

patterns question

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$N=5$

Palindrome Δ

	$s=$	0	1	2	3	4	5	6	7	8
$i=$	0	1				
	1	1	2	1		
	2	.	.	1	2	3	2	1		
	3	.	1	2	3	4	3	2	1	
	4	1	2	3	4	5	4	3	2	1

grow $\rightarrow k=2$

5 $k++$

6

7

8

9

grow $\Rightarrow i=0 ; i < n :$

col $\Rightarrow j=0 ; j < k ; j++ , k++ ;$

spaces

$i=0$	4
$i=1$	3
$i=2$	2
$i=3$	1
$i=4$	0

formula

$$j < n - i - 1$$

$$5 - i - 1 = 4$$

main.cpp x +

main.cpp >

main

0 int k=n;

7 for(int i=0;i<n;i++){

8 int c = 1;

9 for(int j=0;j<k;j++){

10 if(j<n-i-1){

11 cout<<" ";

12 }

13 else if(j<=n-1){

14 cout<<c;

15 c++;

16 }

17 else if(j == n){

18 c = c - 2;

19 cout<<c;

20 c--;

21 }

22 else{

23 cout<<c;

24 c--;

25 }

26 }

27 k++;

28 cout<<endl;

outer loop
for row

inner loop
for col

spaces print
4, 3, 2, 1, 0

palindrome
half numbers
print

golio take
number in
here j==4

highest peak
Point then
decr start

decr the
numbers
upto now

for col increment
here k=n then
k++

i	j					
	0	1	2	3	4	
0	*					
1	*	*				
2	*	*	*			
3	*	*	*	*		
4	*	*	*	*	*	
5	*	*	*	*	*	
6	*	*	*	*	*	
7	*	*	*	*	*	
8	*	*	*	*	*	

$$\text{row} = 2 = 5 \rightarrow 9$$

$$\Rightarrow 2 \times 5 - 1$$

$$\Rightarrow 2 \times 5 - 1 = 9$$

$$\text{row} \in [0, 8]$$

$$\text{column} = j$$

Condition

→ ① if $(i < N)$
 for on on
 cond = i

$$i \neq N \rightarrow i + 5 \rightarrow N - (i + 5) \rightarrow N$$

$$\Rightarrow 5 - (i + 5)$$

$$i \neq 5$$

						$N - (i + 5)$
0	←	i	2	5	→	4
1	←	i	3	6	→	3
2	←	i	4	7	→	2
3	←	i	5	8	→	1

5	-	2	=	3
4	-	2	=	2
3	-	2	=	1
2	-	2	=	0