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**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**

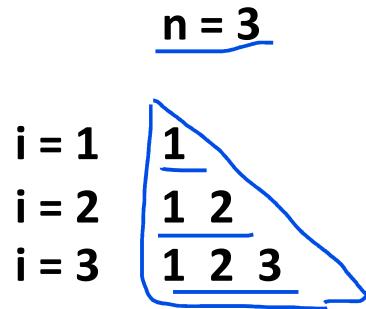
**j = 1 --> 2 1**

**j = 2 --> 2 2**

**j = 3 --> 2 3**

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```
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 ;
```

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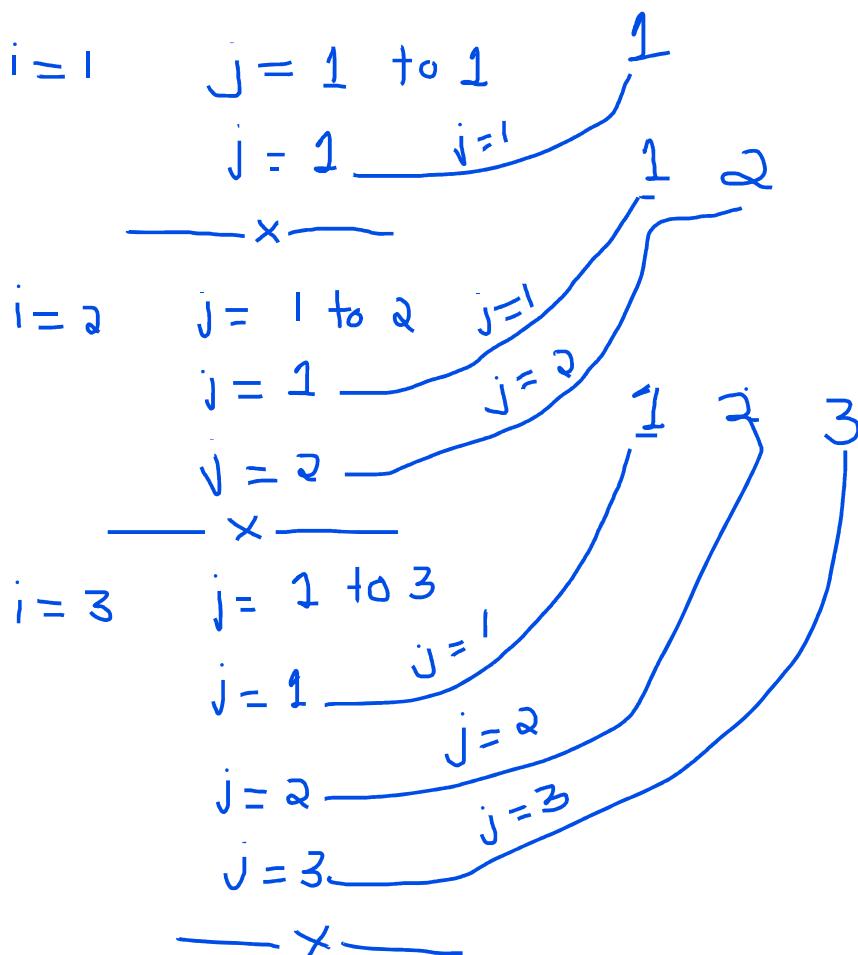
```
printf(" ENTER NO OF ROWS \n ");
```

```
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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$n=3 \quad i = 1 \text{ to } 3$



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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++;
```

-----

$i = 3 \quad j = 1 + 0 \quad t = 1$   
 $i = 1 \quad j = 1 + 1 \quad t = 1$   
 $i = 2 \quad j = 1 + 2 \quad t = 1$   
 $i = 3 \quad j = 1 + 3 \quad t = 1$   
 $i = 2 \quad j = 1 + 1 \quad t = 2$   
 $i = 3 \quad j = 1 + 2 \quad t = 2$   
 $i = 2 \quad j = 1 + 3 \quad t = 2$   
 $i = 3 \quad j = 2 + 1 \quad t = 3$   
 $i = 2 \quad j = 2 + 1 \quad t = 3$   
 $i = 3 \quad j = 2 + 2 \quad t = 3$   
 $i = 2 \quad j = 2 + 3 \quad t = 3$   
 $i = 3 \quad j = 3 + 1 \quad t = 4$   
 $i = 2 \quad j = 3 + 1 \quad t = 4$   
 $i = 3 \quad j = 3 + 2 \quad t = 5$   
 $i = 2 \quad j = 3 + 2 \quad t = 5$   
 $i = 3 \quad j = 3 + 3 \quad t = 6$   
 $i = 2 \quad j = 3 + 3 \quad t = 6$

X X X X X X

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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++;

$i=3$  For  $i=1$  to 3  
 $i=1$   $j=1$  to 1  $t=65=A$   
 $j=1$   $x$   
 $i=2$   $j=1$  to 2  $t=66=B$   
 $j=1$   $x$   
 $j=2$   $t=67=C$   
 $j=2$   $x$  D E F

6.

A  
A B %4c  
A B C

or

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

---

$t = 64$

$i = 3 \quad j = 1 \rightarrow 3$

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

$i = 1 \quad j = 1 \rightarrow 1$

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

$i = 2 \quad j = 1 \rightarrow 2$

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

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

$\_ \times \_ \quad A \quad B \quad C$

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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      A  
j = 1      64 + 1 = 65 = 'A'  
i = 2      j = 1 to 2      B  
j = 1      64 + 1 = 65 = 'B'  
j = 2      64 + 2 = 66 = 'B'  
i = 3      j = 1 to 3      C  
j = 1      64 + 3 = 67 = 'C'  
j = 2      64 + 3 = 67 = 'C'  
j = 3      64 + 3 = 67 = '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()

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```
{  
    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 ;

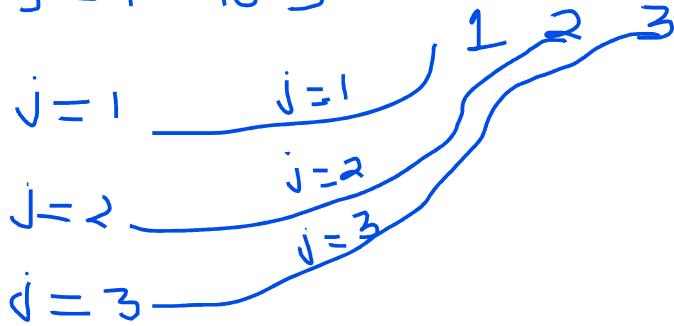
    printf(" ENTER NO OF ROWS \n ");
    scanf("%d" , &n);

    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

$i=3 \ j=1 \text{ to } 3$



$i=2 \ j=1 \text{ to } 2$

$j=1 \ j=1$   
 $j=2 \ j=2$

$i=1 \ j=1 \text{ to } 1$

$j=1 \ j=1$

\_\_\_\_\_  $\times$  \_\_\_\_\_

1	2	3
-	*	
*	*	*