

TC

File Edit Run Compile Project Options Debug Break/watch

Line 9 Col 19 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,e=2,o=1; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=1;r<=n;r++)
{
for(c=1; c<=r; c++ )
{
if(r%2==0){printf("%3d",e);e+=2; }else {printf("%3d",o);o+=2;}
}
printf("\n");
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:18 PM  
21-Sep-23

TC

```
Enter no of rows 5
1
2 4
3 5 7
6 8 10 12
9 11 13 15 17
```

Activate Windows  
Go to PC settings to activate Windows.



2:18 PM  
21-Sep-23

TC

File Edit Run Compile Project Options Debug Break/watch

Line 11 Col 57 Insert Indent Tab Fill Unindent \* E:2PM.C

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

Activate Windows  
Go to PC settings to activate Windows.



TC

```
Enter no of rows 6
*
**
*A*
*BC*
*DEF*
*****
```

Activate Windows  
Go to PC settings to activate Windows.



TC

File Edit Run Compile Project Options Debug Break/watch

Line 12 Col 18 Insert Indent Tab Fill Unindent \* E:2PM.C

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

Activate Windows  
Go to PC settings to activate Windows.



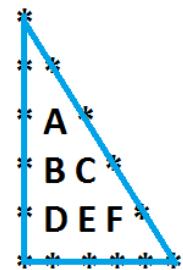
2:22 PM  
21-Sep-23

```
TC
Enter no of rows 12
*
**
*A*
*BC*
*DEF*
*GHIJ*
*KLMNO*
*PQRSTU*
*WXYZAB*
*CDEFGHIJ*
*KLMNOPQRS*
*****
Activate Windows
Go to PC settings to activate Windows.

Windows Start File Explorer Google VLC Paint Word DEV ZOOM Task View Taskbar 2:22 PM 21-Sep-23
```

ch='A';

if(c==1 || c==r || n==r ) p(\*) ; else p(ch++);



TC

File Edit Run Compile Project Options Debug Break/watch

Line 11 Col 44 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter no of 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();
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:25 PM  
21-Sep-23

```
TC
Enter no of rows 10
$*
$ * $
$ * $ *
$ * $ * $
$ * $ * $ *
$ * $ * $ * $
$ * $ * $ * $ *
$ * $ * $ * $ * $
$ * $ * $ * $ * $ *
```

Activate Windows  
Go to PC settings to activate Windows.



2:25 PM  
21-Sep-23

\$  
1+1  
\*  
\$ 2+2  
\$ \* \$  
3+1 3+3  
\* \$ \* \$

TC

File Edit Run Compile Project Options Debug Break/watch

Line 11 Col 15 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=n;r>=1;r--)
{
for(c=1; c<=r; c++ )
{
printf("%3d",c);
}
printf("\n");
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



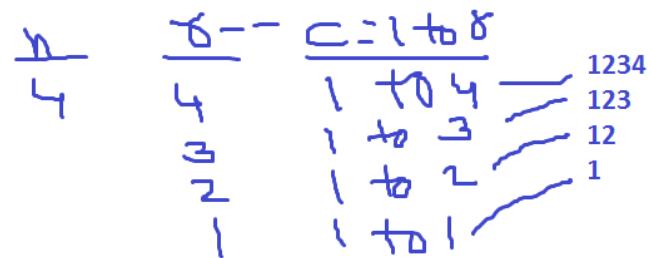
2:29 PM  
21-Sep-23

```
TC
Enter no of rows 4
1 2 3 4
1 2 3
1 2
1

Activate Windows
Go to PC settings to activate Windows.

Windows Start Chrome VLC Paint Word DEV ZOOM 2:29 PM
21-Sep-23
```

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



TC

File Edit Run Compile Project Options Debug Break/watch

Line 9 Col 19 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=n;r>=1;r--)
{
for(c=r; c>=1; c--)
{
printf("%3d",c);
}
printf("\n");
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:30 PM  
21-Sep-23

TC

```
Enter no of rows 4
4 3 2 1
3 2 1
2 1
1
```

Activate Windows  
Go to PC settings to activate Windows.



2:30 PM  
21-Sep-23

TC

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 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();
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:36 PM  
21-Sep-23

TC

```
Enter no of rows 4
*
**
***
****
```

Activate Windows  
Go to PC settings to activate Windows.



2:36 PM  
21-Sep-23

```
TC
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");
}
```

$$\begin{array}{r} \frac{7}{4} \\ - \frac{1}{4} \\ \hline 2 \end{array} = \begin{array}{r} 5 \\ \frac{5}{2} \\ 2 \end{array}$$

c=1 to r

1 to 1 = 1 star  
1 to 2 = 2 star  
1 to 3 = 3 star  
1 to 4 = 4 star

TC

File Edit Run Compile Project Options Debug Break/watch

Line 10 Col 31 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; 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();
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:43 PM  
21-Sep-23

```

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

```

Activate Windows  
Go to PC settings to activate Windows.

```

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

```

$$\frac{1}{4} - \frac{1}{1} = \frac{3}{4}$$

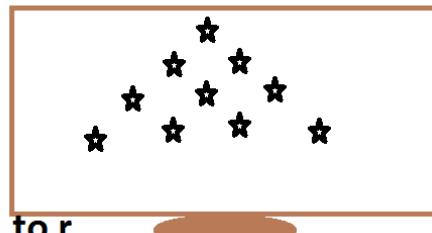
$$\frac{1}{4} - \frac{2}{2} = \frac{2}{4}$$

$$\frac{1}{4} - \frac{3}{3} = \frac{1}{4}$$

$$\frac{1}{4} - \frac{4}{4} = \frac{0}{4}$$

c=1 to r

1 to 1 = 1 star  
 1 to 2 = 2 star  
 1 to 3 = 3 star  
 1 to 4 = 4 star



## Without using \b:

TC

File Edit Run Compile Project Options Debug Break/watch

Line 10 Col 18 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; 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");
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:49 PM  
21-Sep-23

$$2^*r-1$$

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

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

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

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int n,r,c,s; 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

File Edit Run Compile Project Options Debug Break/watch

Line 1 Col 21 Insert Indent Tab Fill Unindent \* E:2PM.C

Activate Windows  
Go to PC settings to activate Windows.

2:53 PM  
21-Sep-23

## Activate Windows

Go to PC settings to activate Windows.

A screenshot of a Windows desktop environment. At the top, there's a yellow taskbar with several pinned icons: File Explorer, Microsoft Edge, Google Chrome, Vivaldi browser, Paint, File Manager, DEV, Zoom, and Task View. The main window is a terminal or command prompt showing a grid of colorful asterisks (\*). The title bar of the window says "TC". In the bottom right corner, there's a watermark for "Activate Windows" with the text "Go to PC settings to activate Windows." The system tray at the bottom right shows the date and time as "25 PM 21-Sep-23" along with icons for battery, signal, and volume.

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int n,r,c,s; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
while(!kbhit())
{
for(r=1;r<=n;r++)
{
textcolor(random(16));
for(s=1;s<=n-r;s++)cprintf(" ");
for(c=1; c<=2*r-1; c++ )cprintf("*");
printf("\n");
}
}
}
```

## Activate Windows

Go to PC settings to activate Windows.

The image shows a Windows operating system desktop. In the center is a terminal window titled "TC" with a black background and white text. The text displays a pattern of asterisks (\*). The pattern includes several rows of colored asterisks: purple, blue, green, red, and yellow. Below the terminal window is a standard Windows taskbar with icons for File Explorer, Google Chrome, Vivaldi, Paint, FileZilla, DEV, Zoom, and Microsoft Edge. In the bottom right corner of the screen, there is a watermark that reads "Activate Windows" and "Go to PC settings to activate Windows." The overall appearance is that of an older Windows version, likely Windows 7 or 8.

Line 18 Col 1 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int n,r,c,s; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
while(!kbhit())
{
textcolor(random(16));
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");
}
}
}
```

Activate Windows  
Go to PC settings to activate Windows.



2:56 PM  
21-Sep-23

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

Activate Windows  
Go to PC settings to activate Windows.



2:56 PM  
21-Sep-23

Line 18 Col 19 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int n,r,c,s; 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");
}
}
}
```

Activate Windows  
Go to PC settings to activate Windows.



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

Activate Windows  
Go to PC settings to activate Windows.



```
Line 18 Col 17 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int n,r,c,s; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
while(!kbhit())
{
textcolor(LIGHTRED);
for(r=n;r>=1;r--)
{
for(s=1;s<=n-r;s++)cprintf(" ");
for(c=1; c<=2*r-1; c++ )cprintf("*");
printf("\n");
}
}
}

Activate Windows
Go to PC settings to activate Windows.

2:59 PM
21-Sep-23
```

**Activate Windows**  
Go to PC settings to activate Windows.

A screenshot of a Windows desktop environment. At the top, there's a yellow taskbar with several pinned icons: File Explorer, Microsoft Edge, Google Chrome, VLC Media Player, Paint, File Manager, DEV, Zoom, and Task View. The main window is a terminal or command prompt with a black background and white text. It displays a repeating pattern of red asterisks (\*). In the bottom right corner of the screen, there's a watermark that reads "Activate Windows Go to PC settings to activate Windows." The system tray at the bottom right shows the date and time as "21-Sep-23 2:59 PM".

TC

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; 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();
}
```

Activate Windows  
Go to PC settings to activate Windows.

3:02 PM  
21-Sep-23

TC

```
Enter no of rows 4
*
 ***
 *****
 ******
 ****
 ***
 *
```

Activate Windows  
Go to PC settings to activate Windows.

3:03 PM  
21-Sep-23

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; 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();
}
```

Activate Windows  
Go to PC settings to activate Windows.

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

Activate Windows  
Go to PC settings to activate Windows.

TC

File Edit Run Compile Project Options Debug Break/watch

Line 11 Col 30 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s; 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();
}
```

Activate Windows  
Go to PC settings to activate Windows.



3:17 PM  
21-Sep-23

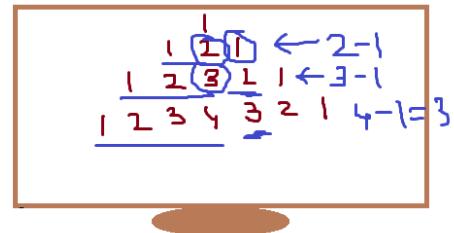
TC

```
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
```

Activate Windows  
Go to PC settings to activate Windows.

```
for(r=1;r<=4;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");
}
```



Line 18 Col 12 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r,c,s,a; clrscr();
printf("Enter no of rows "); scanf("%d",&n);
for(r=0;r<n;r++)
{
for(s=1;s<n-r;s++)printf(" ");
for(c=0; c<=r; c++ )
{
if(c==0||c==r)a=1; else a=a*(r-c+1)/c;
printf("%4d",a);
}
printf("\n");
}
getch();
```

Activate Windows  
Go to PC settings to activate Windows.



3:35 PM  
21-Sep-23

```

TC
Enter no of rows 12
      1
     1   1
    1   2   1
   1   3   3   1
  1   4   6   4   1
 1   5   10  10  5   1
1   6   15  20  15  6   1
1   7   21  35  35  21  7   1
1   8   28  56  70  56  28  8   1
1   9   36  84  126 126  84  36  9   1
1   10  45  120 210 252 210 120  45  10  1
1   11  55  165 330 462 462 330 165  55  11  1

```

Activate Windows  
Go to PC settings to activate Windows.

```

for( r=0; r<n; r++ )
{
    for(s=1;s<n-r;s++)p(" ");
    for(c=0;c<=r;c++)
    {
        if(c==0 || c==r)a=1;
        else a=a*(r-c+1)/c;
        p(a);
    }p("\n");
}

```

$s < n-r$   
 $< 5-0=4$   
 $< 5-1=3$

$\frac{1}{5} \times \frac{2}{5} \times \frac{3}{5}$        $\frac{a}{1}$   
 $\frac{1}{5} \times \frac{2}{4} \times \frac{3}{3}$        $\frac{1 \times (2-1+1)!}{1!} / 1 = 2$   
 $\frac{1}{5} \times \frac{2}{4} \times \frac{3}{2}$        $\frac{1 \times (3-1+1)!}{1!} / 1 = 3$   
 $\frac{1}{5} \times \frac{2}{4} \times \frac{3}{1}$        $3 \times (3-2+1) / 2 = 3$

Pascal Triangle



**break:** It is a keyword used within switch / loop to stop. When break occurred, the program execution jumped to the first statement after the switch / loop.

TC

```
Error: Misplaced break in function main
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
puts("Hi");
break;
puts("Bye");
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



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21-Sep-23

TC

File Edit Run Compile Project Options Debug Break/watch

Line 11 Col 19 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
for(i=1;i<=10;i++)
{
printf("%d\n",i);
}
puts("Thank you");
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



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21-Sep-23

TC

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

Activate Windows  
Go to PC settings to activate Windows.



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21-Sep-23

TC

File Edit Run Compile Project Options Debug Break/watch

Line 9 Col 17 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
for(i=1;i<=10;i++)
{
if(i%5==0)break;
printf("%d\n",i);
}
puts("Thank you");
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



3:40 PM  
21-Sep-23

TC

```
1
2
3
4
Thank you
```

Activate Windows  
Go to PC settings to activate Windows.



3:40 PM  
21-Sep-23

**continue**: It is a keyword used within loop. When continue occurred, the program execution jumped to loop ending and later to beginning. Due to that remaining statements in that loop are skipped.

**Printing 1..10 except 4 and 7**

TC

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Line 9 Col 24 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
for(i=1;i<=10;i++)
{
if(i==4||i==7)continue;
printf("%d\n",i);
}
puts("Thank you");
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



3:43 PM  
21-Sep-23

TC

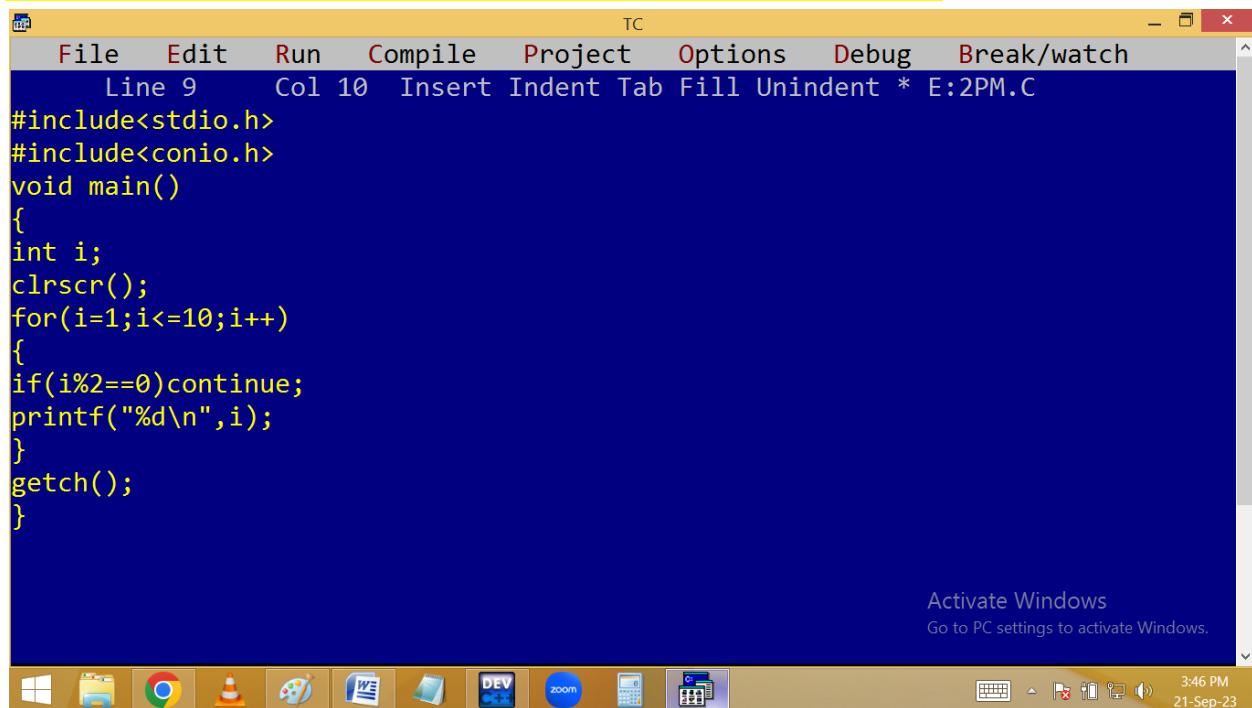
```
1
2
3
5
6
8
9
10
Thank you
```

Activate Windows  
Go to PC settings to activate Windows.



3:43 PM  
21-Sep-23

## Printing 1..10 odd numbers with continue:

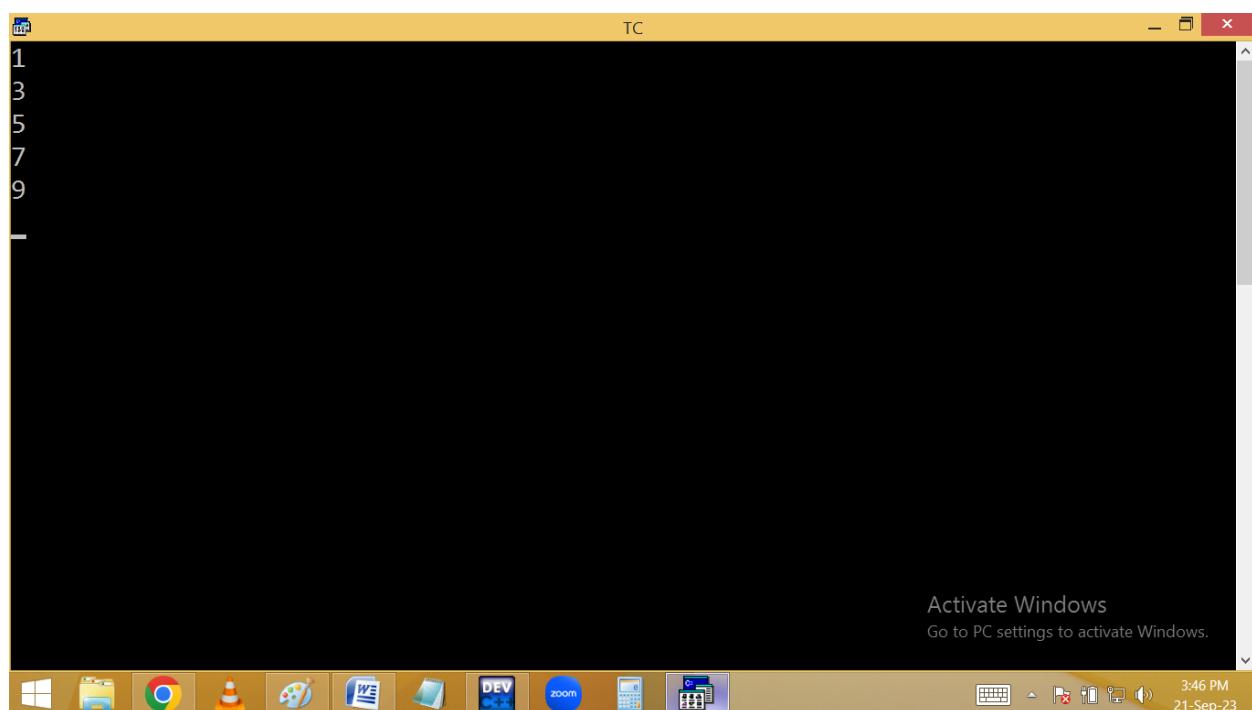


```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 10 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
for(i=1;i<=10;i++)
{
if(i%2==0)continue;
printf("%d\n",i);
}
getch();
}

Activate Windows
Go to PC settings to activate Windows.

Windows Start button Taskbar Status bar
```

The screenshot shows a Windows desktop environment. A code editor window titled "TC" is open, displaying a C program. The program prints odd numbers from 1 to 9. The status bar at the bottom of the window shows the file name as "E:2PM.C", line 9, column 10. The taskbar below the window contains icons for various applications like File Explorer, Google Chrome, and Zoom. The system tray on the right shows the date and time as "3:46 PM 21-Sep-23".



```
TC
1
3
5
7
9

Activate Windows
Go to PC settings to activate Windows.

Windows Start button Taskbar Status bar
```

This screenshot shows the same Windows desktop environment as the previous one. It focuses on a terminal window titled "TC" which displays the output of the C program. The output consists of the odd numbers 1, 3, 5, 7, and 9, each on a new line. The status bar at the bottom of the terminal window shows the file name as "E:2PM.C", line 9, column 10. The taskbar and system tray are visible at the bottom of the screen.

TC

File Edit Run Compile Project Options Debug Break/watch

Error: Misplaced continue in function main

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
switch(1)
{
case 1: printf("Hi"); continue;
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



3:47 PM  
21-Sep-23