

```
In [1]: if True:  
        print('Hello senapati sir teaching was excellent')
```

Hello senapati sir teaching was excellent

```
In [2]: if False:  
        print('your assumption was wrong')
```

```
In [8]: if True:  
        print('Datascience')  
        print('bye')
```

Datascience  
bye

```
In [9]: if False:  
        print('Datascience')  
        print('bye')
```

```
In [10]: if True:  
          print('Data Science')  
        else:  
          print('bye for now')
```

Data Science

```
In [11]: if True:  
          print('Data Science')  
        else:  
          print('bye for now')
```

Data Science

```
In [12]: if False:  
          print('data science')  
        else:  
          print('bye')
```

bye

A python code to check even or odd number

```
In [13]: x = 4  
        r = x%2  
        if r == 0:  
            print('even number')
```

even number

```
In [14]: x = 3  
        r = x%2  
        if r == 0:  
            print('even number')
```

```
In [15]: x = 6  
        r = x%2  
        if r == 0:  
            print('even number')
```

even number

```
In [16]: x = 7
r = x%2
if r == 0:
    print('even number')
else:
    print('odd number')
```

odd number

```
In [17]: x = 6
r = x%2
if r == 0:
    print('even number')
else:
    print('odd number')
```

even number

```
In [18]: x = 5
r = x%2
if r == 0:
    print('even number')
else:
    print('odd number')
```

odd number

```
In [19]: x = 6
r = x%2
if r == 0:
    print('even number')
    print('odd number')
```

even number

odd number

```
In [20]: x = 4
r = x%2
if r == 0:
    print('even number')
else:
    print('odd number')
```

even number

```
In [21]: x = 5
r = x%2
if r == 0:
    print('even number')
else:
    print('odd number')
```

odd number

```
In [22]: x = 10
r = x%2
if r == 0:
    print('even number')
if r == 1:
    print('odd number')
```

even number

```
In [23]: x = 9
r = x%2
if r == 0:
    print('even number')
if r != 0:
    print('odd number')
```

odd number

```
In [24]: x = 10
r = x%2
if r == 0:
    print('even number')
if r != 0:
    print('odd number')
```

even number

nested if condition

```
In [25]: x = 3
r = x%2
if r == 0:
    print('even number')
if x > 5:
    print('gretest number')
else:
    print('odd number')
```

odd number

```
In [26]: x = 6
r = x%2
if r == 0:
    print('even number')
if x > 5:
    print('gretest number')
else:
    print('odd number')
```

even number

gretest number

```
In [27]: x = 4
r = x % 2
if r == 0:
    print('even number')
    if x > 5:
        print('gretest number')
    else:
        print('lowest number')
else:
    print('odd number')
```

even number

lowest number

```
In [28]: x = 4
if x == 1:
    print('one')
```

```
if x == 2:
    print('two')
if x == 3:
    print('three')
if x == 4:
    print('four')
```

four

```
In [29]: x = 2
if x == 1:
    print('one')
if x == 2:
    print('two')
if x == 3:
    print('three')
if x == 4:
    print('four')
```

two

```
In [30]: x = 10
if x == 1:
    print('one')
if x == 2:
    print('two')
if x == 3:
    print('three')
if x == 4:
    print('four')
```

```
In [31]: x = 10
if x == 1:
    print('one')
if x == 2:
    print('two')
if x == 3:
    print('three')
if x == 4:
    print('four')
else:
    print('number not found')
```

number not found

```
In [32]: num = int(input('enter a number'))
if num > 0:
    print("positive")
elif num < 0:
    print("negative")
else:
    print("zero")
```

positive

```
In [35]: age = 20
if age >= 18:
    print('eligible to vote')
else:
    print('not eligible to vote')
```

eligible to vote

```
In [36]: age = 19
         if age >= 18:
             print('eligible to vote')
```

eligible to vote

```
In [37]: age = 10
         if age >= 10:
             print('travel for free')
         else:
             print('pay for ticket')
```

travel for free

if-else shortcut also called as ternary operator

```
In [38]: marks = 45
         result = 'pass' if marks >= 40 else 'fail'
         print(f'result:{result}')
```

result:pass

```
In [39]: age = 25
         if age <= 12:
             print('child')
         elif age <= 19:
             print('teenager')
         elif age <= 25:
             print('young adult')
         elif age <= 35:
             print('adult')
         else:
             print('odd')
```

young adult

```
In [40]: age = int(input('enter your age'))
         if age <= 12:
             print('child')
         elif age <= 19:
             print('teenager')
         elif age <= 25:
             print('young adult')
         elif age <= 35:
             print('adult')
         else:
             print('odd')
```

young adult

```
In [43]: age = 50
         is_mem = True
         if age >= 60:
             if is_mem:
                 print('30% discount')
             else:
                 print('20% discount')
         else:
             print('not eligible for discount')
```

not eligible for discount

ternary condition

```
In [44]: age = 20
s = 'adult' if age >= 25 else 'minor'
print(s)
```

minor

match case (switch case)-to match variables values

```
In [47]: number = 5
match number:
    case 1:
        print('one')
    case 2 | 3:
        print('two' or 'three')
    case _:
        print('other num')
```

other num

While loop

```
In [33]: print('data science')
print('data science')
print('data science')
print('data science')
print('data science')
```

data science  
data science  
data science  
data science  
data science

```
In [34]: i = 1
while i <= 5:
    print('data science')
    i = i + 1 # increment
```

data science  
data science  
data science  
data science  
data science

```
In [35]: i = 5
while i >= 1:
    print('data science')
    i = i - 1 # decrement
```

data science  
data science  
data science  
data science  
data science

```
In [36]: i = 1
while i <= 5:
```

```
print('data science : ', i)
i = i + 1
```

```
data science : 1
data science : 2
data science : 3
data science : 4
data science : 5
```

```
In [1]: i = 1
        while i<=5:
            print('data science : ',i)
            i = i+1
```

```
data science : 1
data science : 2
data science : 3
data science : 4
data science : 5
```

```
In [14]: i = 1

        while i <=5:
            print('data science')
            j = 1
            while j <=4:
                print('technology')
                j = j + 1
            i = i + 1
            print()
```

```
data science
technology
technology
technology
technology
```

```
data science
technology
technology
technology
technology
```

```
data science
technology
technology
technology
technology
```

```
data science
technology
technology
technology
technology
```

```
data science
technology
technology
technology
technology
```

```
In [17]: i = 1
while i<=5:
    print(' datascience', end = "")
    j = 1
    while j<=4:
        print(' technology', end="")
        j = j + 1

    i = i + 1
    print()
```

```
datascience technology technology technology technology
datascience technology technology technology technology
datascience technology technology technology technology
datascience technology technology technology technology
datascience technology technology technology technology
```

```
In [18]: i = 1

while i <= 2:
    j = 0
    while j <= 2 :
        print(i*j, end=" ")
        j += 1
    print()
    i += 1
```

```
0 1 2
0 2 4
```

```
In [19]: i = 1

while i <= 4:
    j = 0
    while j <= 3 :
        print(i*j, end=" ")
        j += 1
    print()
    i += 1
```

```
0 1 2 3
0 2 4 6
0 3 6 9
0 4 8 12
```

```
In [20]: i = 1

while i <= 9:
    j = 0
    while j <= 3 :
        print(i*j, end=" ")
        j += 1
    print()
    i += 1
```



```
0 1 2 3
0 2 4 6
0 3 6 9
0 4 8 12
0 5 10 15
0 6 12 18
0 7 14 21
0 8 16 24
0 9 18 27
```

for loop

```
In [21]: name = 'nit'

for i in name:
    print(i)
```

```
n
i
t
```

```
In [22]: name1 = [1,3,5,'hello']

for i in name1:
    print(i)
```

```
1
3
5
hello
```

```
In [23]: for i in [2,3,7.8,'hi']:
          print(i)
```

```
2
3
7.8
hi
```

```
In [24]: for i in range(5):
          print(i)
```

```
0
1
2
3
4
```

```
In [25]: for i in range (2,5):
          print(i)
```

```
2
3
4
```

```
In [26]: for i in range (1,10,3):
          print(i)
```

```
1
4
7
```

```
In [27]: for i in range(1,21):  
         print(i)
```

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20

```
In [28]: for i in range(1,51):  
         if i%5==0 :  
             print(i)
```

5  
10  
15  
20  
25  
30  
35  
40  
45  
50

```
In [29]: for i in range(1,11):  
         print(i)
```

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

```
In [34]: for i in range(1,11):  
         if i == 6:  
             break  
         print(i)
```

1  
2  
3  
4  
5

```
In [35]: for i in range(1,11):  
         if i == 3:  
             continue  
         print(i)
```

1  
2  
4  
5  
6  
7  
8  
9  
10

```
In [36]:         for i in range(1,11):  
         if i == 6:  
             continue  
         print(i)
```

1  
2  
3  
4  
5  
7  
8  
9  
10

```
In [37]: for i in range(1,11):  
         if i == 6:  
             continue  
         print('hello :',i)
```

hello : 1  
hello : 2  
hello : 3  
hello : 4  
hello : 5  
hello : 7  
hello : 8  
hello : 9  
hello : 10

```
In [39]: for i in range(1,51):  
         if i%3 == 0:  
  
             print(i)  
             print('end')
```

```
end
end
3
end
end
end
6
end
end
end
9
end
end
end
12
end
end
end
15
end
end
end
18
end
end
end
21
end
end
end
24
end
end
end
27
end
end
end
30
end
end
end
33
end
end
end
36
end
end
end
39
end
end
end
42
end
end
end
45
end
```

```
end  
end  
48  
end  
end  
end
```

In [40]:

```
for i in range(1,51):  
    if i%3 == 0:  
        continue  
    print(i)  
print('end')
```

```
1  
2  
4  
5  
7  
8  
10  
11  
13  
14  
16  
17  
19  
20  
22  
23  
25  
26  
28  
29  
31  
32  
34  
35  
37  
38  
40  
41  
43  
44  
46  
47  
49  
50  
end
```

In [41]:

```
for i in range(1,51):  
    if i%3 == 0 or i%5 == 0:  
        continue  
    print(i)  
print('end')
```

```

1
2
4
7
8
11
13
14
16
17
19
22
23
26
28
29
31
32
34
37
38
41
43
44
46
47
49
end

```

```

In [43]: for i in range(1,51):

        if (i%2 == 0):
            #print('even')
            continue
        else:
            print(i)
            print('bye')

```

```

50
bye

```

```

In [3]: print ('# # # #')
        print ('# # # #')
        print ('# # # #')
        print ('# # # #')

```

```

# # # #
# # # #
# # # #
# # # #

```

```

In [4]: for i in range(1,5):
        i=i+1
        print('# # # #')

```

```

# # # #
# # # #
# # # #
# # # #

```

16.07.25

### 1. Right Angle Triangle Pattern

```
In [5]: for i in range(1,6):
        print(' * ' * i)
```

```
*
* *
* * *
* * * *
* * * * *
```

### 2. Inverted Right Angle Triangle Pattern

```
In [6]: for i in range(5,0,-1):
        print(' * ' * i)
```

```
* * * * *
* * * *
* * *
* *
*
```

### 3. Pyramid Pattern

```
In [7]: for i in range (1,6):
        print('*(5-i)+' * '*(2*i-1))
```

```
*
* * *
* * * * *
* * * * * * *
* * * * * * * *
```

### 4. Inverted Pyramid Pattern

```
In [8]: for i in range (5,0,-1):
        print('*(5-i)+' * '*(2*i-1))
```

```
* * * * * * * *
* * * * * *
* * * *
* * *
*
```

### 5. Diamond Pattern

```
In [11]: for i in range(1,6):
        print('*(5-i)+' * '*(2*i-1))
        for i in range(4,0,-1):
            print('*(5-i)+' * '*(2*i-1))
```

```

*
* * *
* * * * *
* * * * * * *
* * * * * * * *
* * * * * *
* * * *
* * *
*

```

## 6.Hallow Square Pattern

```

In [13]: for i in range(5):
          for j in range(5):
              if i==0 or i==4 or j==0 or j==4:
                  print('*',end='')
              else:
                  print(' ',end='')
          print()

```

```

*****
*   *
*   *
*   *
*****

```

## 7.Full Square Pattern

```

In [14]: for i in range(5):
          print(' * '*5)

```

```

* * * * *
* * * * *
* * * * *
* * * * *
* * * * *

```

## 8.Right Angle triangle (Number Pattern)

```

In [15]: for i in range (1, 6):
          print(' '.join(str(x) for x in range(1, i + 1)))

```

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

## 10.Floyd's triangle

```

In [17]: num=1
          for i in range(1,6):
              for j in range(1,i+1):
                  print(num,end='')
                  num+=1
              print()

```



```
1
23
456
78910
1112131415
```

### 11.Hallow Right Angle Triangle

```
In [25]: for i in range(1, 6):
          for j in range(1, i + 1):
              if j == 1 or j == i or i == 5:
                  print('*', end=' ')
              else:
                  print(' ', end=' ')
          print()
```

```
*
* *
*  *
*   *
* * * * *
```

### 12.Hallow Pyramid Pattern

```
In [27]: for i in range(1,6):
          for j in range(5 - i):
              print(' ',end=' ')
          for j in range(2 * i - 1):
              if j == 0 or j == 2 * i - 2 or i == 5:
                  print('*', end=' ')
              else:
                  print(' ', end=' ')
          print()
```

```
      *
    * *
  *   *
*       *
* * * * * * * * *
```

### 13.Hallow Diamond Pattern

```
In [28]: n = 5
          for i in range(1, n + 1):
              for j in range(n - i):
                  print(' ', end=' ')
              for j in range(2 * i - 1):
                  if j == 0 or j == 2 * i - 2:
                      print('*',end=' ')
                  else:
                      print(' ', end=' ')
              print()

          for i in range(n - 1, 0, -1):
              for j in range(n - i):
                  print(' ', end=' ')
              for j in range(2 * i - 1):
                  if j == 0 or j == 2 * i - 2:
                      print('*', end=' ')
                  else:
                      print(' ', end=' ')
              print()
```

```
print(' ',end=' ')
print()
```

```

      *
    * *
  *   *
*     *
*     *
*     *
  *   *
    * *
      *

```

#### 14.Hallow Diamond (Number Pateern)

```
In [30]: n = 5
for i in range(1, n + 1):
    for j in range(n - i):
        print(' ', end=' ')
    for j in range(2 * i - 1):
        if j == 0 or j == 2 * i - 2:
            print(i, end=' ')
        else:
            print(' ', end=' ')
    print()

for i in range(n - 1, 0, -1):
    for j in range(n - i):
        print(' ', end=' ')
    for j in range(2 * i - 1):
        if j == 0 or j == 2 * i - 2:
            print(i, end=' ')
        else:
            print(' ', end=' ')
    print()
```

```

      1
    2 2
  3   3
4    4
5    5
4    4
  3   3
    2 2
      1

```

```
In [43]: n = 5
for i in range(1, n + 1):
    for j in range(1, i + 1):
        print(j, end=' ')
    for j in range(2 * (n - i)):
        print(' ', end=' ')
    for j in range(1, i + 1):
        print(j, end=' ')
    print()
for i in range(n, 0, -1):
    for j in range(1, i + 1):
        print(j, end=' ')
    for j in range(2 * (n - i)):
        print(' ', end=' ')
    print()
```

```

for j in range(1, i + 1):
    print(j, end=' ')
print()

```

```

1                1
1 2              1 2
1 2 3            1 2 3
1 2 3 4          1 2 3 4
1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5
1 2 3 4          1 2 3 4
1 2 3            1 2 3
1 2              1 2
1                1

```

```

In [44]: n = 5
for i in range(1, n + 1):
    for j in range(1, i + 1):
        print(j, end=' ')
    for j in range(2 * (n - i)):
        print(' ', end=' ')
    for j in range(1, i + 1):
        print(j, end=' ')
    print()
for i in range(n, 0, -1):
    for j in range(1, i + 1):
        print(j, end=' ')
    for j in range(2 * (n - i)):
        print(' ', end=' ')
    for j in range(1, i + 1):
        print(j, end=' ')
    print()

n = 5
for i in range(1, n + 1):
    for j in range(i):
        print('*', end=' ')
    for j in range(2 * (n - i)):
        print(' ', end=' ')
    for j in range(i):
        print('*', end=' ')
    print()
for i in range(n, 0, -1):
    for j in range(1, i + 1):
        print('*', end=' ')
    for j in range(2 * (n - i)):
        print(' ', end=' ')
    for j in range(i):
        print('*', end=' ')
    print()

```

```

1                1
1 2              1 2
1 2 3            1 2 3
1 2 3 4          1 2 3 4
1 2 3 4 5 1 2 3 4 5
1 2 3 4 5 1 2 3 4 5
1 2 3 4          1 2 3 4
1 2 3            1 2 3
1 2              1 2
1                1
*                *
* *              * *
* * *            * * *
* * * *          * * * *
* * * * * * * * * *
* * * * * * * * * *
* * * * * * * * * *
* * * *          * * * *
* * *            * * *
* *              * *
*                *

```

### 16.Hallow Number Pyramid

```

In [46]: n = 5
for i in range(1, n + 1):
    for j in range(n - i):
        print(' ', end=' ')

    for j in range(1, 2 * i):
        if j == 1 or j == 2 * i - 1 or i == n:
            print(i, end=' ')
        else:
            print(' ', end=' ')
    print()

```

```

      1
     2 2
    3 3
   4 4
  5 5 5 5 5 5 5 5

```

### 17.Full Star Pyramid

```

In [47]: n = 5
for i in range(1, n + 1):
    for j in range(n - i):
        print(' ', end=' ')

    for j in range(2 * i - 1):
        print('*', end=' ')

    print()

```

```

      *
     * * *
    * * * * *
   * * * * * * *
  * * * * * * * *

```

## 18. Inverted Full Star Pyramid

```
In [48]: n = 5

for i in range(n, 0, -1):

    for j in range(n - i):
        print(' ', end=' ')

    for j in range(2 * i - 1):
        print('*', end=' ')

    print()
```

```
* * * * *
 * * * * *
  * * * *
   * * *
    *
     *
```

## 19. Left Aligned Pyramid Pattern

```
In [49]: n = 5

for i in range(1, n + 1):

    for j in range(i):
        print('*', end=' ')
    print()

n = 5
for i in range(1, n + 1):
    for j in range(1, i + 1):
        print(j, end=' ')
    print()
```

```
*
* *
* * *
* * * *
* * * * *
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

## 20. Right Aligned Pyramid Pattern

```
In [58]: n = 5

for i in range(1, n + 1):

    for j in range(n - i):
        print(' ', end=' ')

    for j in range(1, i + 1):
```

```

        print(j, end=' ')

    print()

n = 5

for i in range(1, n + 1):

    for j in range(n - i):
        print(' ', end=' ')

    for j in range(i):
        print('*', end=' ')
    print()

```

```

    1
  1 2
1 2 3
1 2 3 4
1 2 3 4 5
      *
      * *
    * * *
  * * * *
* * * * *

```

In [ ]:

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