

Pattern Programs Study Material

Pattern-1: To print given number of *s in a row

test.py:

```
1) n=int(input('Enter n value:'))
2) for i in range(n):
3)     print('*',end=' ')
```

Enter n value:5
* * * * *

Pattern-2: To print square pattern with * symbols

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print('* '*n)
```

output:

Enter No Of Rows:5

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

Pattern-3: To print square pattern with provided fixed digit

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((str(n)+' ')*n)
```

output:

Enter No Of Rows:5

```
5 5 5 5 5
5 5 5 5 5
5 5 5 5 5
5 5 5 5 5
5 5 5 5 5
```

Pattern-4: To print square pattern with provided fixed digit in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((str(i+1)+' ')*n)
```

output:

Enter No Of Rows:5

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

Pattern-5: To print square pattern with fixed alphabet symbol

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print(('A ')*n)
```

output:

Enter No Of Rows:5

```
A A A A A
A A A A A
A A A A A
A A A A A
A A A A A
```

Pattern-6: To print square pattern with alphabet symbols

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((chr(65+i)+' ')*n)
```

output:

Enter No Of Rows:5

```
A A A A A
B B B B B
C C C C C
D D D D D
E E E E E
```

Pattern-7: To print square pattern with digits

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n):
4)         print(str(j+1),end=' ')
5)     print()
```

output:

Enter No Of Rows: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
```

Pattern-8: To print square pattern with alphabet symbols in dictionary order

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n):
4)         print(chr(65+j),end=' ')
5)     print()
```

output:

Enter No Of Rows:5

```
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
```

Pattern-9: To print square pattern with digits in descending order

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((str(n-i)+' ')*n)
```

output:

Enter No Of Rows:5

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

Pattern-10: To print square pattern with alphabets in reverse of dictionary order

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((chr(64+n-i)+' ')*n)
```

output:

Enter No Of Rows:5

```
E E E E E
D D D D D
C C C C C
B B B B B
A A A A A
```

Pattern-11: To print square pattern with digits in descending order

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n):
4)         print(n-j,end=' ')
5)     print()
```

output:

Enter No Of Rows:5

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

Pattern-12: To print square pattern with alphabets in reverse of dictionary order

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n):
4)         print(chr(64+n-j),end=' ')
5)     print()
```

output:

Enter No Of Rows:5

```
E D C B A
E D C B A
E D C B A
E D C B A
E D C B A
```

UNIT-2: Right Angle Triangle Pattern Printing Programs

Pattern-13: To print Right Angle Triangle pattern with * symbols

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print('*',end=' ')
5)     print()
```

output:

Enter No Of Rows:5



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

Pattern-14: To print Right Angle Triangle pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(i+1,end=' ')
5)     print()
```

2nd way:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
```

```
3) print((str(i+1)+' ')*(i+1))
```

output:

Enter No Of Rows:5

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

Pattern-15: To print Right Angle Triangle pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3) print((chr(65+i)+' ')*(i+1))
```

output:

Enter No Of Rows:5

```
A
B B
C C C
D D D D
E E E E E
```

Pattern-16: To print Right Angle Triangle pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3) for j in range(i+1):
4) print(j+1,end=' ')
5) print()
```

output:

Enter No Of Rows:5

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

Pattern-17: To print Right Angle Triangle pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(chr(65+j),end=' ')
5)     print()
```

output:

Enter No Of Rows:5

```
A
A B
A B C
A B C D
A B C D E
```

Pattern-18: To print Right Angle Triangle pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(n-j,end=' ')
5)     print()
```

output:

Enter No Of Rows:5

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

Pattern-19: To print Right Angle Triangle pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(chr(64+n-j),end=' ')
5)     print()
```

output:

Enter No Of Rows:5

```
E
E D
E D C
E D C B
E D C B A
```

UNIT-3: Inverted Right Angle Triangle Pattern Printing Programs

Pattern-20: To print Inverted Right Angle Triangle pattern with * symbols

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print('* '*(n-i))
```

output:

Enter No Of Rows:5

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

Pattern-21: To print Inverted Right Angle Triangle pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((str(i+1)+' ')*(n-i))
```

output:

Enter No Of Rows:5

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

Pattern-22: To print Inverted Right Angle Triangle pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((chr(65+i)+' ')*(n-i))
```

output:

Enter No Of Rows:5

```
A A A A A
B B B B
C C C
D D
E
```

Pattern-23: To print Inverted Right Angle Triangle pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((str(n-i)+' ')*(n-i))
```

output:

Enter No Of Rows:5

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

Pattern-24: To print Inverted Right Angle Triangle pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     print((chr(64+n-i)+' ')*(n-i))
```

output:

Enter No Of Rows:5

```
E E E E E
D D D D
C C C
B B
A
```

Pattern-25: To print Inverted Right Angle Triangle pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n-i):
4)         print(j+1,end=' ')
5)     print()
```

output:

Enter No Of Rows:5

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

Pattern-26: To print Inverted Right Angle Triangle pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n-i):
4)         print(chr(65+j),end=' ')
5)     print()
```

output:

Enter No Of Rows:5

```
A B C D E
A B C D
A B C
A B
A
```

Pattern-27: To print Inverted Right Angle Triangle pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n-i):
4)         print(n-j,end=' ')
5)     print()
```

output:

Enter No Of Rows:5

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

Pattern-28: To print Inverted Right Angle Triangle pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```
1) n=int(input('Enter No Of Rows:'))
2) for i in range(n):
3)     for j in range(n-i):
4)         print(chr(64+n-j),end=' ')
5)     print()
```

output:

Enter No Of Rows:5

```
E D C B A
E D C B
E D C
E D
E
```

UNIT-4: Pyramid Pattern Printing Programs

Pattern-29: To print Pyramid pattern with * symbols

test.py:

```
1) n=int(input('Enter Number of rows:'))
2) for i in range(n):# 0,1,2,3
3) print((' '*(n-i-1))+ ('* ')*(i+1))
```

output:

Enter number of rows:5

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

Pattern-30: To print Pyramid pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n):# 0,1,2,3
3) print((' '*(n-i-1))+ (str(i+1)+' ')*(i+1))
```

output:

Enter Number of Rows:5

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

Pattern-31: To print Pyramid pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n):# 0,1,2,3
3)     print((' '*(n-i-1))+ (chr(65+i)+' ')*(i+1))
```

output:

Enter Number of Rows:5

```
  A
 B B
C C C
D D D D
E E E E E
```

Pattern-32: To print Pyramid pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n):# 0,1,2,3
3)     print((' '*(n-i-1)),end=")
4)     for j in range(i+1):
5)         print(j+1,end=' ')
6)     print()
```

output:

Enter Number of Rows:5

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

Pattern-33: To print Pyramid pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n):# 0,1,2,3
3)     print(' '* (n-i-1),end='')
4)     for j in range(i+1):
5)         print(chr(65+j),end=' ')
6)     print()
```

output:

Enter Number of Rows:5

```
  A
 A B
A B C
A B C D
A B C D E
```

Pattern-34: To print Pyramid pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n):# 0,1,2,3
3)     print(' '* (n-i-1),end='')
4)     for j in range(i+1):
5)         print(n-j,end=' ')
6)     print()
```

output:

Enter Number of Rows:5

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

Pattern-35: To print Pyramid pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n):# 0,1,2,3
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(chr(64+n-j),end=' ')
6)     print()
```

output:

Enter Number of Rows:5

```
  E
 E D
E D C
E D C B
E D C B A
```

UNIT-5: Inverted Pyramid Pattern Printing Programs

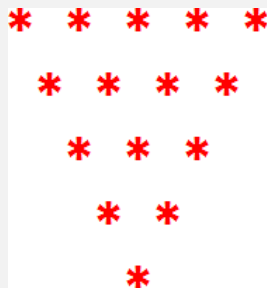
Pattern-36: To print Inverted Pyramid Pattern with * symbols

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i+'* '*(n-i))
```

output:

Enter Number of Rows:5



An inverted pyramid pattern consisting of 5 rows of asterisks. The first row has 5 asterisks, the second has 4, the third has 3, the fourth has 2, and the fifth has 1. The asterisks are red and separated by spaces.

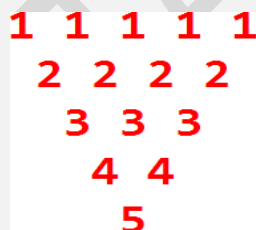
Pattern-37: To print Inverted Pyramid Pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i+(str(i+1)+' ')*(n-i))
```

output:

Enter Number of Rows:5



An inverted pyramid pattern consisting of 5 rows of digits. The first row has 5 ones, the second has 4 twos, the third has 3 threes, the fourth has 2 fours, and the fifth has 1 five. The digits are red and separated by spaces.

Pattern-38: To print Inverted Pyramid Pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i+(chr(65+i))*(n-i))
```

output:

Enter Number of Rows:5

```
A A A A A
  B B B B
    C C C
      D D
        E
```

Pattern-39: To print Inverted Pyramid Pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i,end='')
4)     for j in range(n-i):
5)         print(j+1,end=' ')
6)     print()
```

output:

Enter Number of Rows:5

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

Pattern-40:To print Inverted Pyramid Pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i,end='')
4)     for j in range(n-i):
5)         print(chr(65+j),end=' ')
6)     print()
```

output:

Enter Number of Rows:5

```
A B C D E
 A B C D
  A B C
   A B
    A
```

Pattern-41:To print Inverted Pyramid Pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i,end='')
4)     for j in range(n-i):
5)         print(n-j,end=' ')
6)     print()
```

output:

Enter Number of Rows:5

```

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

```

Pattern-42: To print Inverted Pyramid Pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```

1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i,end='')
4)     for j in range(n-i):
5)         print(chr(64+n-j),end=' ')
6)     print()

```

output:

Enter Number of Rows:5

```

E D C B A
  E D C B
   E D C
    E D
     E

```

UNIT-6: Diamond Pattern Printing Programs

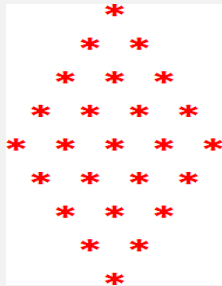
Pattern-43: To print Diamond Pattern with * symbols

test.py:

```
1) n=int(input('Enter Number of Rows:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*i,end='')
4)     for j in range(n-i):
5)         print(chr(64+n-j),end=' ')
6)     print()
```

output:

Enter n Value:5



Pattern-44: To print Diamond Pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):#0,1,2,3
3)     print(' '*(n-i-1)+(str(i+1)+' ')*(i+1))
4) for i in range(n-1):#0,1,2
5)     print(' '*(i+1)+(str(n-i-1)+' ')*(n-i-1))
```

output:

Enter n Value:5

```

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

```

Pattern-45: To print Diamond Pattern with fixed alphabet symbol in every row

test.py:

```

1) n=int(input('Enter n Value:'))
2) for i in range(n):#0,1,2,3
3)     print(' '*(n-i-1)+(chr(65+i)+' ')*(i+1))
4) for i in range(n-1):#0,1,2
5)     print(' '*(i+1)+(chr(63+n-i)+' ')*(n-i-1))

```

output:

Enter n Value:5

```

      A
     B B
    C C C
   D D D D
  E E E E E
   D D D D
    C C C
     B B
      A

```

Pattern-46: To print Diamond Pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):#0,1,2,3
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(j+1,end=' ')
6)     print()
7) for i in range(n-1):#0,1,2
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(j+1,end=' ')
11)    print()
```

output:

Enter n Value:5

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

Pattern-47: To print Diamond Pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):#0,1,2,3
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(chr(65+j),end=' ')
6)     print()
7) for i in range(n-1):#0,1,2
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(chr(65+j),end=' ')
11)    print()
```

output:

Enter n Value:5

```

  A
 A B
A B C
A B C D
A B C D E
 A B C D
  A B C
   A B
    A
```

Pattern-48: To print Diamond Pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):#0,1,2,3
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(n-j,end=' ')
6)     print()
7) for i in range(n-1):#0,1,2
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(n-j,end=' ')
11)    print()
```

output:

Enter n Value:5

```

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

Pattern-49: To print Diamond Pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):#0,1,2,3
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(chr(64+n-j),end=' ')
6)     print()
7) for i in range(n-1):#0,1,2
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(chr(64+n-j),end=' ')
11)    print()
```

output:

Enter n Value:5

```
      E
     E D
    E D C
   E D C B
  E D C B A
   E D C B
    E D C
     E D
      E
```

UNIT-7: Right Half Diamond Pattern Printing Programs

Pattern-50: To print Right Half Diamond Pattern with * symbols

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print('*'*(i+1))
4) for i in range(n-1):
5)     print('*'*(n-i-1))
```

output:

Enter n Value:5

Pattern-51: To print Right Half Diamond Pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print((str(i+1)+' ')*(i+1))
4) for i in range(n-1):
5)     print((str(n-i-1)+' ')*(n-i-1))
```

output:

Enter n Value:5

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

Pattern-52: To print Right Half Diamond Pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print((chr(65+i)+' ')*(i+1))
4) for i in range(n-1):
5)     print((chr(63+n-i)+' ')*(n-i-1))
```

output:

Enter n Value:5

```
A
B B
C C C
D D D D
E E E E E
D D D D
C C C
B B
A
```

Pattern-53: To print Right Half Diamond Pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(j+1,end=' ')
5)     print()
6) for i in range(n-1):
7)     for j in range(n-i-1):
8)         print(j+1,end=' ')
9)     print()
```

output:

Enter n Value:5

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

Pattern-54: To print Right Half Diamond Pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(chr(65+j),end=' ')
5)     print()
6) for i in range(n-1):
7)     for j in range(n-i-1):
8)         print(chr(65+j),end=' ')
9)     print()
```

output:

Enter n Value:5

```
A
A B
A B C
A B C D
A B C D E
A B C D
A B C
A B
A
```

Pattern-55: To print Right Half Diamond Pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(n-j,end=' ')
5)     print()
6) for i in range(n-1):
7)     for j in range(n-i-1):
8)         print(n-j,end=' ')
9)     print()
```

output:

Enter n Value:5

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

Pattern-56: To print Right Half Diamond Pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     for j in range(i+1):
4)         print(chr(64+n-j),end=' ')
5)     print()
6) for i in range(n-1):
7)     for j in range(n-i-1):
8)         print(chr(64+n-j),end=' ')
9)     print()
```

output:

Enter n Value:5

```
E
E D
E D C
E D C B
E D C B A
E D C B
E D C
E D
E
```

UNIT-8: Left Half Diamond Pattern Printing Programs

Pattern-57: To print Left Half Diamond Pattern with * symbols

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' *(n-i-1)+'* *(i+1))
4)
5) for i in range(n-1):
6)     print(' *(i+1)+'* *(n-i-1))
```

output:

Enter n Value:5

```

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

Pattern-58: To print Left Half Diamond Pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '* (n-i-1)+(str(i+1)+' ')*(i+1))
4)
5) for i in range(n-1):
6)     print(' '*(i+1)+(str(n-i-1)+' ')*(n-i-1))
```

output:

Enter n Value:5

```

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

Pattern-59: To print Left Half Diamond Pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1)+(chr(65+i)+' ')*(i+1))
4)
5) for i in range(n-1):
6)     print(' '*(i+1)+(chr(63+n-i)+' ')*(n-i-1))
```

output:

Enter n Value:5

```

A
 B B
C C C
D D D D
E E E E E
D D D D
 C C C
  B B
   A
```

Pattern-60: To print Left Half Diamond Pattern with digits in ascending order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(j+1,end=' ')
6)     print()
7) for i in range(n-1):
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(j+1,end=' ')
11)    print()
```

output:

Enter n Value:5

```

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

Pattern-61: To print Left Half Diamond Pattern with alphabet symbols in dictionary order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(chr(65+j),end=' ')
6)     print()
7) for i in range(n-1):
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(chr(65+j),end=' ')
11)    print()
```

output:

Enter n Value:5

```

                                     A
                                A B
                           A B C
                      A B C D
A B C D E
                      A B C D
                           A B C
                                A B
                                     A
```

Pattern-62: To print Left Half Diamond Pattern with digits in descending order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' *(n-i-1),end="")
4)     for j in range(i+1):
5)         print(n-j,end=' ')
6)     print()
7) for i in range(n-1):
8)     print(' *(i+1),end="")
9)     for j in range(n-i-1):
10)        print(n-j,end=' ')
11)    print()
```

output:

Enter n Value:5

```

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

Pattern-63: To print Left Half Diamond Pattern with alphabet symbols in reverse of dictionary order in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1),end='')
4)     for j in range(i+1):
5)         print(chr(64+n-j),end=' ')
6)     print()
7) for i in range(n-1):
8)     print(' '*(i+1),end='')
9)     for j in range(n-i-1):
10)        print(chr(64+n-j),end=' ')
11)    print()
```

output:

Enter n Value:5

```
      E
    E D
  E D C
E D C B
E D C B A
  E D C B
    E D C
      E D
      E
```

UNIT-9: Top Half Hallow Diamond Pattern Printing Programs

Pattern-64: To print Top Half Hallow Diamond Pattern with * symbols

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1),end='')
4)     print('* ',end='')
5)     if i>=1:
6)         print(' '*(2*i-1),end='')
7)         print('*',end='')
8)     print()
```

Simplified Version:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1)+'* ',end='')
4)     if i>=1:
5)         print(' '*(2*i-1)+'*',end='')
6)     print()
```

output:

Enter n Value:5



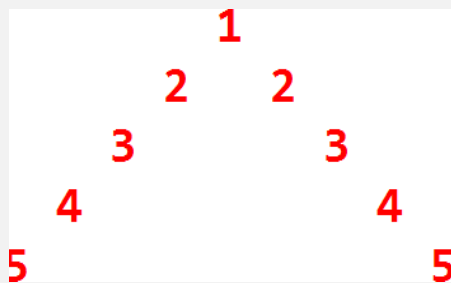
Pattern-65: To print Top Half Hallow Diamond Pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1)+str(i+1)+' ',end=")
4)     if i>=1:
5)         print(' '*(2*i-1)+str(i+1),end=")
6)     print()
```

output:

Enter n Value:5



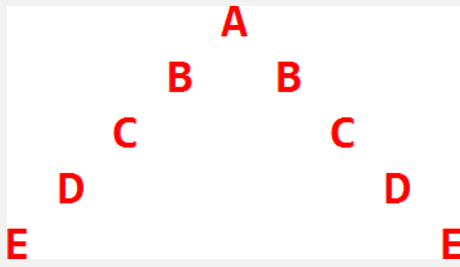
Pattern-66: To print Top Half Hallow Diamond Pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1)+chr(65+i)+' ',end=")
4)     if i>=1:
5)         print(' '*(2*i-1)+chr(65+i),end=")
6)     print()
```

output:

Enter n Value:5



Pattern-67: To print Top Half Hollow Diamond Pattern with numbers in descending order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1)+str(n-i)+' ',end='')
4)     if i>=1:
5)         print(' '*(2*i-1)+str(n-i),end='')
6)     print()
```

output:

Enter n Value:5



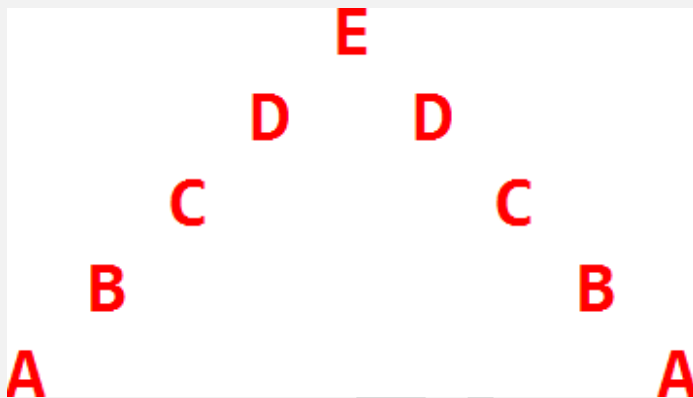
Pattern-68:To print Top Half Hollw Diamond Pattern with aplhabet symbols in reverse of dictionary order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*(n-i-1)+chr(64+n-i)+' ',end='')
4)     if i>=1:
5)         print(' '*(2*i-1)+chr(64+n-i),end='')
6)     print()
```

output:

Enter n Value:5



```
      E
     D D
    C  C
   B   B
  A     A
```

UNIT-10: Bottom Half Hallow Diamond Pattern Printing Programs

Pattern-69: To print Bottom Half Hallow Diamond Pattern with * symbols

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*i+'*',end="")
4)     if i!= n-1:
5)         print(' '*(2*n-2*i-3)+'*',end="")
6)     print()
```

output:

Enter n Value:5



Pattern-70: To print Bottom Half Hallow Diamond Pattern with fixed digit in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*i+str(n-i)+' ',end="")
4)     if i!= n-1:
5)         print(' '*(2*n-2*i-3)+str(n-i),end="")
6)     print()
```

output:

Enter n Value:5

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

Pattern-71: To print Bottom Half Hollow Diamond Pattern with fixed alphabet symbol in every row

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*i+chr(64+n-i)+' ',end="")
4)     if i!= n-1:
5)         print(' '*(2*n-2*i-3)+chr(64+n-i),end="")
6)     print()
```

output:

Enter n Value:5

```
E          E
  D        D
   C      C
    B    B
     A
```

Pattern-72: To print Bottom Half Hollw Diamond Pattern with numbers in descending order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*i+str(i+1)+' ',end='')
4)     if i!= n-1:
5)         print(' '*(2*n-2*i-3)+str(i+1),end='')
6)     print()
```

output:

Enter n Value:5

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

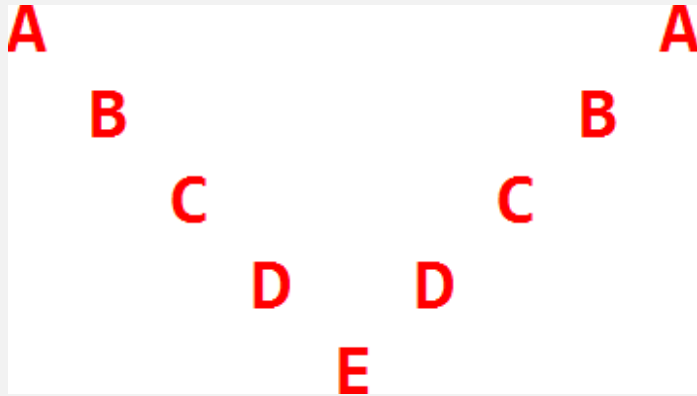
Pattern-73: To print Bottom Half Hollw Diamond Pattern with alphabet symbols in reverse of dictionary order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n):
3)     print(' '*i+chr(65+i)+' ',end='')
4)     if i!= n-1:
5)         print(' '*(2*n-2*i-3)+chr(65+i),end='')
6)     print()
```

output:

Enter n Value:5



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UNIT-11: Hallow Diamond Pattern Printing Programs

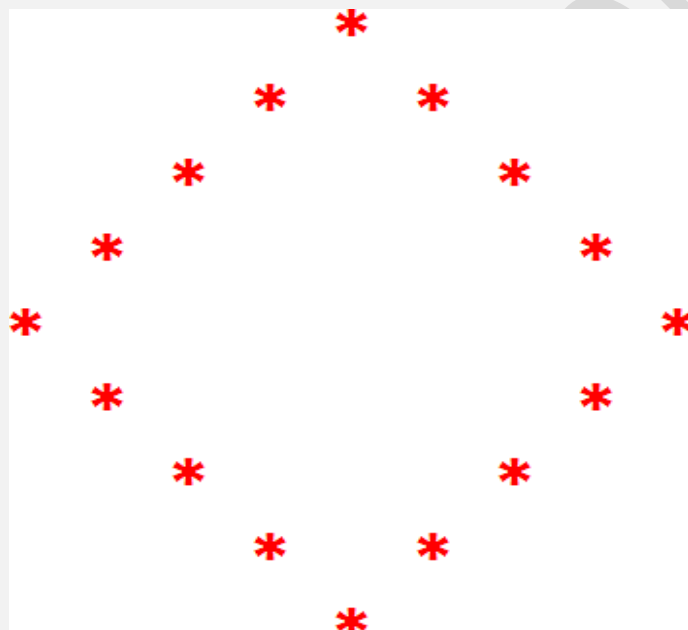
Pattern-74: To print Hollw Diamond Pattern with * Symbols

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*(n-i-1)+'*',end='')
4)     if i!=0: # if i>0: or if i>=1:
5)         print(' '*(2*i-1)+'*',end='')
6)     print()
7) for i in range(n-1): #0,1,2
8)     print(' '*(i+1)+'*',end='')
9)     if i!=(n-2):
10)        print(' '*(2*n-2*i-5)+'*',end='')
11)    print()
```

output:

Enter n Value:5



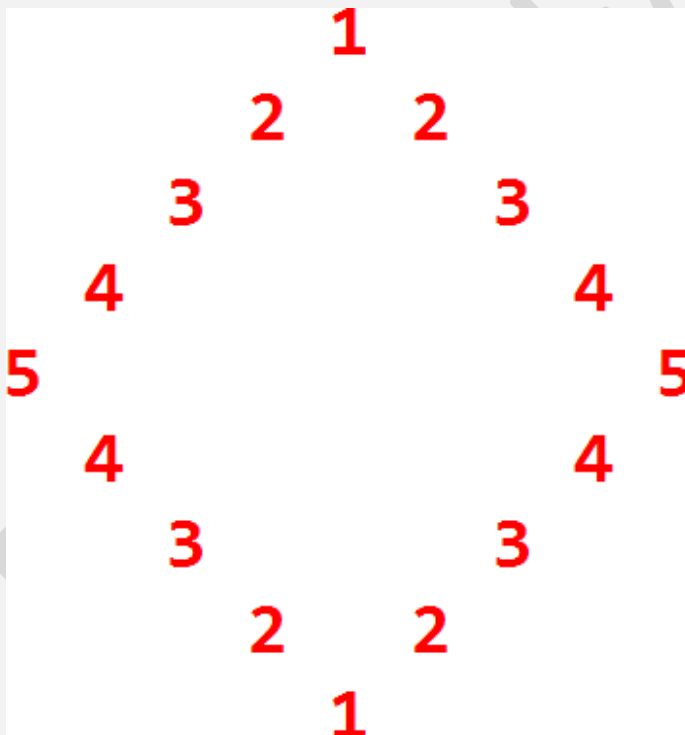
Pattern-75: To print Hollow Diamond Pattern with digits in Ascending Order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*(n-i-1)+str(i+1)+' ',end='')
4)     if i!=0: # if i>0: or if i>=1:
5)         print(' '*(2*i-1)+str(i+1),end='')
6)     print()
7) for i in range(n-1): #0,1,2
8)     print(' '*(i+1)+str(n-i-1)+' ',end='')
9)     if i!=(n-2):
10)        print(' '*(2*n-2*i-5)+str(n-i-1),end='')
11)    print()
```

output:

Enter n Value:5



A hollow diamond pattern composed of red digits. The pattern is 5 rows high and 5 columns wide. The top row has a single '1' in the center. The second row has '2's at the second and fourth positions. The third row has '3's at the second and fourth positions. The fourth row has '4's at the second and fourth positions. The fifth row has '5's at the first and fifth positions. The pattern is symmetric both horizontally and vertically.

Pattern-76:To print Hollw Diamond Pattern with digits in Descending Order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*(n-i-1)+str(n-i)+' ',end='')
4)     if i!=0: # if i>0: or if i>=1:
5)         print(' '*(2*i-1)+str(n-i),end='')
6)     print()
7) for i in range(n-1): #0,1,2
8)     print(' '*(i+1)+str(i+2)+' ',end='')
9)     if i!=(n-2):
10)        print(' '*(2*n-2*i-5)+str(i+2),end='')
11)    print()
```

output:

Enter n Value:5

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

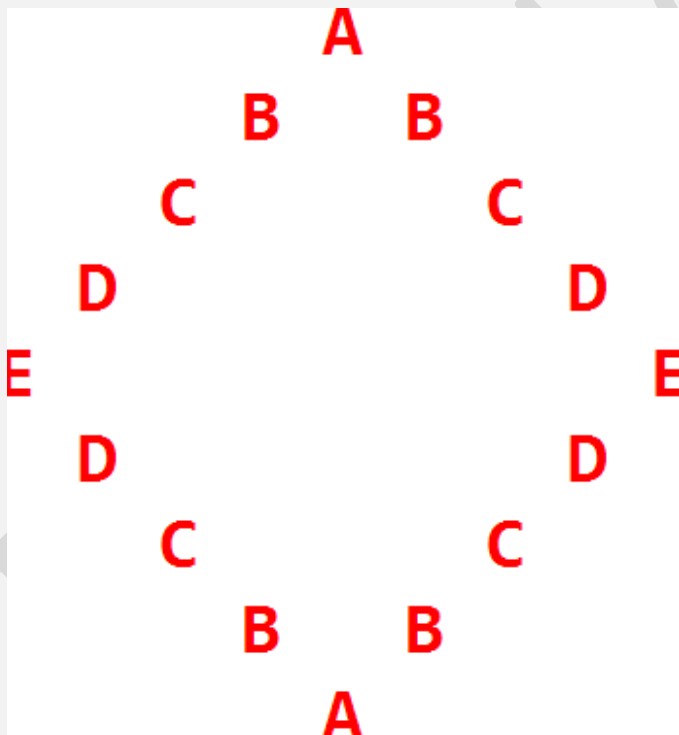
Pattern-77:To print Hollw Diamond Pattern with alphabet symbols in Dictionary Order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n): #0,1,2,3
3)     print(' '*(n-i-1)+chr(65+i)+' ',end="")
4)     if i!=0: # if i>0: or if i>=1:
5)         print(' '*(2*i-1)+chr(65+i),end="")
6)     print()
7) for i in range(n-1): #0,1,2
8)     print(' '*(i+1)+chr(63+n-i)+' ',end="")
9)     if i!=(n-2):
10)        print(' '*(2*n-2*i-5)+chr(63+n-i),end="")
11)    print()
```

output:

Enter n Value:5



```
      A
     B B
    C  C
   D   D
  E    E
   D   D
    C  C
     B B
      A
```

Pattern-78:To print Hollw Diamond Pattern with alphabet symbols in Reverse of Dictionary Order

test.py:

```
1) n=int(input('Enter n Value:'))
2) for i in range(n): #0,1,2,3
3)     print(' *(n-i-1)+chr(64+n-i)+' ',end=")
4)     if i!=0: # if i>0: or if i>=1:
5)         print(' *(2*i-1)+chr(64+n-i),end=")
6)     print()
7) for i in range(n-1): #0,1,2
8)     print(' *(i+1)+chr(66+i)+' ',end=")
9)     if i!=(n-2):
10)        print(' *(2*n-2*i-5)+chr(66+i),end=")
11)    print()
```

Enter n Value:5

```
      E
     D D
    C  C
   B    B
  A      A
   B    B
    C  C
     D D
      E
```

UNIT-15: Alphabet Pattern Printing Programs

Pattern-1: To print alphabet Symbol 'A'

```
1) for row in range(7):
2)     for col in range(5):
3)         if (row == 0) and (col in {1,2,3}):
4)             print('*',end=' ')
5)         elif (row in {1,2,4,5,6}) and (col in {0,4}):
6)             print('*',end=' ')
7)         elif (row==3):
8)             print('*',end=' ')
9)         else:
10)            print(' ',end=' ')
11)    print()
```

Pattern-2: To print alphabet Symbol 'B'

1st approach:

```
1) for row in range(7):
2)     for col in range(5):
3)         if (row in {0,3,6}) and col in {0,1,2,3}:
4)             print('*',end=' ')
5)         elif (row in {1,2,4,5}) and (col in {0,4}):
6)             print('*',end=' ')
7)         else:
8)             print(' ',end=' ')
9)
10) print()
```

2nd approach:

```
1) for row in range(7):
2)     for col in range(5):
3)         if (row % 3 == 0) and col != 4:
4)             print('*',end=' ')
5)         elif (row % 3 != 0) and (col % 4 == 0):
6)             print('*',end=' ')
7)         else:
8)             print(' ',end=' ')
9)
10) print()
```

Pattern-3: To print alphabet Symbol 'C'

```
1) for row in range(7):
2)     for col in range(5):
3)         if (row in {0,6}) and (col in {1,2,3}):
4)             print('*',end=' ')
5)         elif (row in {1,5}) and (col in {0,4}):
6)             print('*',end=' ')
7)         elif (row in {2,3,4}) and col == 0:
8)             print('*',end=' ')
9)         else:
10)            print(' ',end=' ')
11)
12) print()
```

```

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

Pattern-4: To print alphabet Symbol 'D'

```
1) for row in range(7):
2)     for col in range(5):
3)         if (row == 0 or row == 6) and (col != 4):
4)             print('*',end=' ')
5)         elif row in range(1,6) and (col == 0 or col == 4):
6)             print('*',end=' ')
7)         else:
8)             print(' ',end=' ')
9)
10) print()
```

```

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

Pattern-5: To print alphabet Symbol 'E'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row%3==0):
4)       print('*',end=' ')
5)     elif (row%3!=0) and (col==0):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-6: To print alphabet Symbol 'F'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0 or row==3):
4)       print('*',end=' ')
5)     elif (row!=0 and row!=3) and (col==0):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-7: To print alphabet Symbol 'G'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row in {0,6}) and (col in {1,2,3}):
4)       print('*',end=' ')
5)     elif (row in {1,4,5}) and (col in {0,4}):
6)       print('*',end=' ')
7)     elif (row ==2) and (col==0):
8)       print('*',end=' ')
9)     elif (row ==3) and (col!=1):
10)      print('*',end=' ')
11)    else:
12)      print(' ',end=' ')
13)  print()
```

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

Pattern-8: To print alphabet Symbol 'H'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (col==0 or col==4):
4)       print('*',end=' ')
5)     elif (row==3 and (col !=0 and col!=4):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-9: To print alphabet Symbol 'I'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0 or row==6):
4)       print('*',end=' ')
5)     elif (row!=0 and row!=6 and (col==2):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-10: To print alphabet Symbol 'J'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0):
4)       print('*',end=' ')
5)     elif (row in range(1,5) and (col==2):
6)       print('*',end=' ')
7)     elif (row==5 and (col==0 or col==2):
8)       print('*',end=' ')
9)     elif (row==6 and (col==1):
10)      print('*',end=' ')
11)    else:
12)      print(' ',end=' ')
13)  print()
```

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

Pattern-11: To print alphabet Symbol 'K'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0 or row==6) and (col==0 or col==4):
4)       print('*',end=' ')
5)     elif (row==1 or row==5) and (col==0 or col==3):
6)       print('*',end=' ')
7)     elif (row==2 or row==4) and (col==0 or col==2):
8)       print('*',end=' ')
9)     elif (row==3) and (col==0 or col==1):
10)      print('*',end=' ')
11)   else:
12)     print(' ',end=' ')
13)   print()
```

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

Pattern-12: To print alphabet Symbol 'L'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row!=6) and (col==0):
4)       print('*',end=' ')
5)     elif (row==6):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-13: To print alphabet Symbol 'M'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row!=1 and row!=2) and (col==0 or col==4):
4)       print('*',end=' ')
5)     elif (row==1) and (col!=2):
6)       print('*',end=' ')
7)     elif (row==2) and (col%2==0):
8)       print('*',end=' ')
9)     else:
10)      print(' ',end=' ')
11)   print()
```

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

Pattern-14: To print alphabet Symbol 'N'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row!=2 and row!=3 and row!=4) and (col==0 or col==4):
4)       print('*',end=' ')
5)     elif (row==2) and (col!=2 and col!=3):
6)       print('*',end=' ')
7)     elif (row==3) and (col%2==0):
8)       print('*',end=' ')
9)     elif (row==4) and (col!=1 and col!=2):
10)      print('*',end=' ')
11)   else:
12)     print(' ',end=' ')
13) print()
```



Pattern-14B: To print alphabet Symbol 'N' In Square Style

```
1) for row in range(6): # 0 to 5
2)   for col in range(6): # 0 to 5
3)     if (row==0 or row==5) and (col==0 or col==5):
4)       print('*',end=' ')
5)     elif (row==1) and (col==0 or col==1 or col==5):
6)       print('*',end=' ')
7)     elif (row==2) and (col==0 or col==2 or col==5):
8)       print('*',end=' ')
9)     elif (row==3) and (col==0 or col==3 or col==5):
10)      print('*',end=' ')
11)    elif (row==4) and (col==0 or col==4 or col==5):
12)      print('*',end=' ')
13)  else:
14)    print(' ',end=' ')
15) print()
```



Pattern-15: To print alphabet Symbol 'O'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0 or row==6) and (col!=0 and col!=4):
4)       print('*',end=' ')
5)     elif (row!=0 and row!=6) and (col==0 or col==4):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-16: To print alphabet Symbol 'P'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0 or row==3) and (col!=4):
4)       print('*',end=' ')
5)     elif (row==1 or row==2) and (col==0 or col==4):
6)       print('*',end=' ')
7)     elif (row in {4,5,6}) and (col==0):
8)       print('*',end=' ')
9)     else:
10)      print(' ',end=' ')
11)   print()
```

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

Pattern-17: To print alphabet Symbol 'Q'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row ==0) and (col in {1,2,3}):
4)       print('*',end=' ')
5)     elif (row in {1,2,3}) and (col in {0,4}):
6)       print('*',end=' ')
7)     elif (row ==4) and (col in {0,2,4}):
8)       print('*',end=' ')
9)     elif (row ==5) and (col in {0,3,4}):
10)      print('*',end=' ')
11)     elif (row ==6) and (col !=0):
12)       print('*',end=' ')
13)     else:
```

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

```

14)     print(' ',end=' ')
15) print()

```

Pattern-18: To print alphabet Symbol 'R'

```

1) for row in range(7): # 0 to 6
2)     for col in range(5): # 0 to 4
3)         if (row==0 or row==3) and (col!=4):
4)             print('*',end=' ')
5)         elif (row==1 or row==2) and (col==0 or col==4):
6)             print('*',end=' ')
7)         elif (row==4) and (col==0 or col==2):
8)             print('*',end=' ')
9)         elif (row==5) and (col==0 or col==3):
10)            print('*',end=' ')
11)        elif (row==6) and (col==0 or col==4):
12)            print('*',end=' ')
13)    else:
14)        print(' ',end=' ')
15) print()

```

```

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

```

Pattern-19: To print alphabet Symbol 'S'

```

1) for row in range(7): # 0 to 6
2)     for col in range(5): # 0 to 4
3)         if (row in {0,3,6}) and (col in {1,2,3}):
4)             print('*',end=' ')
5)         elif (row in {1,5}) and (col in {0,4}):
6)             print('*',end=' ')
7)         elif (row==2) and (col==0):
8)             print('*',end=' ')
9)         elif (row==4) and (col==4):
10)            print('*',end=' ')
11)    else:
12)        print(' ',end=' ')
13) print()

```

```

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

```

Pattern-20: To print alphabet Symbol 'T'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row==0):
4)       print('*',end=' ')
5)     elif (row !=0) and (col==2):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-21: To print alphabet Symbol 'U'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row!=6) and (col in {0,4}):
4)       print('*',end=' ')
5)     elif (row ==6) and (col in{1,2,3}):
6)       print('*',end=' ')
7)     else:
8)       print(' ',end=' ')
9)   print()
```

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

Pattern-22: To print alphabet Symbol 'V'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row not in {5,6}) and (col in {0,4}):
4)       print('*',end=' ')
5)     elif (row ==5) and (col in{1,3}):
6)       print('*',end=' ')
7)     elif (row ==6) and (col==2):
8)       print('*',end=' ')
9)     else:
10)      print(' ',end=' ')
11)    print()
```

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

Pattern-23: To print alphabet Symbol 'W'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row not in {4,5}) and (col in {0,4}):
4)       print('*',end=' ')
5)     elif (row ==4) and (col in{0,2,4}):
6)       print('*',end=' ')
7)     elif (row ==5) and (col!=2):
8)       print('*',end=' ')
9)   else:
10)    print(' ',end=' ')
11)  print()
```

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

Pattern-24: To print alphabet Symbol 'X'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row in {0,1,5,6}) and (col in {0,4}):
4)       print('*',end=' ')
5)     elif (row in {2,4}) and (col in {1,3}):
6)       print('*',end=' ')
7)     elif (row ==3) and (col==2):
8)       print('*',end=' ')
9)   else:
10)    print(' ',end=' ')
11)  print()
```

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

Pattern-25: To print alphabet Symbol 'Y'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row in {0,1}) and (col in {0,4}):
4)       print('*',end=' ')
5)     elif (row ==2) and (col in {1,2,3}):
6)       print('*',end=' ')
7)     elif (row in {3,4,5,6}) and (col==2):
8)       print('*',end=' ')
9)   else:
10)    print(' ',end=' ')
11)  print()
```

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

Pattern-26: To print alphabet Symbol 'Z'

```
1) for row in range(7): # 0 to 6
2)   for col in range(5): # 0 to 4
3)     if (row in {0,6}):
4)       print('*',end=' ')
5)     elif (row ==1) and (col==4):
6)       print('*',end=' ')
7)     elif (row ==2) and (col==3):
8)       print('*',end=' ')
9)     elif (row ==3) and (col==2):
10)      print('*',end=' ')
11)    elif (row ==4) and (col==1):
12)      print('*',end=' ')
13)    elif (row ==5) and (col==0):
14)      print('*',end=' ')
15)    else:
16)      print(' ',end=' ')
17)  print()
```



=====

How to call functions as strings directly:

=====

We can call functions as Strings directly either by using exec() or eval() functions.

eg: To call f1() function we can use any of the following code

exec('f1()')

eval('f1()')

Demo Program:

```
1) def f1():
2)   print('f1 function')
3) def f2():
4)   print('f2 function')
5)
6) ch=input('Enter Function Name:')
7) exec(ch+'()')
```

MINI Project-1: Vertical LED Panel Display:

=====

```
1) def print_row(*col):
2)     for i in range(5): #0,1,2,3,4
3)         if i in col:
4)             print('*',end=' ')
5)         else:
6)             print(' ',end=' ')
7)     print()
8)
9) def A():
10)    print_row(1,2,3)
11)    print_row(0,4)
12)    print_row(0,4)
13)    print_row(0,1,2,3,4)
14)    for i in range(3):
15)        print_row(0,4)
16)
17) def B():
18)    print_row(0,1,2,3)
19)    print_row(0,4)
20)    print_row(0,4)
21)    print_row(0,1,2,3)
22)    print_row(0,4)
23)    print_row(0,4)
24)    print_row(0,1,2,3)
25)
26) def C():
27)    print_row(1,2,3)
28)    print_row(0,4)
29)    print_row(0)
30)    print_row(0)
31)    print_row(0)
32)    print_row(0,4)
33)    print_row(1,2,3)
34)
35) def D():
36)    print_row(0,1,2,3)
37)    for i in range(5):
38)        print_row(0,4)
```

```
39) print_row(0,1,2,3)
40)
41) def E():
42)     print_row(0,1,2,3,4)
43)     print_row(0)
44)     print_row(0)
45)     print_row(0,1,2,3,4)
46)     print_row(0)
47)     print_row(0)
48)     print_row(0,1,2,3,4)
49)
50) def F():
51)     print_row(0,1,2,3,4)
52)     print_row(0)
53)     print_row(0)
54)     print_row(0,1,2,3,4)
55)     for i in range(3):
56)         print_row(0)
57)
58) def G():
59)     print_row(1,2,3)
60)     print_row(0,4)
61)     print_row(0)
62)     print_row(0,2,3,4)
63)     print_row(0,4)
64)     print_row(0,4)
65)     print_row(1,2,3)
66)
67) def H():
68)     for i in range(3):
69)         print_row(0,4)
70)         print_row(0,1,2,3,4)
71)     for i in range(3):
72)         print_row(0,4)
73) def I():
74)     print_row(0,1,2,3,4)
75)     for i in range(5):
76)         print_row(2)
77)         print_row(0,1,2,3,4)
78)
79) def J():
```

```
80) print_row(0,1,2,3,4)
81) for i in range(4):
82)     print_row(2)
83) print_row(0,2)
84) print_row(1)
85)
86) def K():
87)     print_row(0,4)
88)     print_row(0,3)
89)     print_row(0,2)
90)     print_row(0,1)
91)     print_row(0,2)
92)     print_row(0,3)
93)     print_row(0,4)
94)
95) def L():
96)     for i in range(6):
97)         print_row(0)
98)     print_row(0,1,2,3,4)
99)
100)     def M():
101)         print_row(0,4)
102)         print_row(0,1,3,4)
103)         print_row(0,2,4)
104)         for i in range(4):
105)             print_row(0,4)
106)     def N():
107)         print_row(0,4)
108)         print_row(0,4)
109)         print_row(0,1,4)
110)         print_row(0,2,4)
111)         print_row(0,3,4)
112)         print_row(0,4)
113)         print_row(0,4)
114)
115)     def O():
116)         print_row(1,2,3)
117)         for i in range(5):
118)             print_row(0,4)
119)         print_row(1,2,3)
120)
```

```
121) def P():
122)     print_row(0,1,2,3)
123)     print_row(0,4)
124)     print_row(0,4)
125)     print_row(0,1,2,3)
126)     for i in range(3):
127)         print_row(0)
128)
129) def Q():
130)     print_row(1,2,3)
131)     for i in range(3):
132)         print_row(0,4)
133)         print_row(0,2,4)
134)         print_row(0,3,4)
135)         print_row(1,2,3,4)
136)
137) def R():
138)     print_row(0,1,2,3)
139)     print_row(0,4)
140)     print_row(0,4)
141)     print_row(0,1,2,3)
142)     print_row(0,2)
143)     print_row(0,3)
144)     print_row(0,4)
145)
146) def S():
147)     print_row(1,2,3)
148)     print_row(0,4)
149)     print_row(0)
150)     print_row(1,2,3)
151)     print_row(4)
152)     print_row(0,4)
153)     print_row(1,2,3)
154)
155) def T():
156)     print_row(0,1,2,3,4)
157)     for i in range(7):
158)         print_row(2)
159)
160) def U():
161)     for i in range(6):
```

```
162)         print_row(0,4)
163)         print_row(1,2,3)
164)
165)     def V():
166)         for i in range(5):
167)             print_row(0,4)
168)             print_row(1,3)
169)             print_row(2)
170)
171)     def W():
172)         for i in range(4):
173)             print_row(0,4)
174)             print_row(0,2,4)
175)             print_row(0,1,3,4)
176)             print_row(0,4)
177)
178)     def X():
179)         print_row(0,4)
180)         print_row(0,4)
181)         print_row(1,3)
182)         print_row(2)
183)         print_row(1,3)
184)         print_row(0,4)
185)         print_row(0,4)
186)
187)     def Y():
188)         print_row(0,4)
189)         print_row(0,4)
190)         print_row(1,2,3)
191)         for i in range(4):
192)             print_row(2)
193)
194)     def Z():
195)         print_row(0,1,2,3,4)
196)         print_row(4)
197)         print_row(3)
198)         print_row(2)
199)         print_row(1)
200)         print_row(0)
201)         print_row(0,1,2,3,4)
202)
```

```

203)      """ch=input('Enter Any Upper Case Alphabet Symbol:')
204)      exec(ch+'()')"""
205)
206)      word=input('Enter Any Word To Print Vertically:')
207)      for ch in word:
208)          exec(ch+'()')
209)          print()
210)          print()

```

MINI Project-2: Horizontal LED Panel Display:

=====

```

1) def print_row(*col):
2)     for i in range(5):
3)         if i in col:
4)             print('*',end=' ')
5)         else:
6)             print(' ',end=' ')
7)
8) def A0():
9)     print_row(1,2,3)
10) def A1():
11)     print_row(0,4)
12) def A2():
13)     print_row(0,4)
14) def A3():
15)     print_row(0,1,2,3,4)
16) def A4():
17)     print_row(0,4)
18) def A5():
19)     print_row(0,4)
20) def A6():
21)     print_row(0,4)
22)
23) def B0():
24)     print_row(0,1,2,3)
25) def B1():
26)     print_row(0,4)
27) def B2():
28)     print_row(0,4)
29) def B3():

```

```
30) print_row(0,1,2,3)
31) def B4():
32)     print_row(0,4)
33) def B5():
34)     print_row(0,4)
35) def B6():
36)     print_row(0,1,2,3)
37)
38)
39) def C0():
40)     print_row(1,2,3)
41) def C1():
42)     print_row(0,4)
43) def C2():
44)     print_row(0)
45) def C3():
46)     print_row(0)
47) def C4():
48)     print_row(0)
49) def C5():
50)     print_row(0,4)
51) def C6():
52)     print_row(1,2,3)
53)
54) def D0():
55)     print_row(0,1,2,3)
56) def D1():
57)     print_row(0,4)
58) def D2():
59)     print_row(0,4)
60) def D3():
61)     print_row(0,4)
62) def D4():
63)     print_row(0,4)
64) def D5():
65)     print_row(0,4)
66) def D6():
67)     print_row(0,1,2,3)
68)
69) def E0():
70)     print_row(0,1,2,3,4)
```

```
71) def E1():
72)     print_row(0)
73) def E2():
74)     print_row(0)
75) def E3():
76)     print_row(0,1,2,3,4)
77) def E4():
78)     print_row(0)
79) def E5():
80)     print_row(0)
81) def E6():
82)     print_row(0,1,2,3,4)
83)
84) def F0():
85)     print_row(0,1,2,3,4)
86) def F1():
87)     print_row(0)
88) def F2():
89)     print_row(0)
90) def F3():
91)     print_row(0,1,2,3,4)
92) def F4():
93)     print_row(0)
94) def F5():
95)     print_row(0)
96) def F6():
97)     print_row(0)
98)
99) def G0():
100)     print_row(1,2,3)
101)     def G1():
102)         print_row(0,4)
103)     def G2():
104)         print_row(0)
105)     def G3():
106)         print_row(0,2,3,4)
107)     def G4():
108)         print_row(0,4)
109)     def G5():
110)         print_row(0,4)
111)     def G6():
```

```
112)         print_row(1,2,3)
113)
114)     def H0():
115)         print_row(0,4)
116)     def H1():
117)         print_row(0,4)
118)     def H2():
119)         print_row(0,4)
120)     def H3():
121)         print_row(0,1,2,3,4)
122)     def H4():
123)         print_row(0,4)
124)     def H5():
125)         print_row(0,4)
126)     def H6():
127)         print_row(0,4)
128)
129)     def I0():
130)         print_row(0,1,2,3,4)
131)     def I1():
132)         print_row(2)
133)     def I2():
134)         print_row(2)
135)     def I3():
136)         print_row(2)
137)     def I4():
138)         print_row(2)
139)     def I5():
140)         print_row(2)
141)     def I6():
142)         print_row(0,1,2,3,4)
143)
144)     def J0():
145)         print_row(0,1,2,3,4)
146)     def J1():
147)         print_row(2)
148)     def J2():
149)         print_row(2)
150)     def J3():
151)         print_row(2)
152)     def J4():
```

```
153)     print_row(2)
154) def J5():
155)     print_row(0,2)
156) def J6():
157)     print_row(1)
158)
159) def K0():
160)     print_row(0,4)
161) def K1():
162)     print_row(0,3)
163) def K2():
164)     print_row(0,2)
165) def K3():
166)     print_row(0,1)
167) def K4():
168)     print_row(0,2)
169) def K5():
170)     print_row(0,3)
171) def K6():
172)     print_row(0,4)
173)
174) def L0():
175)     print_row(0)
176) def L1():
177)     print_row(0)
178) def L2():
179)     print_row(0)
180) def L3():
181)     print_row(0)
182) def L4():
183)     print_row(0)
184) def L5():
185)     print_row(0)
186) def L6():
187)     print_row(0,1,2,3,4)
188)
189) def M0():
190)     print_row(0,4)
191) def M1():
192)     print_row(0,1,3,4)
193) def M2():
```

```
194)     print_row(0,2,4)
195)  def M3():
196)     print_row(0,4)
197)  def M4():
198)     print_row(0,4)
199)  def M5():
200)     print_row(0,4)
201)  def M6():
202)     print_row(0,4)
203)
204)  def N0():
205)     print_row(0,4)
206)  def N1():
207)     print_row(0,4)
208)  def N2():
209)     print_row(0,1,4)
210)  def N3():
211)     print_row(0,2,4)
212)  def N4():
213)     print_row(0,3,4)
214)  def N5():
215)     print_row(0,4)
216)  def N6():
217)     print_row(0,4)
218)
219)  def O0():
220)     print_row(1,2,3)
221)  def O1():
222)     print_row(0,4)
223)  def O2():
224)     print_row(0,4)
225)  def O3():
226)     print_row(0,4)
227)  def O4():
228)     print_row(0,4)
229)  def O5():
230)     print_row(0,4)
231)  def O6():
232)     print_row(1,2,3)
233)
234)  def P0():
```

```
235)     print_row(0,1,2,3)
236)     def P1():
237)         print_row(0,4)
238)     def P2():
239)         print_row(0,4)
240)     def P3():
241)         print_row(0,1,2,3)
242)     def P4():
243)         print_row(0)
244)     def P5():
245)         print_row(0)
246)     def P6():
247)         print_row(0)
248)
249)     def Q0():
250)         print_row(1,2,3)
251)     def Q1():
252)         print_row(0,4)
253)     def Q2():
254)         print_row(0,4)
255)     def Q3():
256)         print_row(0,4)
257)     def Q4():
258)         print_row(0,2,4)
259)     def Q5():
260)         print_row(0,3,4)
261)     def Q6():
262)         print_row(1,2,3,4)
263)
264)     def R0():
265)         print_row(0,1,2,3)
266)     def R1():
267)         print_row(0,4)
268)     def R2():
269)         print_row(0,4)
270)     def R3():
271)         print_row(0,1,2,3)
272)     def R4():
273)         print_row(0,2)
274)     def R5():
275)         print_row(0,3)
```

```
276)     def R6():
277)         print_row(0,4)
278)
279)     def S0():
280)         print_row(1,2,3)
281)     def S1():
282)         print_row(0,4)
283)     def S2():
284)         print_row(0)
285)     def S3():
286)         print_row(1,2,3)
287)     def S4():
288)         print_row(4)
289)     def S5():
290)         print_row(0,4)
291)     def S6():
292)         print_row(1,2,3)
293)
294)     def T0():
295)         print_row(0,1,2,3,4)
296)     def T1():
297)         print_row(2)
298)     def T2():
299)         print_row(2)
300)     def T3():
301)         print_row(2)
302)     def T4():
303)         print_row(2)
304)     def T5():
305)         print_row(2)
306)     def T6():
307)         print_row(2)
308)
309)     def U0():
310)         print_row(0,4)
311)     def U1():
312)         print_row(0,4)
313)     def U2():
314)         print_row(0,4)
315)     def U3():
316)         print_row(0,4)
```

```
317)     def U4():
318)         print_row(0,4)
319)     def U5():
320)         print_row(0,4)
321)     def U6():
322)         print_row(1,2,3)
323)
324)     def V0():
325)         print_row(0,4)
326)     def V1():
327)         print_row(0,4)
328)     def V2():
329)         print_row(0,4)
330)     def V3():
331)         print_row(0,4)
332)     def V4():
333)         print_row(0,4)
334)     def V5():
335)         print_row(1,3)
336)     def V6():
337)         print_row(2)
338)
339)     def W0():
340)         print_row(0,4)
341)     def W1():
342)         print_row(0,4)
343)     def W2():
344)         print_row(0,4)
345)     def W3():
346)         print_row(0,4)
347)     def W4():
348)         print_row(0,2,4)
349)     def W5():
350)         print_row(0,1,3,4)
351)     def W6():
352)         print_row(0,4)
353)
354)     def X0():
355)         print_row(0,4)
356)     def X1():
357)         print_row(0,4)
```

```
358)     def X2():
359)         print_row(1,3)
360)     def X3():
361)         print_row(2)
362)     def X4():
363)         print_row(1,3)
364)     def X5():
365)         print_row(0,4)
366)     def X6():
367)         print_row(0,4)
368)
369)     def Y0():
370)         print_row(0,4)
371)     def Y1():
372)         print_row(0,4)
373)     def Y2():
374)         print_row(1,2,3)
375)     def Y3():
376)         print_row(2)
377)     def Y4():
378)         print_row(2)
379)     def Y5():
380)         print_row(2)
381)     def Y6():
382)         print_row(2)
383)
384)     def Z0():
385)         print_row(0,1,2,3,4)
386)     def Z1():
387)         print_row(4)
388)     def Z2():
389)         print_row(3)
390)     def Z3():
391)         print_row(2)
392)     def Z4():
393)         print_row(1)
394)     def Z5():
395)         print_row(0)
396)     def Z6():
397)         print_row(0,1,2,3,4)
398)
```

```

399)     word=input('Enter Any Word To print Horizontally:')
400)     for i in range(7):
401)         for ch in word:
402)             exec(ch+str(i)+'()')
403)             print(end=' ')
404)         print()

```

MINI Project-3: Horizontal LED Panel Display(Simplified Version):

=====

```

1) def print_row(*col):
2)     for i in range(5):
3)         if i in col:
4)             print('*',end=' ')
5)         else:
6)             print(' ',end=' ')
7)
8) def row_0():
9)     print_row(0)
10)
11) def row_2():
12)     print_row(2)
13)
14) def row_0_4():
15)     print_row(0,4)
16)
17) def row_1_2_3():
18)     print_row(1,2,3)
19)
20) def row_0_1_2_3():
21)     print_row(0,1,2,3)
22)
23) def row_0_1_2_3_4():
24)     print_row(0,1,2,3,4)
25)
26) def row_0_2_4():
27)     print_row(0,2,4)
28)
29) def row_0_2():
30)     print_row(0,2)
31) def row_1_3():

```

```

32) print_row(1,3)
33) def row_0_3():
34)     print_row(0,3)
35) def row_0_3_4():
36)     print_row(0,3,4)
37) def row_1():
38)     print_row(1)
39) def row_4():
40)     print_row(4)
41) def row_0_1_3_4():
42)     print_row(0,1,3,4)
43)
44) C2=C3=C4=E1=E2=E4=E5=F1=F2=F4=F5=F6=G2=L0=L1=L2=L3=L4=L5=P4=P5=P6=S2=Z5=
    row_0
45)
46) A1=A2=A4=A5=A6=B1=B2=B4=B5=C1=C5=D1=D2=D3=D4=D5=G1=G4=G5=H0=H1=H2=
    H4=H5=H6=K0=K6=M0=M3=M4=M5=M6=N0=N1=N5=N6=O1=O2=O3=O4=O5=P1=P2=
    Q1=Q2=Q3=R1=R2=R6=S1=S5=U0=U1=U2=U3=U4=U5=V0=V1=V2=V3=V4=W0=W1=W2
    =W3=W6=X0=X1=X5=X6=Y0=Y1=row_0_4
47)
48) I1=I2=I3=I4=I5=J1=J2=J3=J4=T1=T2=T3=T4=T5=T6=V6=X3=Y3=Y4=Y5=Y6=Z3=row_2
49)
50) A0=C0=C6=G0=G6=O0=O6=Q0=S0=S3=S6=U6=Y2=row_1_2_3
51) B0=B3=B6=D0=D6=P0=P3=R0=R3=row_0_1_2_3
52) A3=E0=E3=E6=F0=F3=H3=I0=I6=J0=L6=T0=Z0=Z6=row_0_1_2_3_4
53) M2=N3=Q4=W4=row_0_2_4
54) J5=K2=K4=R4=row_0_2
55) V5=X2=X4=row_1_3
56) K1=K5=R5=row_0_3
57) N4=Q5=row_0_3_4
58) J6=Z4=row_1
59) S4=Z1=row_4
60) M1=W5=row_0_1_3_4
61)
62) def G3():
63)     print_row(0,2,3,4)
64) def K3():
65)     print_row(0,1)
66) def N2():
67)     print_row(0,1,4)
68) def Q6():

```

```
69) print_row(1,2,3,4)
70) def Z2():
71)     print_row(3)
72) word=input('Enter Any Word To print Horizontally:')
73) for i in range(7):
74)     for ch in word:
75)         exec(ch+str(i)+'()')
76)         print(end=' ')
77)     print()
```