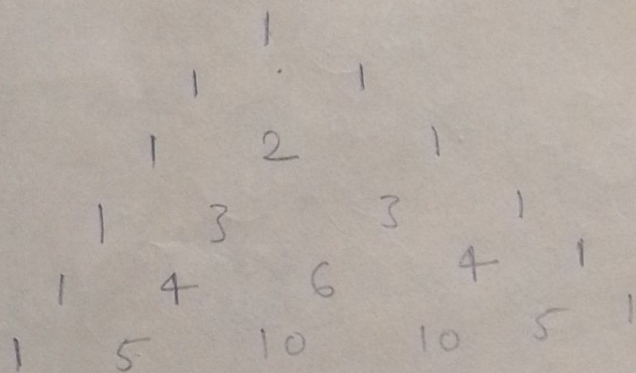


Pascal Triangle



(1) Given R & C

return element at that
Place $R=5 \ C=3 \Rightarrow 6$

(2) Print any Nth row of PT

$N=5 \quad 1 \ 4 \ 6 \ 4 \ 1$

(3) Print entire PT

Given N $N=6$

(1) $R=1 \quad C=1$
 $R=5 \ C=3$

$${}^4C_2 = \frac{4!}{2! \times 2!} = \frac{4 \times 3 \times 2 \times 1}{(2 \times 1)(2 \times 1)} = 6$$

or

$$\frac{2 \times 3}{2 \times 1} = 6$$

$${}^{10}C_3 = \frac{10 \times 9 \times 8}{3 \times 2 \times 1} = \frac{10}{1} \times \frac{9}{2} \times \frac{8}{3}$$

fn NCR (n, r)

{ res = 1

for (i=0; i<r; i++)

{ res = res * (n-i)

res = res / (i+1);

}
return res;

}

TC $\rightarrow O(r)$ SC $\rightarrow O(1)$

(2) Print Nth row

As Nth row
Brief: contain N el

for (i=0; i<N; i++)

{ cout << fNCR (N, i); }

TC $\rightarrow O(N \times r)$

			1			
		1		1		
	1		2		1	
	1	3		3		1
	1	4	6	4		1
N=6	1	5	10	10	5	1
	0	1	2	3	4	5
	↓	↓	↓	↓	↓	
	1	5	$\frac{5 \times 4}{1 \times 2}$	$\frac{5 \times 4 \times 3}{1 \times 2 \times 3}$	$\frac{5 \times 4 \times 3 \times 2}{1 \times 2 \times 3 \times 4}$	$\frac{5 \times 4 \times 3 \times 2 \times 1}{1 \times 2 \times 3 \times 4 \times 5}$

$$5C_1 = \frac{5}{1}$$

$$5C_2 = \frac{5 \times 4}{1 \times 2}$$

$$5C_3 = \frac{5 \times 4 \times 3}{1 \times 2 \times 3}$$

$$5C_4 = \frac{5 \times 4 \times 3 \times 2}{1 \times 2 \times 3 \times 4}$$

$$\text{ans} \times \frac{(row - col)!}{col!}$$

PrintRow(n) {

ans = 1

Print(ans)

for (i = 1; i < n; i++)

{
ans = ans * (n - i);
ans = ans / i;
Print(ans);
}

(3) Print entire PT

for (1 to N)

{ PrintRow(n); }