

scanf()

It is the major input function available in `stdio.h`

It is used to read the values at run time from user.

Syntax:

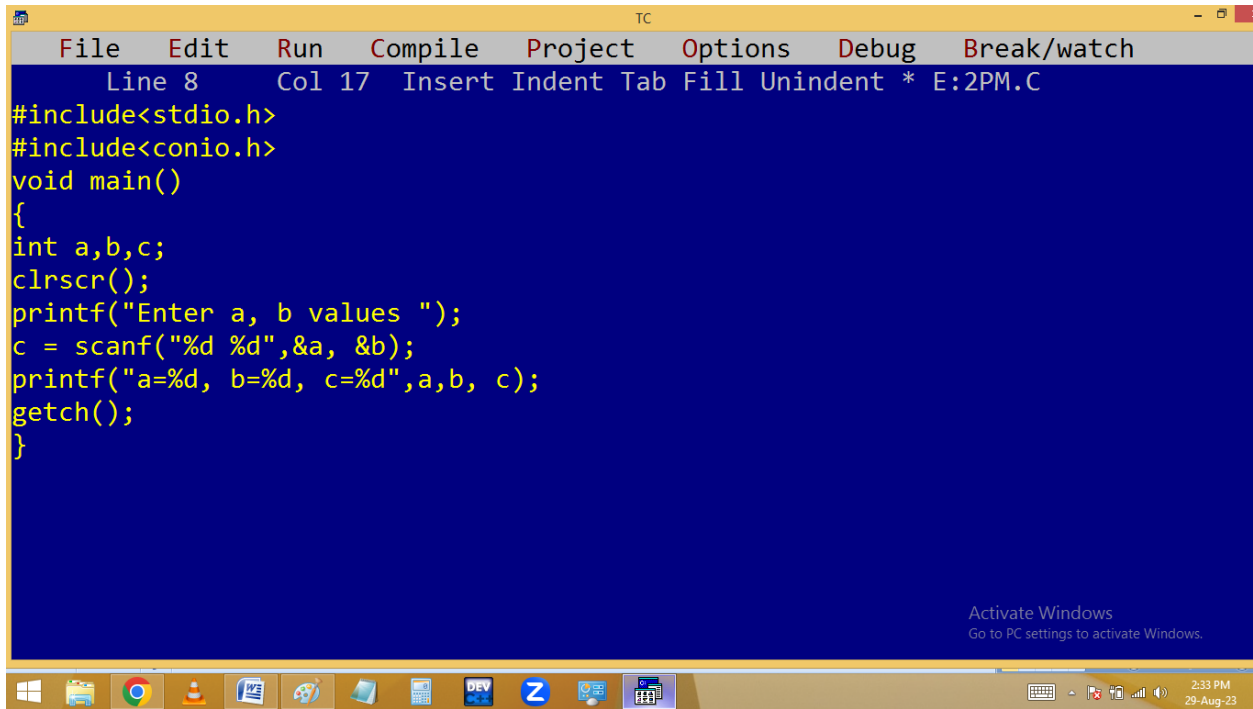
**`int scanf("conversion characters" ,
&variable, &variable,.....);`**

- Here `scanf()` returns an integer which indicates the no of conversion characters we have used in `scanf()`.
- Generally conversion characters are the first arguments and they should be placed in **" "**.
- Space is optional in between the conversion characters. When comma /

any character is entered in between conversion characters, at run time also we have to enter the same letter in between the values.

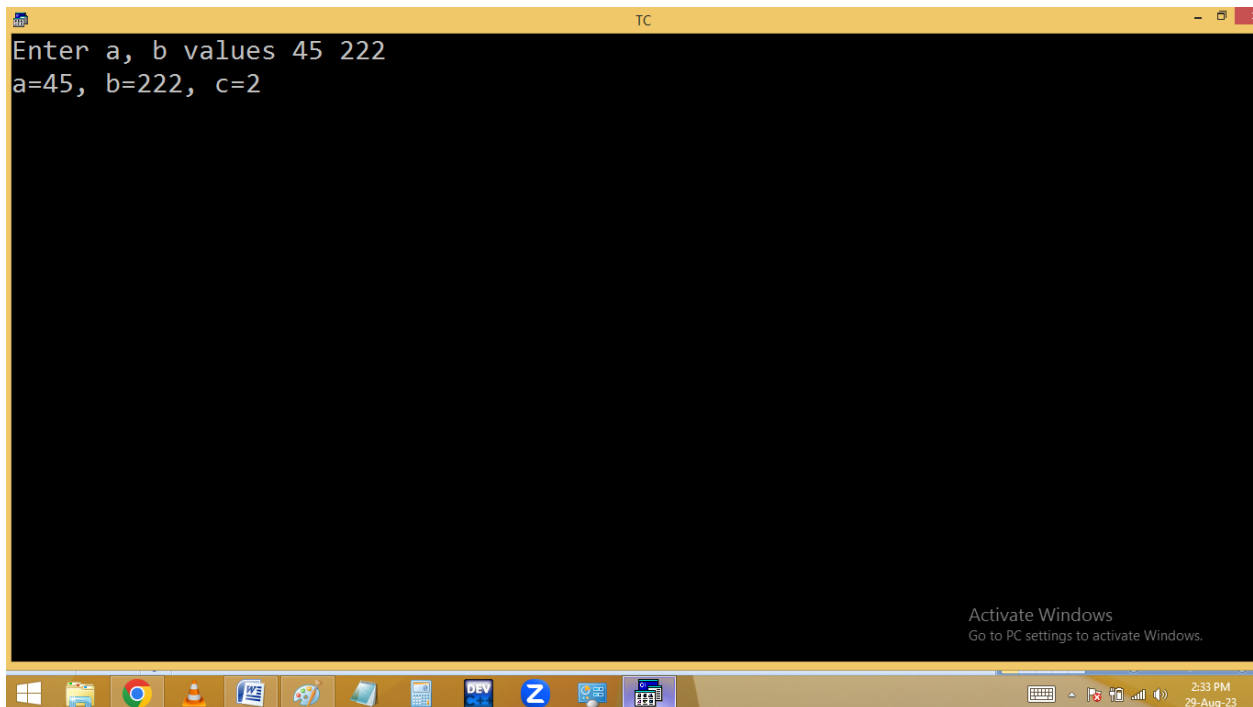
- **&** indicates address of variable. **&** is mandatory for all data types **except string** type variables.

write a c program to find the no of conversion characters in scanf():



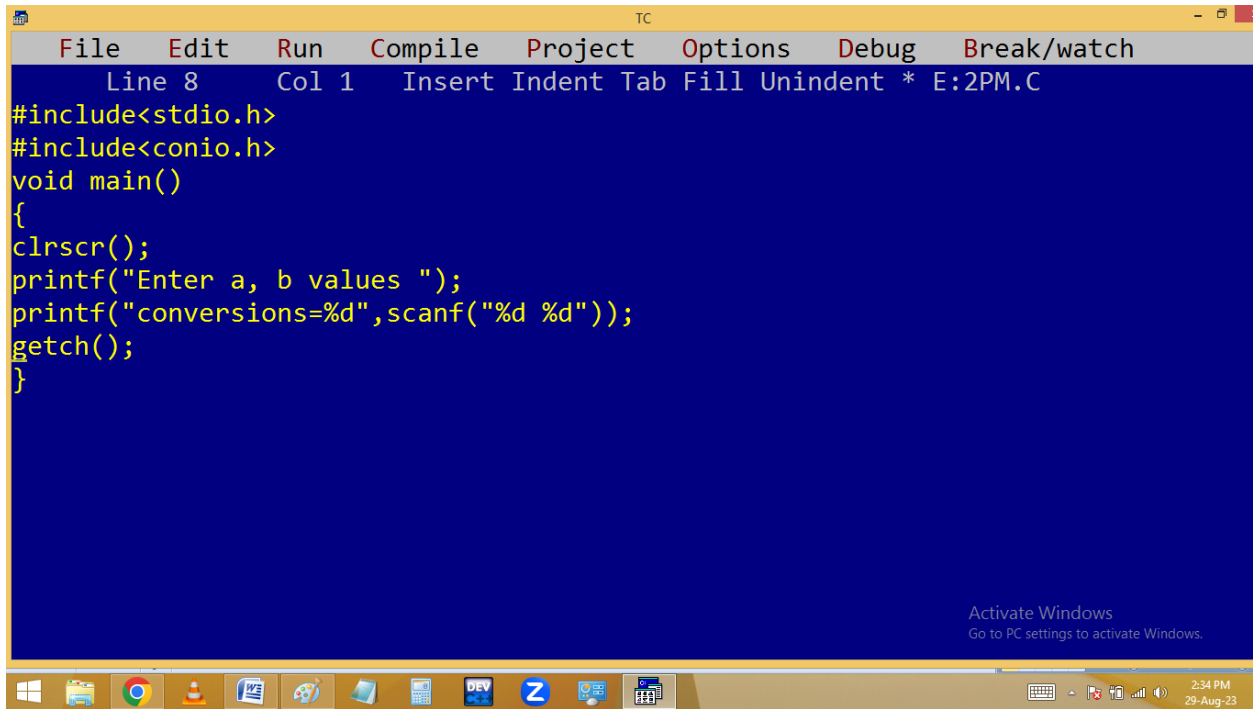
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 17 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a, b values ");
c = scanf("%d %d",&a, &b);
printf("a=%d, b=%d, c=%d",a,b, c);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.



```
TC
Enter a, b values 45 222
a=45, b=222, c=2
```

Activate Windows
Go to PC settings to activate Windows.



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 8 Col 1' and 'Insert Indent Tab Fill Unindent * E:2PM.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Enter a, b values ");
printf("conversions=%d",scanf("%d %d"));
getch();
}
```

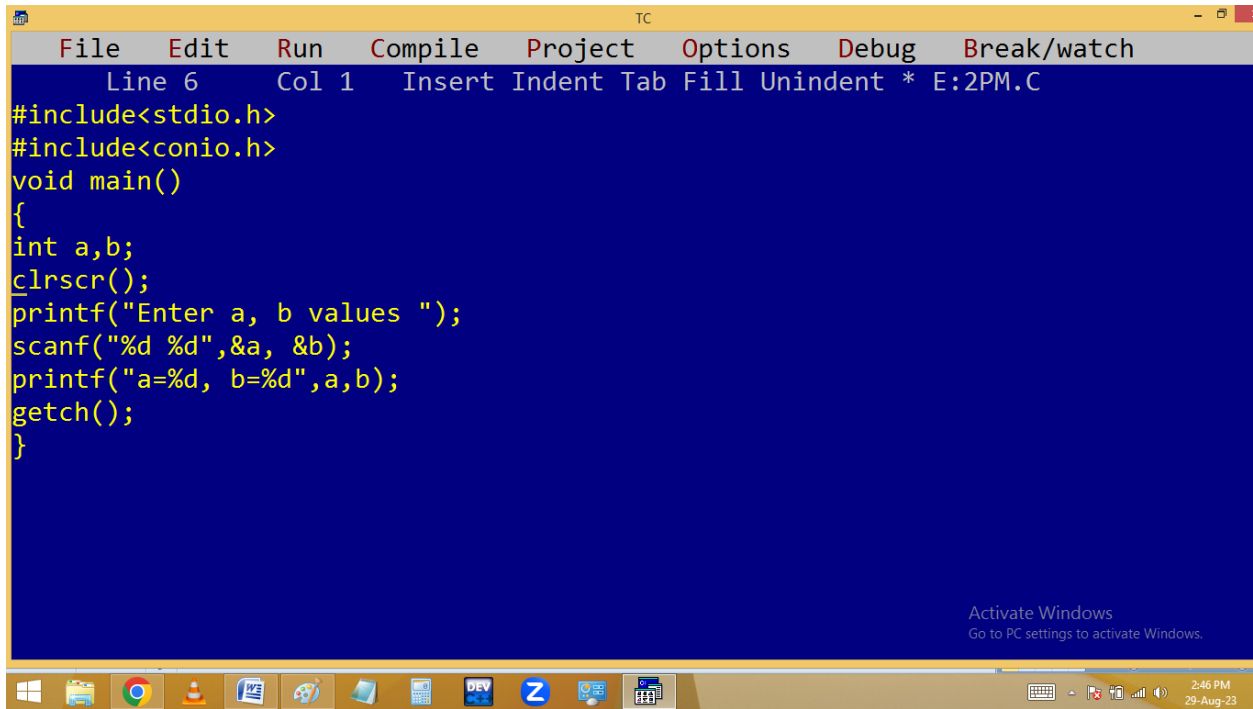
An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window. The Windows taskbar at the bottom shows various application icons and the system clock indicating 2:34 PM on 29-Aug-23.



This screenshot shows the same Turbo C++ IDE after the program has been executed. The output window displays the following text:

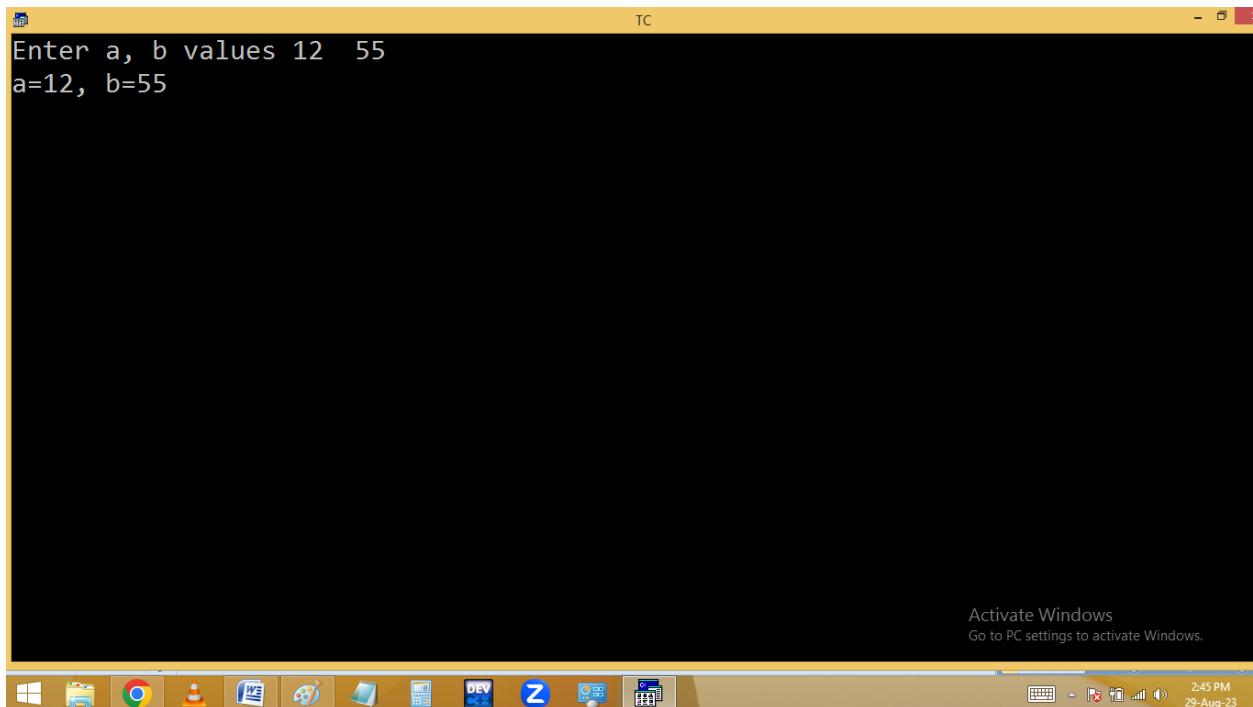
```
Enter a, b values 444 7777
conversions=2_
```

The 'conversions=2_' indicates that the scanf function successfully read two integers (444 and 7777) from the input. The 'Activate Windows' watermark and the Windows taskbar are also visible in this screenshot.



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values ");
scanf("%d %d",&a, &b);
printf("a=%d, b=%d",a,b);
getch();
}
```

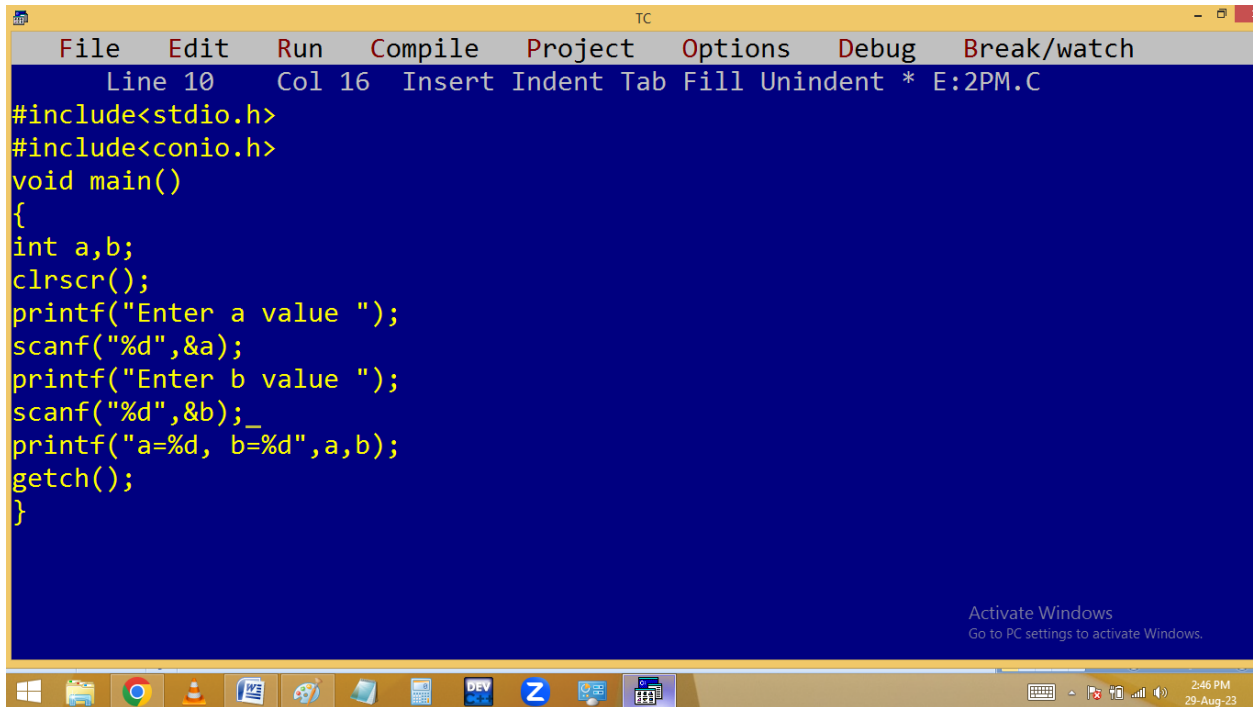
Activate Windows
Go to PC settings to activate Windows.



```
TC
Enter a, b values 12 55
a=12, b=55
```

Activate Windows
Go to PC settings to activate Windows.

Controlling inputs in scanf():



TC

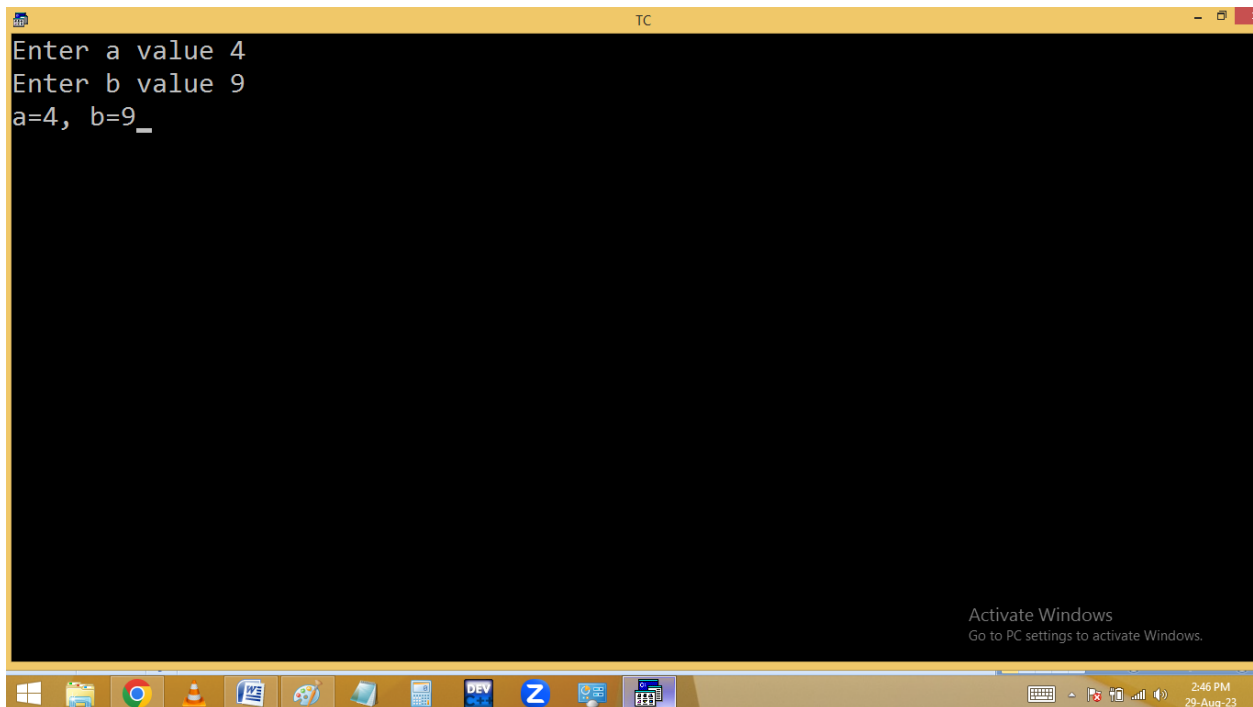
File Edit Run Compile Project Options Debug Break/watch

Line 10 Col 16 Insert Indent Tab Fill Unindent * E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a value ");
scanf("%d",&a);
printf("Enter b value ");
scanf("%d",&b);_
printf("a=%d, b=%d",a,b);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

2:46 PM
29-Aug-23

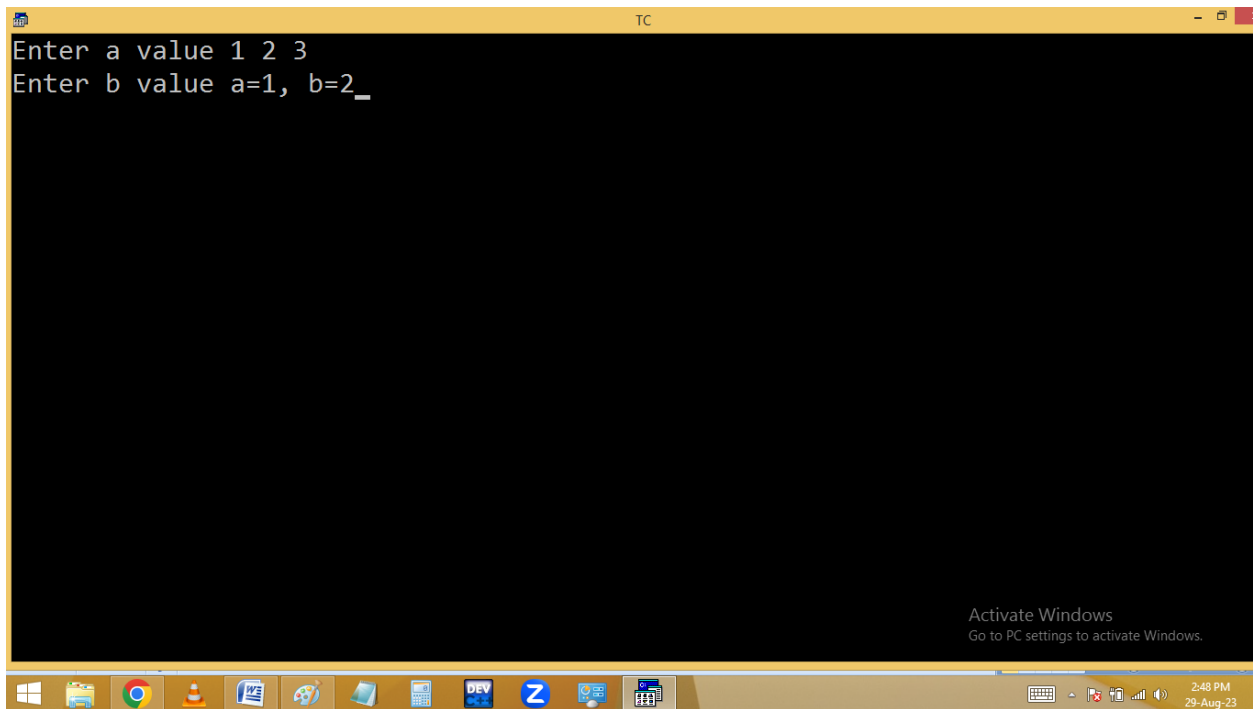
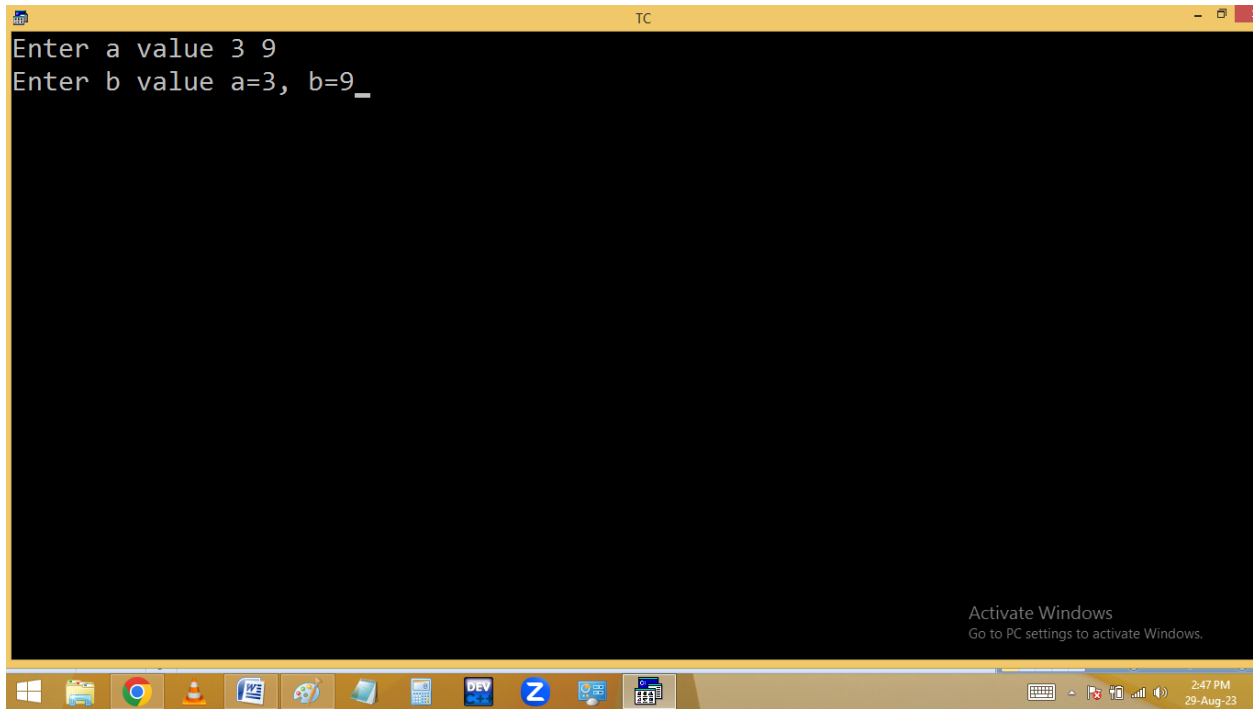


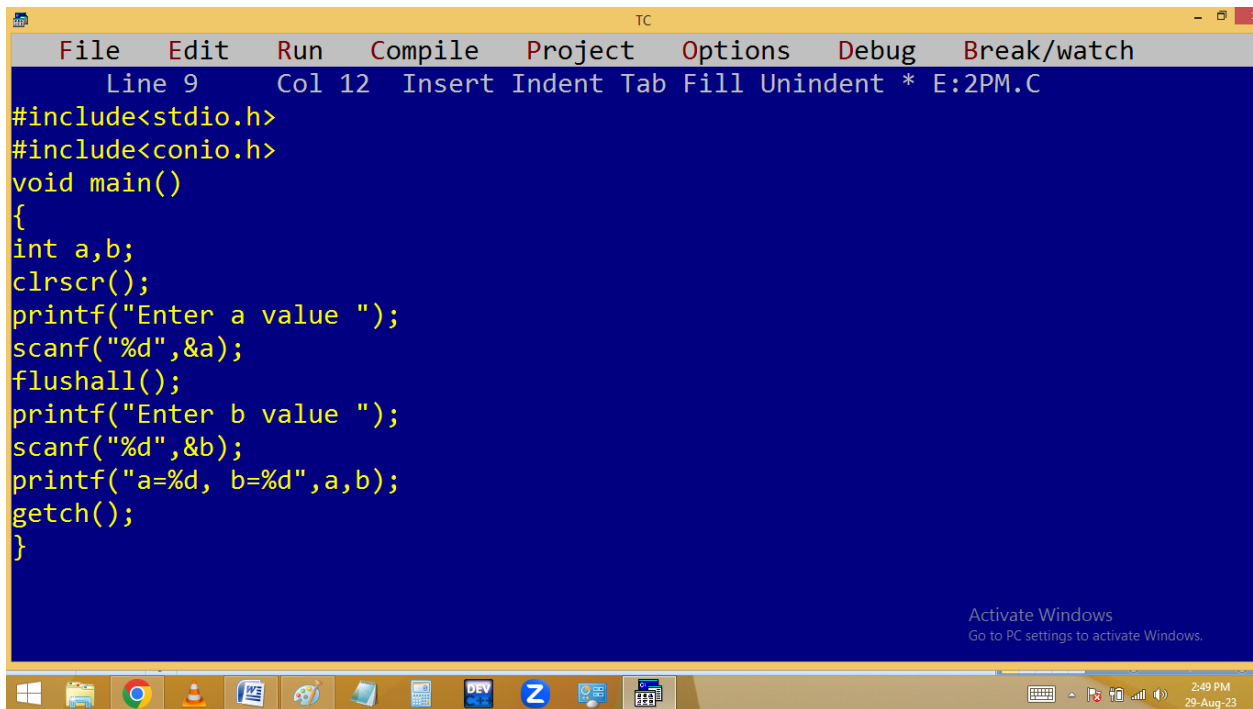
TC

```
Enter a value 4
Enter b value 9
a=4, b=9_
```

Activate Windows
Go to PC settings to activate Windows.

2:46 PM
29-Aug-23





TC

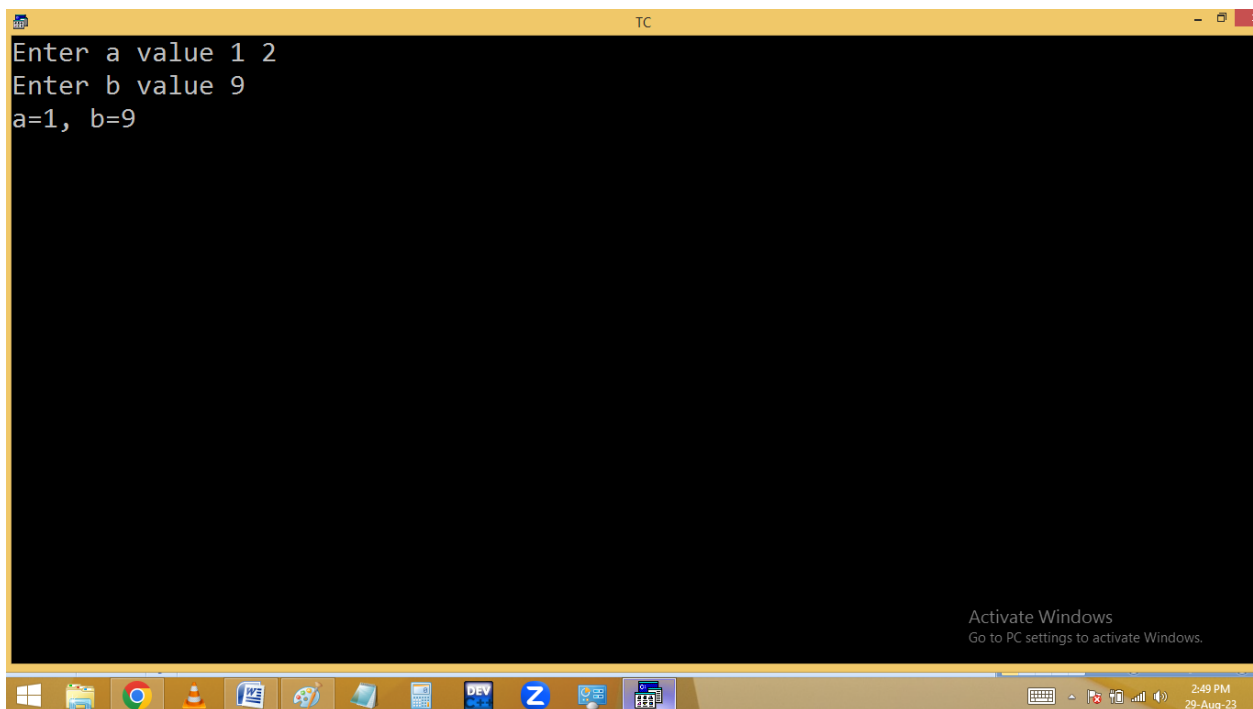
File Edit Run Compile Project Options Debug Break/watch

Line 9 Col 12 Insert Indent Tab Fill Unindent * E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a value ");
scanf("%d",&a);
flushall();
printf("Enter b value ");
scanf("%d",&b);
printf("a=%d, b=%d",a,b);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

2:49 PM
29-Aug-23

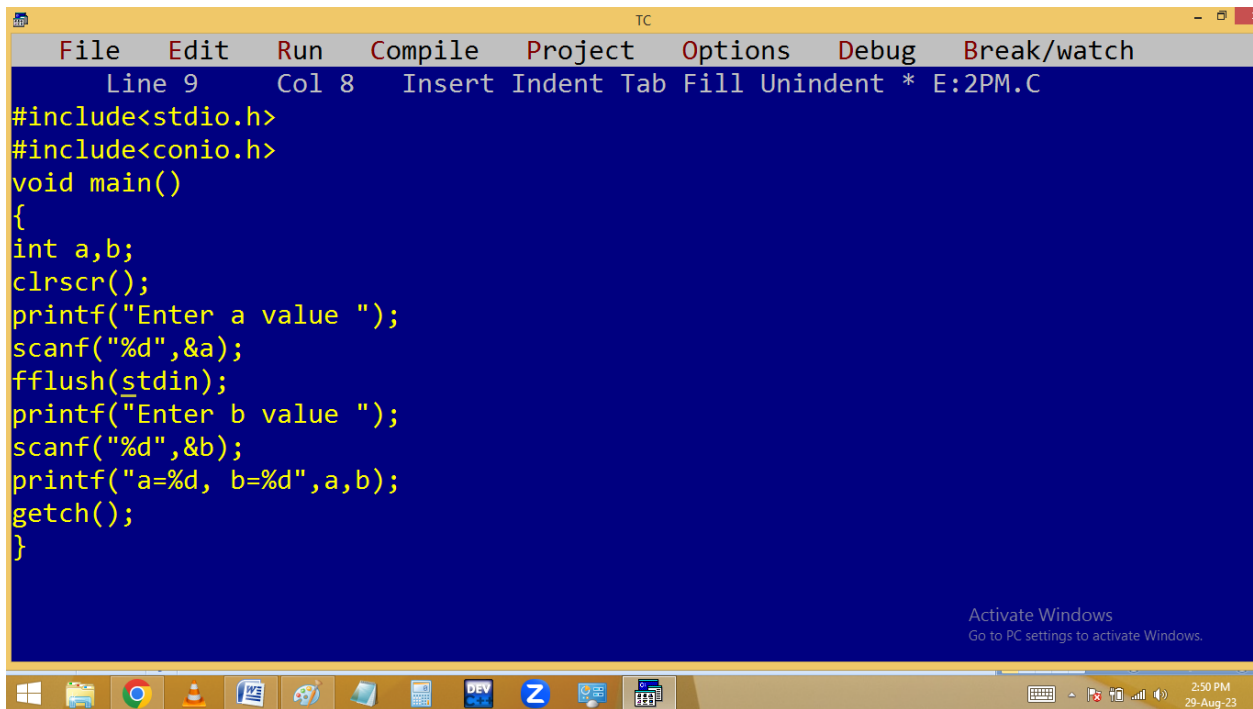


TC

```
Enter a value 1 2
Enter b value 9
a=1, b=9
```

Activate Windows
Go to PC settings to activate Windows.

2:49 PM
29-Aug-23



TC

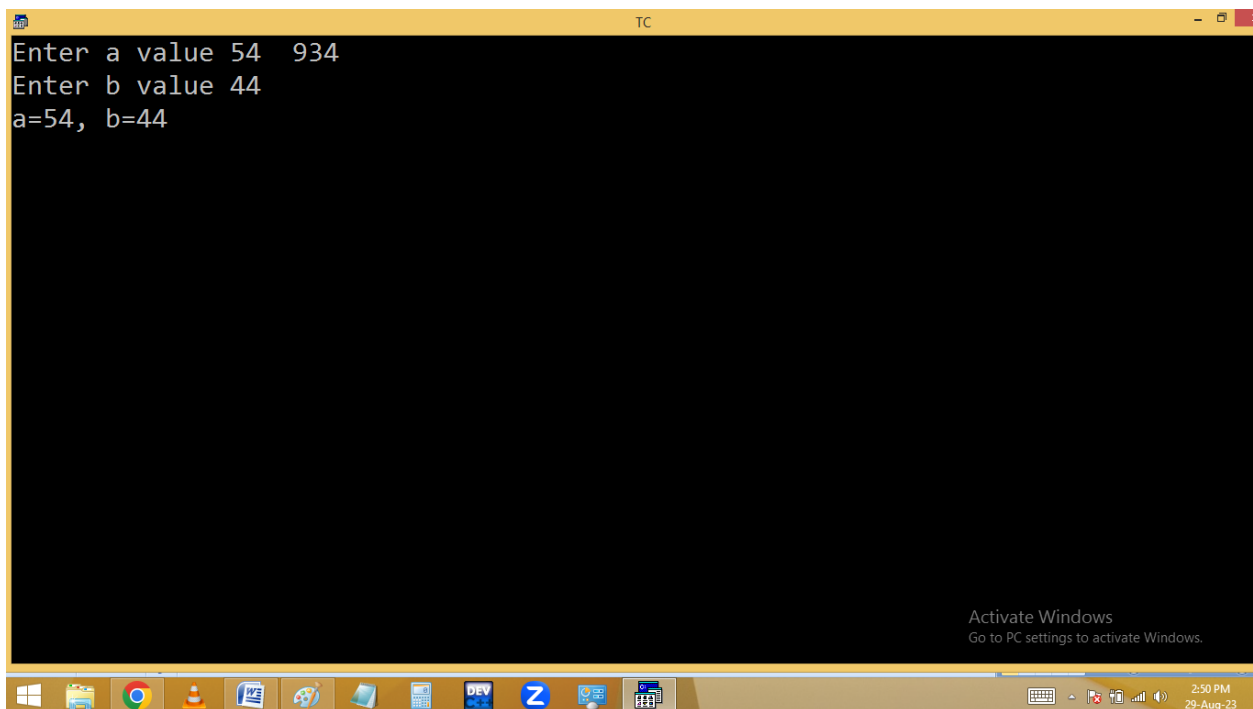
File Edit Run Compile Project Options Debug Break/watch

Line 9 Col 8 Insert Indent Tab Fill Unindent * E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a value ");
scanf("%d",&a);
fflush(stdin);
printf("Enter b value ");
scanf("%d",&b);
printf("a=%d, b=%d",a,b);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

2:50 PM
29-Aug-23

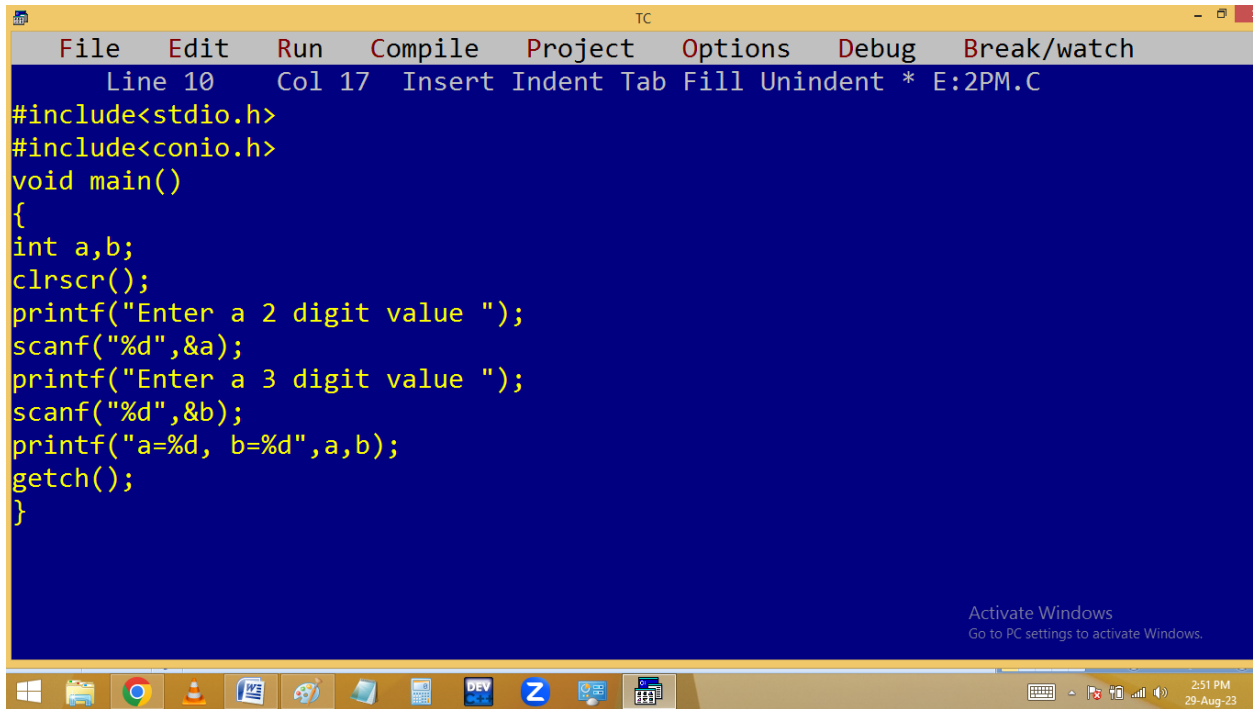


TC

```
Enter a value 54 934
Enter b value 44
a=54, b=44
```

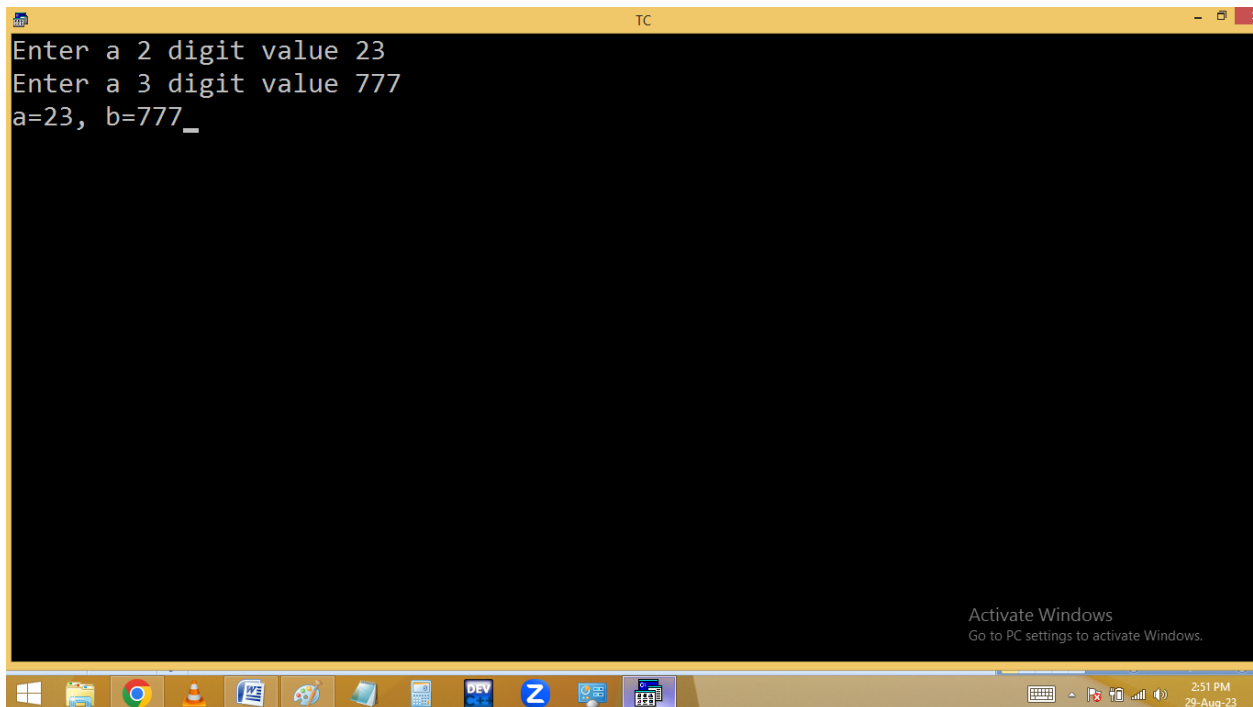
Activate Windows
Go to PC settings to activate Windows.

2:50 PM
29-Aug-23



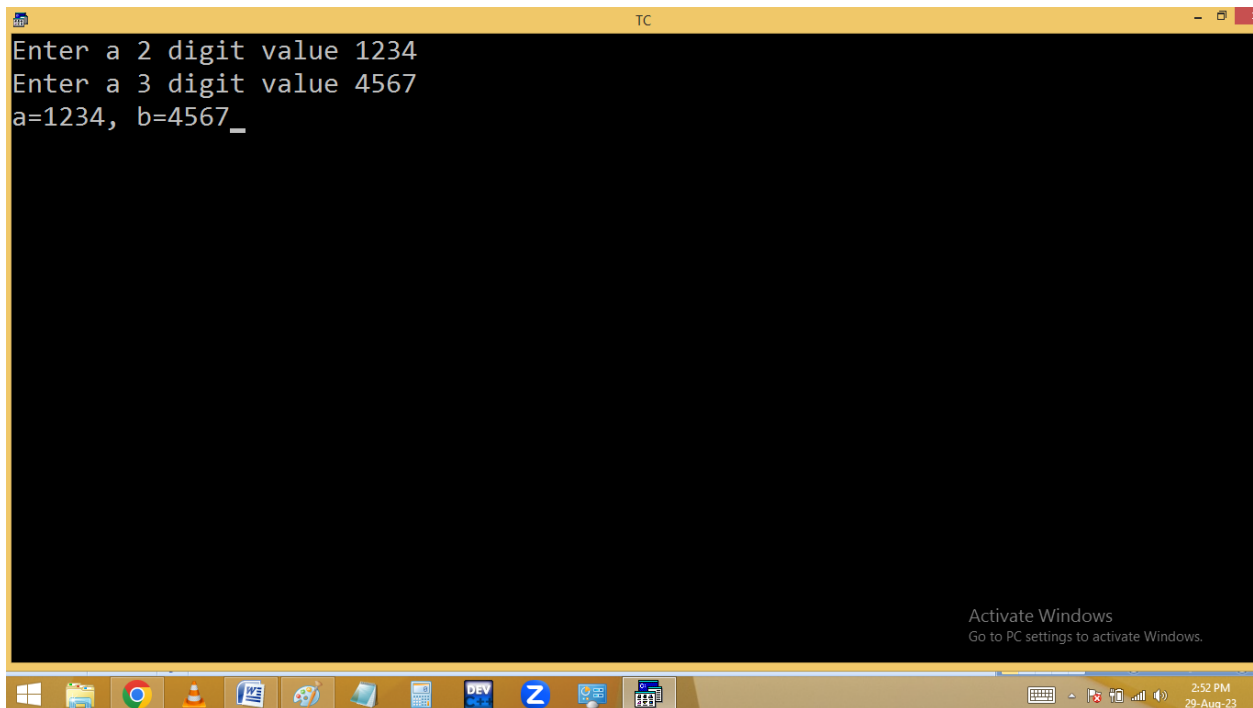
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 17 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a 2 digit value ");
scanf("%d",&a);
printf("Enter a 3 digit value ");
scanf("%d",&b);
printf("a=%d, b=%d",a,b);
getch();
}

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



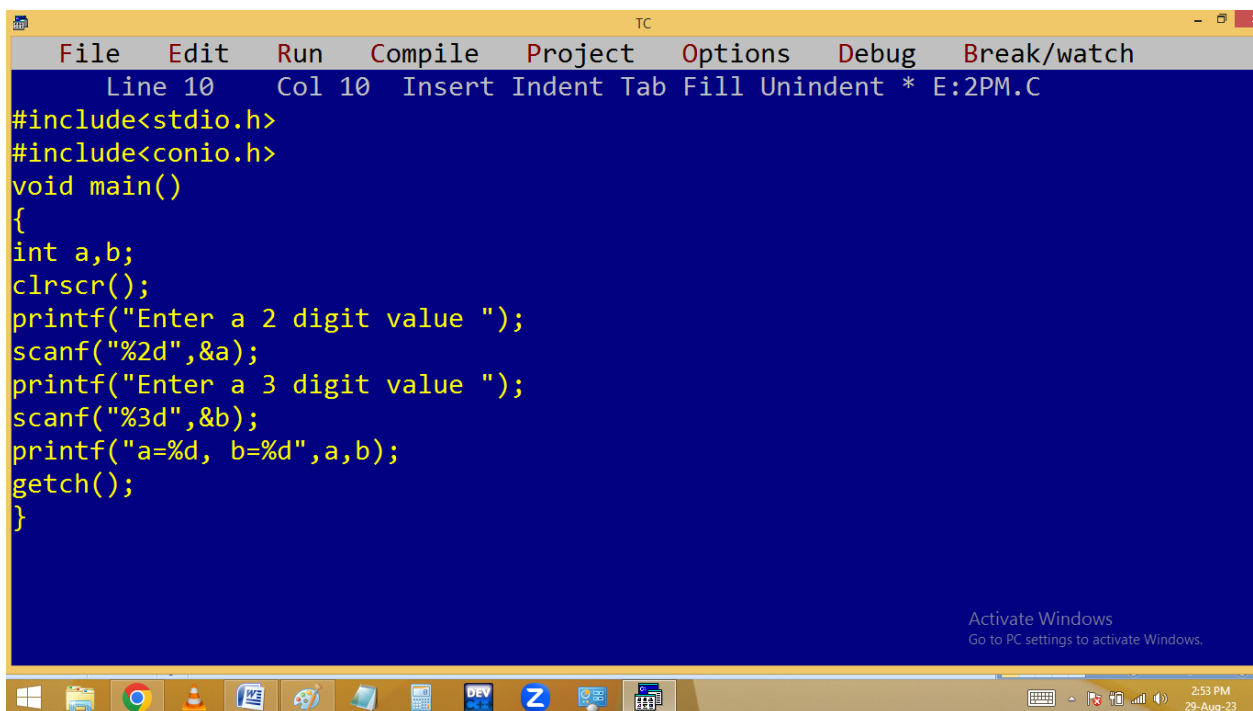
```
TC
Enter a 2 digit value 23
Enter a 3 digit value 777
a=23, b=777_

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



The screenshot shows a Turbo C++ (TC) console window with a black background and white text. The text displays the execution of a program that prompts for two values. The first prompt is "Enter a 2 digit value 1234", followed by the second prompt "Enter a 3 digit value 4567". The final output line is "a=1234, b=4567_". The window title bar is yellow and labeled "TC". At the bottom, there is a Windows taskbar with various application icons and a system clock showing 2:52 PM on 29-Aug-23. An "Activate Windows" watermark is visible in the bottom right corner of the console area.

```
Enter a 2 digit value 1234
Enter a 3 digit value 4567
a=1234, b=4567_
```

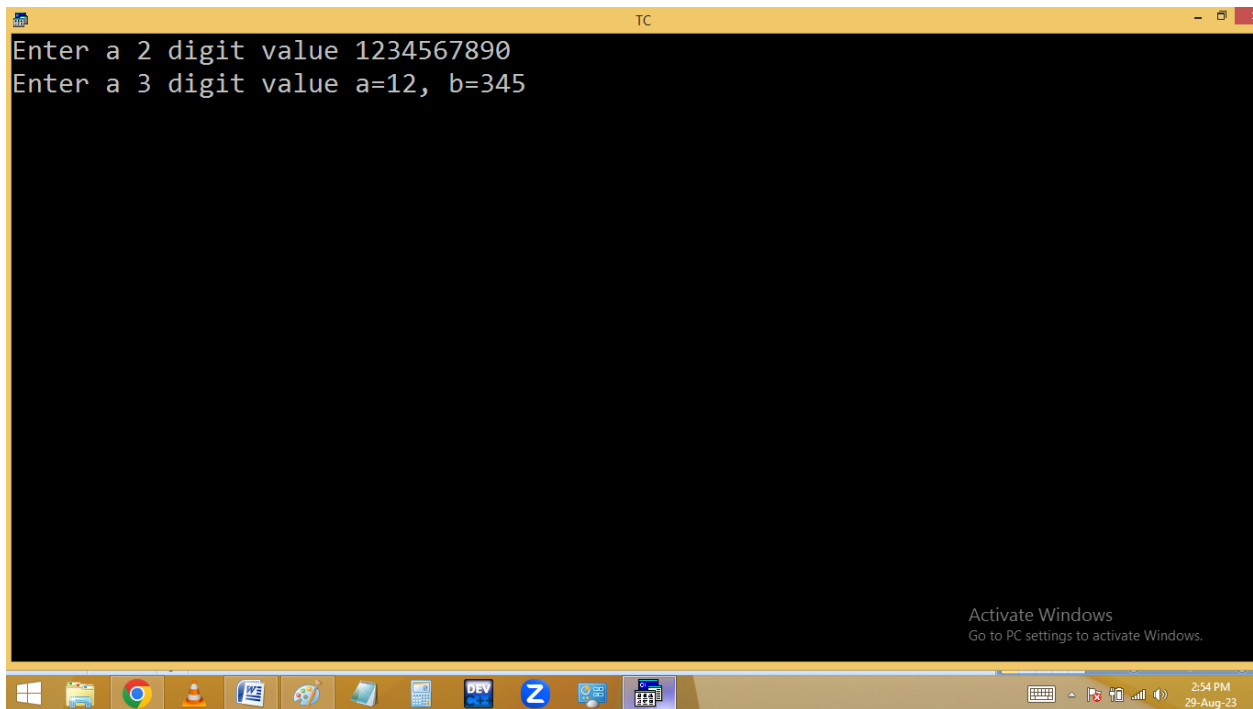
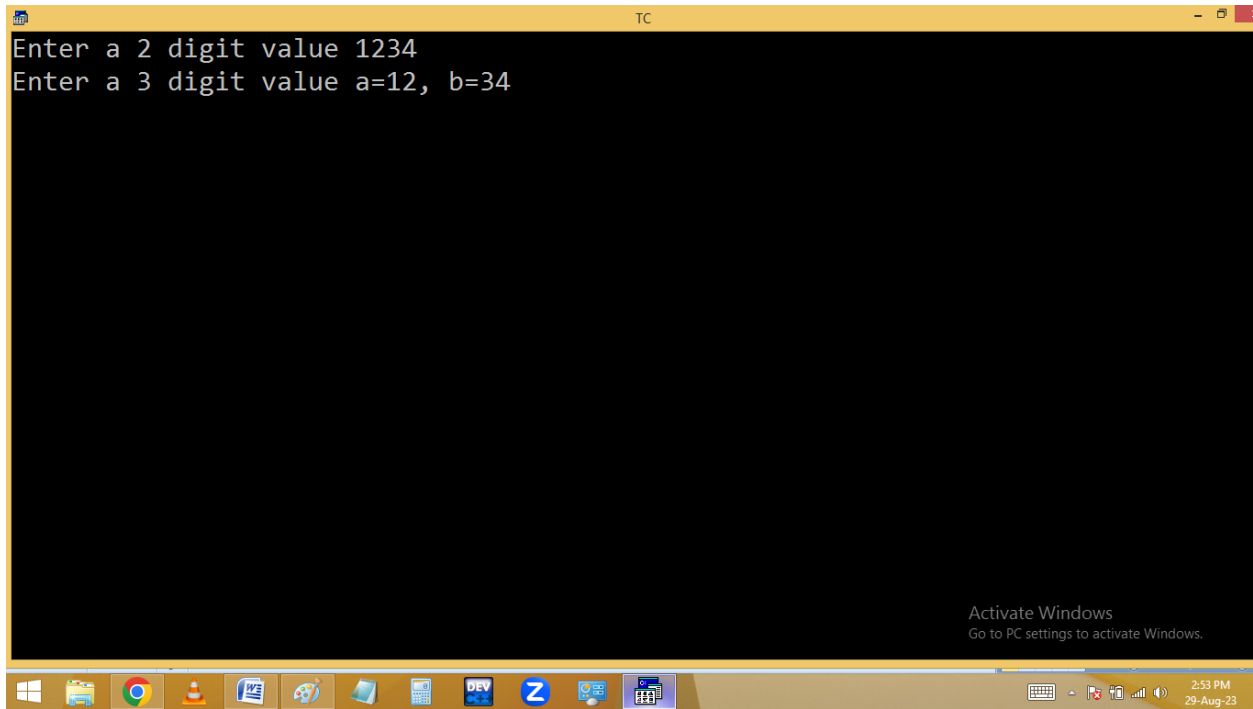


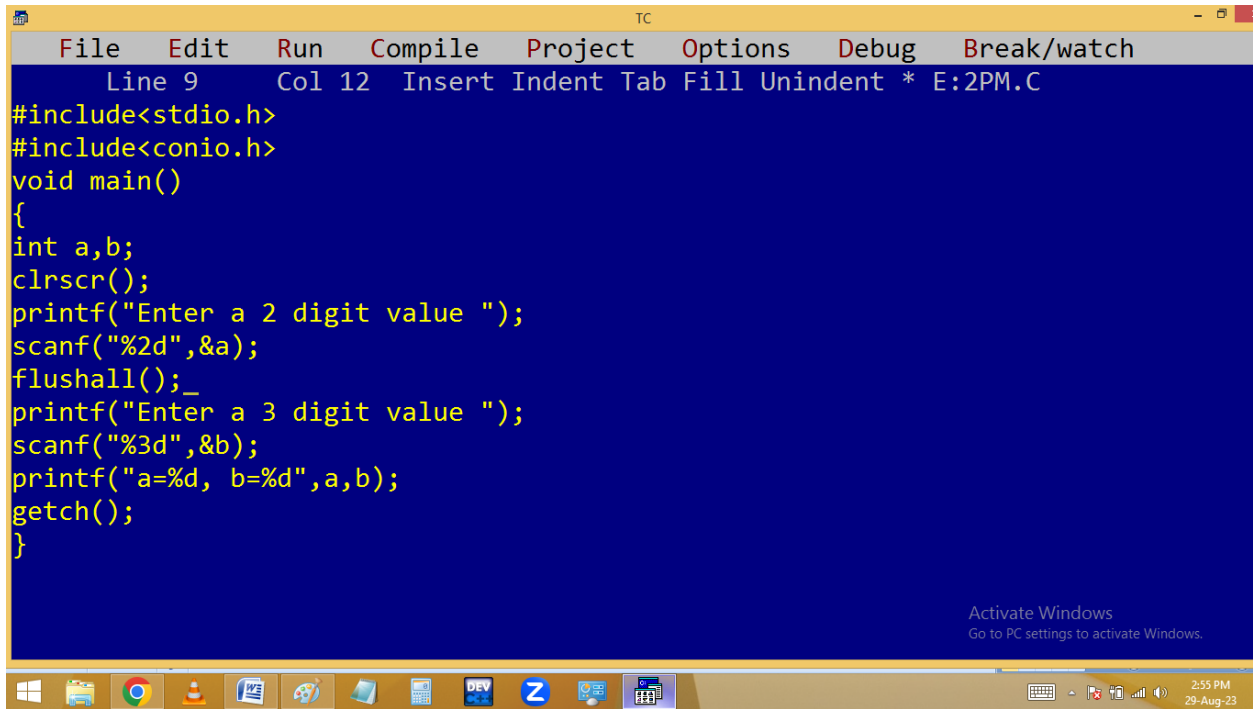
The screenshot shows the Turbo C++ (TC) source code editor window. The window has a yellow title bar labeled "TC" and a menu bar with options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. Below the menu bar is a status bar showing "Line 10 Col 10 Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a blue background with yellow text containing the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a 2 digit value ");
scanf("%2d",&a);
printf("Enter a 3 digit value ");
scanf("%3d",&b);
printf("a=%d, b=%d",a,b);
getch();
}
```


The window title bar and system taskbar at the bottom are identical to the first screenshot, with the system clock now showing 2:53 PM. An "Activate Windows" watermark is also present in the bottom right corner.

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a 2 digit value ");
scanf("%2d",&a);
printf("Enter a 3 digit value ");
scanf("%3d",&b);
printf("a=%d, b=%d",a,b);
getch();
}
```





TC

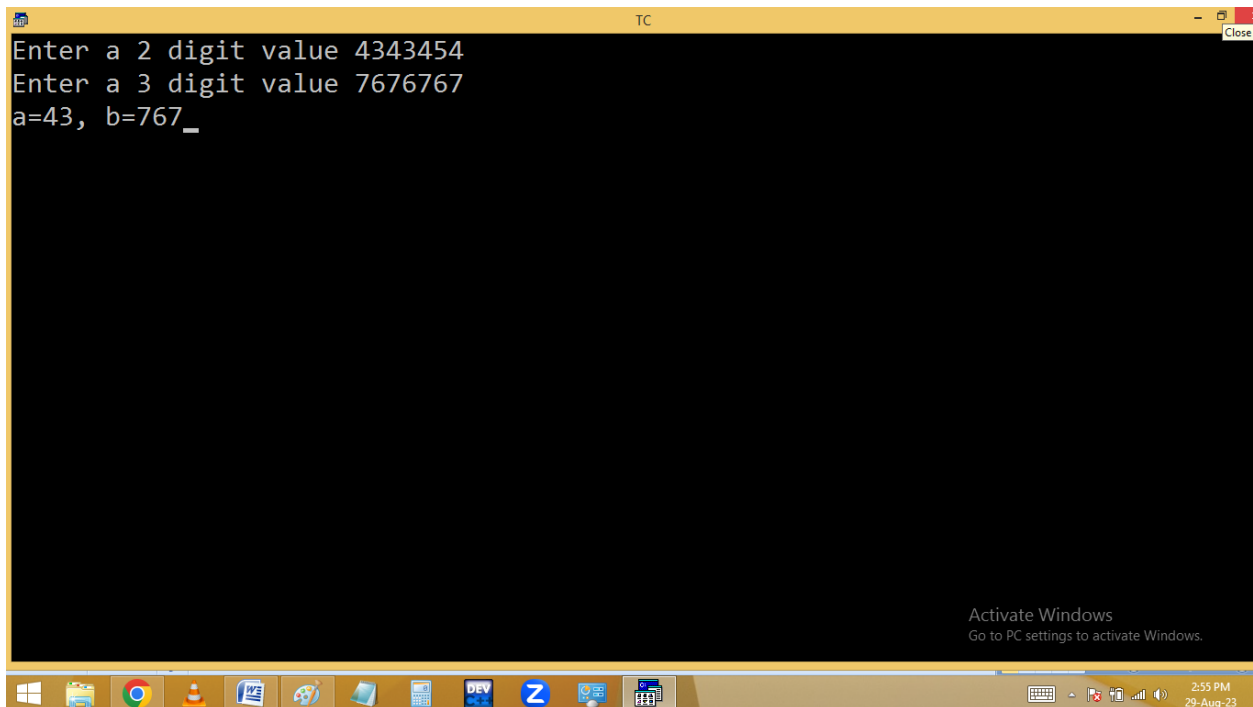
File Edit Run Compile Project Options Debug Break/watch

Line 9 Col 12 Insert Indent Tab Fill Unindent * E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a 2 digit value ");
scanf("%2d",&a);
flushall();_
printf("Enter a 3 digit value ");
scanf("%3d",&b);
printf("a=%d, b=%d",a,b);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

2:55 PM
29-Aug-23



TC

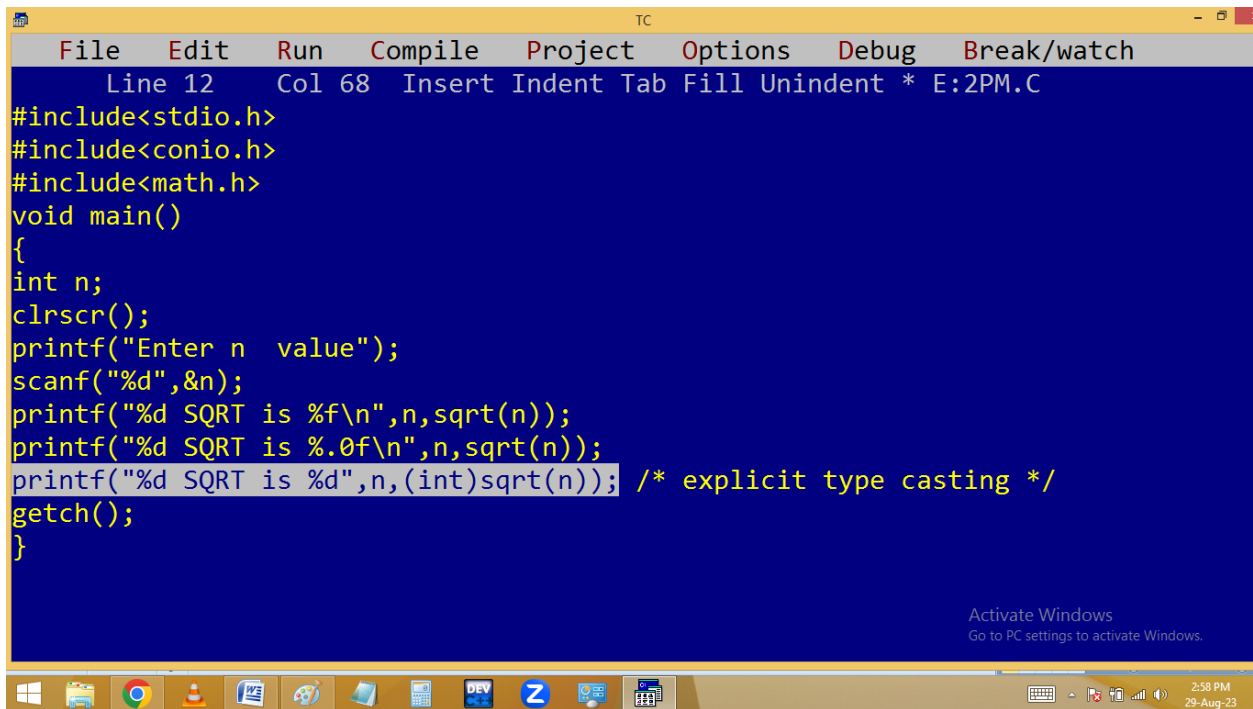
Close

```
Enter a 2 digit value 4343454
Enter a 3 digit value 7676767
a=43, b=767_
```

Activate Windows
Go to PC settings to activate Windows.

2:55 PM
29-Aug-23

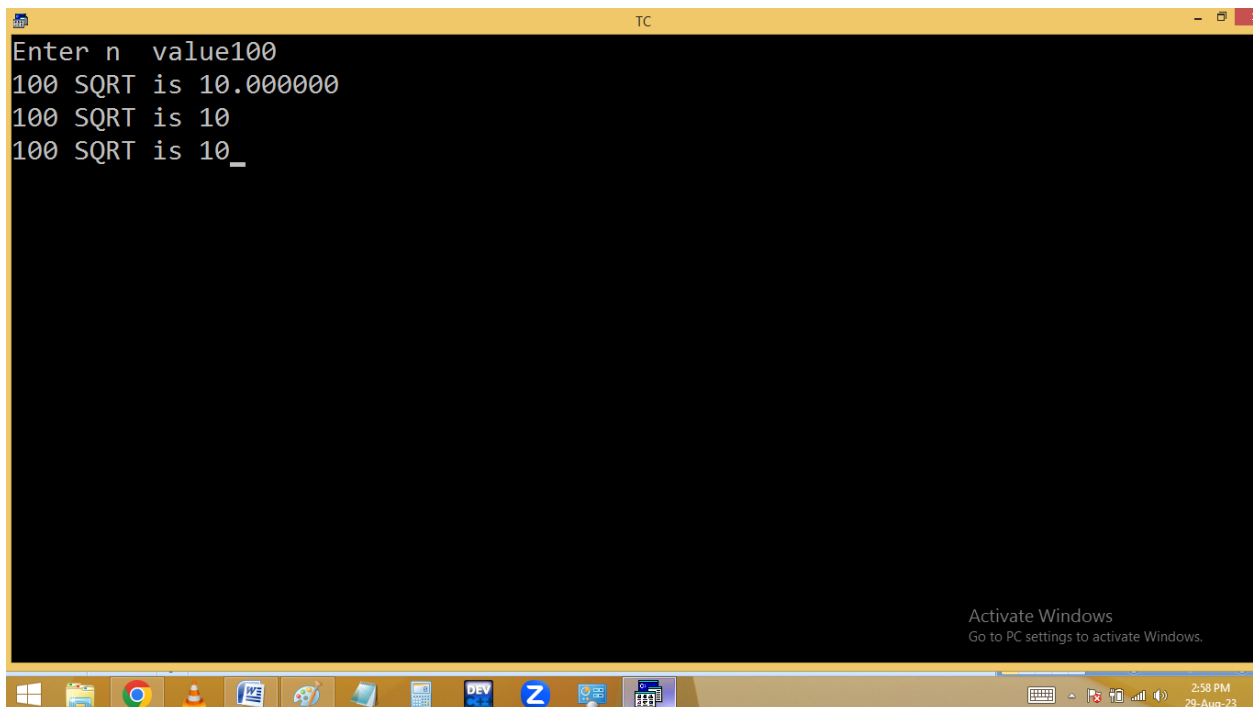
Finding SQRT of given no.



The screenshot shows the Turbo C++ (TC) editor window. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 12 Col 68 Insert Indent Tab Fill Unindent * E:2PM.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
    int n;
    clrscr();
    printf("Enter n value");
    scanf("%d",&n);
    printf("%d SQRT is %f\n",n,sqrt(n));
    printf("%d SQRT is %.0f\n",n,sqrt(n));
    printf("%d SQRT is %d",n,(int)sqrt(n)); /* explicit type casting */
    getch();
}
```

The Windows taskbar at the bottom shows various application icons and the system clock indicating 2:58 PM on 29-Aug-23.

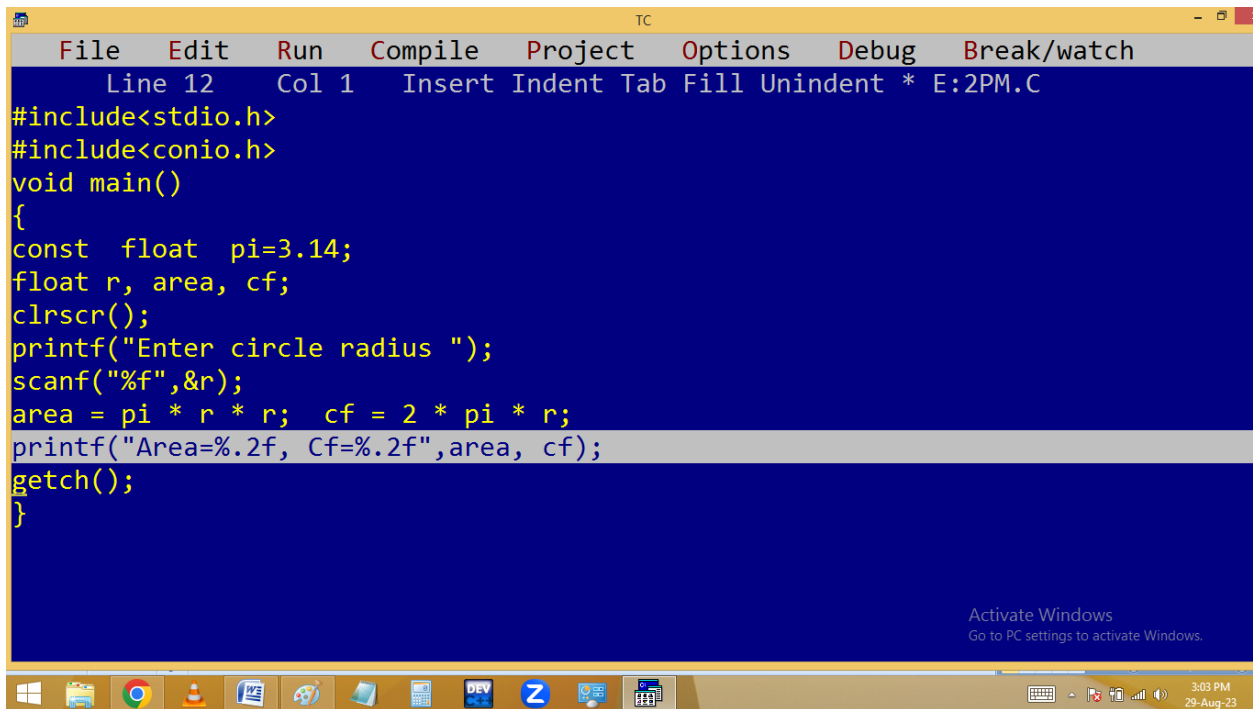


The screenshot shows the Turbo C++ (TC) editor window displaying the output of the program. The input value 100 has been entered, and the program has calculated its square root using three different formatting specifiers.

```
Enter n value100
100 SQRT is 10.000000
100 SQRT is 10
100 SQRT is 10_
```

The Windows taskbar at the bottom shows various application icons and the system clock indicating 2:58 PM on 29-Aug-23.

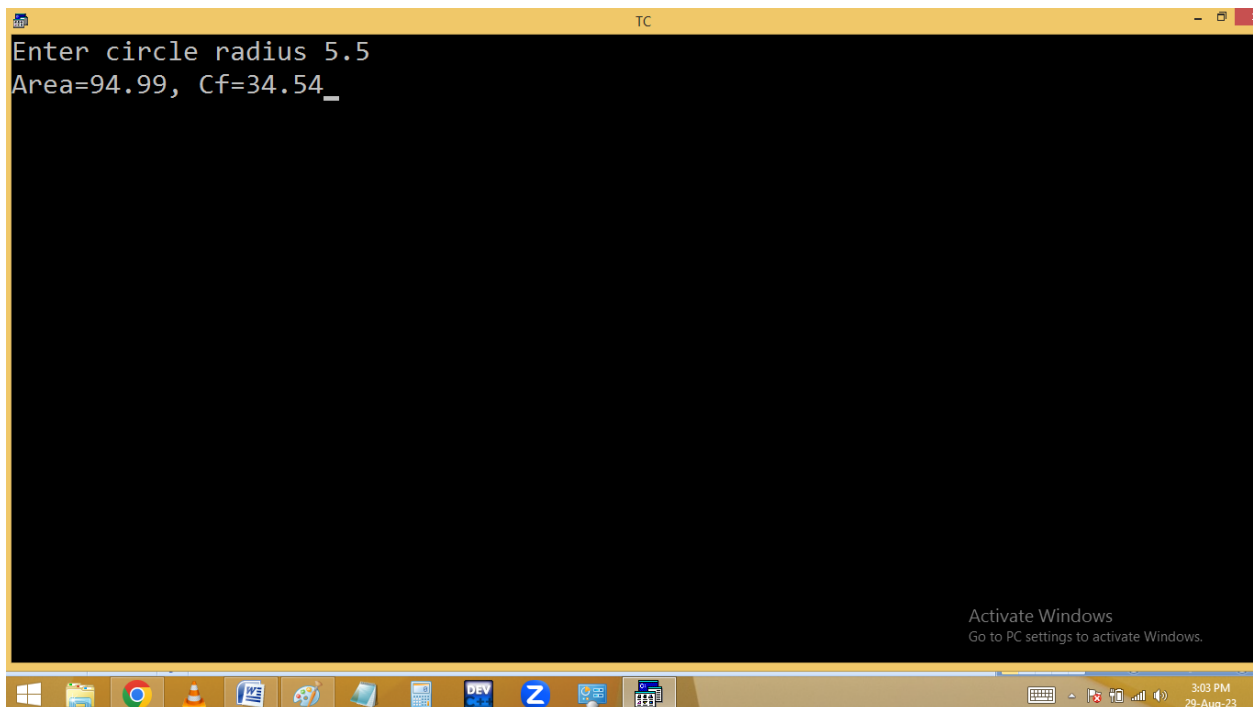
Finding area and circumference of a circle.



The screenshot shows the Turbo C++ (TC) IDE with the following code in the editor:

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
const float pi=3.14;
float r, area, cf;
clrscr();
printf("Enter circle radius ");
scanf("%f",&r);
area = pi * r * r;  cf = 2 * pi * r;
printf("Area=%.2f, Cf=%.2f",area, cf);
getch();
}
```

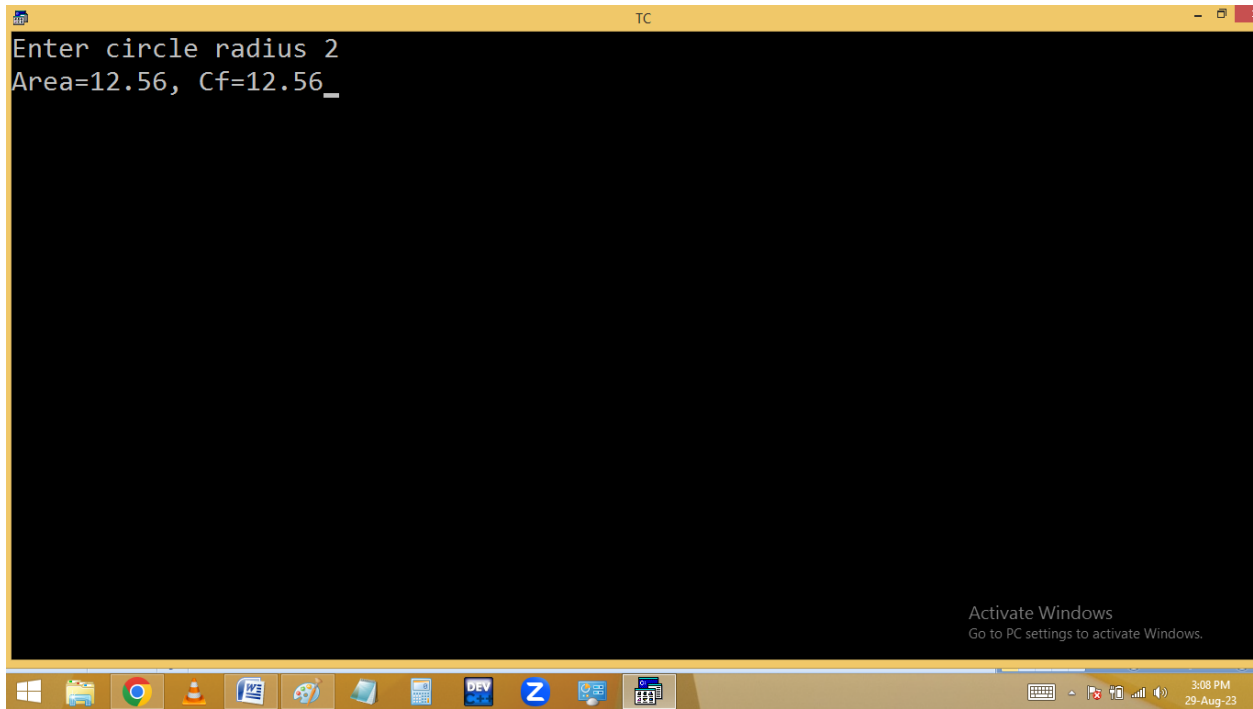
The Windows taskbar at the bottom shows the time as 3:03 PM on 29-Aug-23.



The screenshot shows the Turbo C++ (TC) IDE displaying the output of the program:

```
Enter circle radius 5.5
Area=94.99, Cf=34.54_
```

The Windows taskbar at the bottom shows the time as 3:03 PM on 29-Aug-23.



```
TC
Enter circle radius 2
Area=12.56, Cf=12.56_

Activate Windows
Go to PC settings to activate Windows.

3:08 PM
29-Aug-23
```

Finding baby age in years, months, weeks and days.

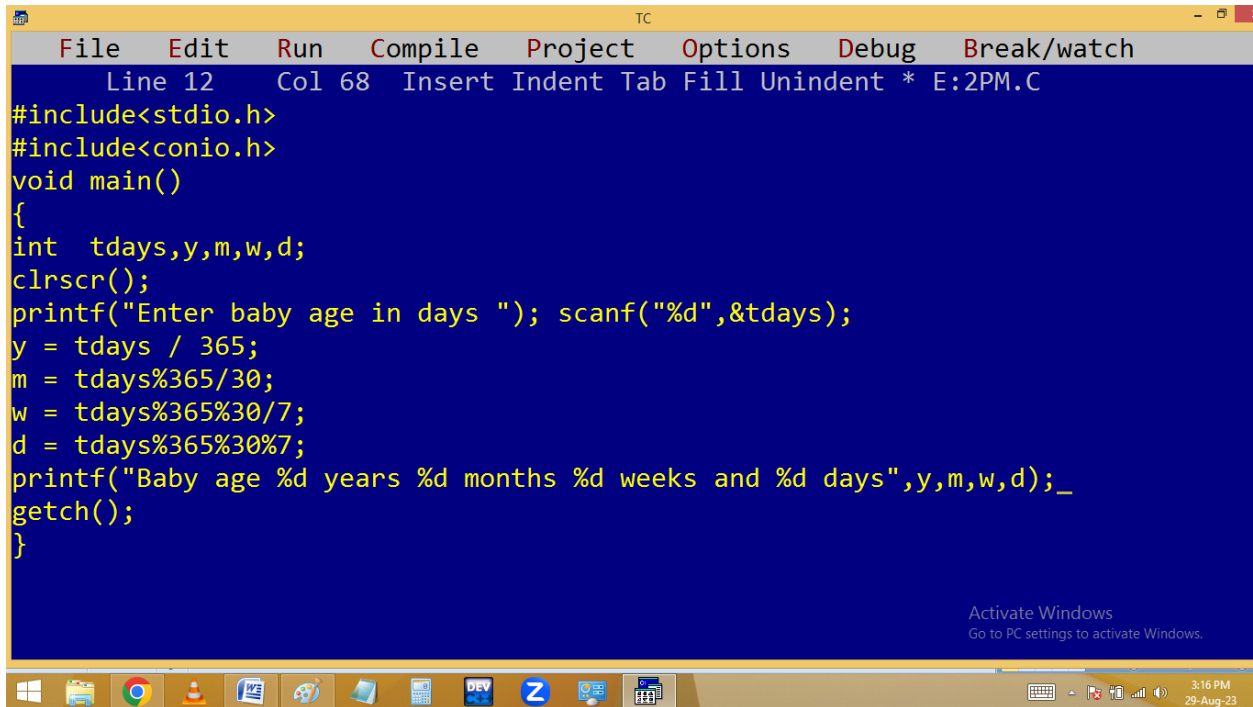
$$\begin{array}{r}
 365 \overline{) 500} \quad (1 - y \\
 \underline{365} \\
 135 \\
 30 \overline{) 135} \quad (4 - m \\
 \underline{120} \\
 15 \\
 7 \overline{) 15} \quad (2 - w \\
 \underline{14} \\
 1 - d
 \end{array}$$

$$y = 500/365 = 1$$

$$m = 500 \% 365 = 135/30 = 4$$

$$w = 500 \% 365 = 135 \% 30 = 15/7 = 2$$

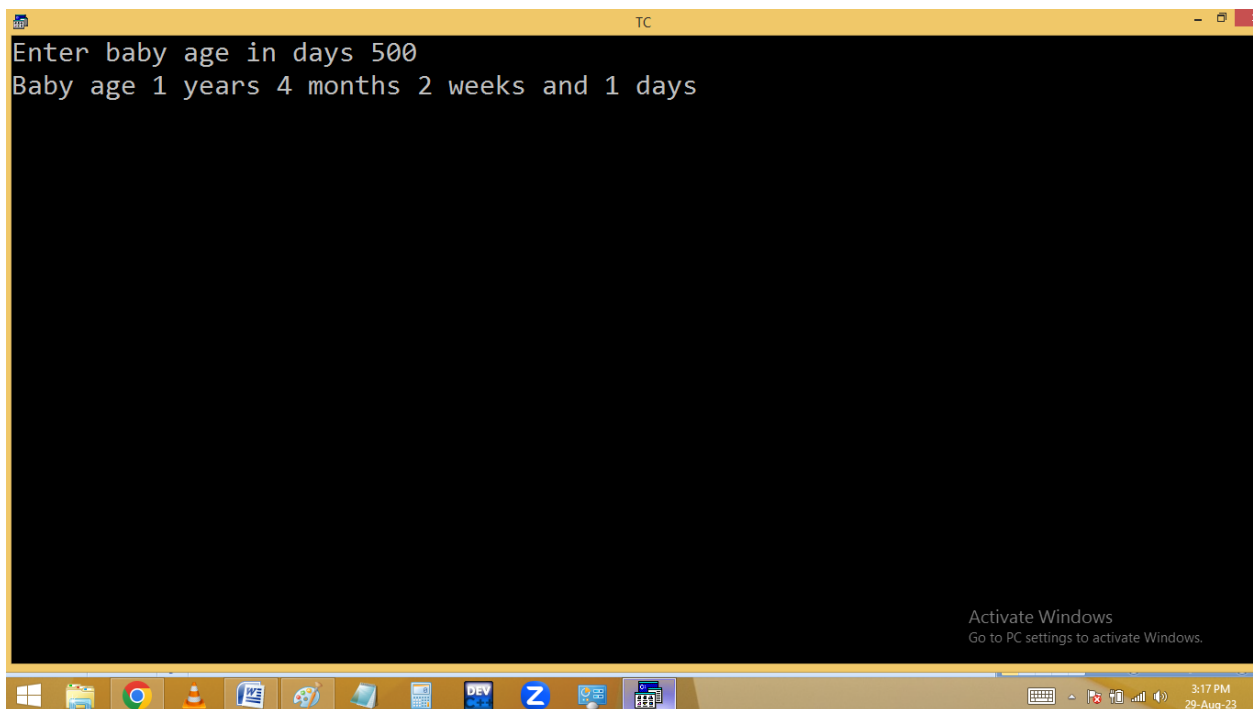
$$d = 500 \% 365 = 135 \% 30 = 15 \% 7 = 1$$



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 12, Col 68, Insert, Indent, Tab, Fill, Unindent, * E:2PM.C). The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int  tdays,y,m,w,d;
    clrscr();
    printf("Enter baby age in days "); scanf("%d",&tdays);
    y = tdays / 365;
    m = tdays%365/30;
    w = tdays%365%30/7;
    d = tdays%365%30%7;
    printf("Baby age %d years %d months %d weeks and %d days",y,m,w,d);_
    getch();
}
```

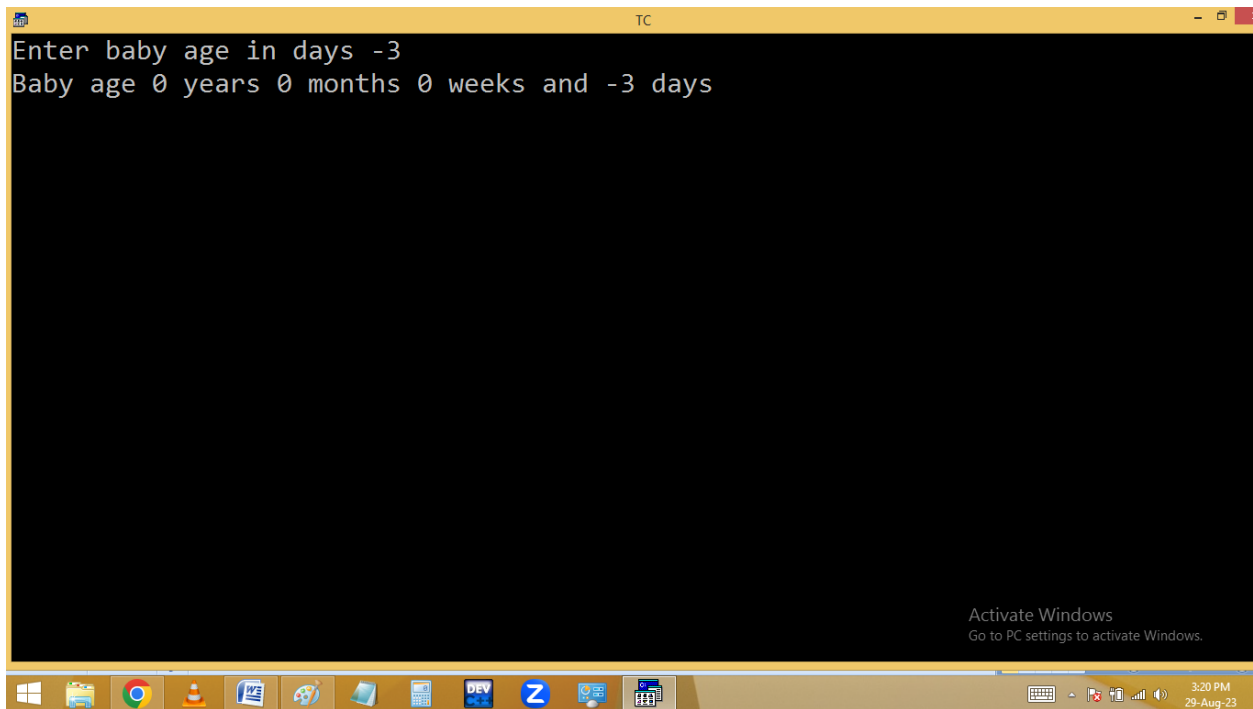
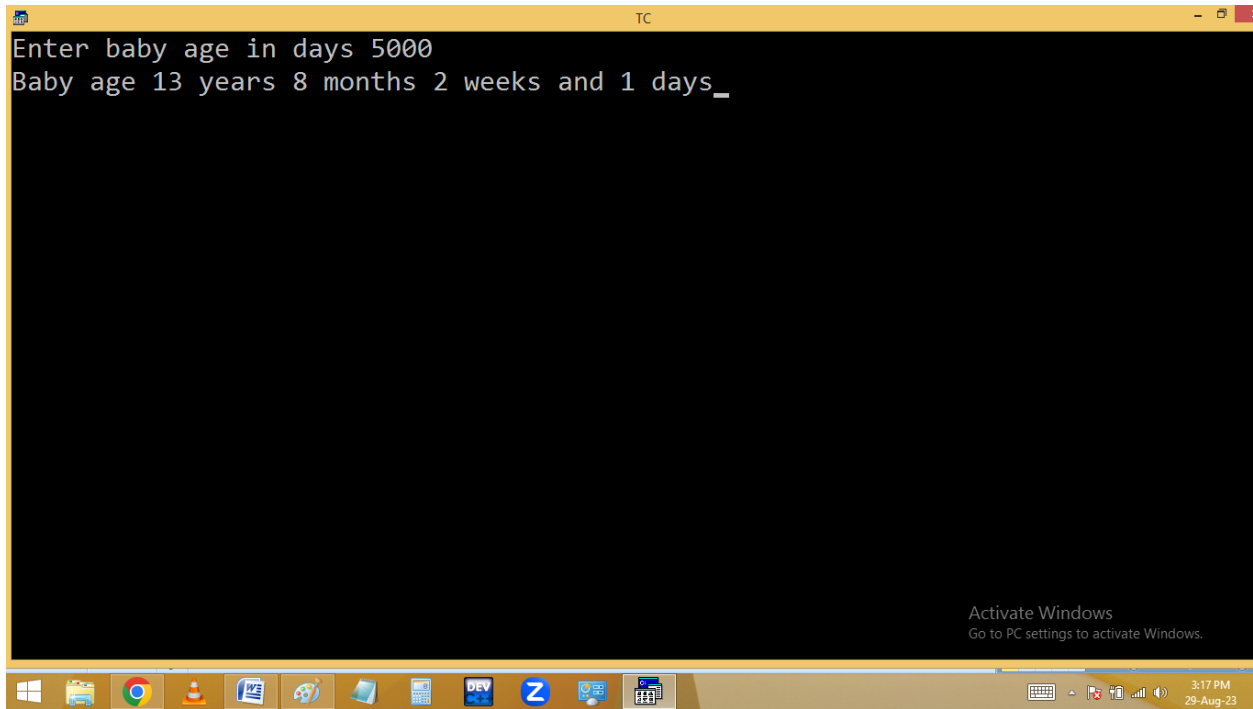
An "Activate Windows" watermark is visible in the bottom right corner of the IDE window.



The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar. The output of the program is displayed in the main window:

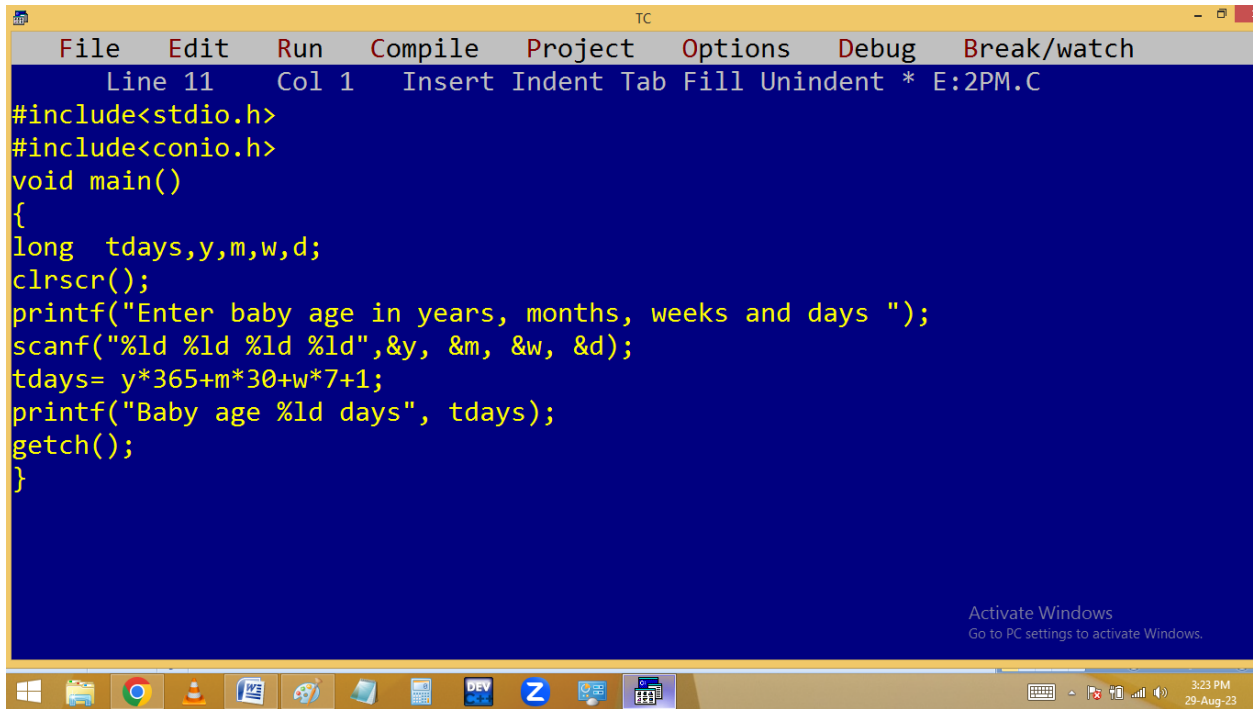
```
Enter baby age in days 500
Baby age 1 years 4 months 2 weeks and 1 days
```

An "Activate Windows" watermark is visible in the bottom right corner of the IDE window.



Read baby age in years, months, weeks and days. Find baby age in total days.

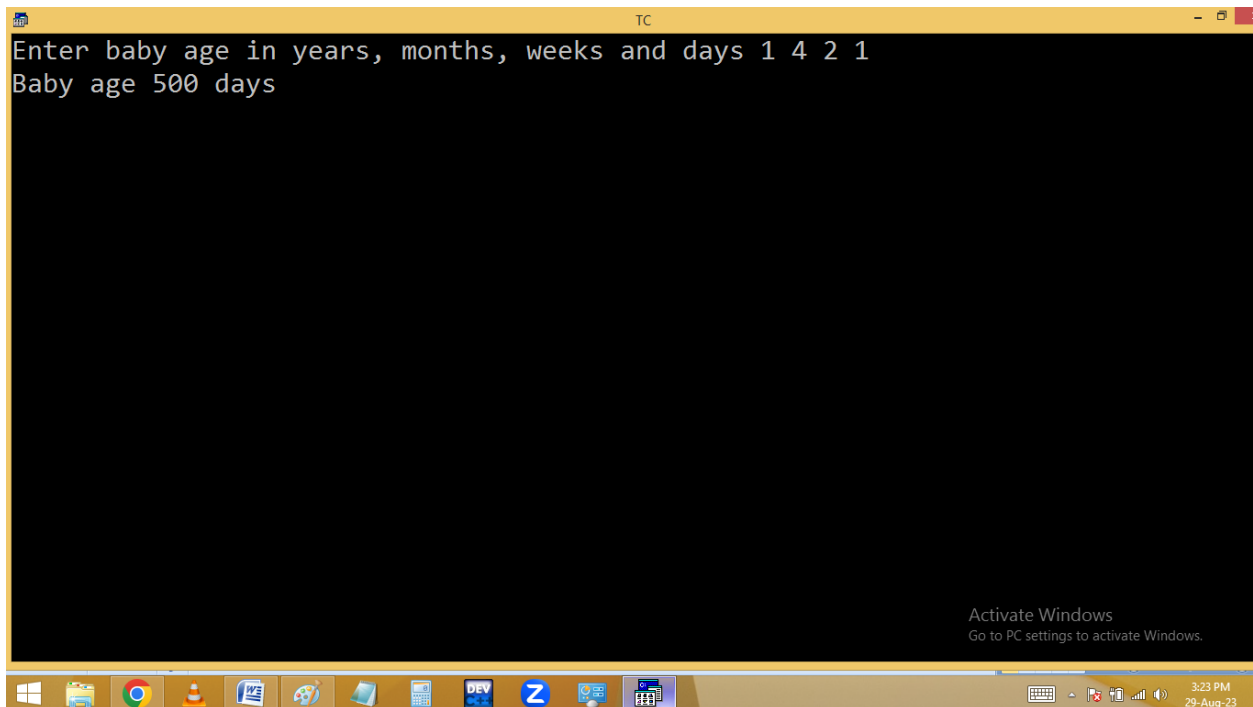
$$1y * 365 + 4m * 30 + 2w * 7 + 1d = 500$$



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 11 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C'. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    long  tdays,y,m,w,d;
    clrscr();
    printf("Enter baby age in years, months, weeks and days ");
    scanf("%ld %ld %ld %ld",&y, &m, &w, &d);
    tdays= y*365+m*30+w*7+1;
    printf("Baby age %ld days", tdays);
    getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window. The Windows taskbar at the bottom shows various application icons and the system clock indicating 3:23 PM on 29-Aug-23.



The screenshot shows the same Turbo C++ IDE window after execution. The output is displayed on a black background with white text:

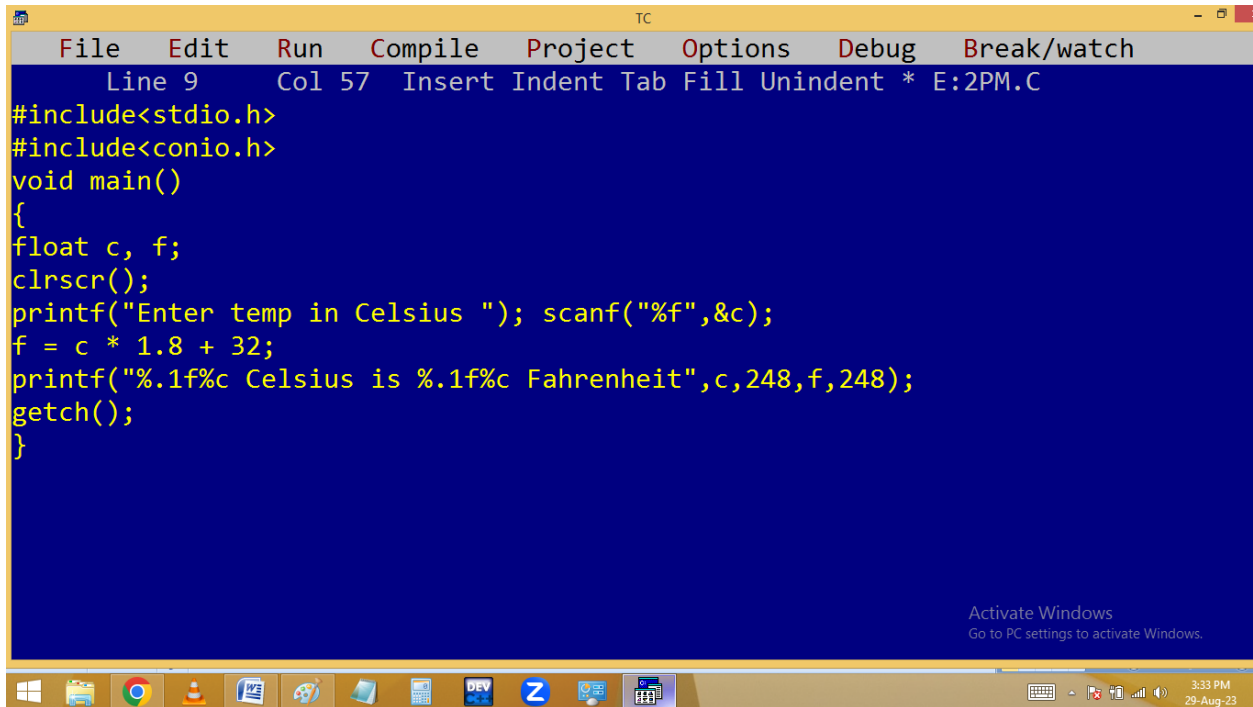
```
Enter baby age in years, months, weeks and days 1 4 2 1
Baby age 500 days
```

The 'Activate Windows' watermark is also present in the bottom right corner. The Windows taskbar at the bottom remains the same, showing the system clock at 3:23 PM on 29-Aug-23.

Eg. **Celsius to Fahrenheit conversion:**

$$F = c * 1.8 + 32$$

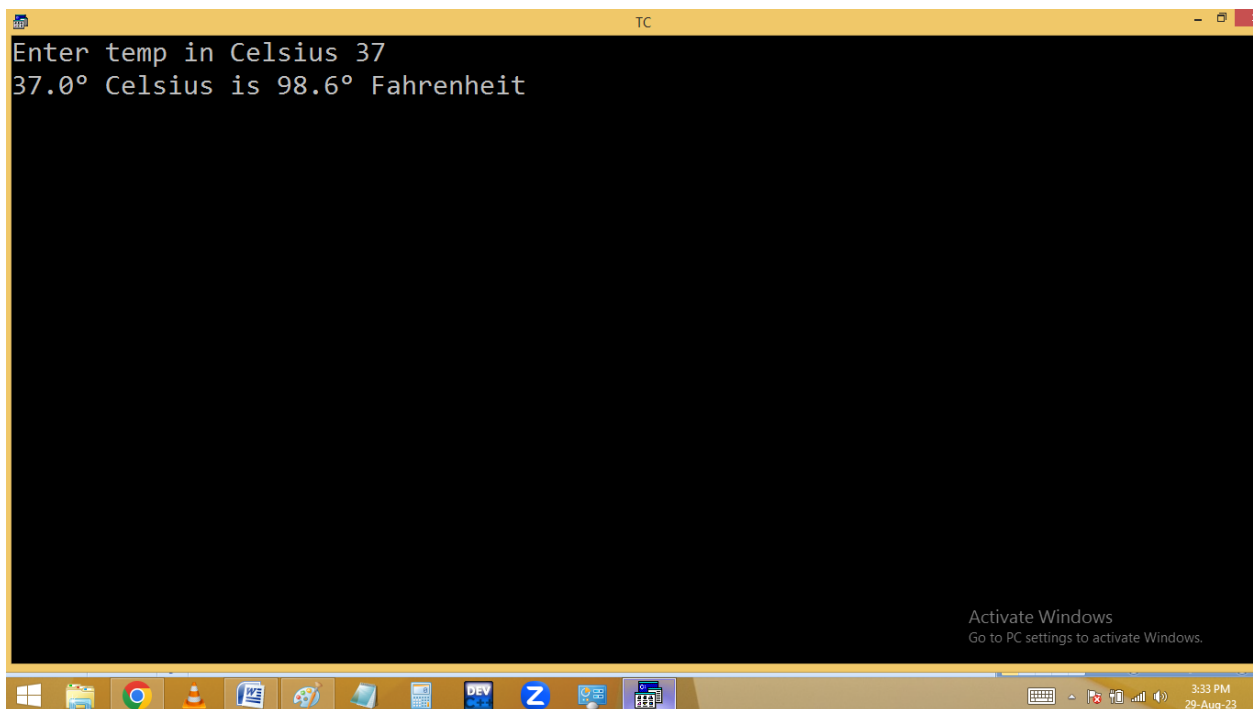
```
{
float c, f;
clrscr();
printf("Enter temp in Celsius "); scanf("%f",&c);
f = c * 1.8 + 32;
printf("%.1f Celsius is %.1f Fahrenheit",c,f);
getch();
}
```



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 9 Col 57 Insert Indent Tab Fill Unindent * E:2PM.C'. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
float c, f;
clrscr();
printf("Enter temp in Celsius "); scanf("%f",&c);
f = c * 1.8 + 32;
printf("%.1f%c Celsius is %.1f%c Fahrenheit",c,248,f,248);
getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window. The Windows taskbar at the bottom shows the Start button, several application icons, and the system clock displaying 3:33 PM on 29-Aug-23.



The screenshot shows the same Turbo C++ IDE window after execution. The output area is black with white text showing the program's results:

```
Enter temp in Celsius 37
37.0° Celsius is 98.6° Fahrenheit
```

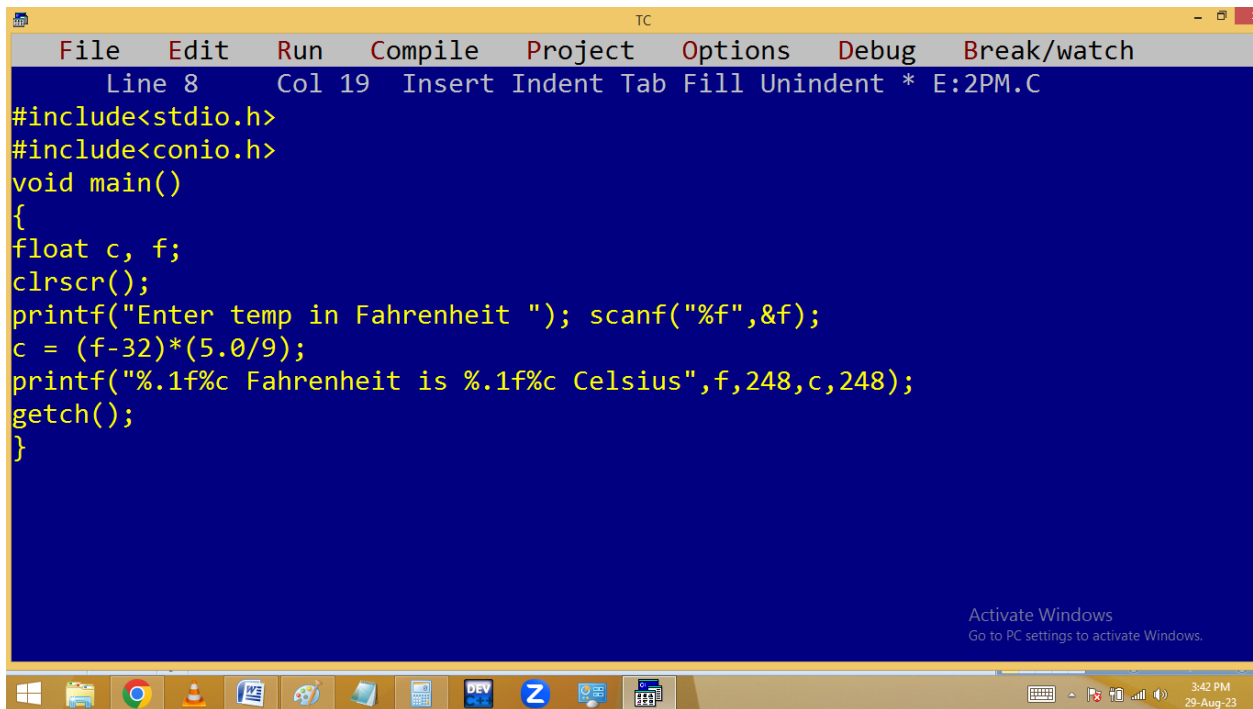
The 'Activate Windows' watermark is also present in the bottom right corner. The Windows taskbar at the bottom remains the same, showing the system clock at 3:33 PM on 29-Aug-23.

```
TC
Enter temp in Celsius -10
-10.0° Celsius is 14.0° Fahrenheit_

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

Fahrenheit to Celsius:

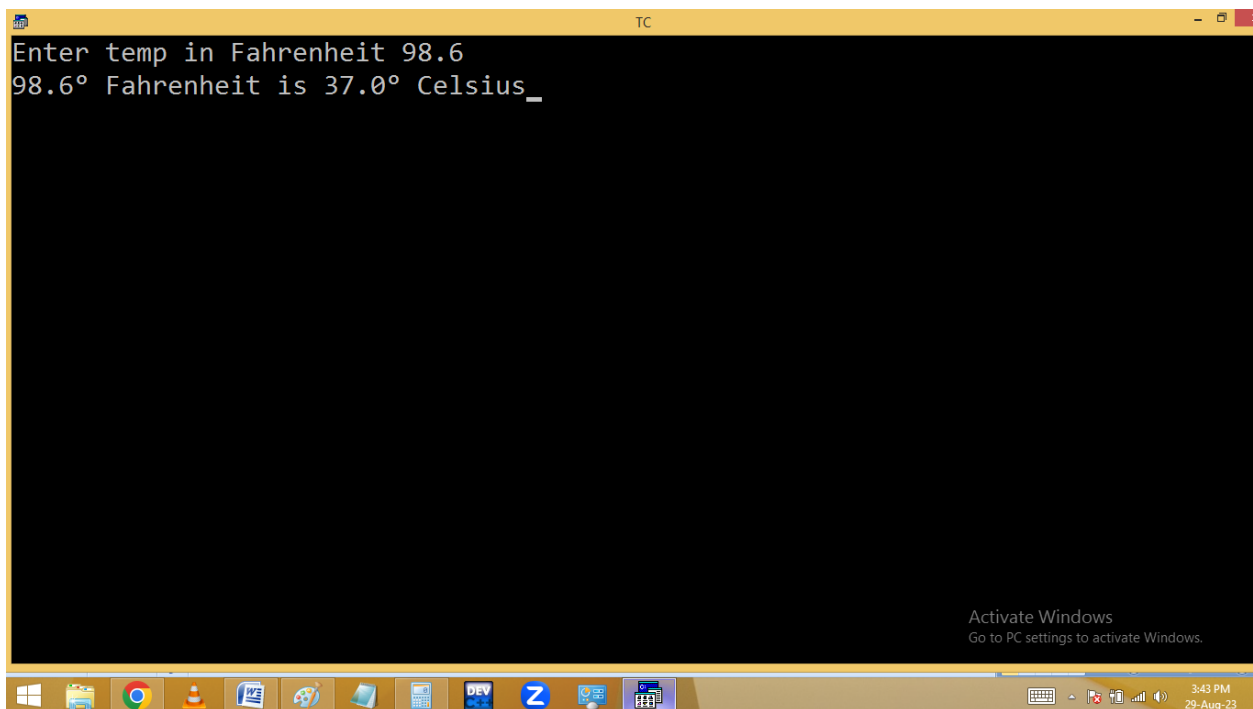
$$C = f - 32 * (5/9)$$



The screenshot shows the Turbo C++ IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 8 Col 19' and 'Insert Indent Tab Fill Unindent * E:2PM.C'. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
float c, f;
clrscr();
printf("Enter temp in Fahrenheit "); scanf("%f",&f);
c = (f-32)*(5.0/9);
printf("%.1f° Fahrenheit is %.1f° Celsius",f,248,c,248);
getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window.



The screenshot shows the Turbo C++ IDE with a black background. The output of the program is displayed as follows:

```
Enter temp in Fahrenheit 98.6
98.6° Fahrenheit is 37.0° Celsius_
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window.

