

# Assignment-1

1)

```
In [22]: n = int(input("enter number of rows:"))
        for i in range(0,n+1):
            for j in range(0,n-i):
                print('5',end=' ')
            print()

enter number of rows:5
5 5 5 5 5
5 5 5 5
5 5 5
5 5
5 5
5
```

2)

```
In [3]: n = int(input("enter number of rows:"))
        for i in range(n,0,-1):
            for j in range(0,i+1):
                print(j,end=' ')
            print()

enter number of rows:5
0 1 2 3 4 5
0 1 2 3 4
0 1 2 3
0 1 2
0 1
0 1
```

3)

```
In [4]: rows = 5
        i = 1
        while i <= rows:
            j = 1
            while j <= i:
                print((i*2-1),end=' ')
                j = j+1
            i = i + 1
            print()

1
3 3
5 5 5
7 7 7 7
9 9 9 9 9
```

4)

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

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

5)

```
In [21]: a = 1
        b = 2
        int_number = b
        for i in range(2,6):
            for j in range(a,b):
                int_number -= 1
                print(int_number ,end=" ")
            print()
            a = b
            b += i
            int_number = b

1
3 2
6 5 4
10 9 8 7
```

6)

```
In [7]: def printPascal(n) :
        for i in range(0, n) :
            for j in range(0, i + 1) :
                print(function(i, j)," ", end = "")
            print()

        def function(n, k) :
            res = 1
            if (k > n - k) :
                k = n - k
            for i in range(0 , k) :
                res = res * (n - i)
                res = res // (i + 1)

            return res

        n = 7
        printPascal(n)

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 20 15 6 1
```

7)

```
In [8]: n = int(input("Enter the number of rows:"))
        for i in range(1, n+1):
            for j in range(1, n+1):
                if j<=i:
                    print(i,end=' ')
                else:
                    print(j,end=" ")
            print()

Enter the number of rows:5
1 2 3 4 5
2 2 3 4 5
3 3 3 4 5
4 4 4 4 5
5 5 5 5 5
```

8)

```
In [9]: n = int(input("Enter the number of rows:"))
        for i in range(1, n+1):
            for j in range(1, i+1):
                print(i*j, end=' ')
            print()

Enter the number of rows:8
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
7 14 21 28 35 42 49
8 16 24 32 40 48 56 64
```

9)

```
In [10]: n = 5
        k = 2*n-2
        for i in range(n, -1, -1):
            for j in range(k, 0, -1):
                print(end=" ")
            k = k + 1
            for j in range(0, i + 1):
                print(" **", end=" ")
            print(" ")

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

10)

```
In [11]: n = int(input("Enter the number of rows:"))
        m = 2*n-2
        for i in range(0,n):
            for j in range(0,m):
                print(end=" ")
            m = m-1
            for j in range(0, i + 1):
                print(" **", end=" ")
            print(" ")

Enter the number of rows:8
        *
        * *
        * * *
        * * * *
        * * * * *
        * * * * *
        * * * * *
        * * * * *
        * * * * *
        * * * * *
```

11)

```
In [12]: n = int(input("Enter the number of rows:"))

        #1st pattern

        for i in range(0,n):
            for j in range(0,i+1):
                print(" **",end=" ")
            print(" ")

        print(" ")

        #2nd pattern
        for i in range(n+1,0,-1):
            for j in range(0,i-1):
                print(" **",end=" ")
            print(" ")

Enter the number of rows:7
*
*
* *
* * *
* * * *
* * * * *
* * * * *

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

12)

```
In [20]: def pattern(n):
        for i in range(0,n):
            for j in range(0,i+1):
                print(" **",end=" ")
            print()
        for i in range(n, 0, -1):
            for j in range(0,i+1):
                print(" **",end=" ")
            print()
        pattern(5)

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

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

13)

```
In [17]: def pattern(n):
        k = 2*n-2
        for i in range(0,n-1):
            for j in range(0,k):
                print(end=" ")
            k = k-2
            for j in range(0,i+1):
                print(" **",end=" ")
            print()
            k = -1
        for i in range(n-1,-1,-1):
            for j in range(k,-1,-1):
                print(end=" ")
            k = k+2
            for j in range(0,i+1):
                print(" **",end=" ")
            print()

        pattern(5)

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

14)

```
In [18]: def pattern(n):

        # for loop for printing upper half
        for i in range(1, n + 1):
            for k in range(1, i):
                print(" ", end = "")
            for j in range(i, n + 1):
                print(" **", end = " ")
            print()

        # for loop for printing lower half
        for i in range(n - 1, 0, -1):
            for k in range(1, i):
                print(" ", end = "")
            for j in range(i, n + 1):
                print(" **", end = " ")
            print()

        pattern(7)

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

15)

```
In [19]: n = int(input("enter number of rows :"))
        print("*****\n")
        i = (n // 2) -1
        j = 2
        while i !=0:
            while j <=(n -2):
                print(" * " * i,end = "")
                print(" * " * j,end = "")
                print(" * " * i,end = "\n")
                i = i -1
                j = j +2

enter number of rows :15
*****
*****
****_****
***_****
**_****
*_****
_****
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

```
In [ ]: 
```