                    print()
                                                                          print()
                                                                          for i in range(65,70):
                                                            Α
                                 num=1
  1
                                                                            for j in range(65,i+1):
                                                            A B
                                 for i in range(1,6):
  2
     3
                                                                              print(chr(j),end=' ')
                                                            ABC
                                   for j in range(1,i+1):
  4
    5 6
                                                                            print()
                                                            ABCD
                                    print(num,end=' ')
  7 8 9 10
                                                            ABCDE
                                    num=num+1
  11 12 13 14 15
                                   print()
  65 66 67 68 69
                       for i in range(65,70):
65 ABCDE
                        for j in range(65,70):
66 ABCDE
                          print(chr(j),end=' ')
67
   ABCDE
                        print()
68 ABCDE
```







1	ኧ	Ж	k	*	*	×
						- 4
إ		x	¥	ኦ	×	٨
5	*		`			<i>\</i>

