

```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int nr,nc,r,c;
clrscr();
printf("Enter how many rows and columns "); scanf("%d%d",&nr,&nc);
for(r=1;r<=nr;r++)
{
for(c=1;c<=nc;c++)
{
if(r%2==0)printf("%2c",96+c);else printf("%2c",64+c);
}
printf("\n");
}
getch();
}
```

Enter how many rows and columns 10 26

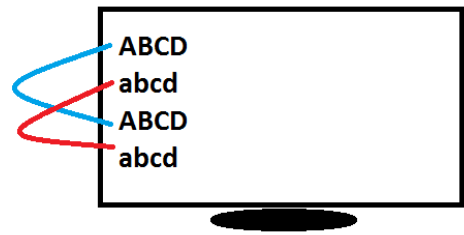
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

```

for( r=1; r<=4; r++ )
{
for( c=1; c<=4; c++)
{
if(r%2==0) p(96+c);
else p(64+c);
}
printf("\n");
}

```

8
1




```
TC
Line 17 Col 52 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int nr,nc,r,c;
clrscr();
printf("Enter how many rows and columns "); scanf("%d%d",&nr,&nc);
for(r=1;r<=nr;r++)
{
for(c=1;c<=nc;c++)
{
if(r%2==0)printf("%2c",96+r);else printf("%2c",64+r);
}
printf("\n");
}
getch();
}
```

Enter how many rows and columns 10 20

```
A A A A A A A A A A A A A A A A A A A A A
b b b b b b b b b b b b b b b b b b b b b
C C C C C C C C C C C C C C C C C C C C C
d d d d d d d d d d d d d d d d d d d d d
E E E E E E E E E E E E E E E E E E E E E
f f f f f f f f f f f f f f f f f f f f f
G G G G G G G G G G G G G G G G G G G G G
h h h h h h h h h h h h h h h h h h h h h
I I I I I I I I I I I I I I I I I I I I I
j j j j j j j j j j j j j j j j j j j j j
```



```
char U='A', L='a';
```

```
for( r=1; r<=4; r++ )
```

```
{
```

```
for( c=1; c<=4; c++)
```

```
{
```

```
if(r%2==0) p( L );
```

```
else p( U );
```

```
}
```

```
printf("\n"); ✓ if(r%2==0) L++; else U++;
```

```
}
```

1
2 ✓
3
4

E

AAAA
aaaa
BBBB
bbbb

	<u>L</u>		<u>U</u>	
2	aaaa	1	A A A A	
4	bbbb	3	B B B B	
6	cccc	5	C C C C	


```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int nr,nc,r,c; char ch='A';
clrscr();
printf("Enter how many rows and columns "); scanf("%d%d",&nr,&nc);
for(r=1;r<=nr;r++)
{
for(c=1;c<=nc;c++)
{
if(r==1||c==1||r==nr||c==nc)printf("* ");else printf("%c ",ch++);
if(ch>'Z')ch='A';
}
printf("\n");
}
getch();
}

TC
Enter how many rows and columns 10 20
* * * * *
* A B C D E F G H I J K L M N O P Q R *
* S T U V W X Y Z A B C D E F G H I J *
* K L M N O P Q R S T U V W X Y Z A B *
* C D E F G H I J K L M N O P Q R S T *
* U V W X Y Z A B C D E F G H I J K L *
* M N O P Q R S T U V W X Y Z A B C D *
* E F G H I J K L M N O P Q R S T U V *
* W X Y Z A B C D E F G H I J K L M N *
* * * * *
```



```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int nr,r,c;
clrscr();
printf("Enter how many rows "); scanf("%d",&nr);
for(r=1;r<=nr;r++)
{
for(c=1;c<=nr;c++)
{
if(c<=nr-r)printf("1 ");else printf("%d ",r);
}
printf("\n");
}
getch();
}
```

Enter how many rows 4

```
1 1 1 1
1 1 2 2
1 3 3 3
4 4 4 4
```

TC

```
TC
Enter how many rows 9
1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 2 2
1 1 1 1 1 1 3 3 3
1 1 1 1 1 4 4 4 4
1 1 1 1 5 5 5 5 5
1 1 1 6 6 6 6 6 6
1 1 7 7 7 7 7 7 7
1 8 8 8 8 8 8 8 8
9 9 9 9 9 9 9 9 9
```



```

    ✓ ch='A';
    for( r=1; r<=4; r++ )
    {
        for( c=1; c<=4; c++)
        {
            4-3=1      3
            4-2=2      2
            4-1=3      1
            if(c<=n-r)p(1);else p(r);
        }
        printf("\n"); ✓
    }

```

$\frac{n}{4}$	$\frac{r}{1}$	$\frac{1}{1}$	$\frac{r}{1}$
$4 - 1 = 3$			
$4 - 2 = 2$			
$4 - 3 = 1$			
$4 - 4 = 0$			

$\frac{L}{a}$

	1	2	3	4	
1	1	1	1	1	-1
2	1	1	2	2	-2
3	1	3	3	3	-3
4	4	4	4	4	-4

$\frac{U}{A}$ A A A A

```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int nr,r,c;
clrscr();
printf("Enter how many rows "); scanf("%d",&nr);
for(r=1;r<=nr;r++)
{
for(c=1;c<=nr;c++)
{
if(r==c)printf("1 ");else if(r>c)printf("2 ");else printf("0 ");
}
printf("\n");
}
getch();
}

TC
Enter how many rows 9
1 0 0 0 0 0 0 0 0
2 1 0 0 0 0 0 0 0
2 2 1 0 0 0 0 0 0
2 2 2 1 0 0 0 0 0
2 2 2 2 1 0 0 0 0
2 2 2 2 2 1 0 0 0
2 2 2 2 2 2 1 0 0
2 2 2 2 2 2 2 1 0
2 2 2 2 2 2 2 2 1
```

```

    ✓ ch='A';
    for( r=1; r<=4; r++ )
    {
        for( c=1; c<=4; c++ )
        {
            if(r==c)p(1);else if(r>c)p(2);
            else p(0);
        }
        printf("\n"); ✓
    }

```

$$\begin{array}{r} n \times r \\ 4 - 1 = 3 \\ 4 - 2 = 2 \\ 4 - 3 = 1 \\ 4 - 4 = 0 \end{array}$$

$$\frac{L}{a}$$

1	0	0
1,1	1,2	1,3
2	1	0
2,1	2,2	2,3
2	2	1
3,1	3,2	3,3

$$\frac{U}{A \ A \ A \ A}$$

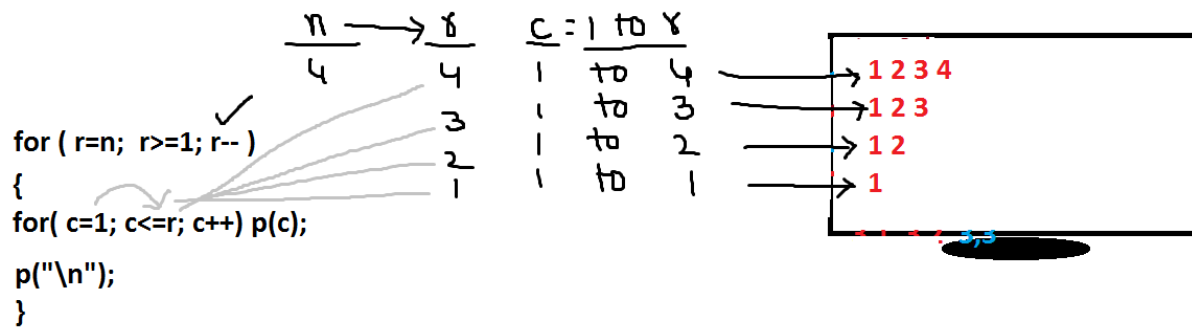
```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int nr,r,c; clrscr();
printf("Enter how many rows "); scanf("%d",&nr);
for(r=1;r<=nr;r++)
{
for(c=1;c<=nr;c++)
{
if(r==c){textcolor(LIGHTRED);cprintf("1 ");}
else if(r>c){textcolor(LIGHTGREEN);cprintf("2 ");}
else {textcolor(YELLOW);cprintf("0 ");}
}
printf("\n");
}
getch();
}

TC
Enter how many rows 9
1 0 0 0 0 0 0 0 0
2 1 0 0 0 0 0 0 0
2 2 1 0 0 0 0 0 0
2 2 2 1 0 0 0 0 0
2 2 2 2 1 0 0 0 0
2 2 2 2 2 1 0 0 0
2 2 2 2 2 2 1 0 0
2 2 2 2 2 2 2 1 0
2 2 2 2 2 2 2 2 1
```

```
Line 17 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=n;r>=1;r--)
{
for(c=1;c<=r;c++)
{
printf("%3d",c);
}
printf("\n");
}
getch();
}
```

Enter how many rows 10

```
1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares variables `n`, `r`, and `c`, clears the screen with `clrscr()`, and prompts the user to enter the number of rows. It then uses nested `for` loops to print a grid of numbers from 1 to 10, with each row containing numbers 1 through `n`. The bottom window shows the program's execution output, where the user has entered 10 rows, resulting in a 10x10 grid of numbers printed on the screen. The Windows taskbar at the bottom shows the time as 03:25 PM on 28-Aug-25.

```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 10 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(c=1;c<=r;c++)
{
printf("%3d",c);
}
printf("\n");
}
getch();
}
```

Enter how many rows 10

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
1 2 3 4 5 6 7
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9 10
```

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program named E:2PM.C. The code is as follows:

```
Line 15 Col 11 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(c=1;c<=r;c++)
{
printf("* ");
}
printf("\n");
}
getch(); _
}
```

The bottom window shows the output of the program. It prompts the user to "Enter how many rows" and the user has entered "10". The program then prints a pattern of asterisks (*) forming a right-angled triangle with 10 rows. The first row has 1 star, the second has 2, and so on, up to 10 stars in the tenth row.

```
Enter how many rows 10
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *
* * * * * * * * *
* * * * * * * * * *
```

The Windows taskbar at the bottom shows the time as 03:25 PM on 28-Aug-25. The taskbar includes icons for the Start menu, Task View, File Explorer, Zoho Mail (zm), DEV C++, and several other applications.

```
TC
Line 17 Col 9 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(c=1;c<=r;c++)
{
if((r+c)%2==0)printf("$ ");else printf("* ");
}
printf("\n");
}
getch();
}
```

Enter how many rows 10

```
$
* $
$ * $
* $ * $
$ * $ * $
* $ * $ * $
$ * $ * $ * $
* $ * $ * $ * $
$ * $ * $ * $ * $
* $ * $ * $ * $ * $
```

03:30 PM 28-Aug-25

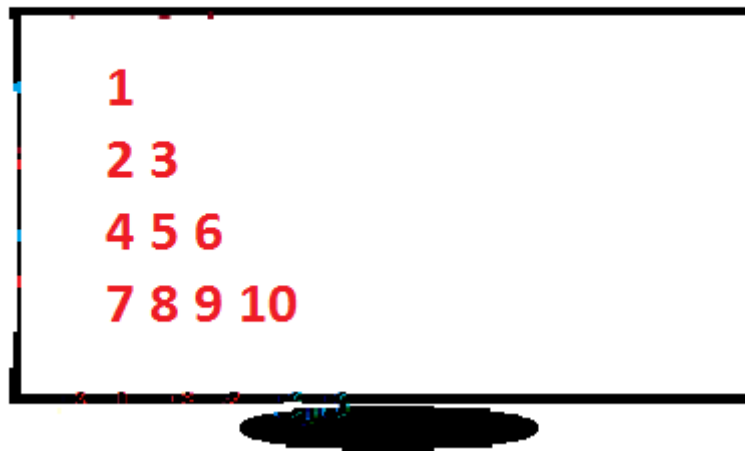
```
TC
Line 17 Col 17 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,a=1; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(c=1;c<=r;c++)
{
printf("%3d",a++);
}
printf("\n");
}
getch();
}

TC
Enter how many rows 5
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

```
TC
Enter how many rows 10
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31 32 33 34 35 36
37 38 39 40 41 42 43 44 45
46 47 48 49 50 51 52 53 54 55

TC
Enter how many rows 3
1
2 3
4 5 6
```

FLOYD'S TRIANGLE



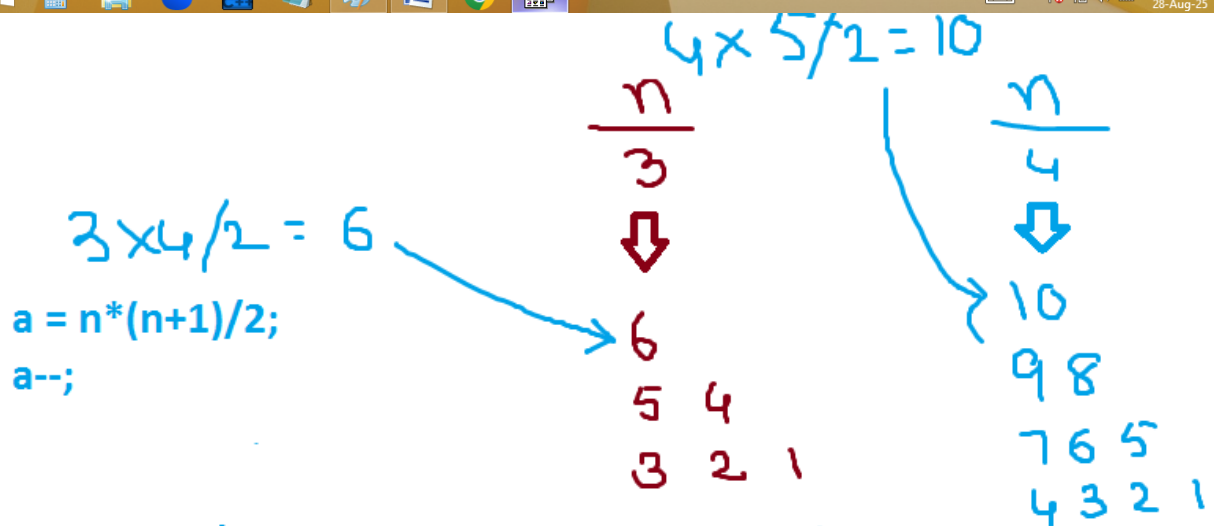
```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,a; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
a=n*(n+1)/2;
for(r=1;r<=n;r++)
{
for(c=1;c<=r;c++)
{
printf("%3d",a--);
}
printf("\n");
}
getch();
}
```

Enter how many rows 10

```
55
54 53
52 51 50
49 48 47 46
45 44 43 42 41
40 39 38 37 36 35
34 33 32 31 30 29 28
27 26 25 24 23 22 21 20
19 18 17 16 15 14 13 12 11
10 9 8 7 6 5 4 3 2 1
```

03:38 PM
28-Aug-23


```
TC
Enter how many rows 3
6
5 4
3 2 1
```



```
TC
Line 17 Col 41 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(c=1;c<=n;c++)
{
if(c<=n-r)printf(" "); else printf("*");
}
printf("\n");
}
getch();
}

TC
Enter how many rows 10
*
**
***
****
*****
*****
*****
*****
*****
*****
*****
```

```

for( r=1; r<=4; r++ )
{
for( c=1; c<=4; c++ )
{
if(c<=n-r)p(" ");else p(*);
}
p("\n");
}

```

<u>n</u>	<u>r</u>	<u>" "</u>	<u>c=1 to r</u>
4	1	= 3	1-1
4	2	= 2	1-2
4	3	= 1	1-3
4	4	= 0	1-4



The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code for a C program that prints a 5x5 star pattern. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(s=1;s<=n-r;s++)printf(" ");
for(c=1;c<=r;c++) printf("*");
printf("\n");
}
getch();
}
```

The bottom screenshot shows the program's execution. It prompts the user to enter the number of rows, and the user has entered 5. The output is a 5x5 star pattern:

```
Enter how many rows 5
*
**
***
****
*****
```

The IDE's taskbar at the bottom shows various application icons, including Windows Explorer, Zm, DEV, and Google Chrome. The system clock indicates the time is 03:48 PM on 28-Aug-25.

```

for( r=1; r<=4; r++ )
{
    for(s=1; s<=n-r; s++) p(" ");
    for( c=1; c<=r; c++ )
    {
        p(*); ✓ ✓ ✓
    }
    p("\n");
}

```

<u>n</u>	<u>r</u>	<u>" "</u>	<u>c=1 to r</u>
4	1	= 3	1-1
4	2	= 2	1-2
4	3	= 1	1-3
4	4	= 0	1-4



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program that prints a diamond pattern of asterisks. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 29 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; clrscr();
printf("Enter how many rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(s=1;s<=n-r;s++)printf(" ");
for(c=1;c<=r;c++) printf("* ");
printf("\n");
}
getch();
}
```

The bottom window shows the output of the program. It prompts the user to enter the number of rows, and the user has entered 10. The program then prints a diamond pattern of asterisks:

```
Enter how many rows 10
      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * * *
* * * * * * *
 * * * * * * *
  * * * * * *
   * * * * *
    * * * *
     * *
      *
```

The IDE's taskbar at the bottom shows various application icons, including Windows Explorer, zM, DEV, and Google Chrome. The system clock indicates the time is 03:50 PM on 28-Aug-23.

