

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 28 Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of 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();
}
```

```
TC
Enter no of rows 5
*
* *
* * *
* * * *
* * * * *
```

```

Enter no of rows 10
      *
     **
    ***
   ****
  *****
 *****
*****
*****
*****
*****

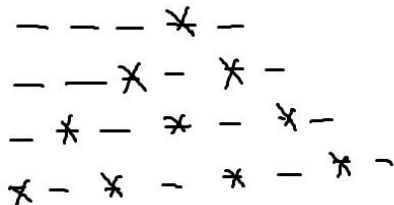
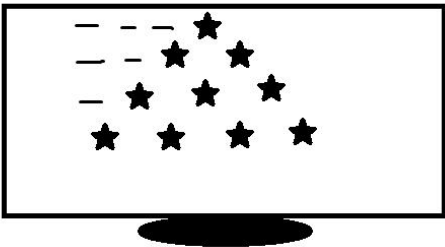
```

```

for( r=1; r<=4; r++ )
{
for( s=1; s<=n-r; s++ ) p( " " );

for(c=1;c<=r;c++)p( * );
p("\n");
}

```



Using \b:

The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code of a C program designed to print a star pattern. The code uses nested loops and the `printf` function to create a pattern of stars. The bottom screenshot shows the program's execution, where the user has entered '5' for the number of rows, and the program has printed the corresponding star pattern.

```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 12 Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of 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("\b \n");
}
getch();
}
```

Enter no of rows 5

```

*
***
*****
*****
*****
*****
```

Without using \b:

$$\underline{2^*r-1}$$

$$2^*1-1=1$$

$$2^*2-1=3$$

$$2^*3-1=5$$

$$2^*4-1=7$$

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 19 Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>_
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
while(!kbhit())
{
for(r=1;r<=n;r++)
{
for(s=1;s<=n-r;s++)cprintf(" ");
for(c=1;c<=2*r-1;c++) {textcolor(random(16));cprintf("*");}
printf("\n");
}
}
}
```

```
TC
***
*****
*** *
*****
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
*
* * *
* * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
*
*
```



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 1 Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
while(!kbhit())
{
textcolor(LIGHTRED);
for(r=1;r<=n;r++)
{
for(s=1;s<=n-r;s++)cprintf(" ");
for(c=1;c<=2*r-1;c++) cprintf("*");
printf("\n");
}
}
}
```

```
TC
*****
*****
*****
*****
*
***
*****
*****
*****
*****
*****
*
***
*****
*****
*****
*****
*****
*
```



```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(s=1;s<=n-r;s++)printf(" ");
for(c=1;c<=2*r-1;c++) printf("*");
printf("\n");
}
for(r=n-1;r>=1;r--)
{
for(s=1;s<=n-r;s++)printf(" ");
for(c=1;c<=2*r-1;c++) printf("*");
printf("\n");
}
getch();
}
```

Enter no of rows 5

```

      *
     ***
    *****
   *********
  *********
 *****
  *****
   ***
    *
```

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```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(s=1;s<=n-r;s++)printf(" ");
for(c=1;c<=2*r-1;c++)if(c==1||c==r) printf("* ");else printf(" ");
printf("\n");
}
for(r=n-1;r>=1;r--)
{
for(s=1;s<=n-r;s++)printf(" ");
for(c=1;c<=2*r-1;c++)if(c==1||c==r)printf("* "); else printf(" ");
printf("\n");
}
getch();
}
```

Enter no of rows 5

```

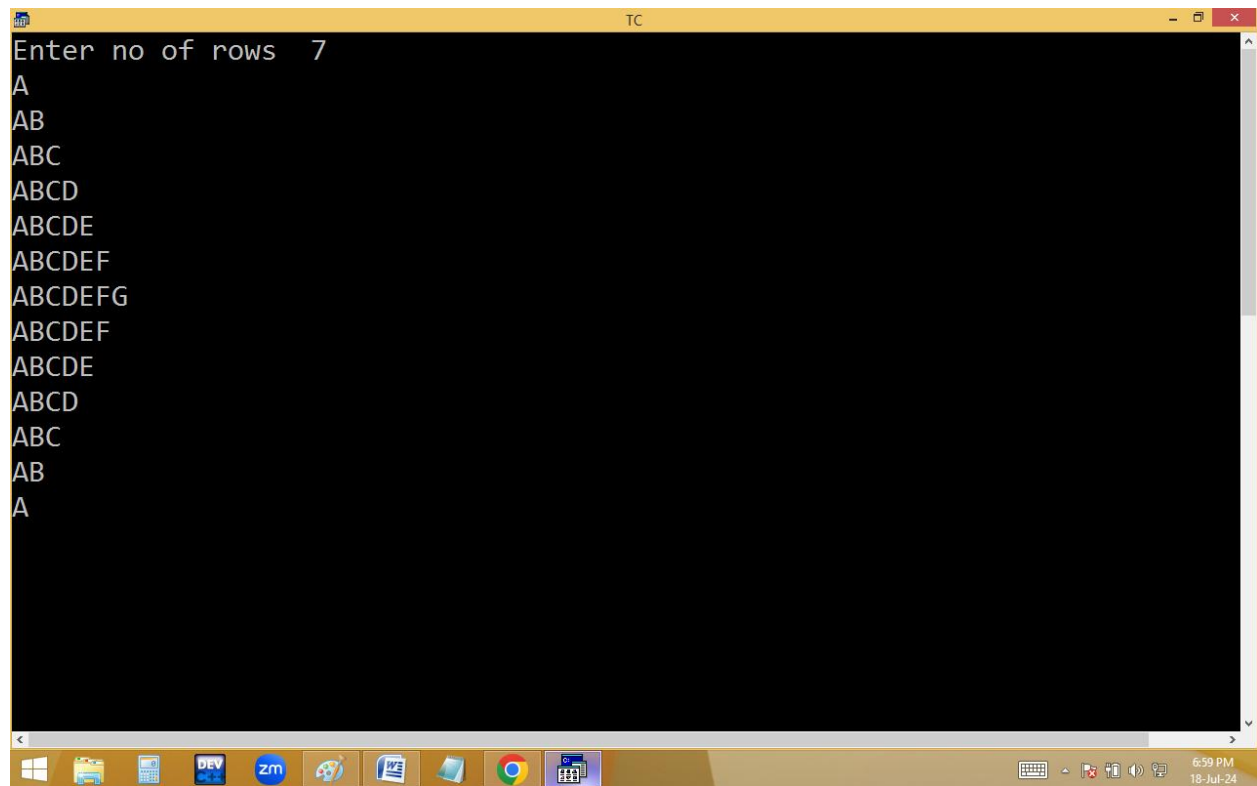
 *
* *
*  *
*    *
*      *
*        *
*          *
*            *
*              *
*                *
```

TC

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 18 Col 1 Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{char ch='A';
for(c=1;c<=r;c++)printf("%c",ch++);
printf("\n");
}
for(r=n-1;r>=1;r--)
{char ch='A';
for(c=1;c<=r;c++)printf("%c",ch++);
printf("\n");
}
getch();
}

TC
Enter no of rows 3
A
AB
ABC
AB
A
```

```
TC
Enter no of rows 7
A
AB
ABC
ABCD
ABCDE
ABCDEF
ABCDEFG
ABCDEF
ABCDE
ABCD
ABC
AB
A
```



The image shows a Windows desktop environment. At the top, a yellow title bar for a window titled 'TC' is visible. The main area of the window is black, serving as a background for a white text-based Pascal's triangle. The triangle consists of 7 rows of letters, starting with 'A' in the first row and increasing by one letter per row up to 'ABCDEFG' in the seventh row, then decreasing back to 'A' in the eighth row. Below the terminal window, the Windows taskbar is visible, featuring several application icons including the Start button, File Explorer, a document icon, a 'DEV' icon, a 'zm' icon, a network icon, a Word document icon, a folder icon, the Google Chrome icon, and a task manager icon. On the right side of the taskbar, system icons for keyboard, network, volume, and battery are present, along with a clock showing '6:59 PM' and the date '18-Jul-24'.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 1 Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int s,n,r,c; clrscr();
printf("Enter no of 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("%3d",c);
for(c=r-1;c>=1;c--)printf("%3d",c);
printf("\n");
}
getch();
}
```

Enter no of rows 10

```

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


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

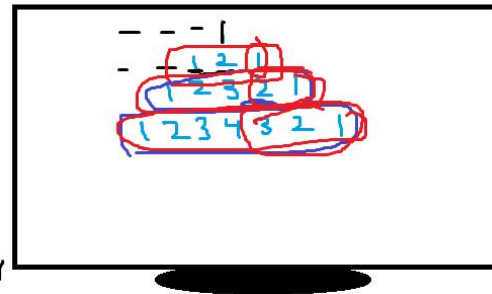
$$\begin{array}{r} s=1 \text{ to } n-y \\ 1 \text{ to } 3 \\ 2 \\ 3 \\ 4 \end{array}$$

```

for(r=1; r<=n; r++)
{
  for(s=1; s<=n-r; s++) p(" ");

  for(c=1; c<=r; c++) p(c);
  for(c=r-1; c>=1; c--) p(c);
  p("\n");
}

```



$$\begin{array}{r} c=1 \text{ to } r \\ 1 \text{ to } 1 \\ 2 \\ 1 \text{ to } 2 \\ 2 \text{ to } 1 \\ 3 \text{ to } 1 \end{array}$$

Home work:

$$\begin{array}{r} n \\ 4 \end{array}$$

$$\begin{array}{ccccccc} & & & & 4 & & \\ & & & 5 & 6 & 5 & \\ & & 6 & 7 & 8 & 7 & 6 \\ 7 & 8 & 9 & 10 & 9 & 8 & 7 \end{array}$$

$$\begin{array}{r} n \\ 4 \end{array}$$

$$\begin{array}{ccccccc} & & & & 1 & & \\ & & & 2 & 3 & 2 & \\ & & 3 & 4 & 5 & 4 & 3 \\ 4 & 5 & 6 & 7 & 6 & 5 & 4 \end{array}$$

$$\begin{array}{r} n \\ 4 \end{array}$$

$$\begin{array}{ccccccc} & & & & 1 & & \\ & & & 1 & 2 & 1 & \\ & & 1 & 2 & 3 & 2 & 1 \\ & 1 & 2 & 3 & 4 & 3 & 2 & 1 \end{array}$$

