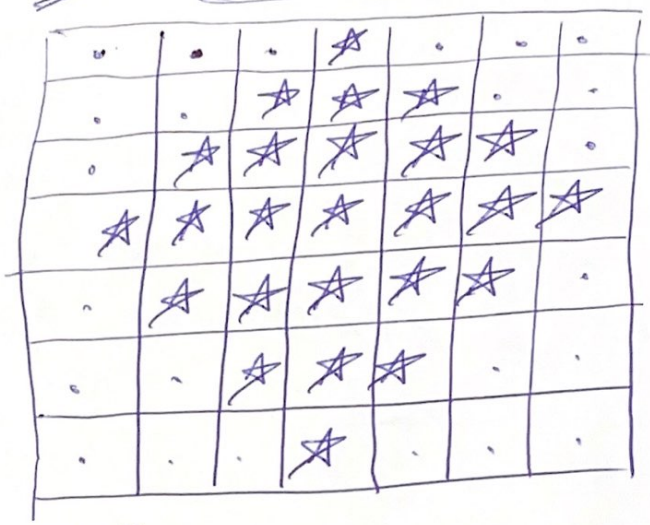
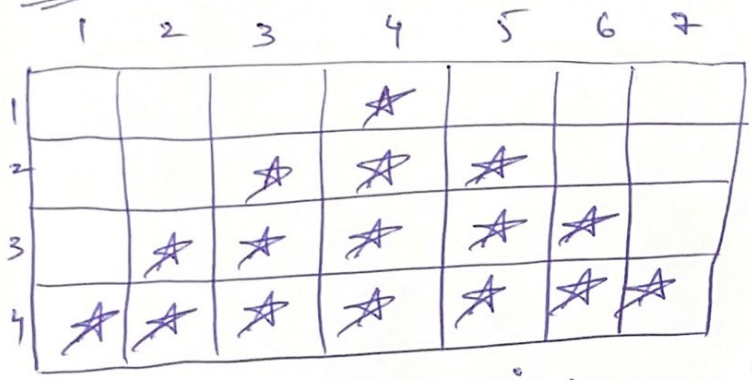
⇒ Code to print DIAMOND

Step1. PATTERN

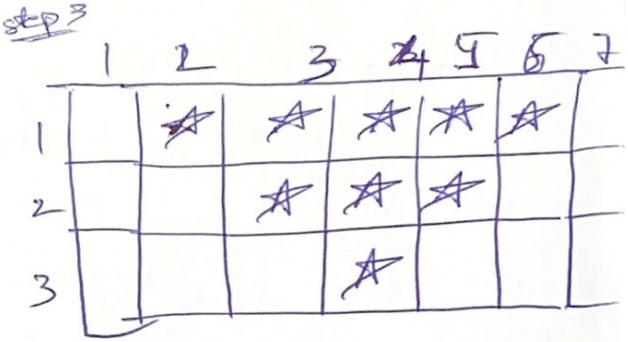
Step2 PATTERN



Step3



Step3



i = rows, j = column

Step4 $i = 1, 2, 3, 4$

$j = 4$

$3, 4, 5$

$2, 3, 4, 5, 6$

$1, 2, 3, 4, 5, 6, 7$

Step4 $i = 1, 2, 3$

$j = 2, 3, 4, 5, 6$

$3, 4, 5$

4

Step5

i	j
1	j >= 4 AND j <= 4
2	j >= 3 AND j <= 5
3	j >= 2 AND j <= 6
4	j >= 1 AND j <= 7

Step5

i	j
1	j >= 2 AND j <= 6
2	j >= 3 AND j <= 5
3	j >= 4 AND j <= 4

MATH

$j >= -$ AND $j <= +$. $j >= +$ AND $j <= -$

"$-$" Because values were decreasing in the chart above.

"$+$" Because values were increasing in the chart above.

$\therefore$ [$j >=$ constant $- i$ AND $j <=$ constant $+ i$] for the top. star matrix

Also [$j >=$ constant $+ i$ AND $j <=$ constant $- i$] for the below star matrix.

Hence

[$j >= 5 - i$ AND $j <= 3 + i$] for any value of 'i' in [$i = 1, 2, 3, 4$] from Step 4

AND

[$j >= 1 + i$ AND $j <= 7 - i$] for value of 'i' in [$i = 1, 2, 3$] from Step 4.

Code

```
# for i in range(1, 5):        # This line will print new line.
    for j in range(1,8):       # This will print star pattern & space.
        if j>=5-i AND j<=3+i:  # Calculated earlier.
            print("*", end="")
        else:
            print("_", end=' ')   # "_" Blank space.
    print()
```

P.T.O

```
for i in range(1,4): # (1,4) This bracket has.
                     new lines +1 i.e 3+1 = 4.
    for j in range(1,6): # (1,6) this has no. of stars to print
                           +1 i.e 5+1 = 6.
        if j >= 1+i and j <= 7-i # calculated earlier.
            print("*", end = '') # print *
        else:
            print("_", end = ' ') # space.
    print().
```