

NESTED FOR

2 --> 3

```
for( i = 1 ; i <= 2 ; i++)  
{  
    for( j = 1 ; j <= 3 ; j++)  
    {  
        -----  
        -----  
    } // j  
} // i
```



trace :-

i = 1 j = 1 to 3

j = 1 ---> 1 1

j = 2 ---> 1 2

j = 3 ---> 1 3

i = 2 j = 1 to 3

j = 1 ---> 2 1

j = 2 ---> 2 2

j = 3 ---> 2 3

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n = 3

i = 1	<u>1</u>
i = 2	<u>1 2</u>
i = 3	<u>1 2 3</u>

```
for( i = 1 ; i <= n ; i++)  
{  
    for ( j = 1 ; j <= i ; j++ )  
    {  
        -----  
        -----  
    }  
}
```

WAP TO PRINT TRIANGLE n = 3

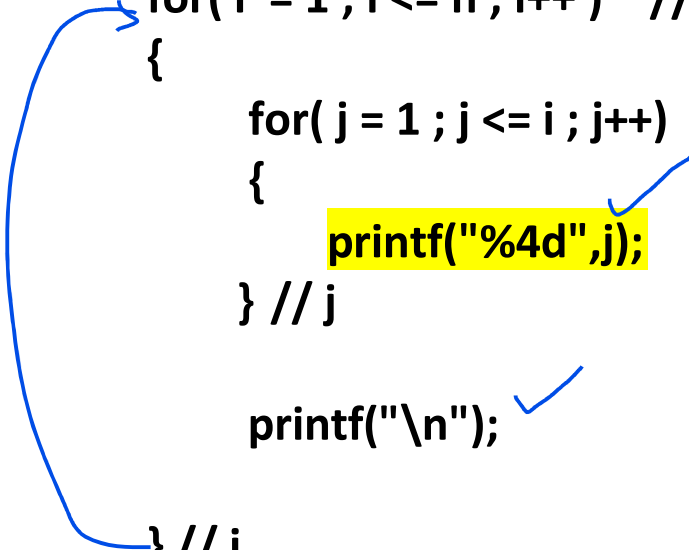
```
1  
1 2  
1 2 3
```

```
#include<stdio.h>  
int main()  
{  
    int n , i , j ;
```

```
printf(" ENTER NO OF ROWS \n ");
```

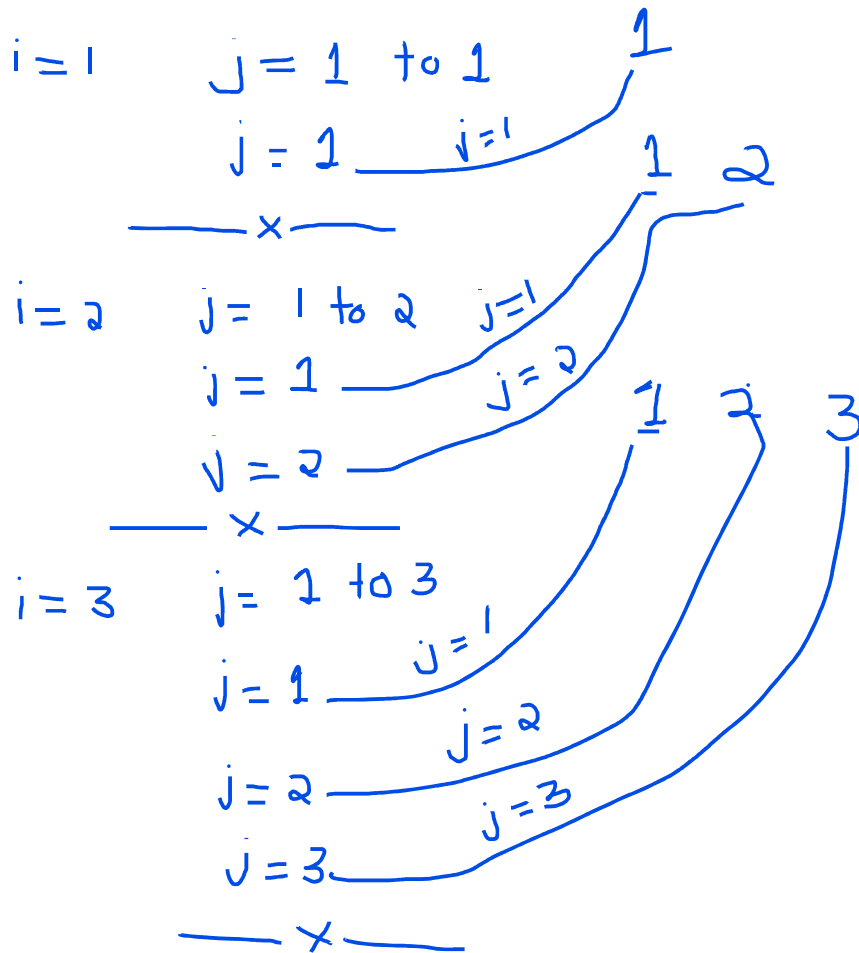
```
scanf("%d" , &n);
```

```
for( i = 1 ; i <= n ; i++ ) // NO. OF ROWS
{
    for( j = 1 ; j <= i ; j++ )
    {
        printf("%4d",j);
    } // j
    printf("\n");
} // i
}
```



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$n=3$ $i=1$ to 3



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1. **n = 3**

```
i = 1  1
i = 2  1 2
i = 3  1 2 3
```

printf("%4d " , j);

2. **N = 3**

```
1
2 2
3 3 3
```

printf("%4d" , i);

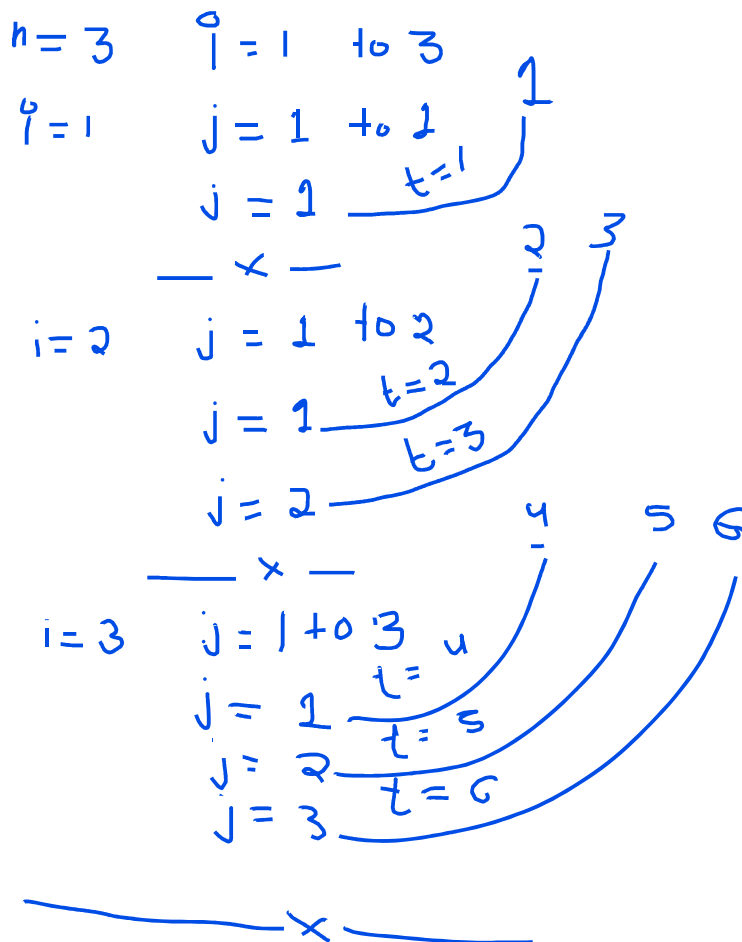
3. **3**
 3 3
 3 3 3

printf("%4d" , n);

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4. 1
 2 3
 4 5 6

```
int t = 1 ;  
printf("%4d" , t);  
t++;
```



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5.

A			
B	C		%4c
D	E	F	

or

65			
66	67		%4d
68	69	70	

```
int t = 65; // char t = 'A';  
printf("%4c", t);  
t++;
```

n=3 for i=1 to 3

i=1 j=1 to 1
j=1 t=65='A' → A

i=2 j=1 to 2
j=1 t=66='B' → B
j=2 t=67='C' → C

i=3 j=1 to 3
j=1 t=68='D' → D
j=2 t=69='E' → E
j=3 t=70='F' → F

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6.

```
A
A B          %4c
A B C
```

or

```
65
65 66          %4d
65 66 67
int t = 64 ;
printf("%4d" , t + j ) ;
```

$n=3$ $i=1$ to 3 $t=64$

$i=1$ $j=1$ to 1

$j=1$ $64+1=65='A'$ A

_____ X _____

$i=2$ $j=1$ to 2

$j=1$ $64+1=65='A'$ A

$j=2$ $64+2=66='B'$ B

_____ X _____ A B C

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7.

A
B B
C C C

1 2 3
1 2
1

```
int t = 64;  
printf("%4c", t+i);
```

$n = 3$ for $i = 1$ to 3

$i = 1$ $j = 1$ to 1
 $j = 1$ $64 + 1 = 65$ A

$i = 2$ $j = 1$ to 2
 $j = 1$ $64 + 2 = 66 = 'B'$ B
 $j = 2$ $64 + 2 = 66 = 'B'$ B

$i = 3$ $j = 1$ to 3
 $j = 1$ $64 + 3 = 67 = 'C'$ C
 $j = 2$ $64 + 3 = 67 = 'C'$ C
 $j = 3$ $64 + 3 = 67 = 'C'$ C

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8. n = 4

```
1
0 1
1 0 1
0 1 0 1
```

/*

WAP TO PRINT TRIANGLE n = 3

```
1
2 2
3 3 3
```

***/**

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```
#include<stdio.h>
int  main()
{
    int n , i , j ;
    printf(" ENTER NO OF ROWS \n ");
    scanf("%d" , &n);
    for( i = 1 ; i <= n ; i++ )  // NO. OF ROWS
    {
        for( j = 1 ; j <= i ; j++ )
        {
            printf("%4d",i);
        } // j
        printf("\n");
    } // i
}
```

WAP TO PRINT TRIANGLE n = 3

```
1
2 3
4 5 6
```

```
#include<stdio.h>
```

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```
int main()
{
    int n , i , j , t = 1 ;
    printf(" ENTER NO OF ROWS \n ");
    scanf("%d" , &n);

    for( i = 1 ; i <= n ; i++ )  // NO. OF ROWS
    {
        for( j = 1 ; j <= i ; j++ )
        {
            printf("%4d",t);
            t++;
        } // j

        printf("\n");

    } // i
}
```

WAP TO PRINT TRIANGLE n = 3

A
B C
D E F

```
#include<stdio.h>
```

```
int main()
```

```
{  
    int n , i , j , t = 65 ;  
    printf(" ENTER NO OF ROWS \n ");  
    scanf("%d" , &n);  
  
    for( i = 1 ; i <= n ; i++ )  // NO. OF ROWS  
    {  
        for( j = 1 ; j <= i ; j++ )  
        {  
            printf("%4C",t);  
            t++;  
        } // j  
  
        printf("\n");  
    } // i  
}
```

WAP TO PRINT TRIANGLE n = 3

A
A B
A B C

#include<stdio.h>

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```
int main()
{
    int n , i , j , t ;
    printf(" ENTER NO OF ROWS \n ");
    scanf("%d" , &n);

    for( i = 1 ; i <= n ; i++ )  // NO. OF ROWS
    {
        t = 64 ;
        for( j = 1 ; j <= i ; j++ )
        {
            printf("%4C" ,(t+j));
        } // j
        printf("\n");
    } // i
}
```

WAP TO PRINT TRIANGLE n = 3

```
A
B B
C C C
```

#include<stdio.h>

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```
int  main()
{
    int n , i , j ,t ;
    \printf(" ENTER NO OF ROWS \n ");
    scanf("%d" , &n);

    for( i = 1 ; i <= n ; i++ )  // NO. OF ROWS
    {
        t = 64 ;
        for( j = 1 ; j <= i ; j++ )
        {
            printf("%4C", (t+i));
        } // j
        printf("\n");
    } // i
}
```

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WAP TO PRINT TRIANGLE n = 3

1
0 1
1 0 1

```
#include<stdio.h>
```

```
int main()  
{
```

```
    int i , j , n ;
```

```
    printf(" ENTER NO. OF ROWS \n ");
```

```
    scanf("%d", &n);
```

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

```
        for( j = 1 ; j <= i ; j++ )
```

```
        {
```

```
            printf("%4d", (i+j+1) % 2);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
}
```

i = 3

j = 1 to 3

(i + j + 1) % 2

j = 1 (3 + 1 + 1) % 2 = 1

j = 2 (3 + 2 + 1) % 2 = 0

j = 3 (3 + 3 + 1) % 2 = 1

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9. N = 3

1 2 3

1 2 for (i = n ; i >= 1 ; i--)

1

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int n , i , j ;
```

```
    printf(" ENTER NO OF ROWS \n ");
```

```
    scanf("%d" , &n);
```

```
    for( i = n ; i >= 1 ; i-- )
```

```
    {
```

```
        for( j = 1 ; j <= i ; j++)
```

```
        {
```

```
            printf("%4d",j);
```

```
        } // j
```

```
        printf("\n");
```

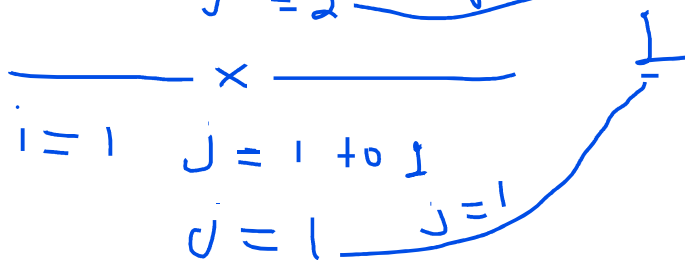
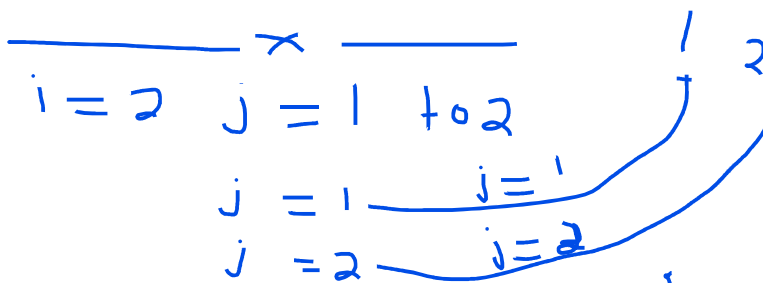
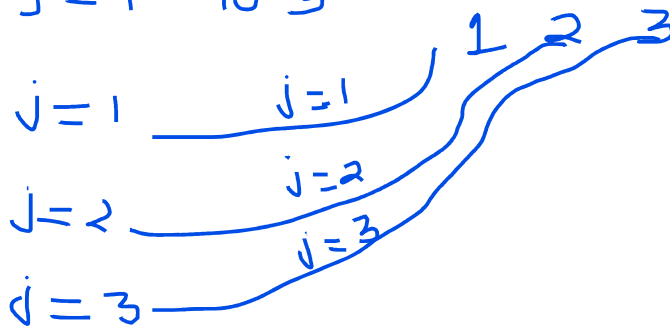
```
    } // i
```

```
}
```

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$n=3$ For $i=3$ to 1

$i=3$ $j=1$ to 3



— x —

1	2	3
-	*	
	*	*
*	*	*