

```
int printf("[text] [ conversion characters]" [, variables ]  
[ , expressions ] );
```

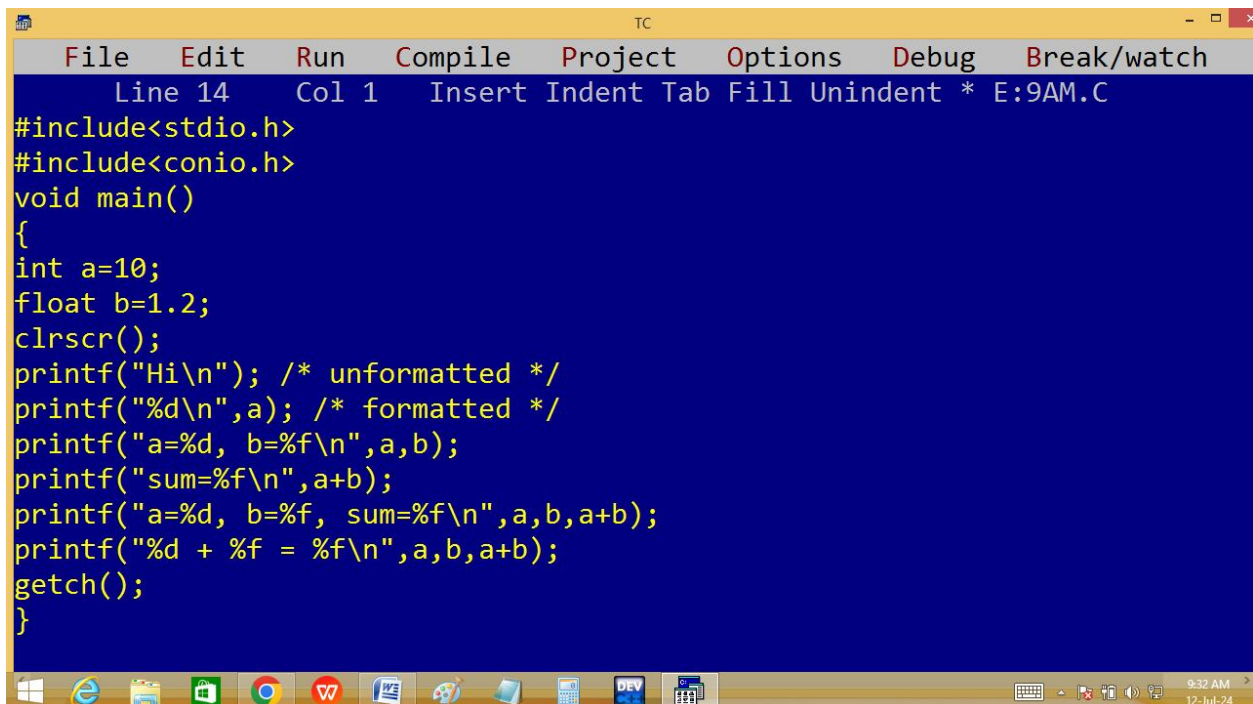
2. in printf execution order is right to left and printing is left to right.

3. in printf everything printed as it is except conversion characters and back slash characters.

4. in printf the first argument should be within “ ”.

5. printf can perform both formatted and unformatted outputs.

Eg:



```
TC  
File Edit Run Compile Project Options Debug Break/watch  
Line 14 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
int a=10;  
float b=1.2;  
clrscr();  
printf("Hi\n"); /* unformatted */  
printf("%d\n",a); /* formatted */  
printf("a=%d, b=%f\n",a,b);  
printf("sum=%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);  
getch();  
}
```

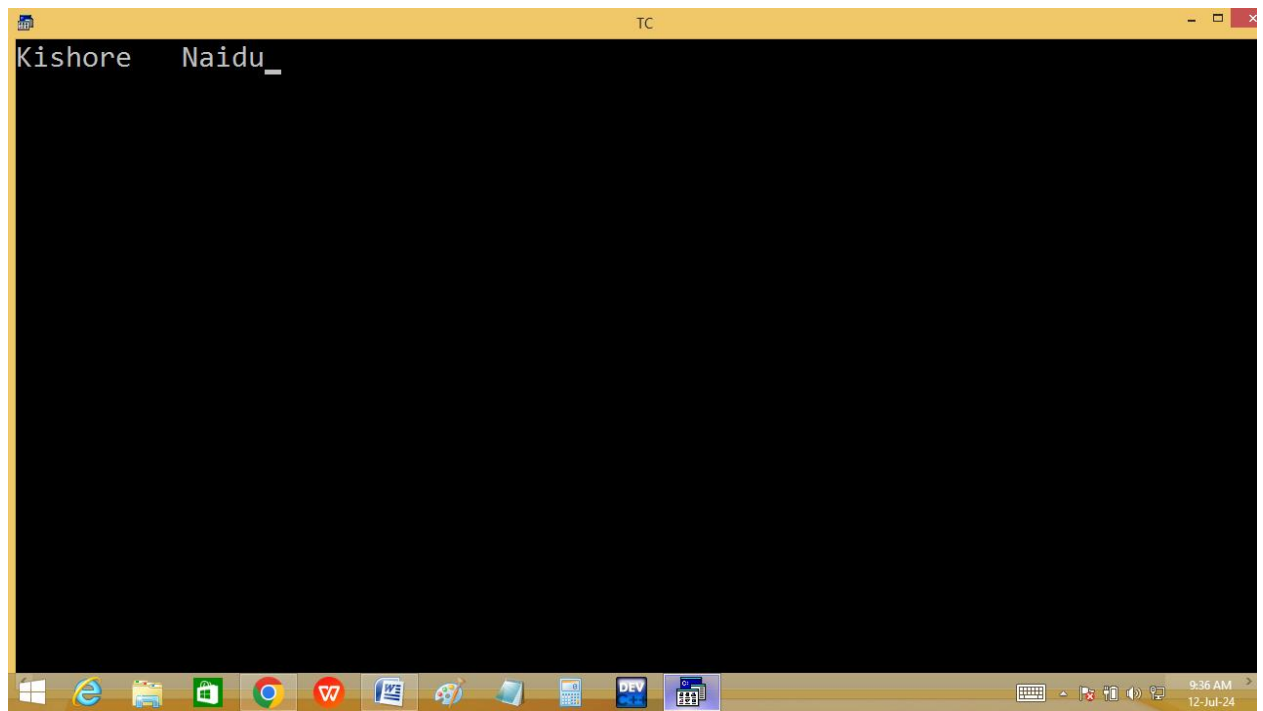
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the output of a program, and the bottom window shows the source code.

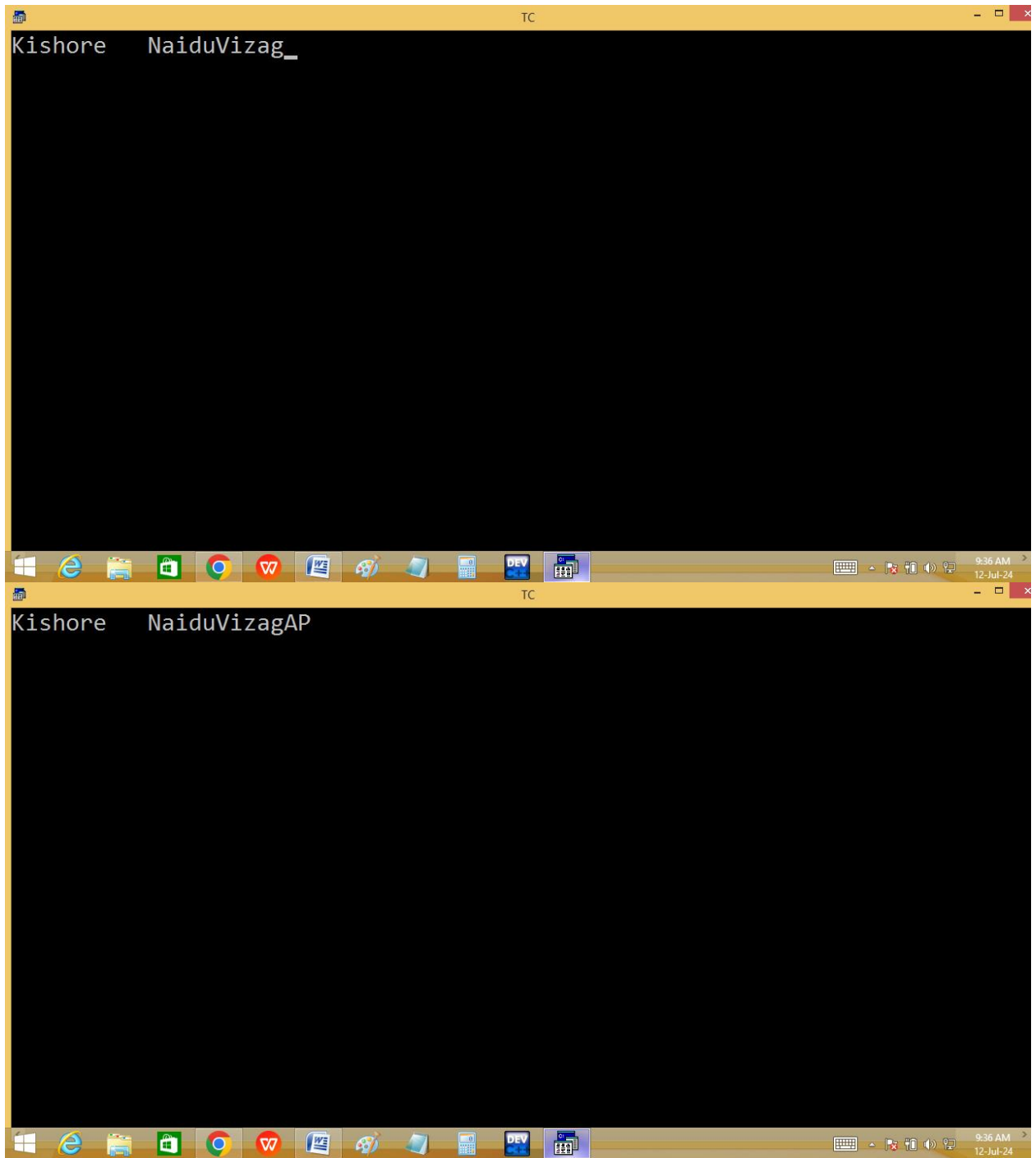
Output Window (Top):

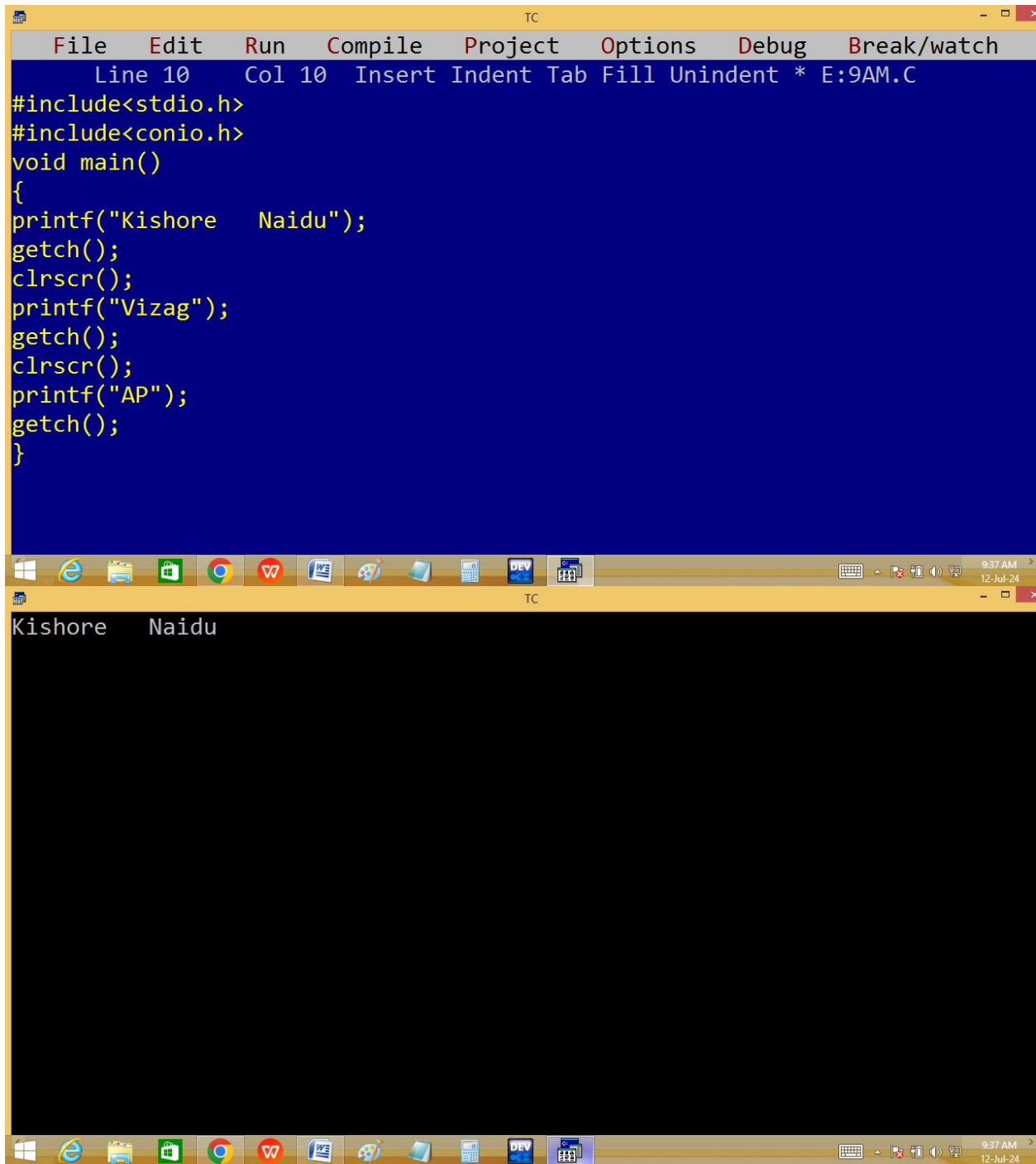
```
Hi
10
a=10, b=1.200000
sum=11.200000
a=10, b=1.200000, sum=11.200000
10 + 1.200000 = 11.200000
```

Source Code Window (Bottom):

```
File Edit Run Compile Project Options Debug Break/watch
Line 2 Col 18 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
printf("Kishore Naidu");
getch();
printf("Vizag");
getch();
printf("AP");
getch();
}
```



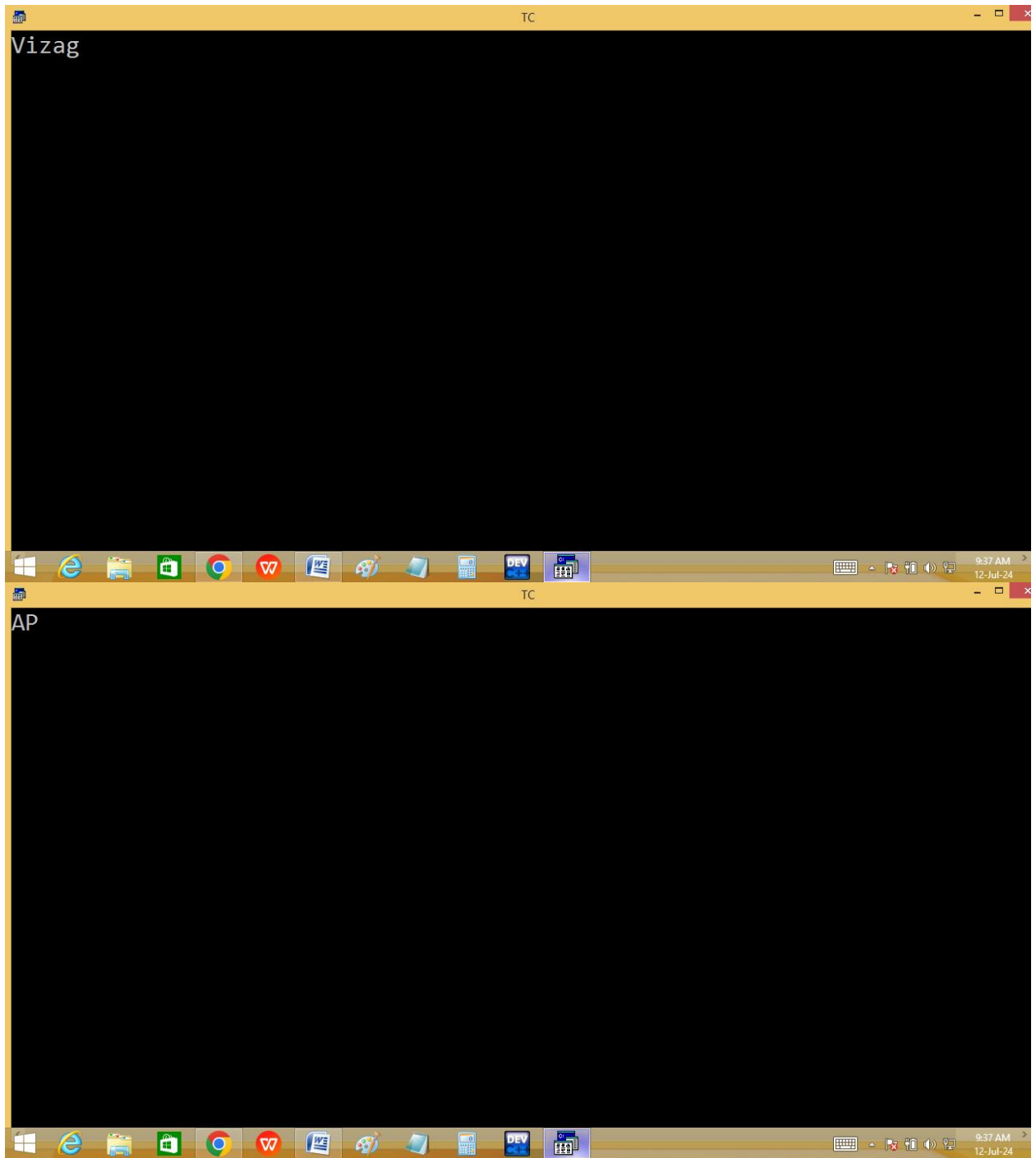




The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the source code editor, which has a blue background and yellow text. It contains a C program that prints "Kishore Naidu", "Vizag", and "AP" on separate lines, with each line being cleared after printing. The bottom window is the output console, which has a black background and white text, showing the output of the program: "Kishore Naidu". The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock.

```
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 10 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
printf("Kishore  Naidu");
getch();
clrscr();
printf("Vizag");
getch();
clrscr();
printf("AP");
getch();
}
```

Kishore Naidu



```
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();
system("cls");
printf("AP");
getch();
}
```

BACK SLASH / ESCAPE SEQUENCE CHARACTERS

They started with back slash [\].

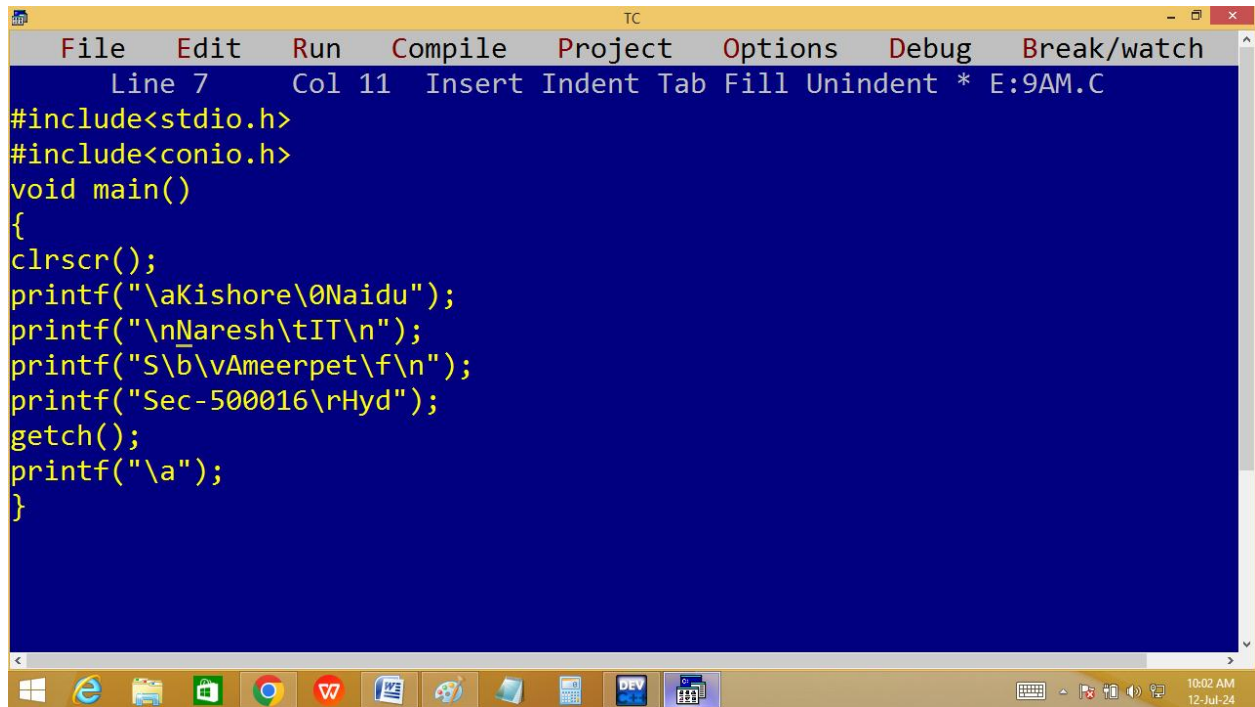
They used to format the outputs.

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

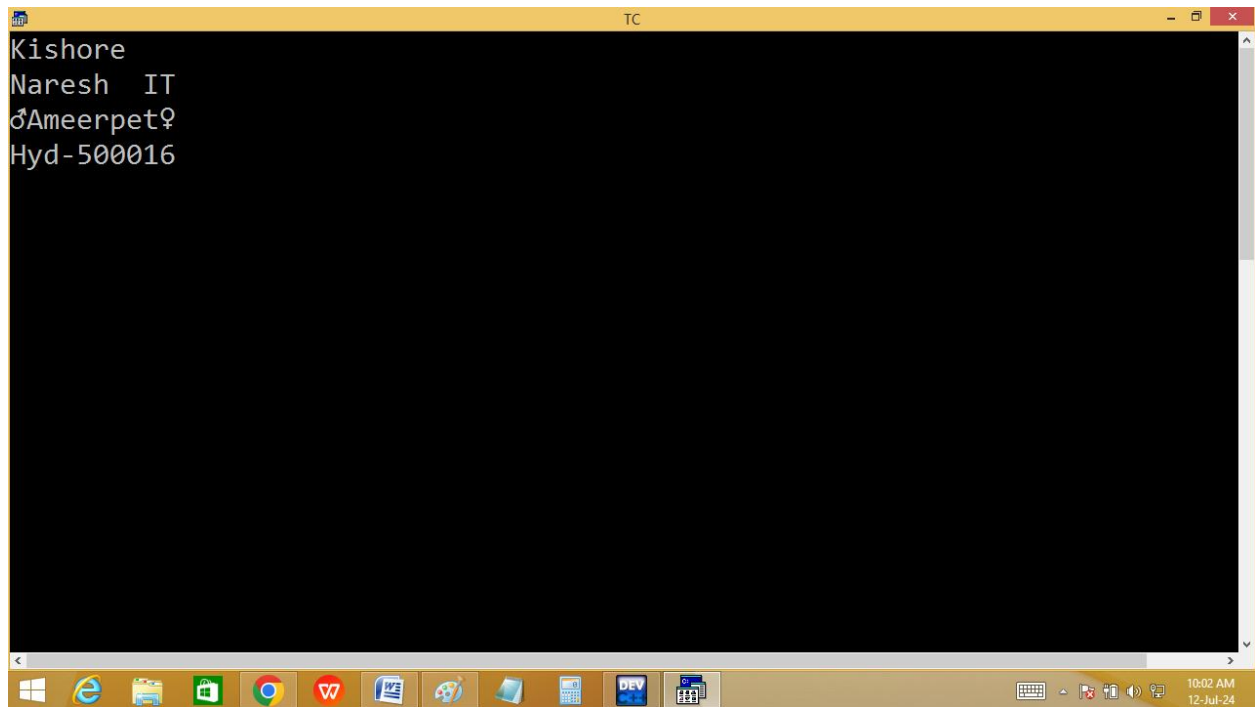
Each back slash character=**1 byte i.e. one character**.

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
File Edit Run Compile Project Options Debug Break/watch
Line 7 Col 11 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("\aKishore\0Naidu");
printf("\nNaresh\tIT\n");
printf("S\b\vAmeerpet\f\n");
printf("Sec-500016\rHyd");
getch();
printf("\a");
}
```



```
TC
Kishore
Naresh IT
♂Ameerpet♀
Hyd-500016
```

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 23 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Naresh\\tIT\\nHyd");
getch();
}
/* Naresh\tIT\nHyd */_
```

Naresh\\tIT\\nHyd

Naresh\tIT\nHyd

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Naresh\\tIT\\nHyd");
getch();
}
/* Naresh\    IT\
   Hyd
*/
```

Naresh\\tIT\\nHyd

Naresh\ IT\

Hyd

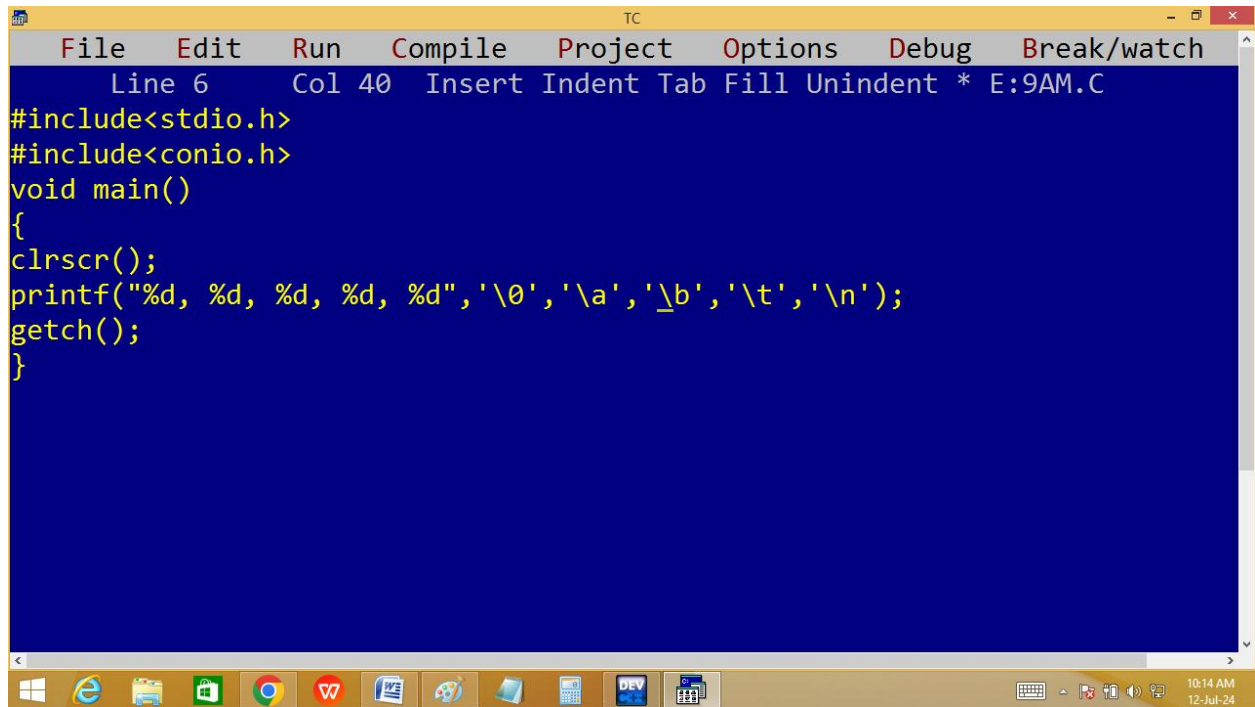
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 59 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("12%c34%c56",9,10); /* 9=\t, 10-\n ascii value */
getch();
}
/*      12          34
      56
*/
```

p("12%c34%c56", 9, 10);

Diagram illustrating the mapping of ASCII values to escape sequences:

- The value 10 is mapped to the escape sequence `\n` (newline).
- The value 9 is mapped to the escape sequence `\t` (tab).

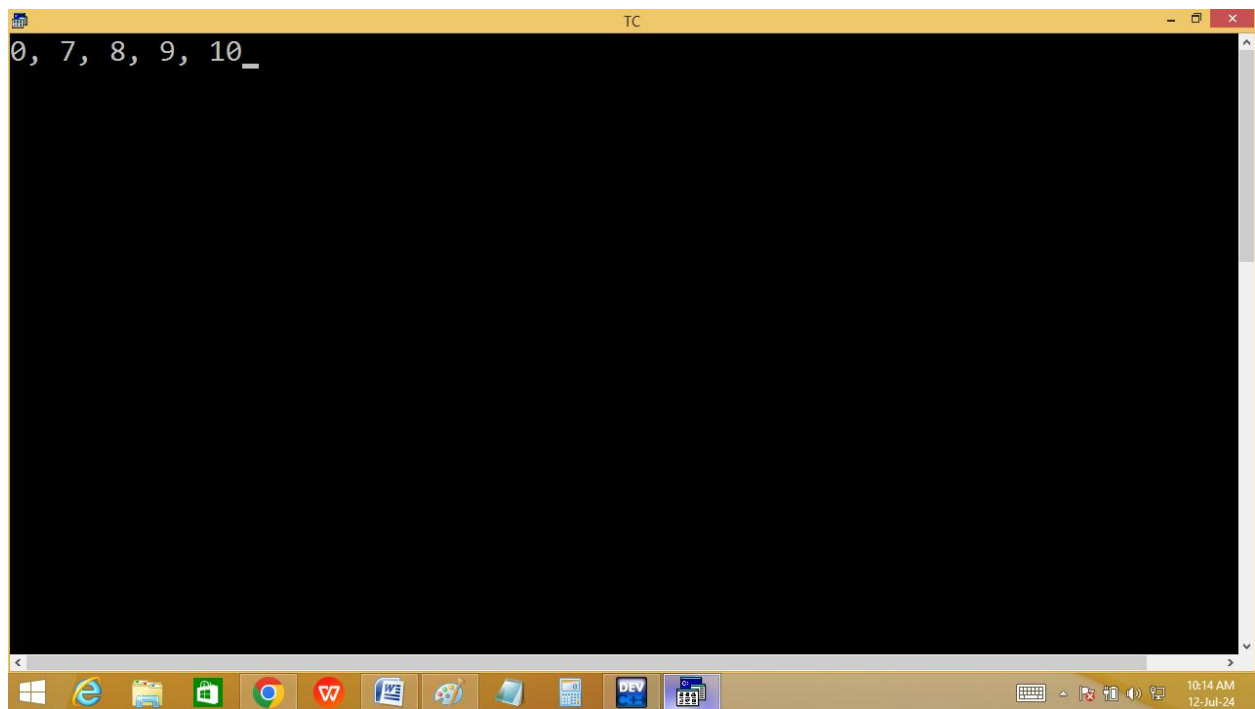
Finding ascii values:



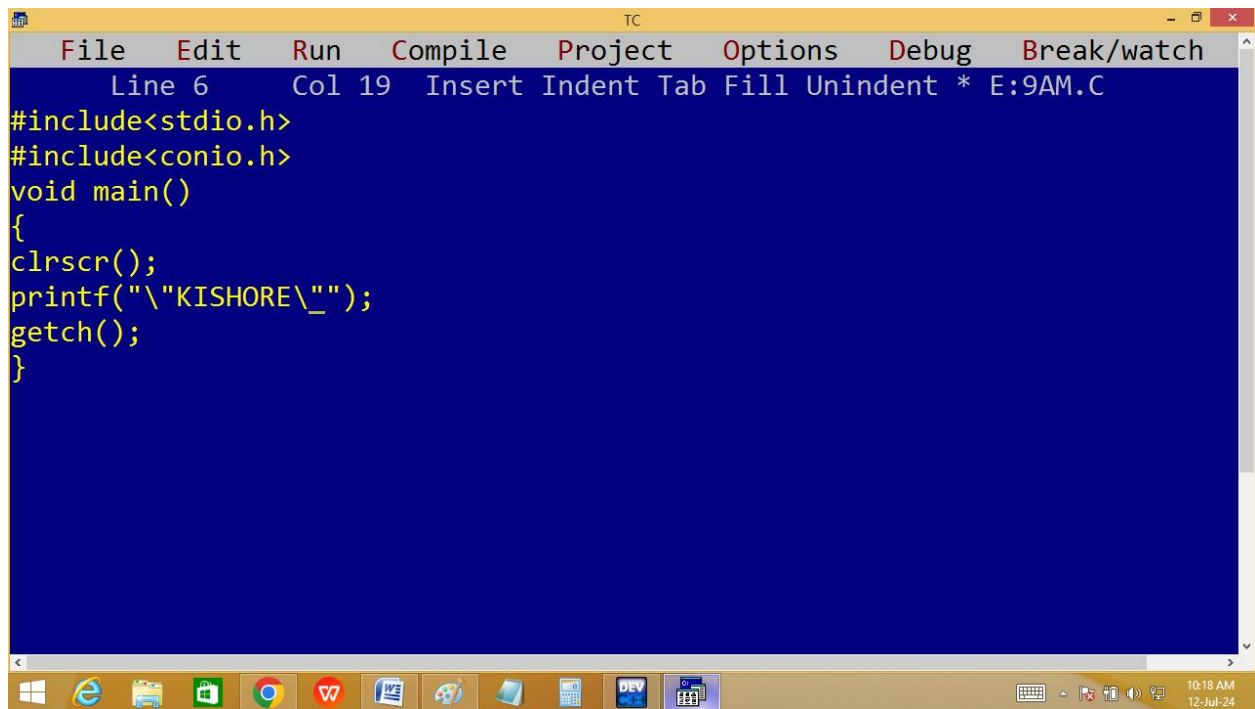
The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar and a menu bar containing File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 6 Col 40 Insert Indent Tab Fill Unindent * E:9AM.C'. The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d, %d, %d, %d, %d", '\0', '\a', '\b', '\t', '\n');
getch();
}
```

The Windows taskbar at the bottom shows various application icons, including the Start button, Internet Explorer, File Explorer, Google Chrome, Word, and the Turbo C++ IDE itself. The system clock in the bottom right corner displays '10:14 AM 12-Jul-24'.



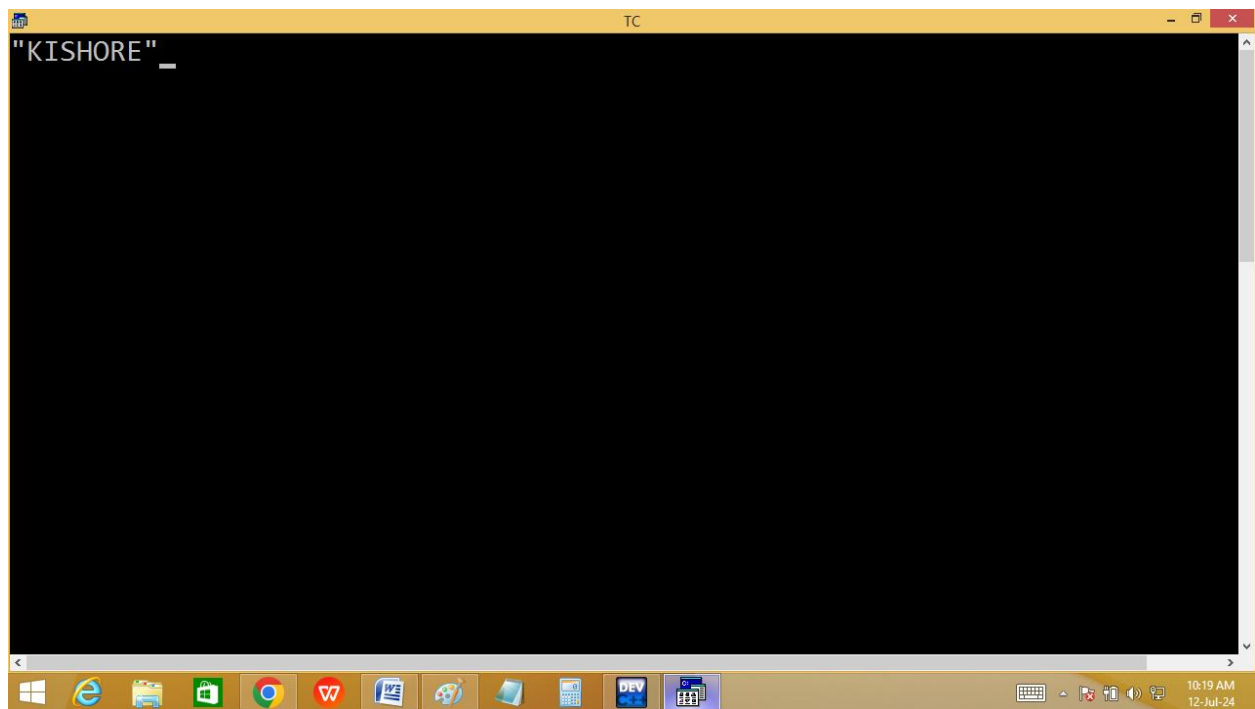
The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar. The main editing area has a black background and displays the output of the program: '0, 7, 8, 9, 10_'. The Windows taskbar at the bottom is identical to the one in the first screenshot, showing the same application icons and system clock.



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". The status bar at the top indicates "Line 6", "Col 19", and "Insert Indent Tab Fill Unindent * E:9AM.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("\nKISHORE\n");
getch();
}
```

The Windows taskbar is visible at the bottom, showing icons for various applications and the system clock displaying "10:18 AM 12-Jul-24".

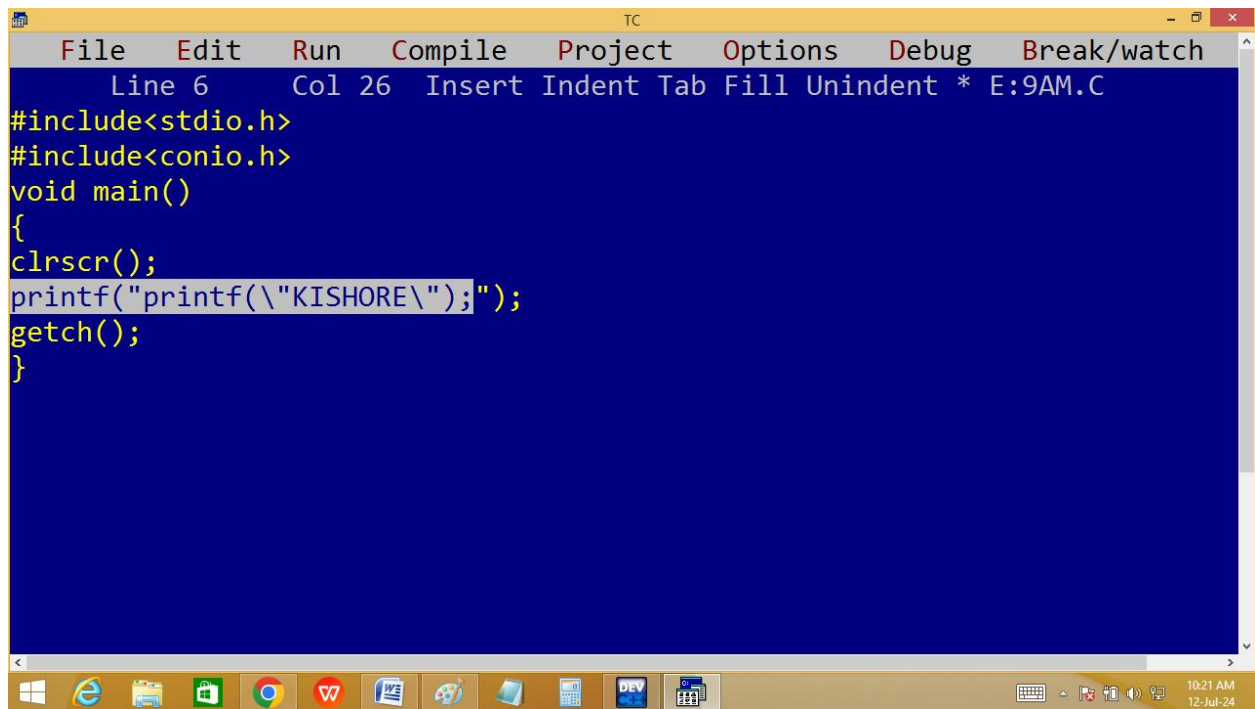


The screenshot shows the Turbo C++ (TC) IDE window after execution. The title bar reads "TC". The main editing area has a black background and displays the output of the program:

```
"KISHORE" _
```

The Windows taskbar is visible at the bottom, showing icons for various applications and the system clock displaying "10:19 AM 12-Jul-24".

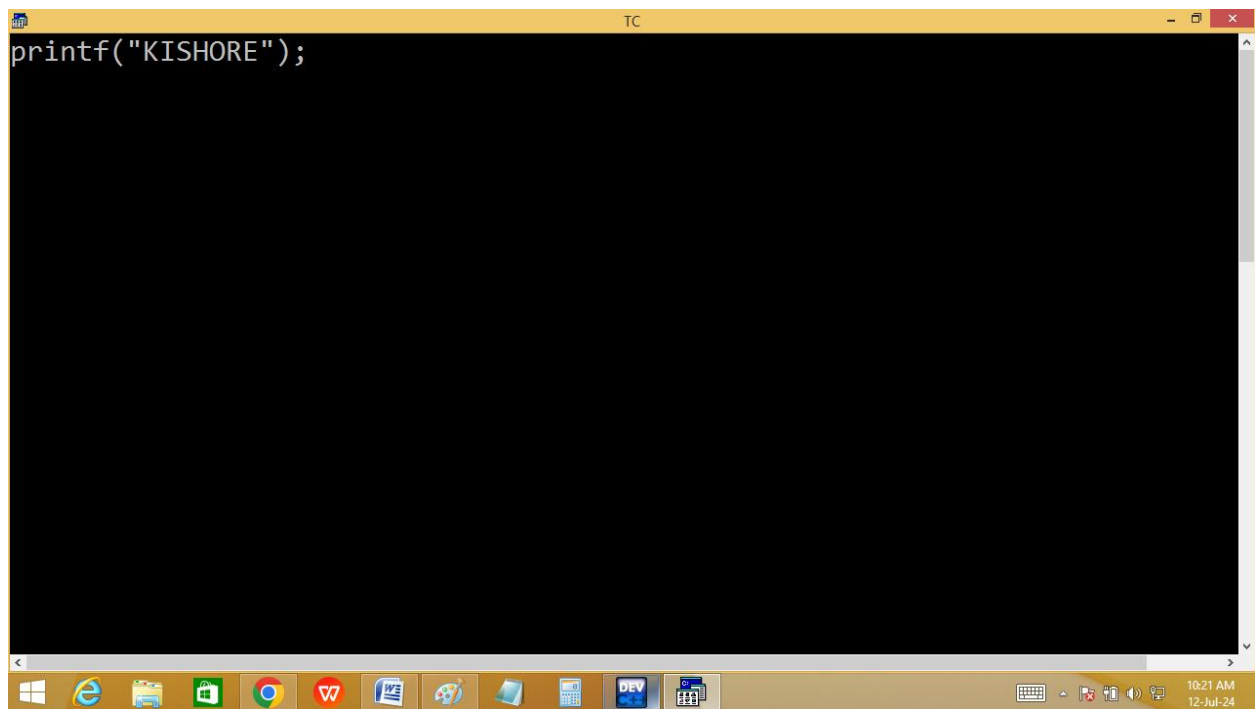
```
p("\ "kishore\");
```



The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar and a menu bar containing File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 6 Col 26 Insert Indent Tab Fill Unindent * E:9AM.C'. The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("printf(\"KISHORE\")");
getch();
}
```

The Windows taskbar at the bottom shows various application icons, including the Start button, Internet Explorer, File Explorer, Google Chrome, Word, and the Turbo C++ IDE itself. The system clock in the bottom right corner displays '10:21 AM 12-Jul-24'.

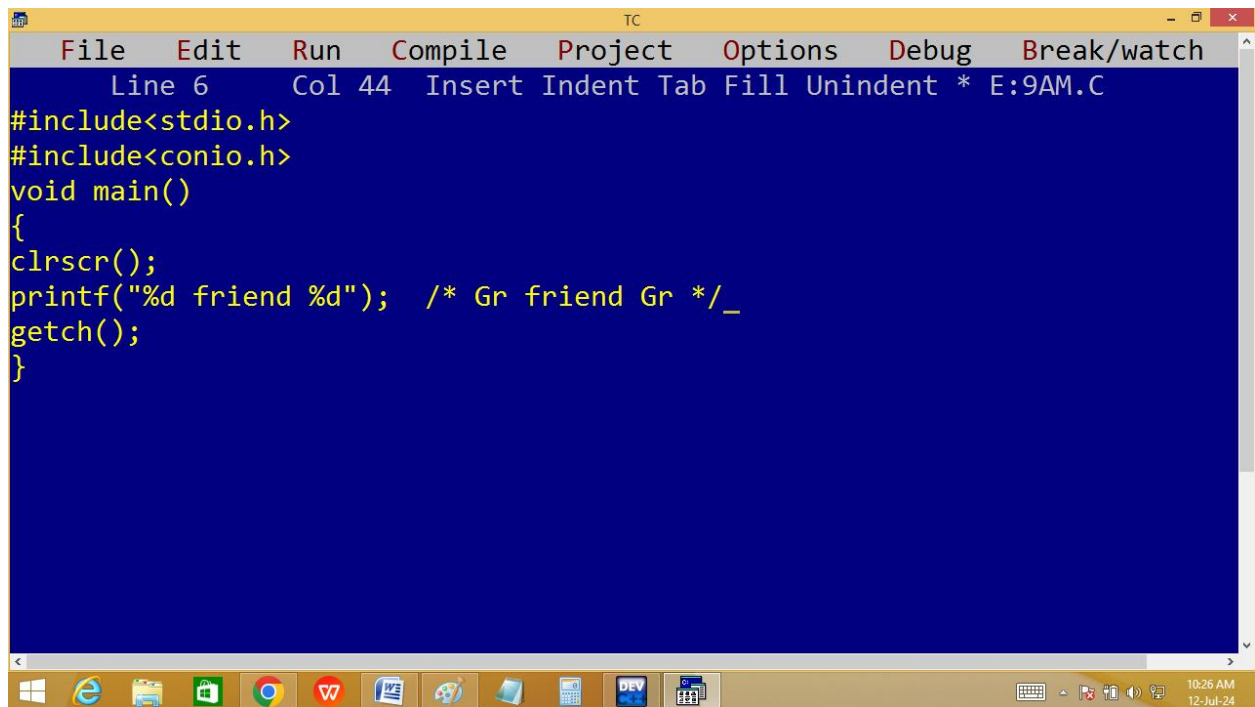


The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar. The main editing area has a black background and displays the output of the program:

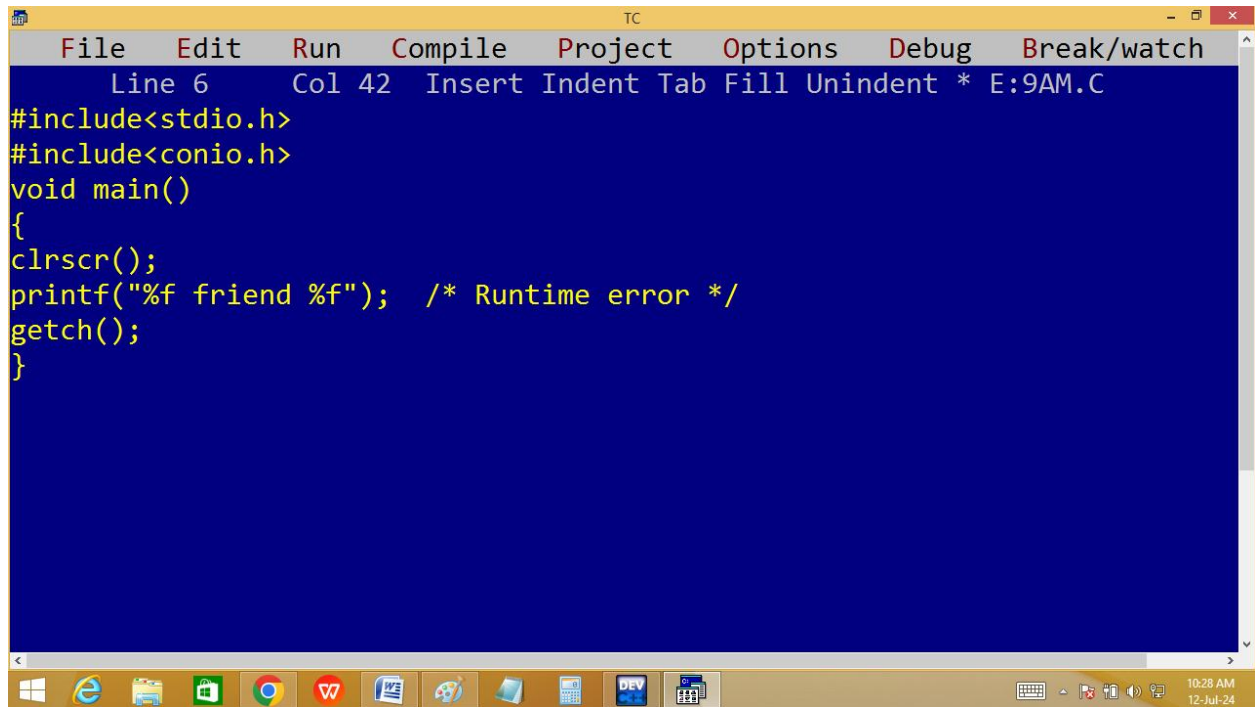
```
printf("KISHORE");
```

The Windows taskbar at the bottom is identical to the first screenshot, showing the same application icons and system clock.

`printf("printf(\"KISHORE\");");`



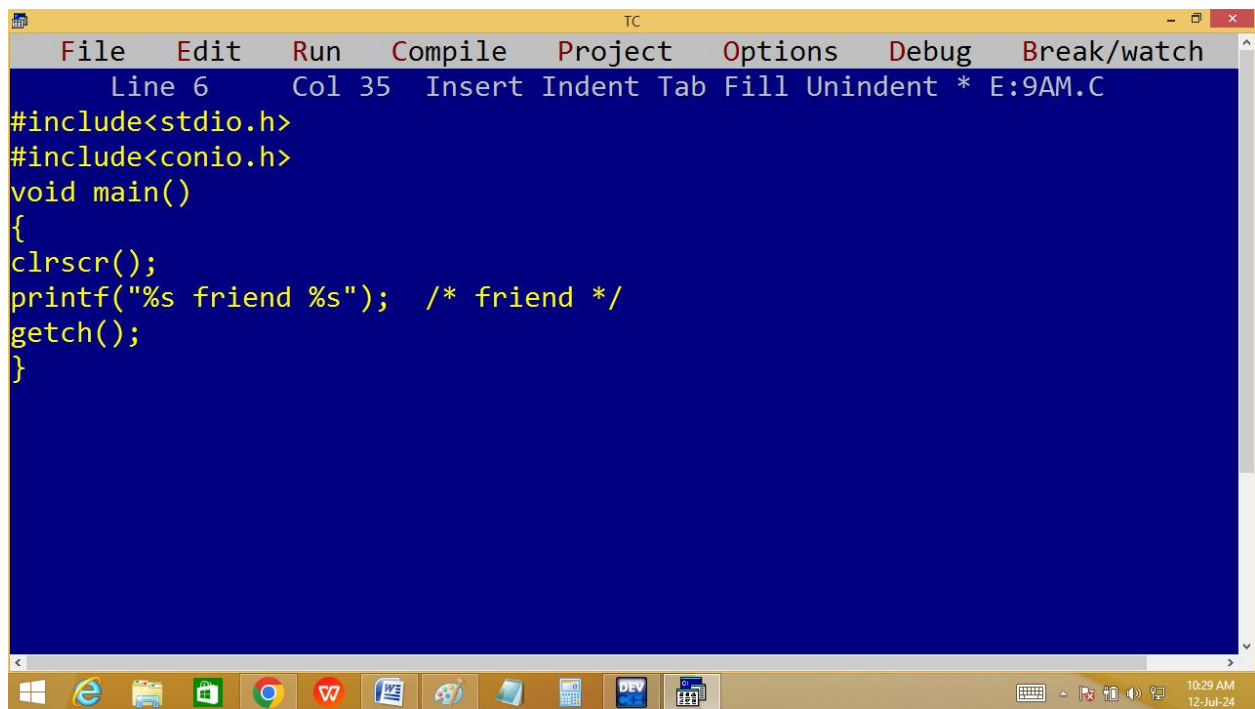
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 44 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d friend %d"); /* Gr friend Gr */_
getch();
}
```



The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar and a menu bar containing File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 6 Col 42 Insert Indent Tab Fill Unindent * E:9AM.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%f friend %f"); /* Runtime error */
getch();
}
```

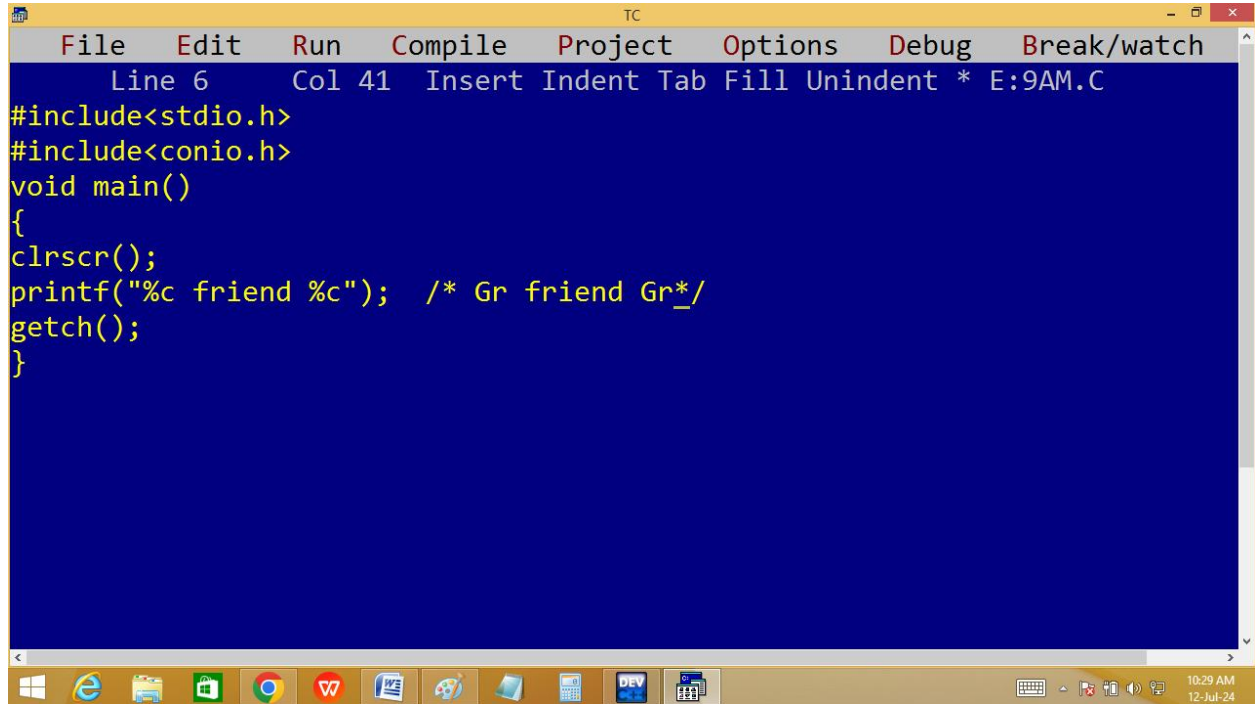
The Windows taskbar at the bottom shows various application icons and the system clock displaying 10:28 AM on 12-Jul-24.



The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar and a menu bar containing File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 6 Col 35 Insert Indent Tab Fill Unindent * E:9AM.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%s friend %s"); /* friend */
getch();
}
```

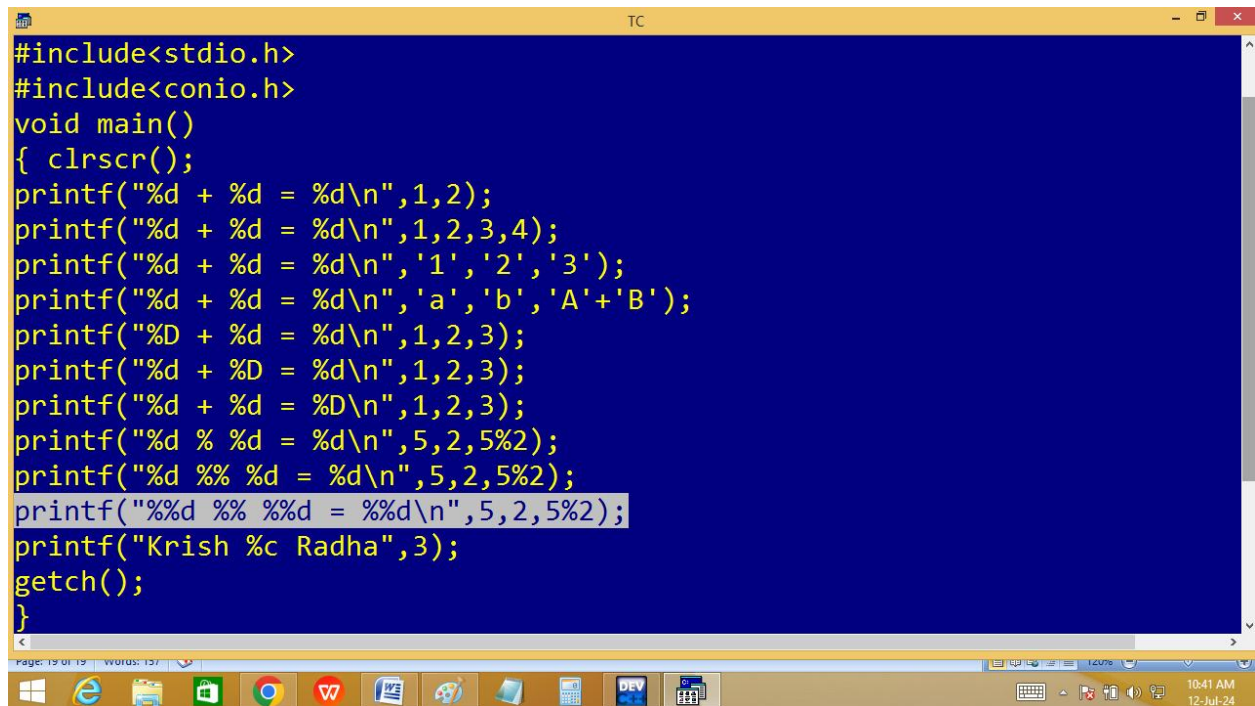
The Windows taskbar at the bottom shows various application icons and the system clock displaying 10:29 AM on 12-Jul-24.



The screenshot shows the Turbo C++ (TC) IDE window. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 6 Col 41 Insert Indent Tab Fill Unindent * E:9AM.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%c friend %c"); /* Gr friend Gr*/
getch();
}
```

The Windows taskbar at the bottom shows various icons including the Start button, Internet Explorer, File Explorer, Google Chrome, Word, and the Turbo C++ application itself. The system clock in the bottom right corner shows 10:29 AM on 12-Jul-24.



The screenshot shows the Turbo C++ (TC) IDE window with a more complex C program. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{ clrscr();
printf("%d + %d = %d\n",1,2);
printf("%d + %d = %d\n",1,2,3,4);
printf("%d + %d = %d\n",'1','2','3');
printf("%d + %d = %d\n",'a','b','A'+ 'B');
printf("%D + %d = %d\n",1,2,3);
printf("%d + %D = %d\n",1,2,3);
printf("%d + %d = %D\n",1,2,3);
printf("%d % %d = %d\n",5,2,5%2);
printf("%d %% %d = %d\n",5,2,5%2);
printf("%d %% %%d = %d\n",5,2,5%2);
printf("Krish %c Radha",3);
getch();
}
```

The IDE interface is consistent with the first screenshot, showing the same menu bar and status bar. The Windows taskbar at the bottom is also visible, with the system clock now showing 10:41 AM on 12-Jul-24.

```
TC
1 + 2 = -20
1 + 2 = 3
49 + 50 = 51
97 + 98 = 131
%D + %d = %d
1 + %D = %d
1 + 2 = %D
5 % %d = %d
5 % 2 = 1
%d % %d = %d
Krish ♥ Radha
```