

## 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 the number of columns of ith row (which is the row number here i.e. i) and run a loop for that within this.
4. Now, figure out “What to print?” in a particular row, column number. It can depend on the column number, row number and N which is (row number+column number -1) here.

Pseudo code for the given problem:

*input=N*

*i=1*

*While i is less than equal to N:*

*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(<=4)
  - ➔ j=1(<=1), so print=1+1-1=1
  - ➔ j=2 (>1), move out of the inner loop with a new line
- i=2(<=4)

- $j=1$  ( $\leq 2$ ), 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

- $i=3$  ( $\leq 4$ )
  - $j=1$  ( $\leq 3$ ), 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
- $i=4$  ( $\leq 4$ )
  - $j=1$  ( $\leq 4$ ), 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:

1  
2 3  
3 4 5  
4 5 6 7