

Logical operators [&& - and, || - or, ! – not]:

&&, || used to combine two or more expressions. ! operator used for negation. i.e. true becomes false and false become true.

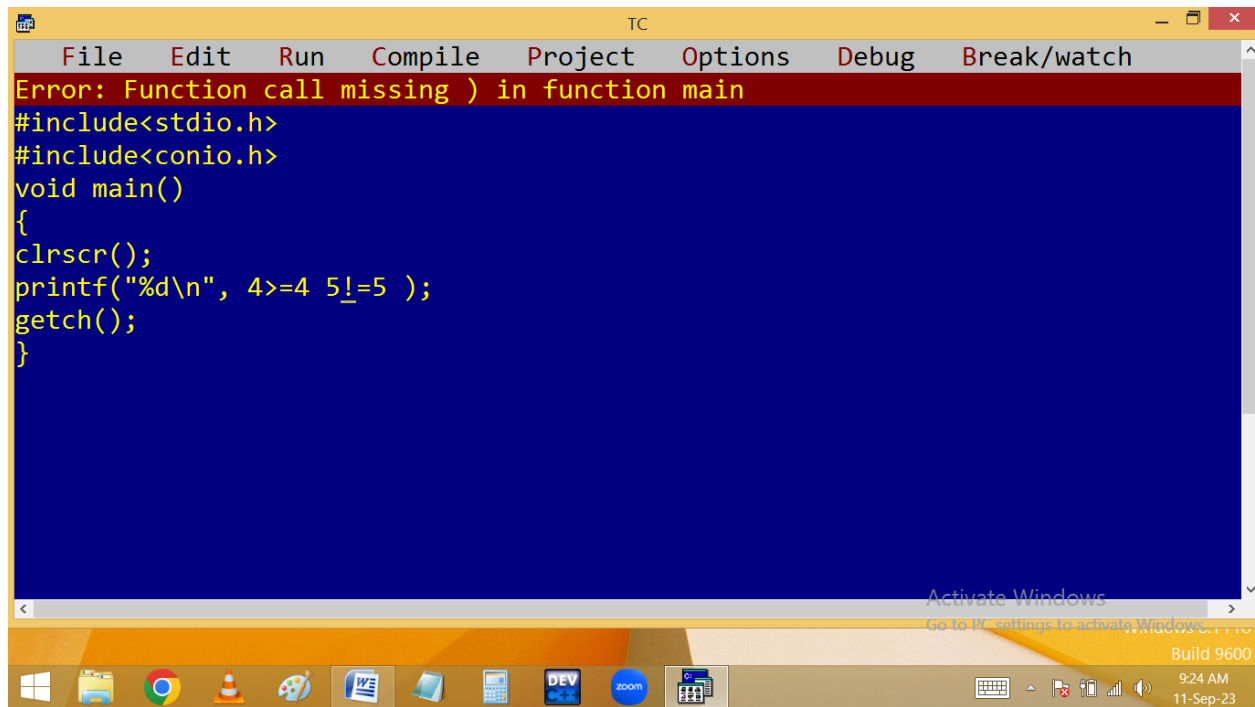
Note: In c other than 0 anything is 1 i.e. true.

Truth tables:

Operator	Expression1	Expressions2	result
&&	1	1	1
	1	0	0
	0	1	0
	0	0	0
	1	1	1
	1	0	1
	0	1	1
	0	0	0

!true = false

!false = true



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 11 Col 26 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d\n", 4>=4, 5!=5 );
printf("%d, %d\n", 4>=4, 5!=5 );
printf("%d\n", 4>=4 && 5!=5 );
printf("%d\n", 4>=4 || 5!=5 );
printf("%d\n", 4>4 || 5!=5 );
printf("%d\n", !('a'>'b')_);
getch();
}
```

The bottom window shows the output of the program:

```
1
1, 0
0
1
0
1
_
```

Both windows include a taskbar at the bottom with various application icons and a system tray showing the time as 9:32 AM on 11-Sep-23. An "Activate Windows" watermark is visible in the bottom right of both windows.

TC

File Edit Run Compile Project Options Debug Break/watch

Line 13 Col 22 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d\n", 1 >= 1 && 5<=4 );
printf("%d\n", -1 >= 1 || 5!=4 );
printf("%d\n", !( -1 >= -2 ) );
printf("%d\n", 1 >= 1 && 2<=2 && 3>=4 );
printf("%d\n", 5 >= 5 || 2<=2 && 3>=4 );
printf("%d\n", (5 >= 5 || 2<=2) && 3>=4 );
printf("%d\n", 5>3>1 );
printf("%d\n", 5>3>0 );
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

9:57 AM
11-Sep-23

TC

```
0
1
0
0
1
0
0
1
```

Activate Windows
Go to PC settings to activate Windows.

9:57 AM
11-Sep-23

$$\begin{array}{c} \xrightarrow{\hspace{1cm}} \\ \underline{1 >= 1} \quad \&\& \quad \underline{5 <= 4} \\ | \quad \&\& \quad \square \\ \hline \square \end{array}$$

$$\begin{array}{c} \xrightarrow{\hspace{1cm}} \\ \underline{-1 >= 1} \quad || \quad \underline{5 != 4} \\ \square \quad || \quad | \\ \hline | \end{array}$$

$$\begin{array}{c} \text{!}(-1 >= -2) \\ \underline{\quad | \quad} \\ \text{?} | \\ \underline{\quad \cdot \quad} \\ \square \end{array}$$

$$\begin{array}{c} \underline{1 >= 1} \quad \&\& \quad \underline{2 <= 2} \quad \&\& \quad \underline{3 >= 4} \\ | \quad \&\& \quad | \quad \quad \quad \square \\ \hline \square \end{array}$$

$$\begin{array}{c} \xrightarrow{\hspace{1cm}} \\ \underline{(5 >= 5} \quad || \quad \underline{2 <= 2)} \quad \&\& \quad \underline{3 >= 4} \\ | \quad || \quad | \quad \quad \quad \square \\ \hline | \quad \&\& \quad \square \\ \hline \square \end{array}$$

$$\begin{array}{c} \xrightarrow{\hspace{1cm}} \\ \underline{5 >= 5} \quad || \quad \underline{2 <= 2} \quad \&\& \quad \underline{3 >= 4} \\ | \quad \quad \quad | \quad \&\& \quad \square \\ \hline | \quad || \quad \square \\ \hline | \end{array}$$

$$\begin{array}{c} \underline{5 > 3 > 1} \\ \underline{1 > 1} \\ 0 \end{array}$$

```
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("%d\n", 5 && -5 );
printf("%d\n", 'a' || 0 );
printf("%d\n", '0' && 1.1 );
printf("%d\n", !3.3 );
printf("%d\n",5%5 && 5/5);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

10:05 AM
11-Sep-23

```
TC
1
1
1
0
0
```

Activate Windows
Go to PC settings to activate Windows.

10:05 AM
11-Sep-23

$$\begin{array}{r} 5 \ \&\& \ -5 \\ \hline 1 \ \&\& \ 1 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 'a' \ || \ 0 \\ \hline 1 \end{array}$$

$$\begin{array}{r} '0' \ \&\& \ 1.1 \\ \hline 0 \ \&\& \ 1 \\ \hline 1 \end{array}$$

$$\begin{array}{r} !3.3 \\ \hline 1 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 5\%5 \ \&\& \ 5/5 \\ \hline 0 \end{array}$$

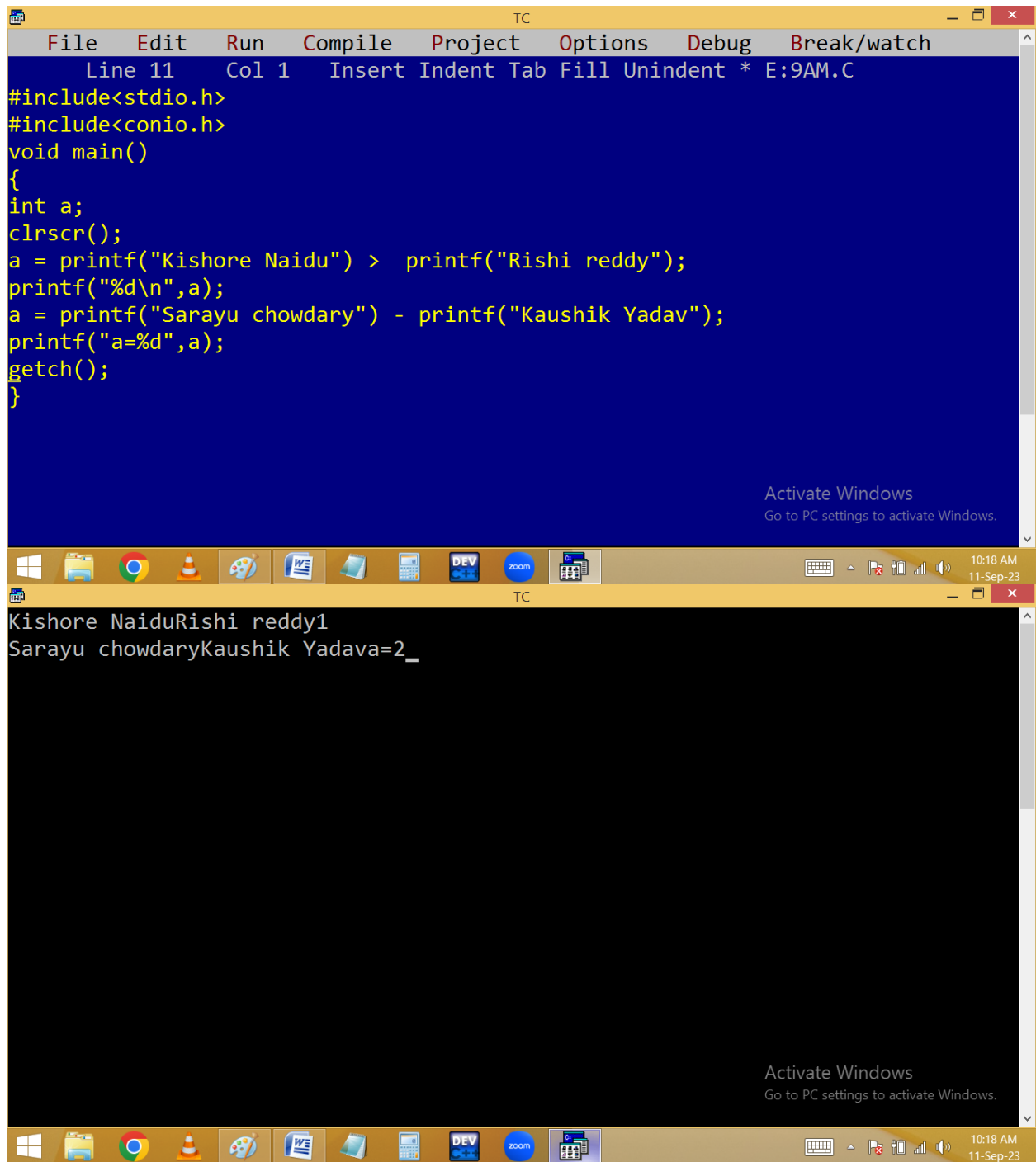
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 16 Col 61 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a;
clrscr();
a = printf("Kishore") && printf("Naresh IT");
printf("a = %d\n",a);
a = printf("") && printf("Jawaan");
printf("a = %d\n",a);
a = printf("Pathaan") || printf("Dungal");
printf("a = %d\n",a);
getch();
}
/* Note: In && operation when left exp false, right exp not checked
In || operation when left exp true, right exp not checked */
```

The bottom window shows the output of the program:

```
KishoreNaresh ITa = 1
a = 0
Pathaana = 1
```

The Windows taskbar at the bottom shows the time as 10:12 AM on 11-Sep-23. An "Activate Windows" watermark is visible in the bottom right corner of the output window.



The image shows two windows of the Turbo C++ IDE. The top window, titled 'TC', displays a C program in a blue editor. The code includes `<stdio.h>` and `<conio.h>`, defines a `main` function, declares an integer `a`, clears the screen with `clrscr()`, and prints two lines of text: "Kishore Naidu" followed by "Rishi reddy" on the same line, and "Sarayu chowdary" followed by "Kaushik Yadav" on the next line. It then prints the value of `a` (which is 2) and waits for a key press with `getch()`. The bottom window, also titled 'TC', shows the output of the program on a black background. The output consists of two lines: "Kishore NaiduRishi reddy1" and "Sarayu chowdaryKaushik Yadava=2_". Both windows have a menu bar with options like File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The Windows taskbar at the bottom shows the time as 10:18 AM on 11-Sep-23.

```
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()
{
int a;
clrscr();
a = printf("Kishore Naidu") > printf("Rishi reddy");
printf("%d\n",a);
a = printf("Sarayu chowdary") - printf("Kaushik Yadav");
printf("a=%d",a);
getch();
}
```

Kishore NaiduRishi reddy1
Sarayu chowdaryKaushik Yadava=2_

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 12 Col 31 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a;
clrscr();
a = printf("Kishore Naidu") && -5 >= -4 && printf("Rishi reddy");
printf("%d\n",a);
a = printf("Dilse") || printf("Khan") && printf("Don");
printf("%d\n",a);
printf("%d\n", !!5);
printf("%d", !(5>=10 && !0<=1.1));
getch();
}
```

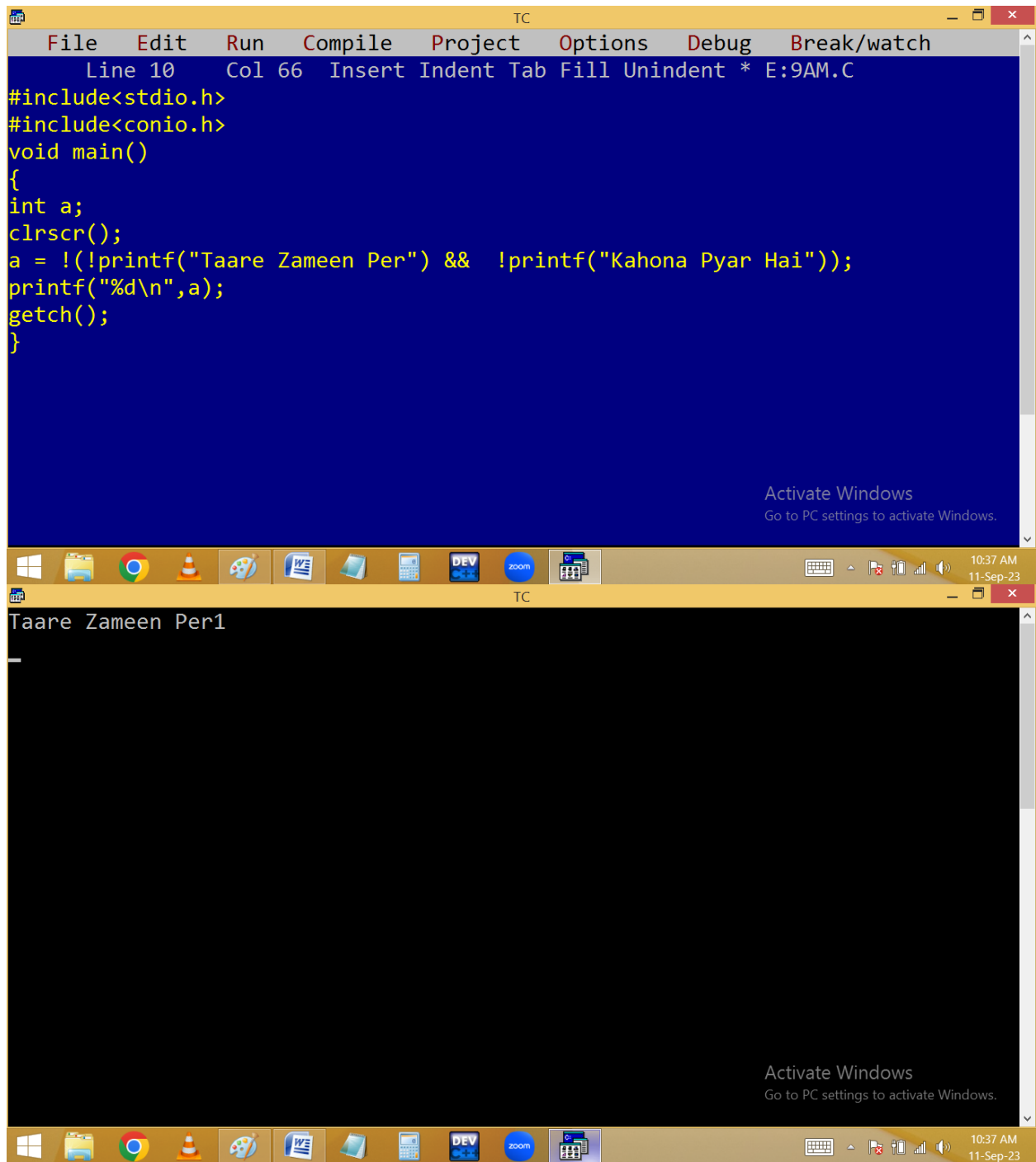
The bottom window shows the output of the program:

```
Kishore Naidu0
Dilse1
1
1
```

The Windows taskbar at the bottom shows the time as 10:31 AM on 11-Sep-23. An "Activate Windows" watermark is visible in the bottom right corner of both windows.

$$\begin{array}{l}
 \text{! (!5 } \geq \text{ !0 \&\& !0 } \leq \text{ !1.1)} \\
 \underline{\text{!5 } \geq \text{ !1}} \\
 \text{!0} \\
 \underline{\text{!1}}
 \end{array}$$

$$\begin{array}{l}
 \text{!5} \\
 \underline{\text{!1}} \\
 \text{!0} \\
 \underline{\text{!1}}
 \end{array}$$



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the source code editor, titled 'TC', with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 10, Col 66, Insert, Indent, Tab, Fill, Unindent, * E:9AM.C). The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a;
clrscr();
a = (!printf("Taare Zameen Per") && !printf("Kahona Pyar Hai"));
printf("%d\n",a);
getch();
}
```

The bottom window is the output console, also titled 'TC', showing the output 'Taare Zameen Per1'. Both windows have a yellow title bar and a standard Windows taskbar at the bottom with icons for File Explorer, Chrome, VLC, Paint, Word, and other applications. The system clock in the bottom right corner shows 10:37 AM on 11-Sep-23.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Error: Lvalue required in function main
#include<stdio.h>
#include<conio.h>
void main()
{
int a;
clrscr();
a = printf("Murder") && a=1;
printf("%d\n",a);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

10:41 AM
11-Sep-23

a = printf("Murder") && a=4;



Here 1 is a constant and
constant copy not allowed

← Error