



$$2^*r-1$$

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

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

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

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


```
TC
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
int n,r,c,s; clrscr();
printf("Enter how many 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

```
TC
Line 17 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 how many 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");
}
}
}
```

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



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

TC

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

TC

```
TC
#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++)cprintf(" ");
for(c=1;c<=2*r-1;c++)cprintf("*");
printf("\n");
}
for(r=n-1;r>=1;r--)
{
for(s=1;s<=n-r;s++)cprintf(" ");
for(c=1;c<=2*r-1;c++)cprintf("*");
printf("\n");
}
getch();}

TC
Enter how many rows  4
*
***
*****
*****
*****
***
*

```



```
TC
#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<=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();}

TC
Enter how many rows 7

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

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

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

```
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 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("%3d",c);
for(c=r-1;c>=1;c--)printf("%3d",c);
printf("\n");
}
getch();
}
```

Enter how many rows 12

```

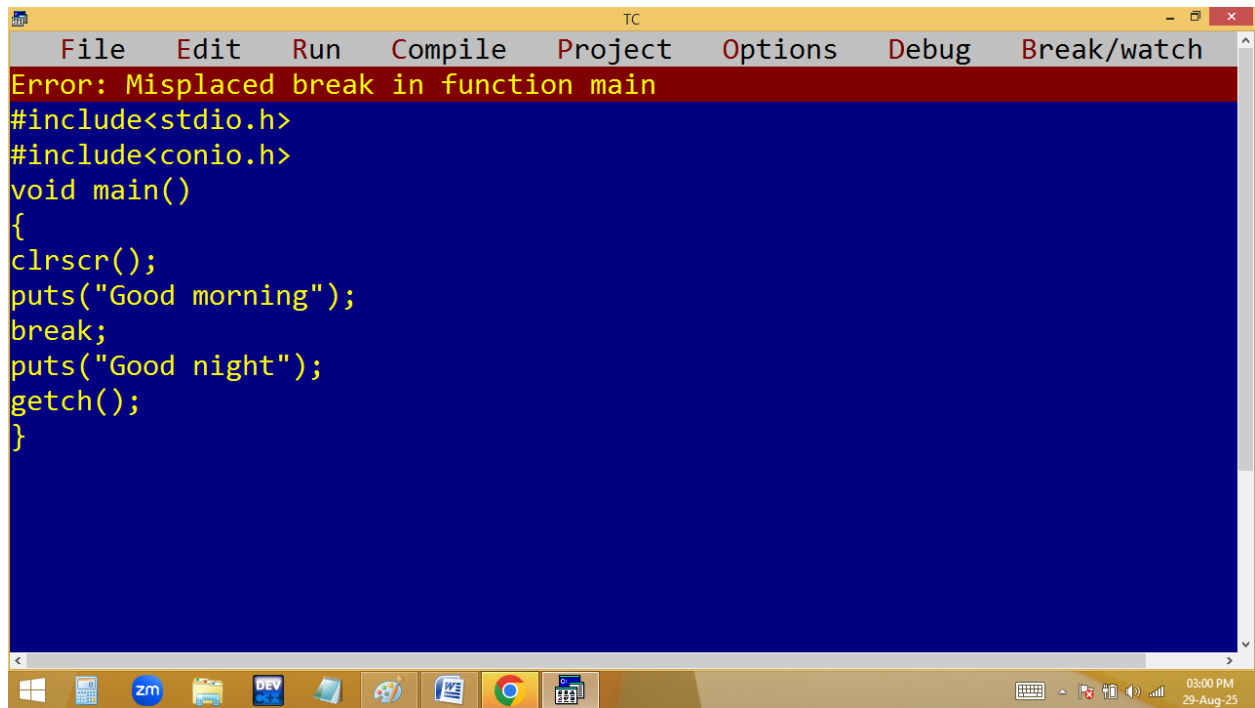
          1
        1 2 1
      1 2 3 2 1
    1 2 3 4 3 2 1
  1 2 3 4 5 4 3 2 1
1 2 3 4 5 6 5 4 3 2 1
  1 2 3 4 5 6 7 6 5 4 3 2 1
    1 2 3 4 5 6 7 8 7 6 5 4 3 2 1
      1 2 3 4 5 6 7 8 9 8 7 6 5 4 3 2 1
        1 2 3 4 5 6 7 8 9 10 9 8 7 6 5 4 3 2 1
          1 2 3 4 5 6 7 8 9 10 11 10 9 8 7 6 5 4 3 2 1
            1 2 3 4 5 6 7 8 9 10 11 12 11 10 9 8 7 6 5 4 3 2 1
```

```
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);
```



break:

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



The screenshot shows the Turbo C++ (TC) IDE window. The title bar reads 'TC'. The menu bar includes 'File', 'Edit', 'Run', 'Compile', 'Project', 'Options', 'Debug', and 'Break/watch'. A red error message banner at the top states 'Error: Misplaced break in function main'. The code editor has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
puts("Good morning");
break;
puts("Good night");
getch();
}
```

The Windows taskbar is visible at the bottom, showing icons for Windows, calculator, Zoom, File Explorer, DEV, and several other applications. The system clock in the bottom right corner shows '03:00 PM' and '29-Aug-25'.

The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code of a C program in a blue editor window. The code includes headers for `stdio.h` and `conio.h`, defines a `main` function, declares an integer `i`, clears the screen with `clrscr()`, and uses a `for` loop to print numbers 1 through 10. After the loop, it prints "Thank you" and waits for a key press with `getch()`. The bottom screenshot shows the same IDE with the program's output in a black window. The output consists of the numbers 1 through 10, each on a new line, followed by the text "Thank you". The Windows taskbar at the bottom of both screenshots shows the time as 03:01 PM and 03:02 PM on 29-Aug-25.

```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 18 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);
}
printf("Thank you");
getch();
}
```

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

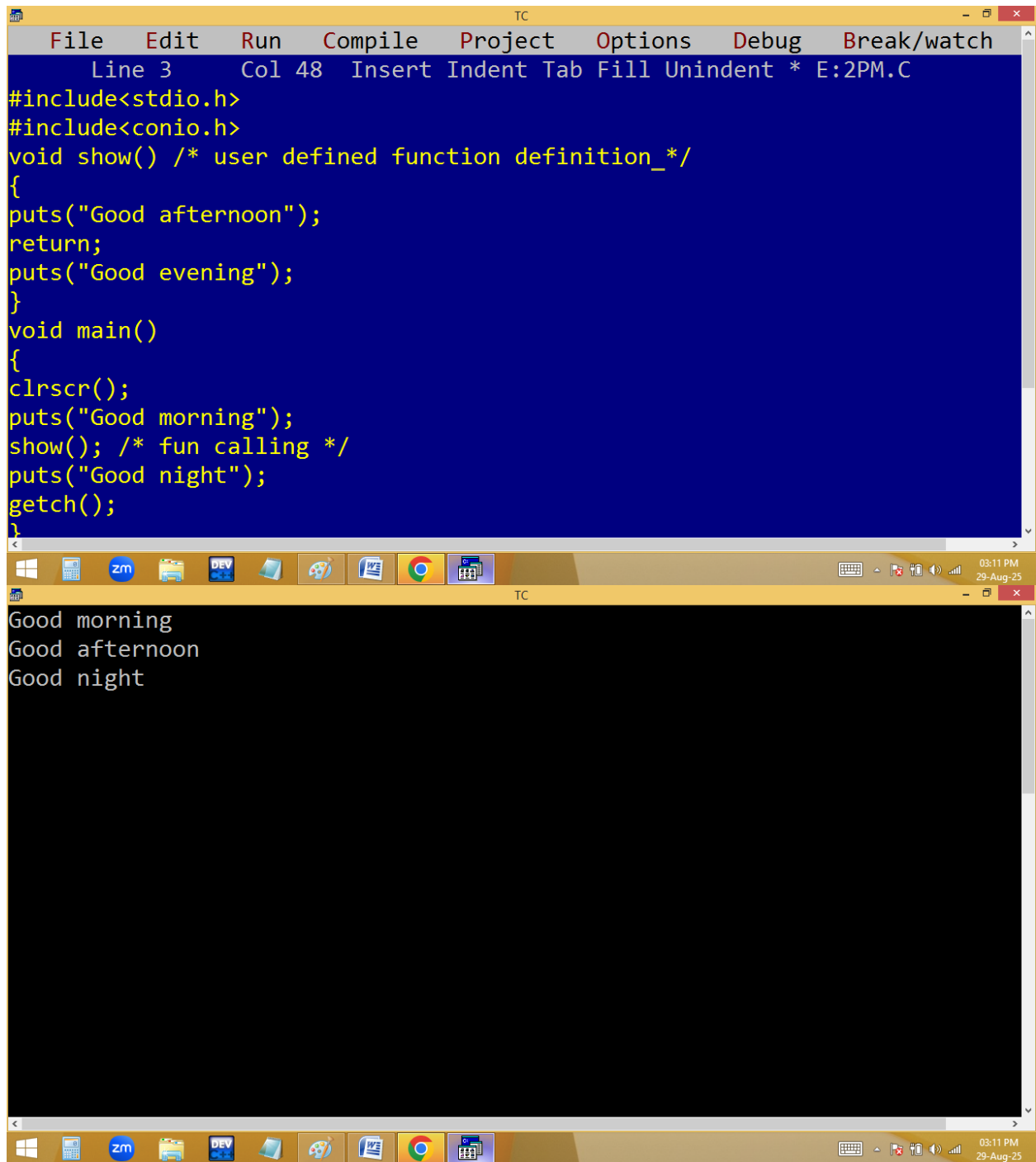
The image shows two windows of the Turbo C++ (TC) IDE. The top window is the source code editor, titled 'TC', showing a C program. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 15 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)break;_
printf("%d\n",i);
}
printf("Thank you");
getch();
}
```

The bottom window is the output window, also titled 'TC', showing the execution results. The output is as follows:

```
1
2
3
4
Thank you_
```

The Windows taskbar at the bottom of the screen shows the time as 03:03 PM and 03:11 PM on 29-Aug-25. The taskbar includes icons for Windows, a calculator, a ZOOM application, a folder, a DEV application, a paint application, a Notepad application, a Google Chrome application, and a calendar application.



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the source code editor, titled 'TC', displaying a C program. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the bottom of the editor shows 'Line 3 Col 48 Insert Indent Tab Fill Unindent * E:2PM.C'. The code defines a function 'show()' that prints 'Good afternoon' and returns, and a 'main()' function that prints 'Good morning', calls 'show()', prints 'Good night', and waits for a key press with 'getch()'. The bottom window is the output console, also titled 'TC', which displays the program's execution results: 'Good morning', 'Good afternoon', and 'Good night' on separate lines. The Windows taskbar at the bottom shows the time as 03:11 PM on 29-Aug-25, along with various application icons.

```
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 48 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void show() /* user defined function definition_*/
{
puts("Good afternoon");
return;
puts("Good evening");
}
void main()
{
clrscr();
puts("Good morning");
show(); /* fun calling */
puts("Good night");
getch();
}
```

Good morning
Good afternoon
Good night

The image shows two windows of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void show() /* user defined function definition */
{
puts("Good afternoon");
exit(0);
puts("Good evening");
}
void main()
{
clrscr();
puts("Good morning");
show(); /* fun calling */
puts("Good night");
getch();
}
```

The bottom window shows the output of the program:

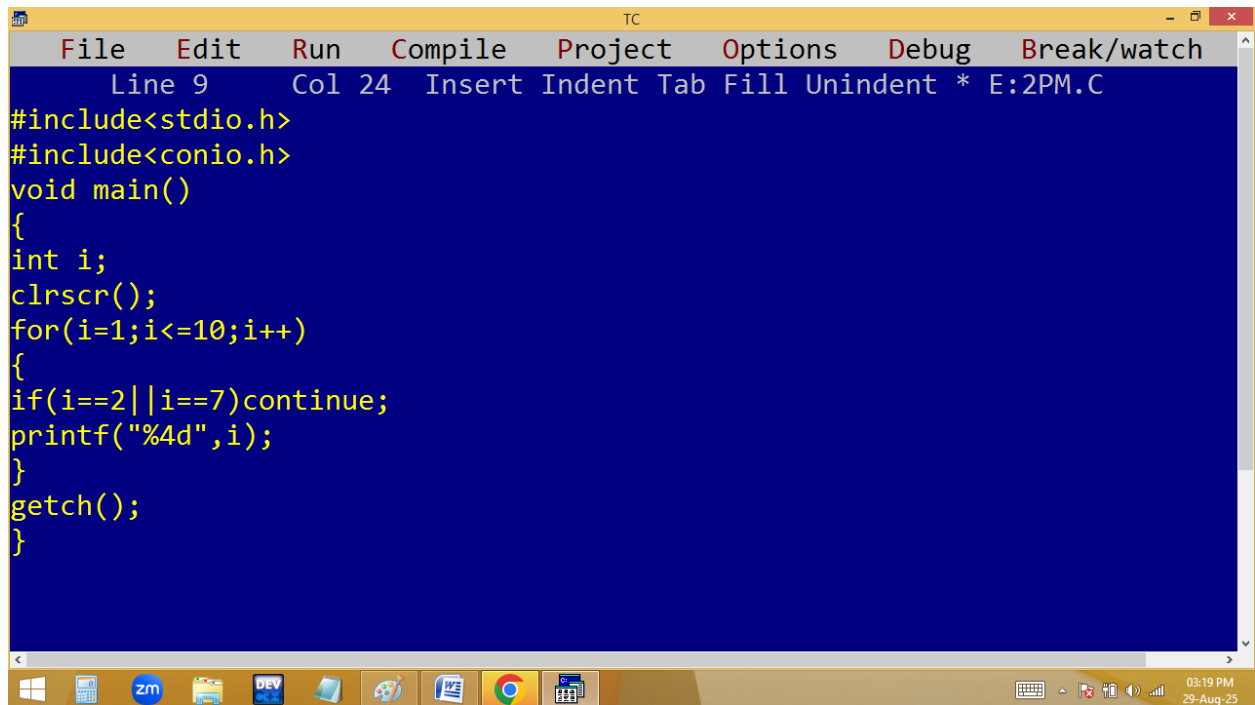
```
Good morning
Good afternoon
```

The taskbar at the bottom of the windows shows various application icons and the system clock indicating 03:14 PM and 03:15 PM on 29-Aug-25.

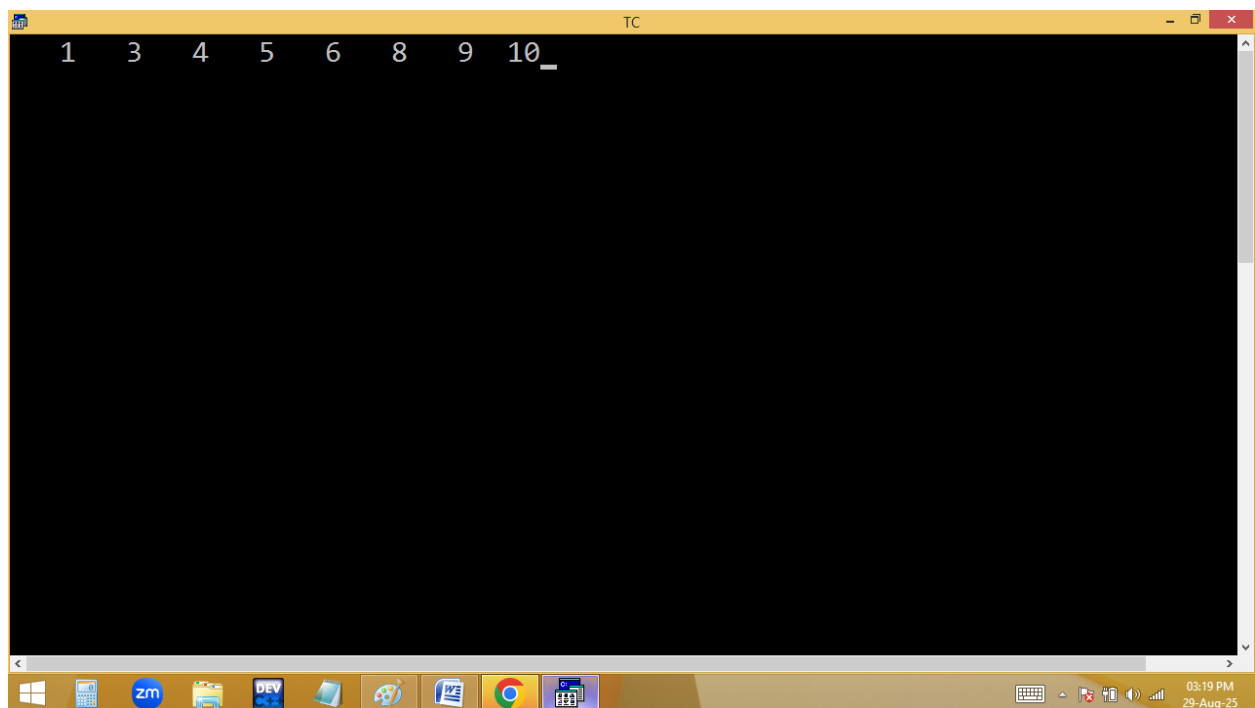
break	exit()	return
Keyword	Function	Keyword
Header file not required	stdlib.h / process.h required	Header file not required
Terminates switch / loop	Terminates total program	Closes that function only
Should be used within	Used any where	Used any where

switch/loop		
-------------	--	--

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

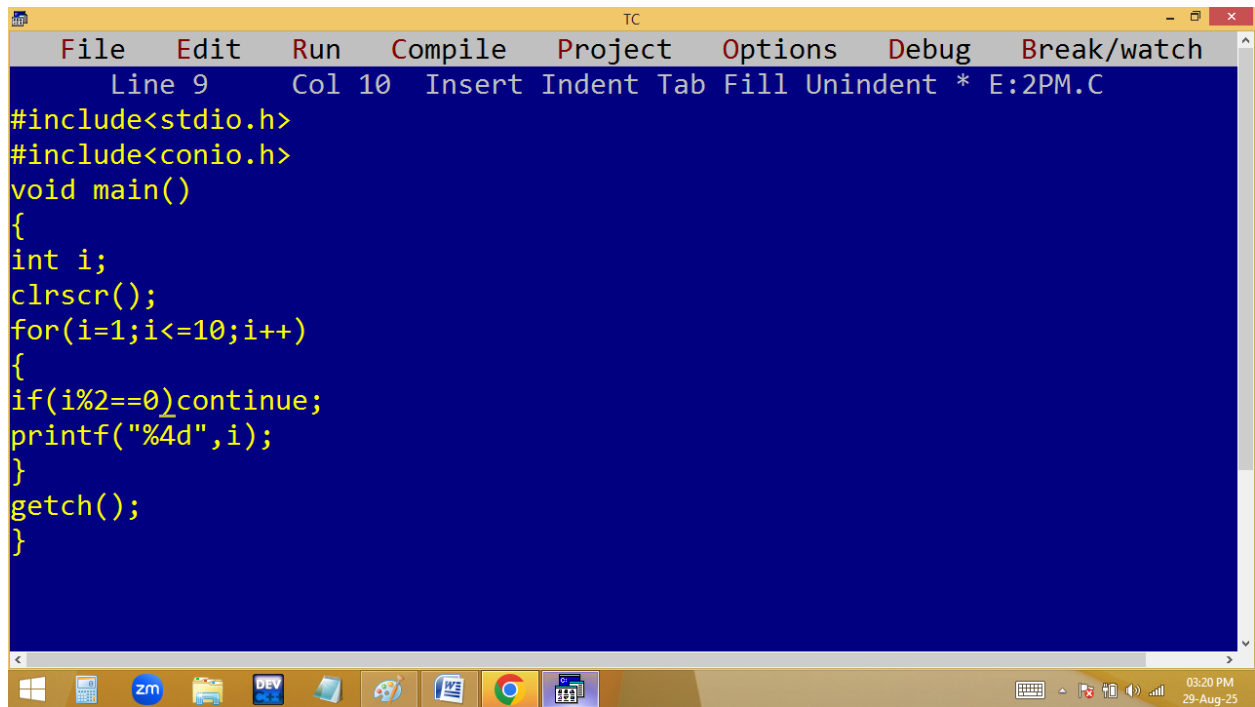


```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 24 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
for(i=1;i<=10;i++)
{
if(i==2||i==7)continue;
printf("%4d",i);
}
getch();
}
```



```
TC
1 3 4 5 6 8 9 10_
```

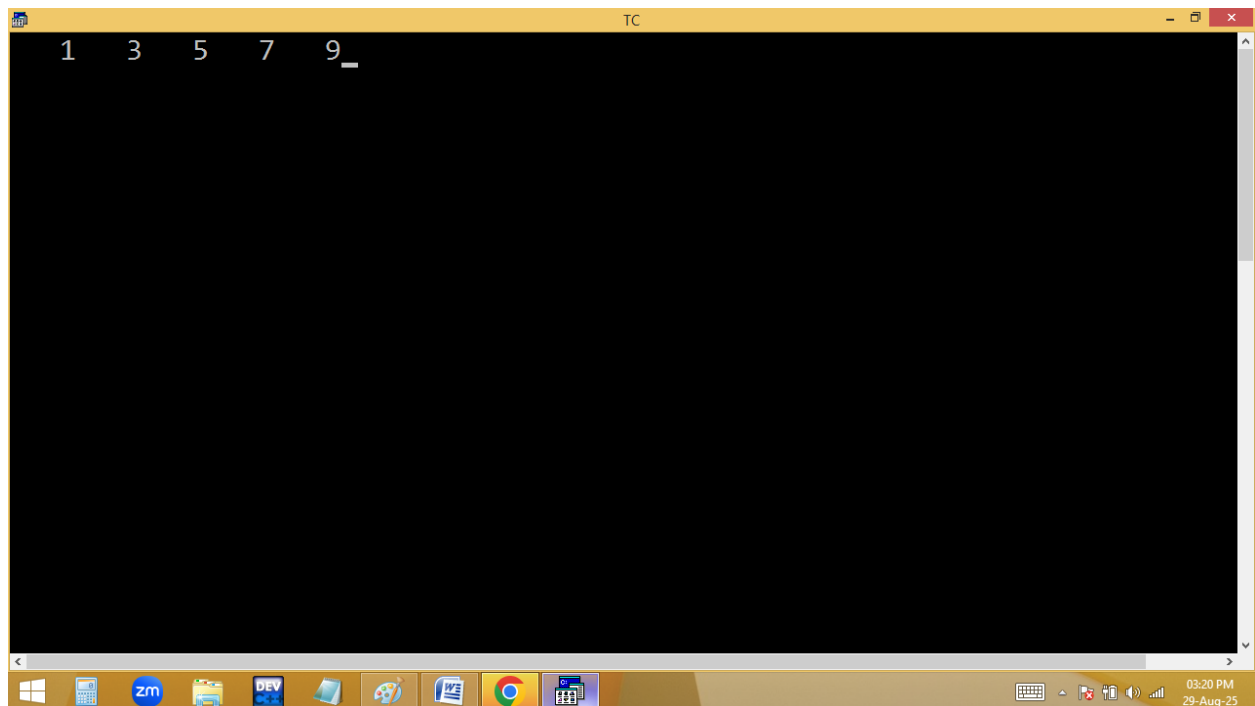
Printing 1..10 odd no's using continue:



The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar and menu bar. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 9 Col 10 Insert Indent Tab Fill Unindent * E:2PM.C'. The main editing area has a blue background and contains the following C code:

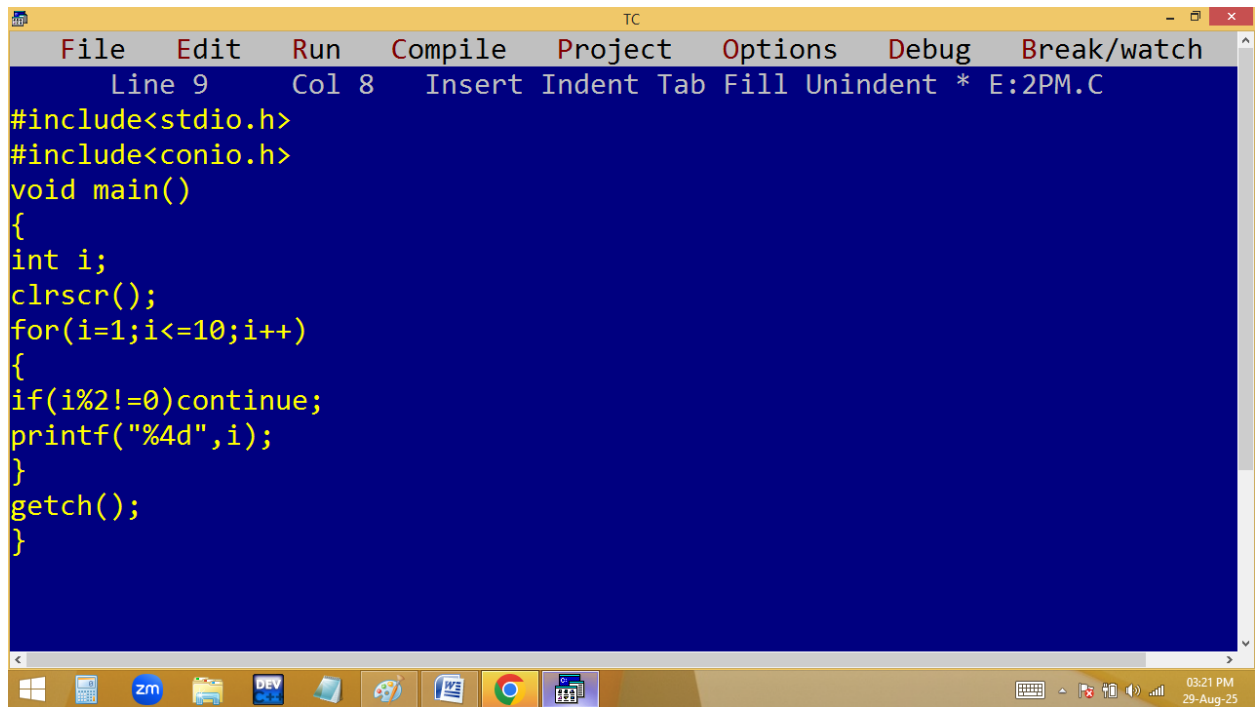
```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i;
    clrscr();
    for(i=1;i<=10;i++)
    {
        if(i%2==0)continue;
        printf("%4d",i);
    }
    getch();
}
```

The Windows taskbar at the bottom shows various icons including Windows, calculator, Zm, DEV, and Chrome. The system clock in the bottom right corner displays '03:20 PM 29-Aug-25'.



The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar. The main editing area has a black background and displays the output of the program: '1 3 5 7 9_'. The Windows taskbar at the bottom is identical to the first screenshot, showing the same icons and system clock.

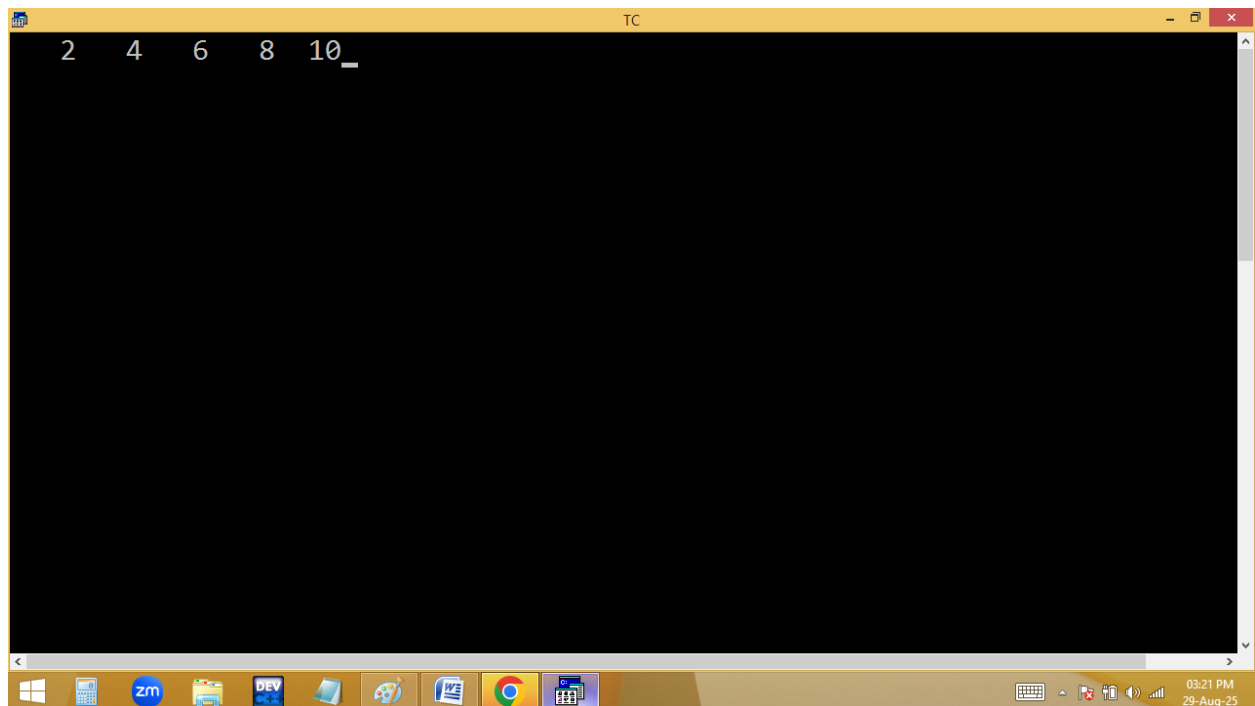
Even no's:



The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 9, Col 8, Insert, Indent, Tab, Fill, Unindent, * E:2PM.C). The main window has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i;
    clrscr();
    for(i=1;i<=10;i++)
    {
        if(i%2!=0)continue;
        printf("%4d",i);
    }
    getch();
}
```

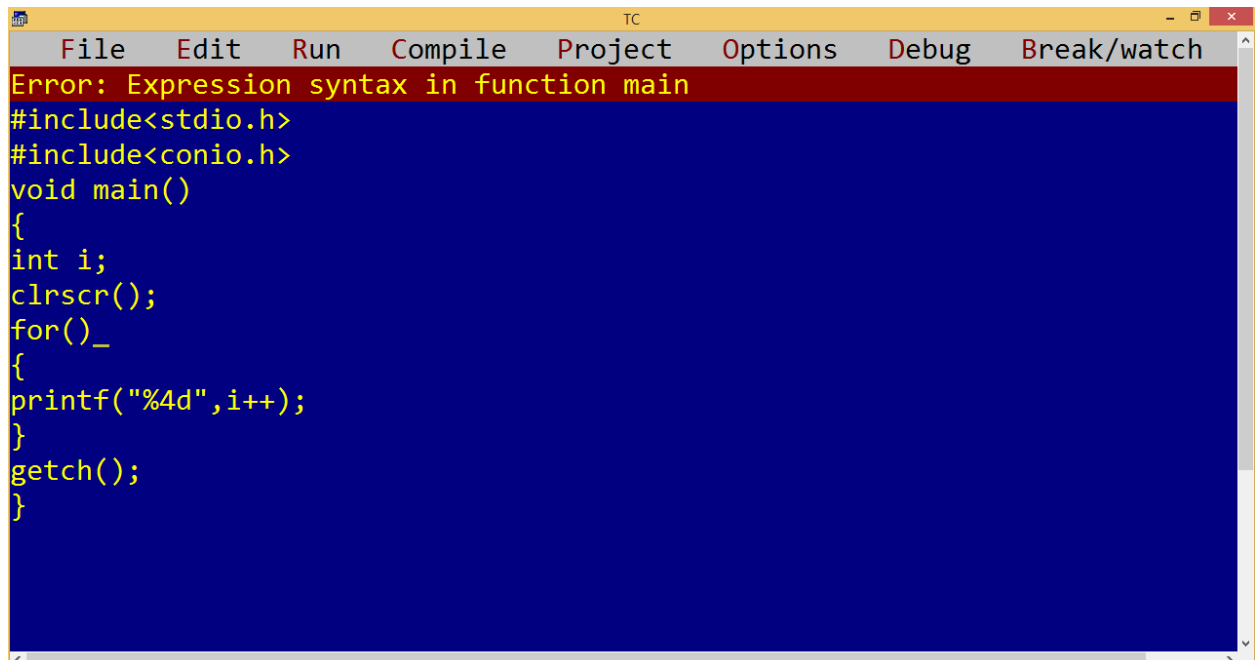
The Windows taskbar at the bottom shows icons for Windows, calculator, ZOOM, DEV, and other applications. The system clock indicates 03:21 PM on 29-Aug-25.



The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar as the first image. The main window has a black background and displays the output of the program:

```
2 4 6 8 10_
```

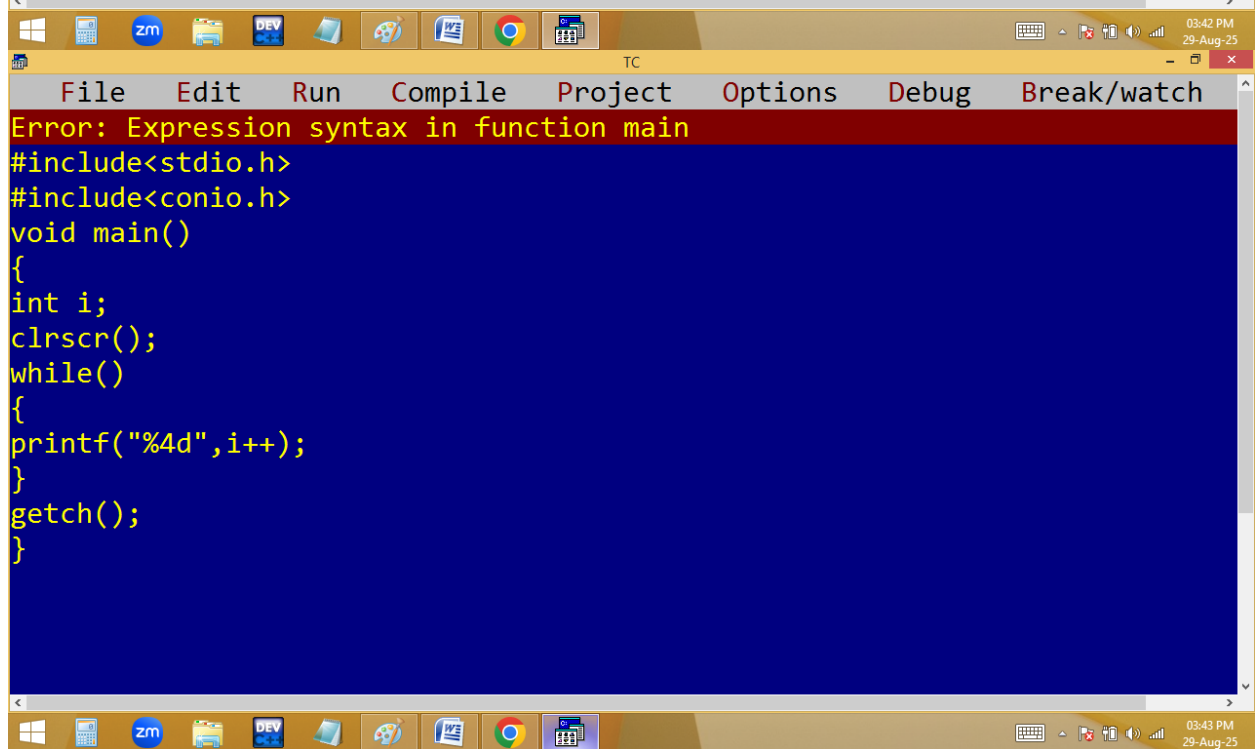
The Windows taskbar at the bottom is identical to the first image, showing the same icons and system clock (03:21 PM on 29-Aug-25).



The screenshot shows the Turbo C++ (TC) IDE interface. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. A red error message bar at the top states "Error: Expression syntax in function main". The code editor contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
for()_
{
printf("%4d",i++);
}
getch();
}
```

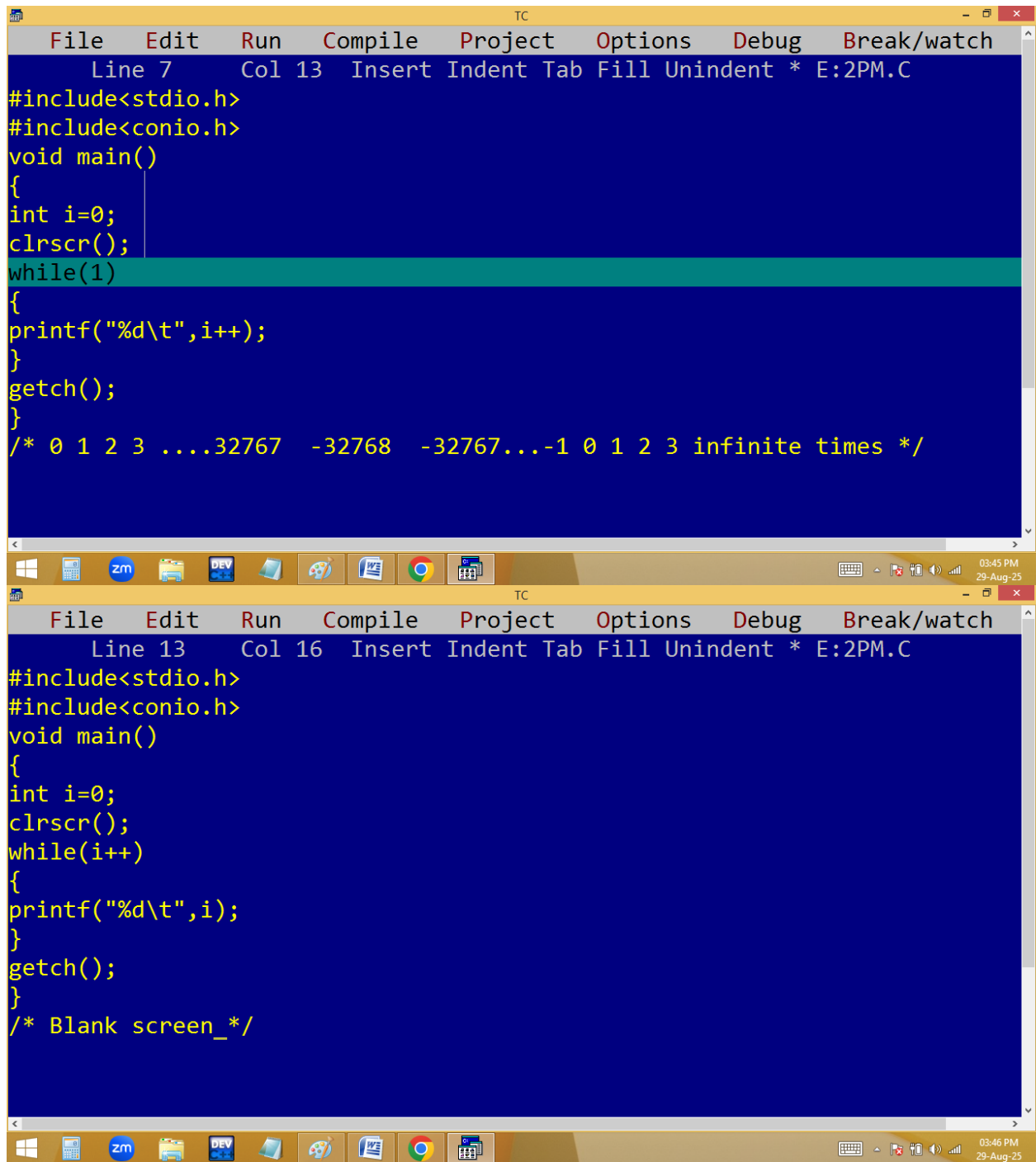
The code is syntactically incorrect due to the trailing underscore in the for loop header. The Windows taskbar at the bottom shows various application icons and the system clock indicating 03:42 PM on 29-Aug-25.



This screenshot shows the same Turbo C++ (TC) IDE interface as the first image, but with a different code snippet. The error message "Error: Expression syntax in function main" remains. The code in the editor is:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i;
clrscr();
while()
{
printf("%4d",i++);
}
getch();
}
```

The code is syntactically incorrect because the while loop header is empty. The Windows taskbar at the bottom shows the system clock as 03:43 PM on 29-Aug-25.



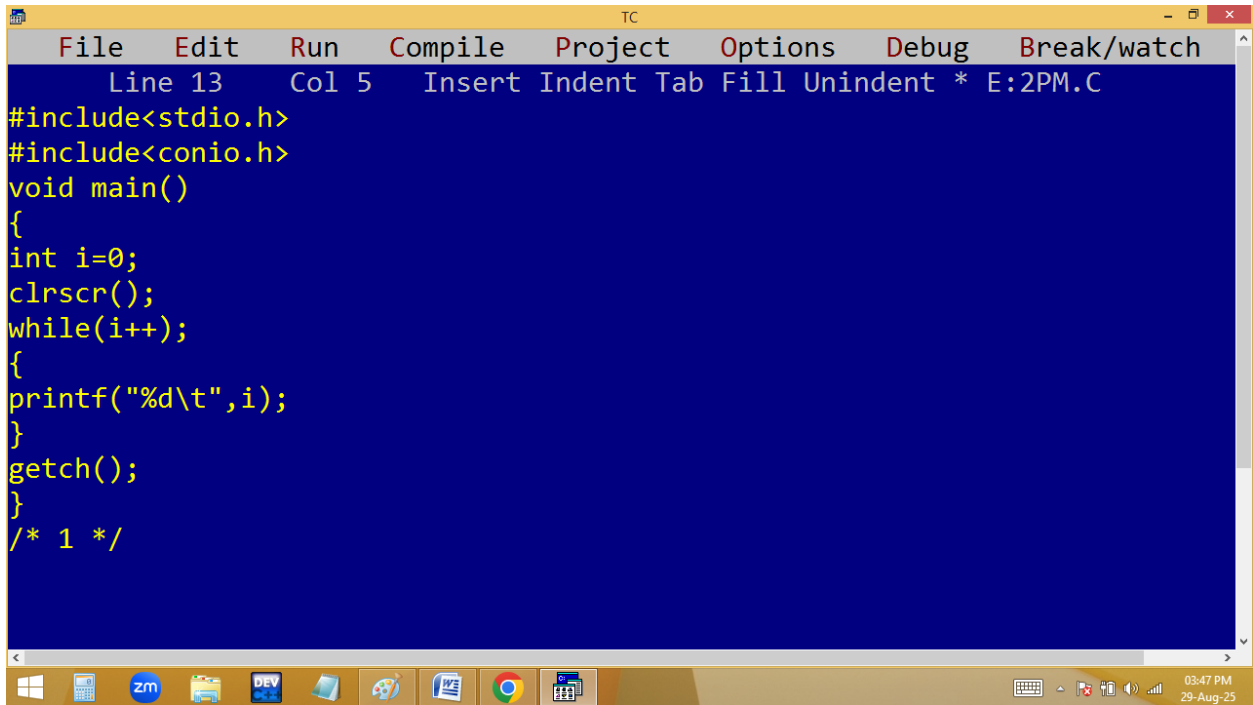
The image displays two instances of the Turbo C++ (TC) IDE, stacked vertically. Both windows have a yellow title bar with the text 'TC' and standard window controls. The top window's menu bar includes 'File', 'Edit', 'Run', 'Compile', 'Project', 'Options', 'Debug', and 'Break/watch'. Its status bar shows 'Line 7', 'Col 13', and 'Insert Indent Tab Fill Unindent * E:2PM.C'. The code in this window is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i=0;
clrscr();
while(1)
{
printf("%d\t",i++);
}
getch();
}
/* 0 1 2 3 ....32767 -32768 -32767...-1 0 1 2 3 infinite times */
```

The bottom window also has a yellow title bar with 'TC' and the same menu bar. Its status bar shows 'Line 13', 'Col 16', and 'Insert Indent Tab Fill Unindent * E:2PM.C'. The code in this window is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i=0;
clrscr();
while(i++)
{
printf("%d\t",i);
}
getch();
}
/* Blank screen_*/
```

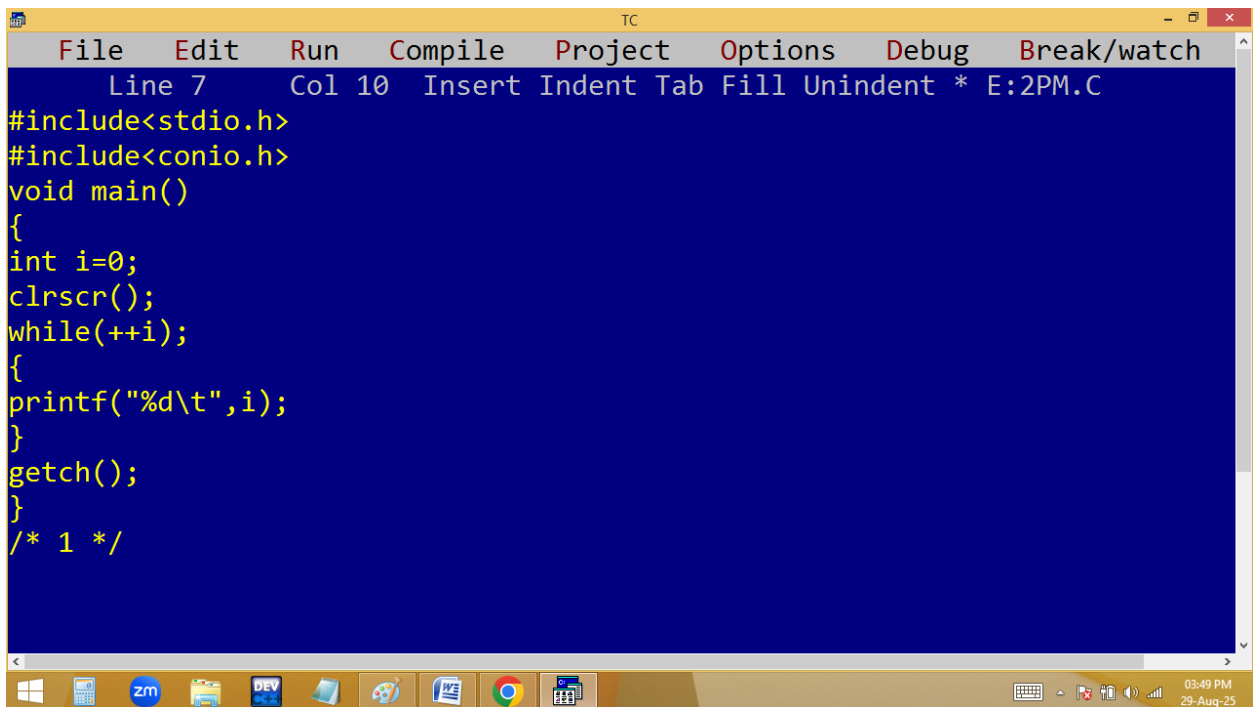
Both windows feature a blue editor area with yellow text. The Windows taskbar is visible at the bottom of each window, showing icons for various applications and the system clock.



The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 13, Col 5, Insert, Indent, Tab, Fill, Unindent, * E:2PM.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i=0;
clrscr();
while(i++);
{
printf("%d\t",i);
}
getch();
}
/* 1 */
```

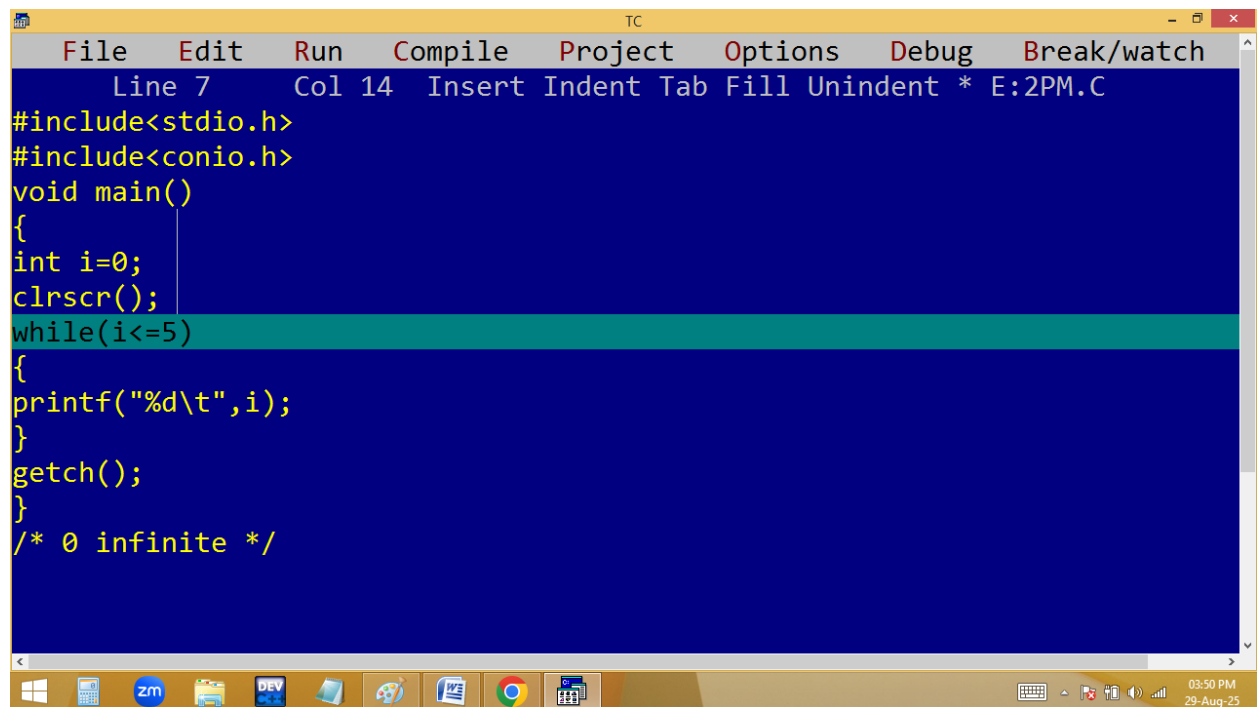
The Windows taskbar at the bottom includes icons for Windows, File Explorer, Zoho Mail (zm), DEV C++, and other applications. The system clock shows 03:47 PM on 29-Aug-25.



The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 7, Col 10, Insert, Indent, Tab, Fill, Unindent, * E:2PM.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i=0;
clrscr();
while(++i);
{
printf("%d\t",i);
}
getch();
}
/* 1 */
```

The Windows taskbar at the bottom includes icons for Windows, File Explorer, Zoho Mail (zm), DEV C++, and other applications. The system clock shows 03:49 PM on 29-Aug-25.



The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 7", "Col 14", and "Insert Indent Tab Fill Unindent * E:2PM.C". The code editor has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i=0;
    clrscr();
    while(i<=5)
    {
        printf("%d\t",i);
    }
    getch();
}
/* 0 infinite */
```

The line "while(i<=5)" is highlighted with a teal background. The Windows taskbar is visible at the bottom, showing icons for Windows, a calculator, a ZOOM application, a folder, a DEV C++ icon, a file explorer, a paint application, a Notepad application, a Google Chrome browser, and a calendar. The system clock in the bottom right corner shows "03:50 PM" and "29-Aug-25".