

Number Pattern

Problem Description: You are given with an input number N, then you have to print the given pattern corresponding to that number N.

For example if N=4

Pattern output : 1
 23
 345
 4567

How to approach?

1. Take N as input from the user.
2. Figure out the number of rows (which is N here) and run a loop for that.
3. Now, figure out how many columns are there in ith row and run a loop for that within this. Here, first you need to run a loop to print the spaces too.
4. Now, figure out “What to print?” in a particular (row, column). It can depend on the column number, row number or N which is (row number+column number after spaces -1) here.

Pseudo code for the given problem:

input=N

i=1

While i is less than equal to N:

spaces=1

While spaces is less than (n-i):

print(' ')

Increment spaces by 1

j=1

While j is less than equal to i:

print(i+j-1)

Increment j by 1

Increment i by 1

Add a new line here

❑ Let us dry run the Code for N=4

- $i=1(\leq 4)$
 - $4-1=3$ spaces are getting printed first.
 - $j=1(\leq 1)$, so $\text{print}=1+1-1=1$
 - $j=2(>1)$, move out of the inner loop with a new line
- $i=2(\leq 4)$
 - $4-2=2$ spaces are getting printed first.
 - $j=1(\leq 2)$, so $\text{print}=2+1-1=2$
 - $j=2(\leq 2)$, so $\text{print}=2+2-1=3$
 - $j=3(>2)$, move out of the inner loop with a new line
- $i=3(\leq 4)$
 - $4-3=1$ space is getting printed first.
 - $j=1(\leq 3)$, so $\text{print}=3+1-1=3$
 - $j=2(\leq 3)$, so $\text{print}=3+2-1=4$
 - $j=3(\leq 3)$, so $\text{print}=3+3-1=5$
 - $j=4(>3)$, move out of the inner loop with a new line
- $i=4(\leq 4)$
 - $4-4=0$ no space is getting printed.
 - $j=1(\leq 4)$, so $\text{print}=4+1-1=4$
 - $j=2(\leq 4)$, so $\text{print}=4+2-1=5$
 - $j=3(\leq 4)$, so $\text{print}=4+3-1=6$
 - $j=4(\leq 4)$, so $\text{print}=4+4-1=7$
 - $j=5(>4)$, move out of the inner loop with a new line
- $i=5(>4)$, move out of the loop

So , final output:

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1
2 3
3 4 5
4 5 6 7
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