

## **printf():**

It is the major output function in C.

It is a predefined function available in `stdio.h`

Printf always refer standard output device i.e. monitor.

In printf, f means formatted

### **Syntax:**

```
int printf( " [text] [ conversion char / format specifiers ] " [ ,  
variables ] [ , expressions ] );
```

### **Note:**

1. Printf always return int that indicates the no of visible characters in " ".
2. In printf the first arguments should be within " "
3. In printf everything printed as it is except conversion characters and back slash characters.
4. Printf can perform both formatted and unformatted outputs.
5. In printf execution order is right to left and printing is left to right.

The screenshot displays the Turbo C++ (TC) IDE. The top window, titled 'E:NONAME.C', contains the following C code:

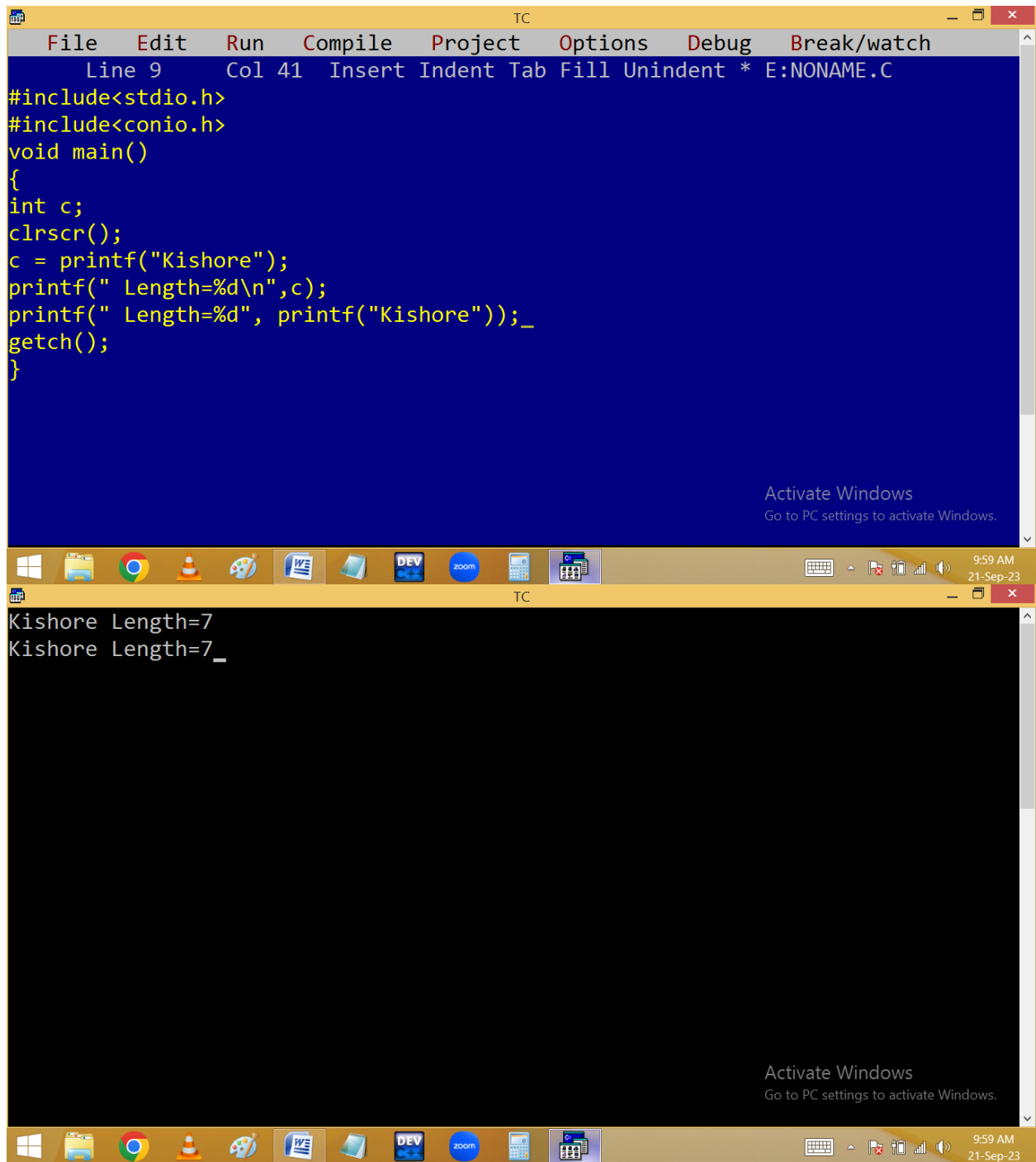
```
Line 16 Col 16 Insert Indent Tab Fill Unindent * E:NONAME.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
float b=1.2;
clrscr();
printf("Hi\n"); /* unformatted */
printf("a=%d\n",a); /* formatted */
printf("b=%f\n",b);
printf("a=%d, b=%f\n",a,b);
printf("a=%d, b=%f, sum=%f\n",a,b, a+b);
printf("%d + %f = %f\n",a,b,a+b);
printf("%d",a);
getch();
}
```

The bottom window shows the program's output:

```
Hi
a=10
b=1.200000
a=10, b=1.200000
a=10, b=1.200000, sum=11.200000
10 + 1.200000 = 11.200000
10
```

The Windows taskbar at the bottom shows the time as 10:11 AM and 10:12 AM on 21-Sep-23. An 'Activate Windows' watermark is visible in the bottom right corner of both windows.

**write a program to find a string length without using strlen() / loop.**



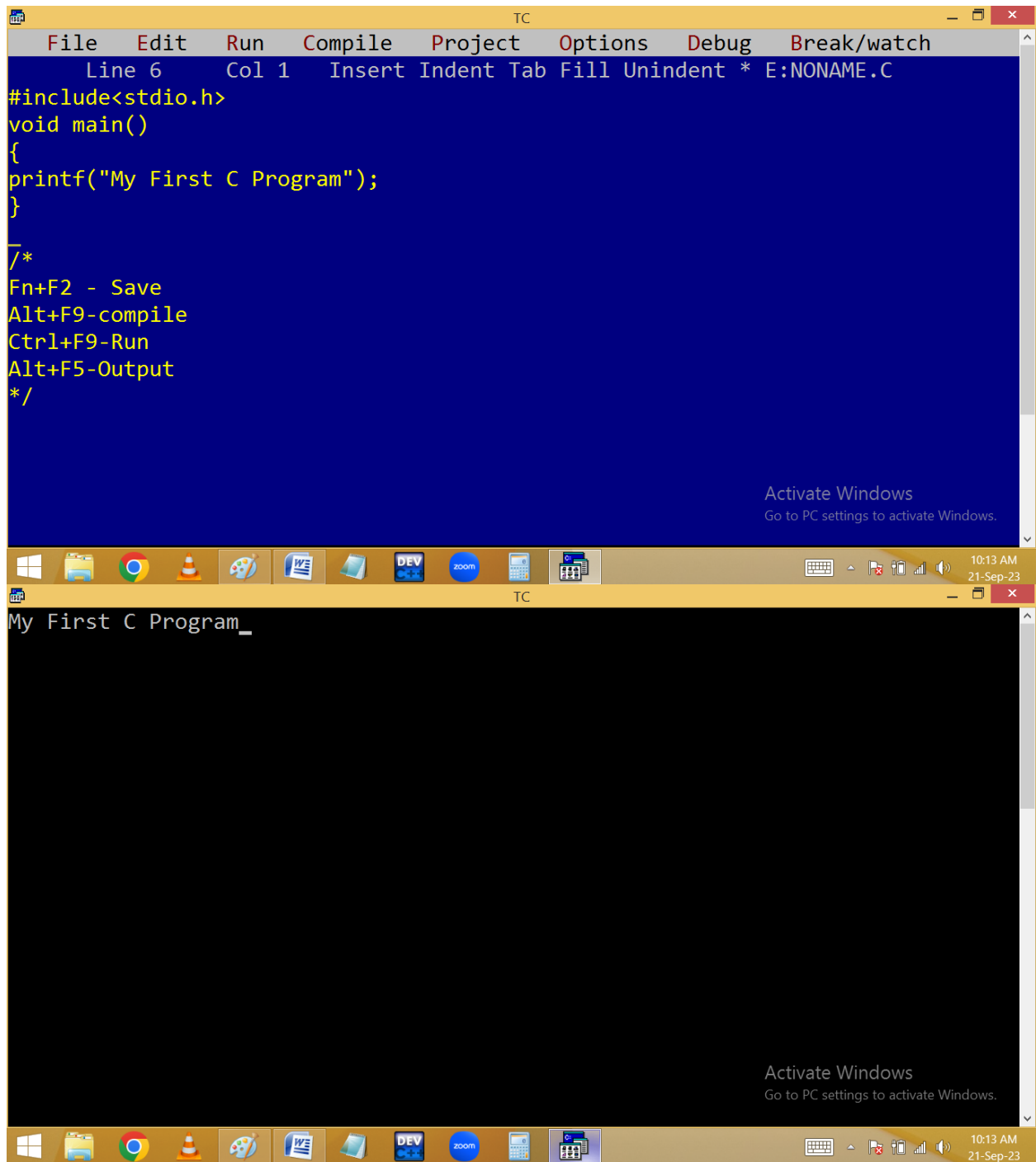
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

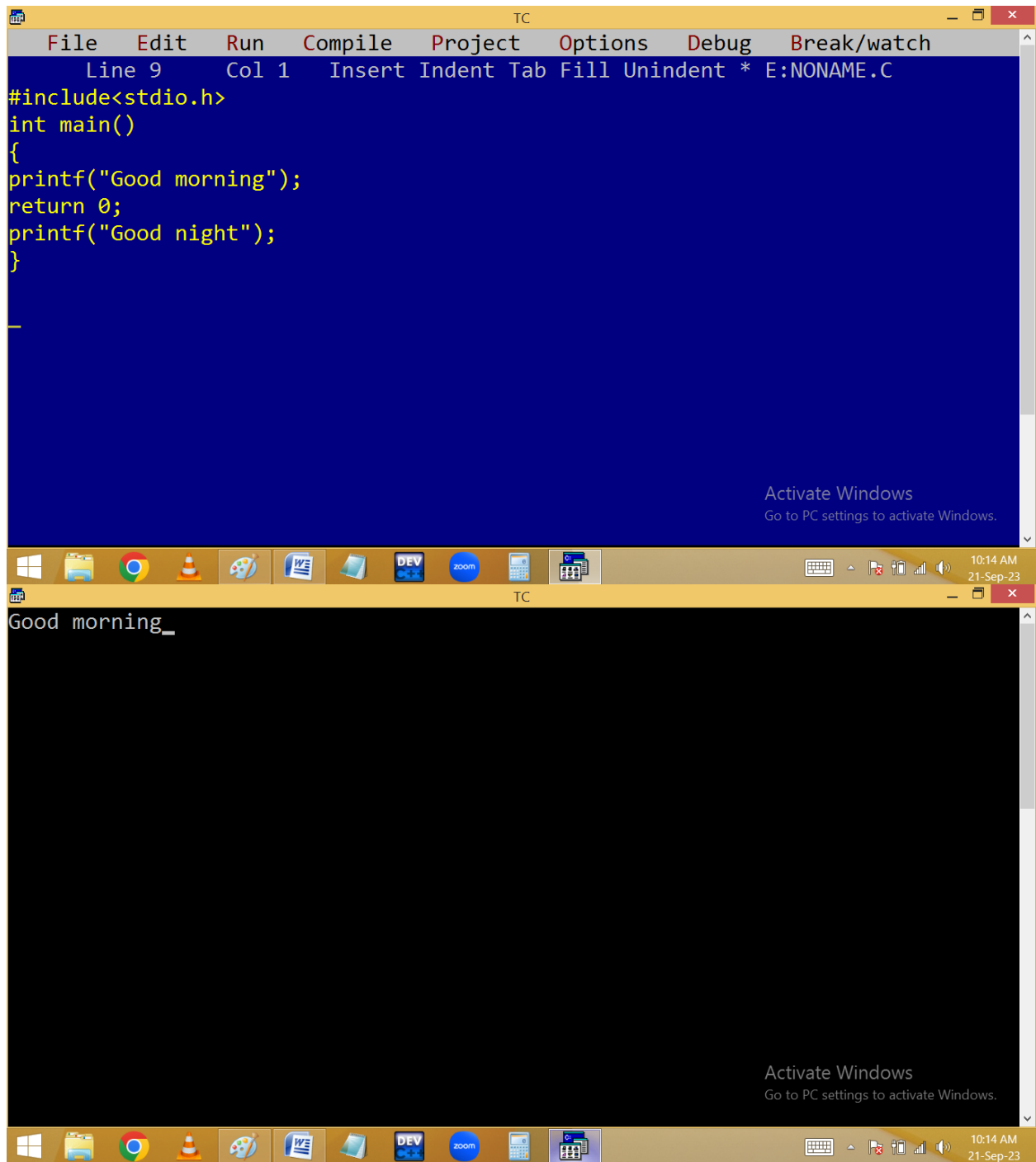
```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 41 Insert Indent Tab Fill Unindent * E:NONAME.C
#include<stdio.h>
#include<conio.h>
void main()
{
int c;
clrscr();
c = printf("Kishore");
printf(" Length=%d\n",c);
printf(" Length=%d", printf("Kishore"));_
getch();
}
```

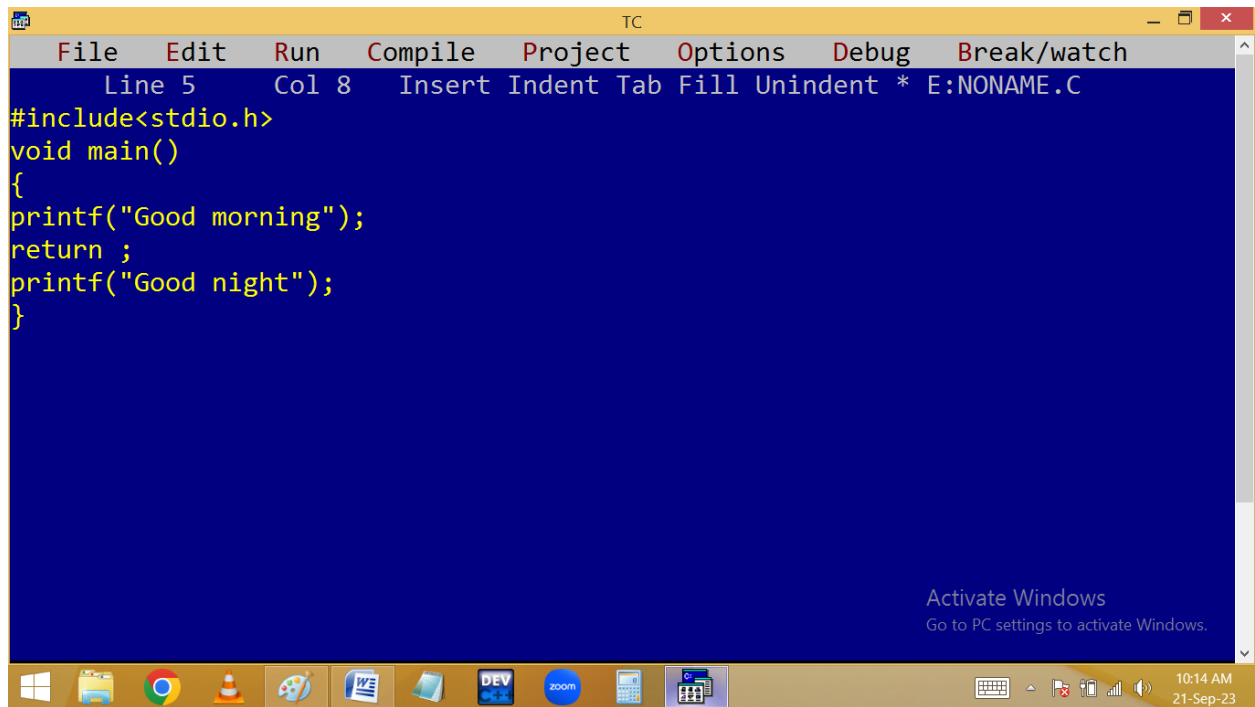
The bottom window shows the output of the program:

```
Kishore Length=7
Kishore Length=7_
```

Both windows have a taskbar at the bottom with various application icons and a system tray showing the time as 9:59 AM on 21-Sep-23. An "Activate Windows" watermark is visible in the bottom right corner of both windows.



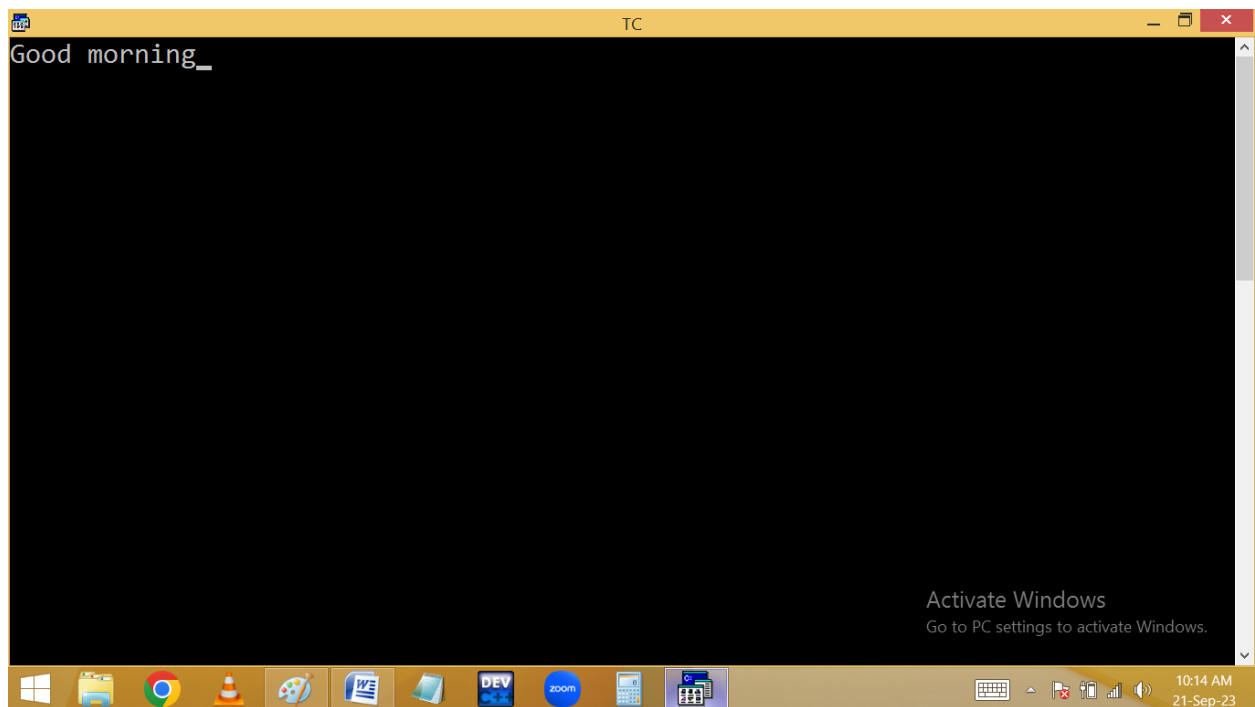




The screenshot shows the Turbo C++ (TC) IDE interface. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 5", "Col 8", and "Insert Indent Tab Fill Unindent \* E:NONAME.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
void main()
{
printf("Good morning");
return ;
printf("Good night");
}
```

An "Activate Windows" watermark is visible in the bottom right corner of the editing area, with the text "Go to PC settings to activate Windows." The Windows taskbar at the bottom shows various application icons, including File Explorer, Chrome, VLC, Paint, Word, and several development tools like DEV and zoom. The system clock in the bottom right corner displays "10:14 AM" and "21-Sep-23".



This screenshot shows the same Turbo C++ (TC) IDE after the program has been executed. The title bar remains "TC". The menu bar is identical. The status bar now shows "Line 1", "Col 1", and "Insert Indent Tab Fill Unindent \* E:NONAME.C". The main editing area has a black background and displays the output of the program:

```
Good morning_
```

The "Activate Windows" watermark is still present in the bottom right corner. The Windows taskbar and system clock are identical to the first screenshot, showing the same application icons and a time of "10:14 AM" on "21-Sep-23".

The image shows a Windows desktop with two windows from the Turbo C++ (TC) IDE. The top window is the editor, displaying a C program in a blue-themed editor. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 14 Insert Indent Tab Fill Unindent * E:NONAME.C
#include<stdio.h>
void main()
{
printf("Kishore Naidu");
printf("Vizag");
printf("AP");_
}
```

The bottom window shows the output of the program, which is "Kishore NaiduVizagAP\_". Both windows have a taskbar at the bottom with various application icons and a system tray showing the time as 10:15 AM on 21-Sep-23. An "Activate Windows" watermark is visible in the bottom right of both windows.

```
Kishore NaiduVizagAP_
```

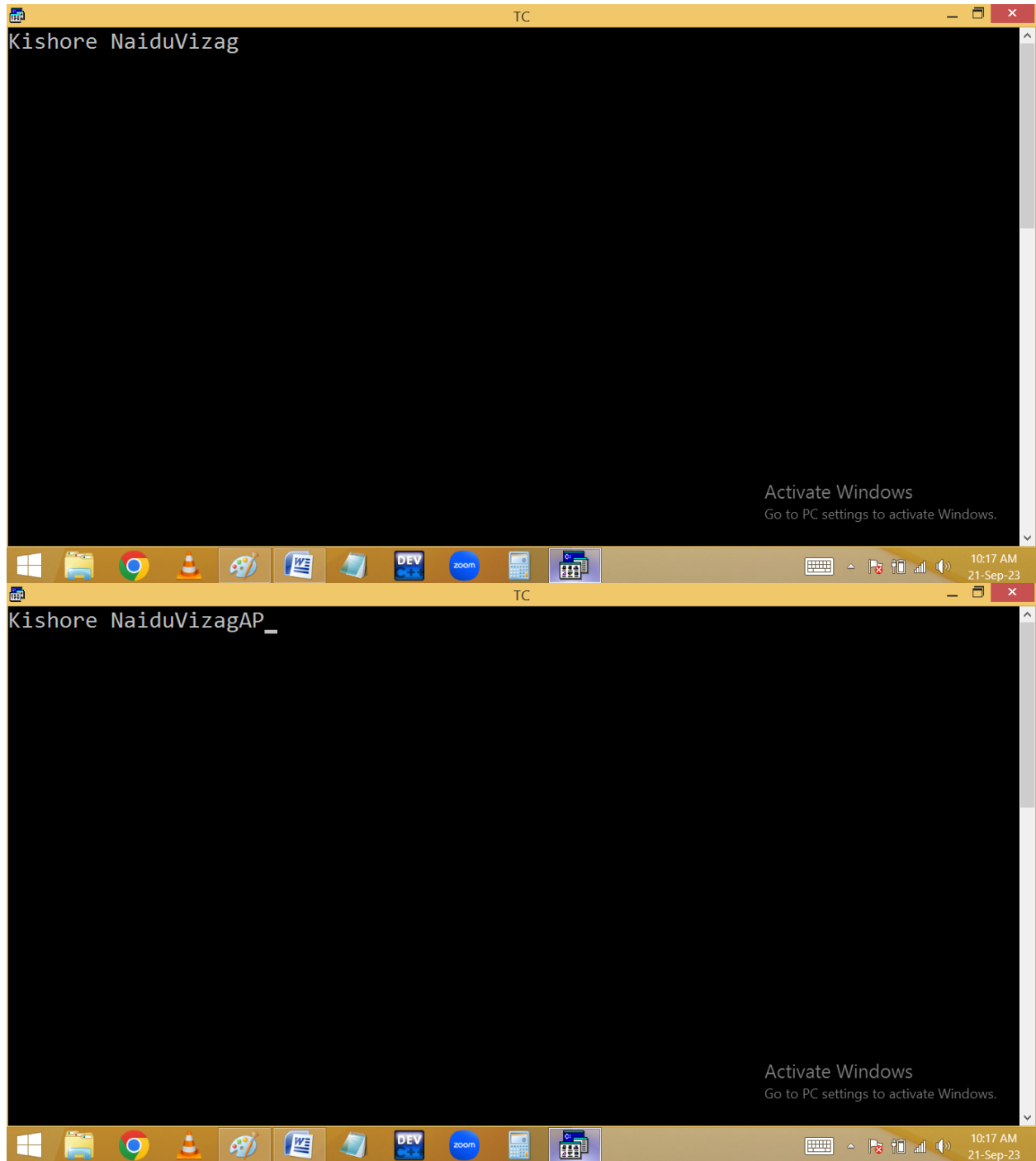
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window, titled 'TC', displays a C program in a blue editor. The code is as follows:

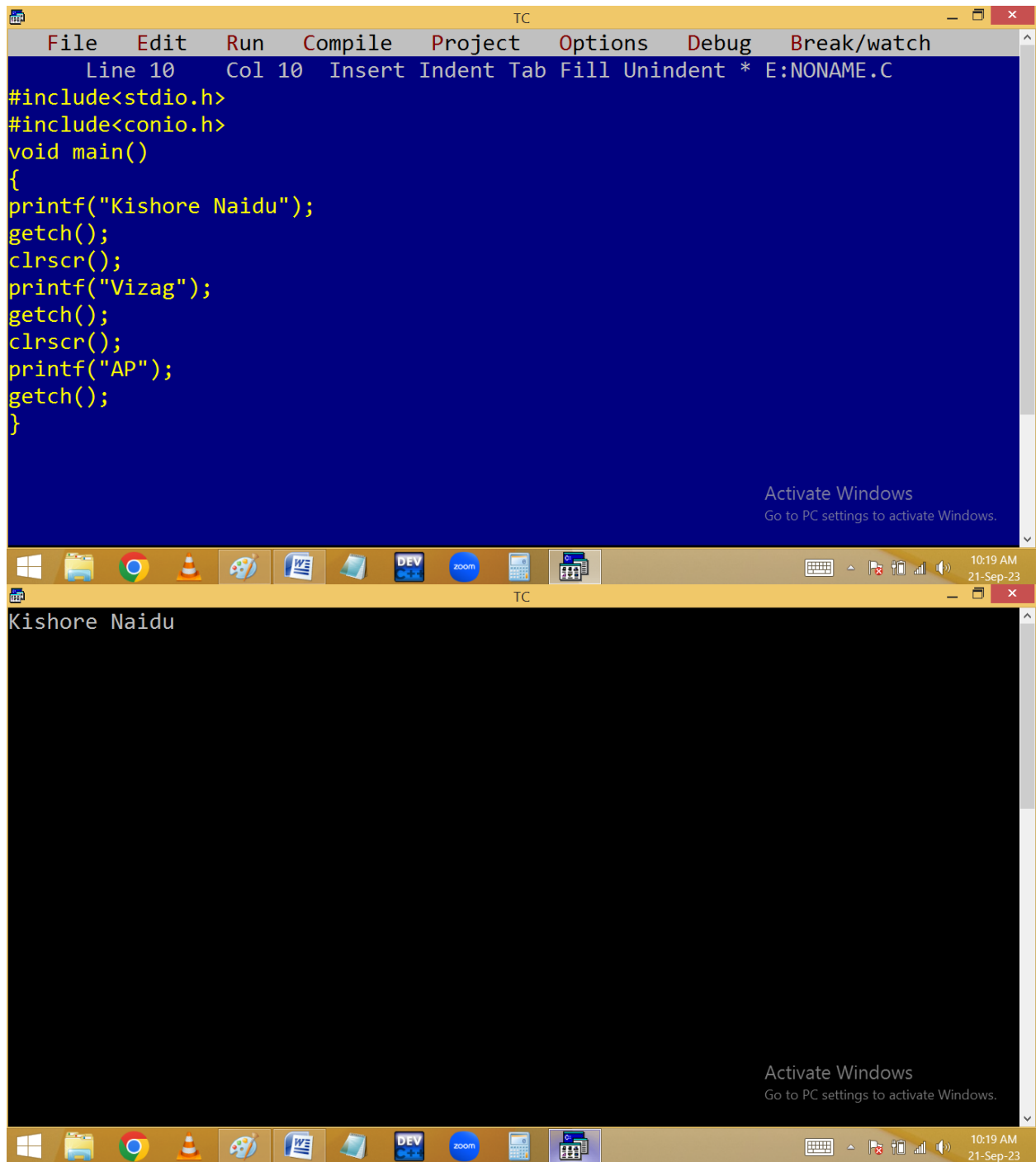
```
Line 2 Col 18 Insert Indent Tab Fill Unindent * E:NONAME.C
#include<stdio.h>
#include<conio.h>_
void main()
{
printf("Kishore Naidu");
getch();
printf("Vizag");
getch();
printf("AP");
getch();
}
```

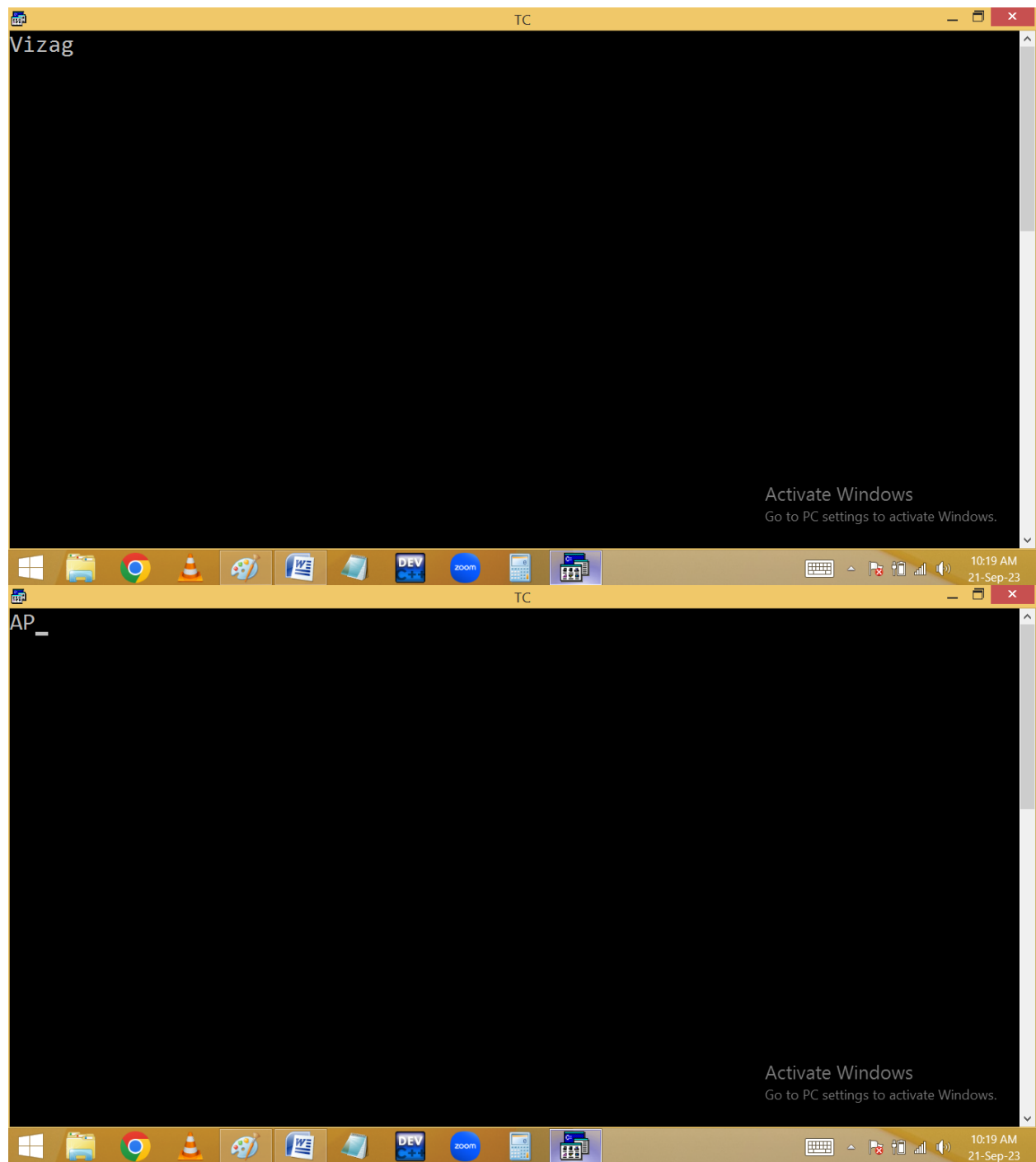
The bottom window, also titled 'TC', shows the output of the program on a black background. The text 'Kishore Naidu\_' is displayed, indicating that the program has executed the first printf statement and is waiting for a character input at the underscore prompt.

Both windows feature a menu bar with 'File', 'Edit', 'Run', 'Compile', 'Project', 'Options', 'Debug', and 'Break/watch'. The Windows taskbar at the bottom shows the time as 10:17 AM on 21-Sep-23, along with various system icons and application shortcuts.









**In Dev C++:**

```
#include<stdio.h>
```

```
#include<conio.h>

#include<stdlib.h>

main()

{

printf("Kishore Naidu");

getch();

system("cls");

printf("Vizag");

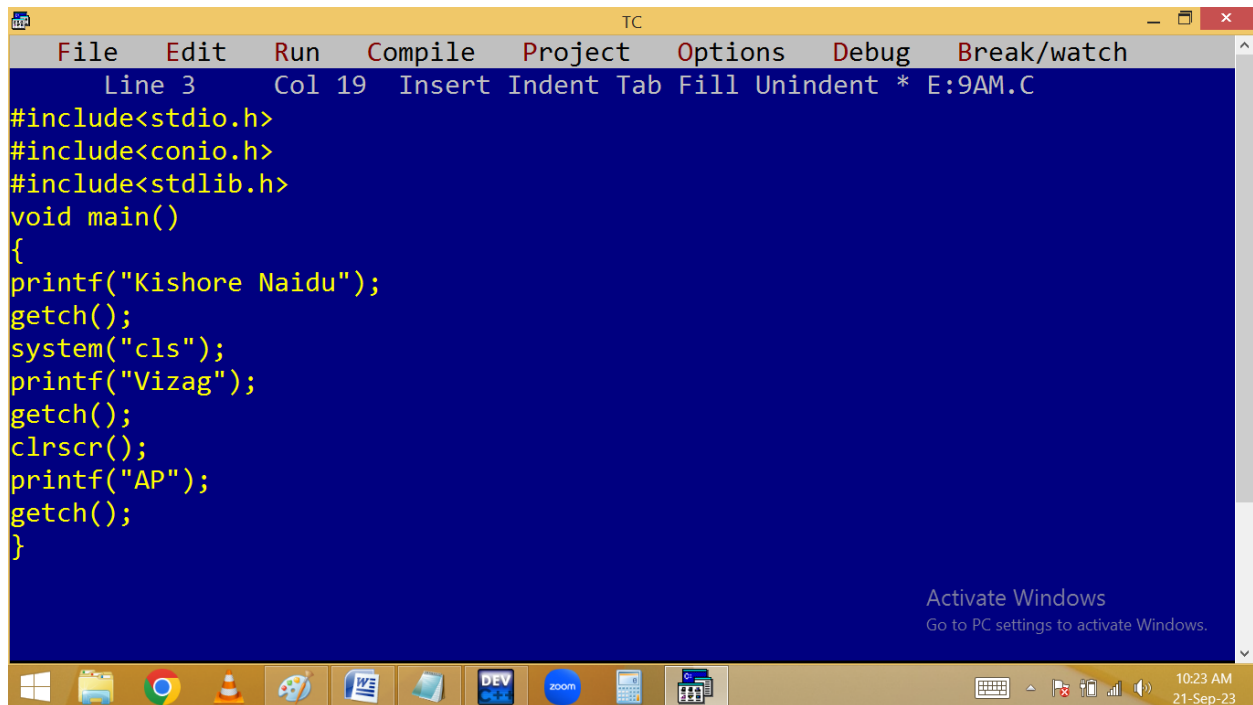
getch();

system("cls");

printf("AP");

getch();

}
```



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 19 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
printf("Kishore Naidu");
getch();
system("cls");
printf("Vizag");
getch();
clrscr();
printf("AP");
getch();
}
```

## BACK SLASH / ESCAPE SEQUENCE CHARACTERS

They started with back slash [ \ ].

They used to format the outputs.

They participated in program execution but not displayed in output. Hence they are also called **escape sequence characters**.

Each back slash character=**1 byte i.e. one character**.

BACK SLASH CHARACTER	DESCRIPTION
\a	Alert [ beep sound ]
\b	Back space
\n	New line character

\t	Tab space
\r	Carriage return[beginning of line]
\f	Form feed ♀
\v	Vertical tab ♂
\0	Null char
\\	\ [ invalid ]
\k	k [ invalid ]

```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("\aKishore\tNaidu\n");
printf("\vNaresh\tIT\f\n");
printf("S\bAmeerpet\n");
printf("Hyd-Telangana\n");
printf("india-500016\rBharat");
getch();
printf("\a");
}
```

Activate Windows  
Go to PC settings to activate Windows.

10:46 AM  
21-Sep-23

```
TC
Kishore   Naidu
Naresh   IT
Ameerpet
Hyd-Telangana
Bharat500016
```

Activate Windows  
Go to PC settings to activate Windows.

10:46 AM  
21-Sep-23