

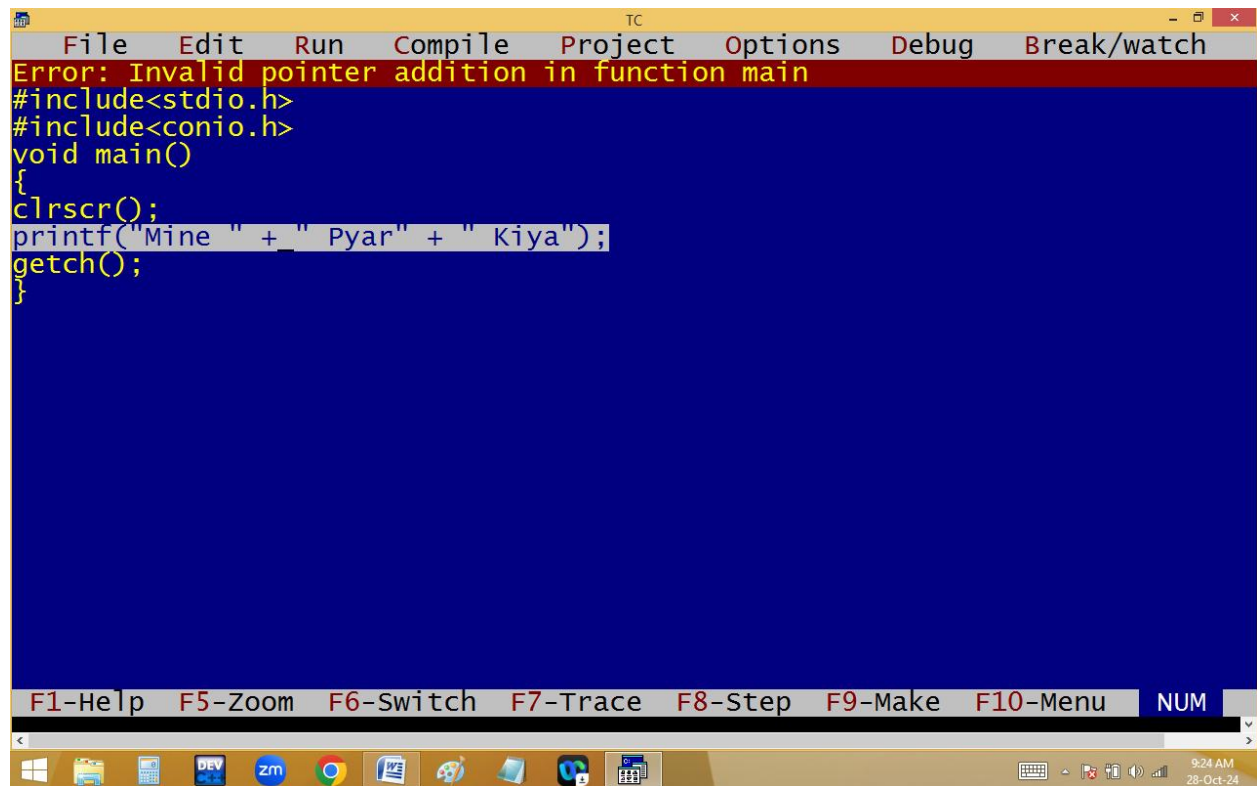
The image shows a screenshot of a Turbo C++ IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 20 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Jodha\n","Akbar");
printf("Jodha %s\n","Akbar");
printf("Kahona %s\n","Pyar ", "Hai");
printf("Kahona %s %s\n","Pyar ", "Hai");
printf("%s Pyar \n","Mine %s", " Kiya");
printf("%s Pyar %s\n","Mine %s", " Kiya");
printf("Mine " " Pyar " Kiya");
getch();
}
```

The bottom window shows the output of the program:

```
Jodha
Jodha Akbar
Kahona Pyar
Kahona Pyar Hai
Mine %s Pyar
Mine %s Pyar Kiya
Mine Pyar Kiya_
```

The IDE interface includes a menu bar at the top with options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. A status bar at the bottom of the IDE shows function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The Windows taskbar at the very bottom shows the time as 9:23 AM and 9:24 AM on 28-Oct-24.



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". A red error message banner at the top reads "Error: Invalid pointer addition in function main". The code editor contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Mine " + " Pyar" + " Kiya");
getch();
}
```

Below the code editor is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. At the bottom is the Windows taskbar with icons for File Explorer, DEV, zm, Google Chrome, and other applications. The system clock in the bottom right corner shows "9:24 AM" and "28-Oct-24".

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 43 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Don-%d\n", printf("Bahu bali-2\n"));
printf("Dil-%d\n", printf("Saajan-%d\n", printf("Aashique-2\n"))));
printf("Khan-%d\n", printf("Dilse-%d\r", printf("Jawaan\n"))));
printf("Secunderabad-Biryani\rHyderabad");_
getch();
}

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM
TC
Bahu bali-2
Don-12
Aashique-2
Saajan-11
Dil-10
Jawaan
Khan-87
Hyderabadbad-Bi ryani
```

Jawaan\n

Dilse-7\r

Khan-8

Secunderabad- Biryani\rHyderabad

Hyderabad



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program for various number conversions. The code includes headers for stdio and conio, and uses printf to output decimal, octal, and hexadecimal values. The bottom window shows the program's output, which lists the decimal, octal, and hexadecimal representations of the numbers 10, 12, 23, 2d, 5F, 36, 1d, 45, -8, and fff8.

```
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 22 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%o\n",10); /* decimal to octal */
printf("%d\n",012); /* octal to decimal */
printf("%x\n",35); /* dec to hexa */
printf("%x\n",45);
printf("%X\n",95);
printf("%d\n",0x24); /* hexa to dec */
printf("%x\n",035); /* octal to hexa */
printf("%o\n",0x25); /* hexa to oct */
printf("%d\n",-2<<2);_
printf("%x", -2<<2);
getch();
}
```

12
10
23
2d
5F
36
1d
45
-8
fff8

$$\begin{array}{r} 8 \overline{) 10} \\ 1-2 \checkmark \end{array}$$

$$\begin{array}{r} 012 \\ \swarrow \quad \searrow \\ 8^1 \times 1 + 8^0 \times 2 \\ \hline 8 + 2 = 10 \end{array}$$

$$\begin{array}{r} 16 \overline{) 35} \\ 2-3 \checkmark \end{array}$$

$$\begin{array}{r} 16 \overline{) 45} \\ 8-13 \text{ d} \end{array}$$

10-a, 11-b, 12-c, 13-d

$$\begin{array}{r} 16 \overline{) 95} \\ 5-15 \text{ F} \end{array}$$

$$\begin{array}{r} 0 \times 2 \quad 4 \\ \swarrow \quad \searrow \\ 16^1 \times 2 + 16^0 \times 4 \\ \hline 32 + 4 = 36 \checkmark \end{array}$$

10-A, 11-B, 12-C, 13-D, 14-E, 15-F

octal to decimal

$$\begin{array}{r} 035 \\ \swarrow \quad \searrow \\ 8^1 \times 3 + 8^0 \times 5 \\ \hline 24 + 5 = 29 \end{array}$$

decimal to hexa

$$\begin{array}{r} 16 \overline{) 29} \\ 1-13 \text{ d} \checkmark \end{array}$$

hexa to decimal

$$\begin{array}{r} 0 \times 2 \quad 5 \\ \swarrow \quad \searrow \\ 16^1 \times 2 + 16^0 \times 5 \\ \hline 32 + 5 = 37 \end{array}$$

decimal to octal

$$\begin{array}{r} 8 \overline{) 37} \\ 4-5 \checkmark \end{array}$$

$$-2 \ll 2 = -8$$

$$\begin{array}{r} 2 \overline{) 8} \\ 2 \overline{) 4-0} \\ 2 \overline{) 2-0} \\ 1-0 \end{array}$$

$$8 = 0000 \ 0000 \ 0000 \ 1000$$

$$1 \sim = 1111 \ 1111 \ 1111 \ 0111$$

$$2 \sim = 0000 \ 0000 \ 0000 \ 0001$$

$$\begin{array}{r} \\ \\ \hline 1111 \ 1111 \ 1111 \ 1000 \\ \hline \end{array}$$

Finding no of conversion characters in scanf():

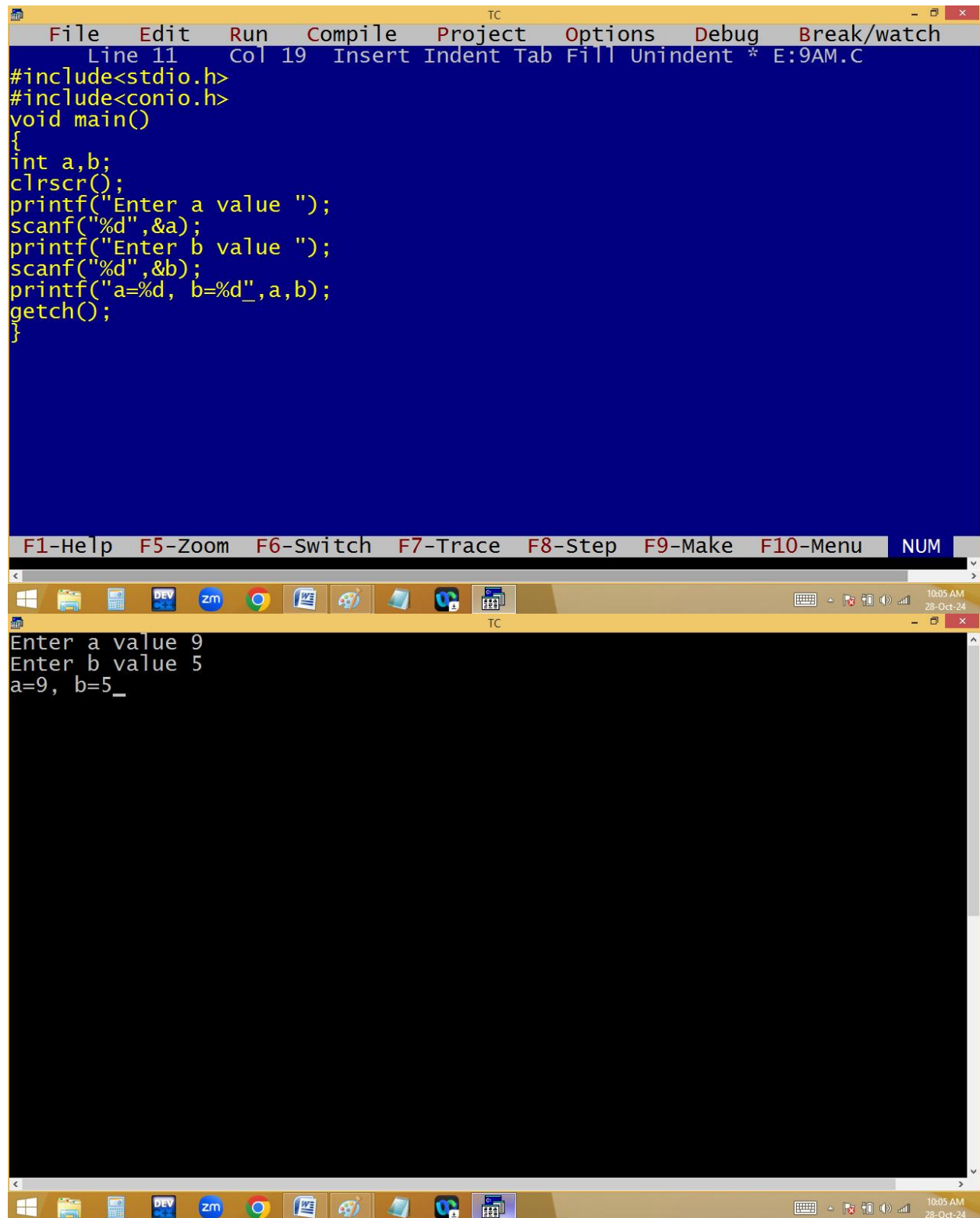
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares three integer variables `a`, `b`, and `c`. It then calls `clrscr()` to clear the screen, prints a prompt "Enter a, b values ", and uses `scanf` to read two integers from the user. Finally, it prints the values of `a`, `b`, and `c` using `printf` and calls `getch()` to pause the program.

```
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 17 Insert Indent Tab Fill Unindent * E:9AM.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();
}
```

Below the code editor, a function key bar shows shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The bottom window shows the program's execution. It displays the prompt "Enter a, b values" followed by the user input "4 9". The output shows "a=4, b=9, c=2_". The Windows taskbar at the bottom indicates the time is 10:04 AM on 28-Oct-24.

Enter a, b values 4 9
a=4, b=9, c=2_

Controlling inputs in scanf():



The screenshot displays the Turbo C++ (TC) IDE. The top window shows the source code for a C program. The code includes `<stdio.h>` and `<conio.h>`, defines `main()`, declares `int a, b;`, clears the screen with `clrscr()`, prompts the user to enter values for `a` and `b` using `printf`, reads the inputs using `scanf("%d", &a);` and `scanf("%d", &b);`, prints the values with `printf("a=%d, b=%d", a, b);`, and ends with `getch();`. The bottom window shows the program's execution output, where the user has entered '9' for `a` and '5' for `b`, resulting in the printed output 'a=9, b=5_'. The Windows taskbar at the bottom shows the time as 10:05 AM on 28-Oct-24.

```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 19 Insert Indent Tab Fill Unindent * E:9AM.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();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM

Enter a value 9
Enter b value 5
a=9, b=5_


```
TC
Enter a value 6 8
Enter b value a=6, b=8_
```

```
TC
Enter a value 1 2 3
Enter b value a=1, b=2
```

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares two integer variables `a` and `b`, clears the screen with `clrscr()`, and prompts the user to enter values for `a` and `b` using `printf` and `scanf`. It then prints the entered values and waits for a key press with `getch()`. The bottom window shows the program's execution output, where the user has entered '3' for `a` and '7' for `b`, resulting in the output 'a=3, b=7_'. The Windows taskbar at the bottom indicates the system time is 10:08 AM on 28-Oct-24.

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 12 Insert Indent Tab Fill Unindent * E:9AM.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();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM

Enter a value 3 4
Enter b value 7
a=3, b=7_

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares two integer variables `a` and `b`, clears the screen with `clrscr()`, prompts the user to enter a value for `a`, reads the input with `scanf`, flushes the input buffer with `fflush(stdin)`, prompts for a value for `b`, reads it with `scanf`, and finally prints the values of `a` and `b` using `printf` before calling `getch()` to pause the program.

The bottom window shows the program's execution. It displays the prompts and the user's input: "Enter a value 4 6", "Enter b value 0", and the output "a=4, b=0_".

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 13 Insert Indent Tab Fill Unindent * E:9AM.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();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM

Enter a value 4 6
Enter b value 0
a=4, b=0_

The image shows a screenshot of a Turbo C++ (TC) IDE. The top window is a console with a black background and white text. It displays the output of a program: "Enter a value 1 2 3 4 5", "Enter b value 9", and "a=1, b=9_". The bottom window is the source code editor with a blue background and yellow text. It shows the C code for the program, including headers, variable declarations, and the main function logic. The code prompts the user to enter an integer and a character, reads the input, and prints the values. The IDE's menu bar and status bar are also visible.

```
Enter a value 1 2 3 4 5
Enter b value 9
a=1, b=9_

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

```
TC
Enter an integer value97
Enter a character value a=97, b=

```

```
TC
Enter an integer value5
Enter a character value a=5, b=

```

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares an integer `a` and a character `b`, clears the screen with `clrscr()`, and prompts the user for an integer and a character value. It then reads the input using `scanf`, prints the values with `printf`, and waits for a key press with `getch()`.

The bottom window shows the program's execution. It displays the prompts and the user's input: an integer value of 3 and a character value of 'y'. The output shows `a=3, b=y_`.

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 9 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a;
char b;
clrscr();
printf("Enter an integer value");
scanf("%d",&a);
printf("Enter a character value ");
scanf(" %c",&b);
printf("a=%d, b=%c",a,b);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM

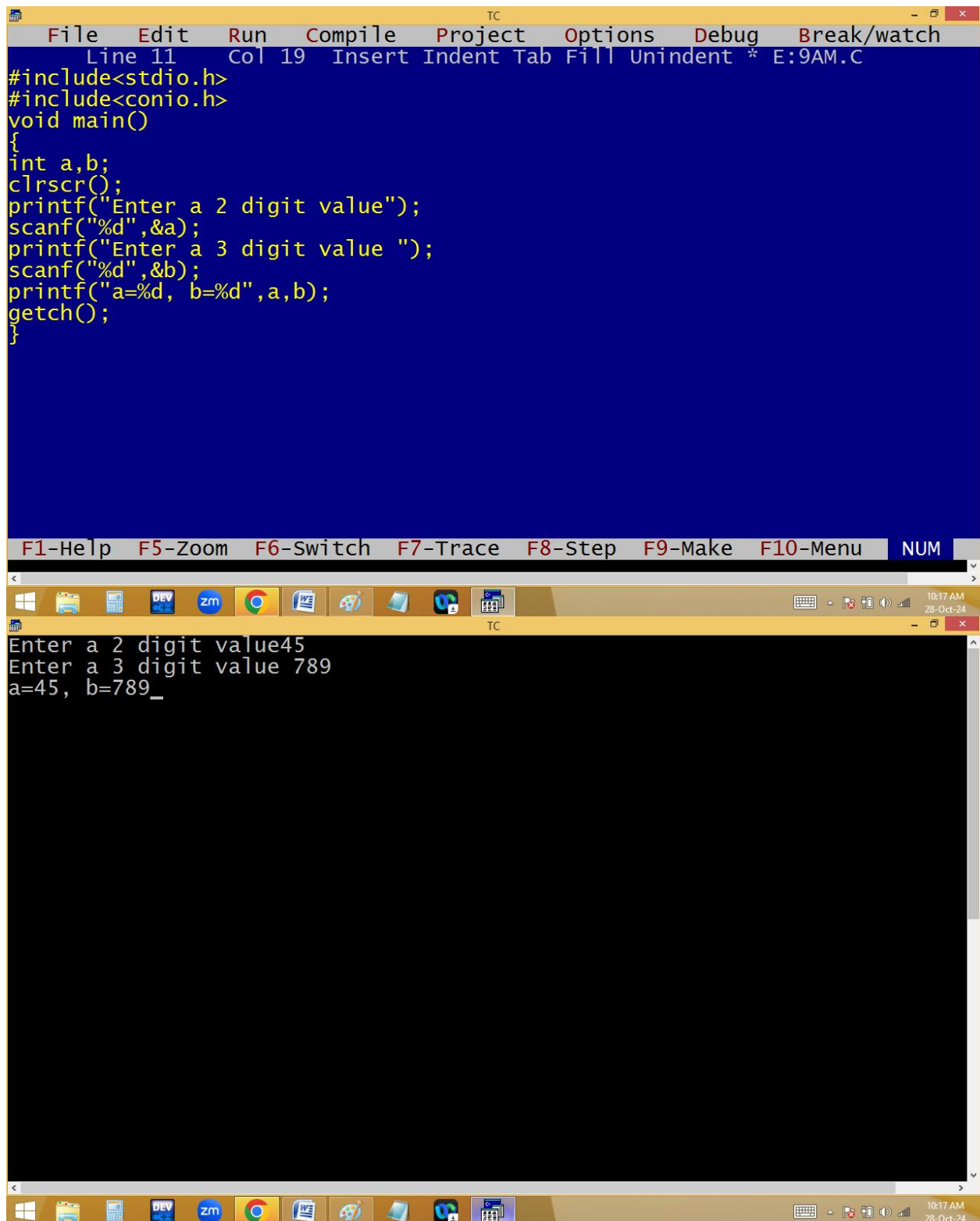
Enter an integer value3
Enter a character value y
a=3, b=y_

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program named E:9AM.C. The code includes headers for stdio.h and conio.h, and defines a main function that prompts the user for an integer and a character, then prints their values. The bottom window shows the program's execution, where the user has entered '4' for the integer and 'b' for the character, resulting in the output 'a=4, b=b'.

```
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 12 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a;
char b;
clrscr();
printf("Enter an integer value");
scanf("%d",&a);
flushall();
printf("Enter a character value ");
scanf("%c",&b);
printf("a=%d, b=%c",a,b);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM

Enter an integer value4
Enter a character value b
a=4, b=b



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 19 Insert Indent Tab Fill Unindent * E:9AM.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();
}
```

Below the code editor, a command prompt window shows the execution output:

```
Enter a 2 digit value45
Enter a 3 digit value 789
a=45, b=789_
```

The Windows taskbar at the bottom includes icons for the Start menu, File Explorer, Command Prompt, DEV C++, Zoom, Google Chrome, Word, Paint, and the TC application. The system clock in the bottom right corner indicates the time is 10:17 AM on 28-Oct-24.

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the execution output of a C program. The program prompts the user to enter a 2-digit value and a 3-digit value. The user has entered 247 and 12345 respectively. The output shows 'a=247, b=12345_'. The bottom window shows the source code of the program, which includes headers for stdio.h and conio.h, and uses printf and scanf for input/output. The IDE interface includes a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch), a status bar (Line 10, Col 10, Insert, Indent, Tab, Fill, Unindent, * E:9AM.C), and a toolbar with function key shortcuts (F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, NUM).

```
Enter a 2 digit value247
Enter a 3 digit value 12345
a=247, b=12345_

#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 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):

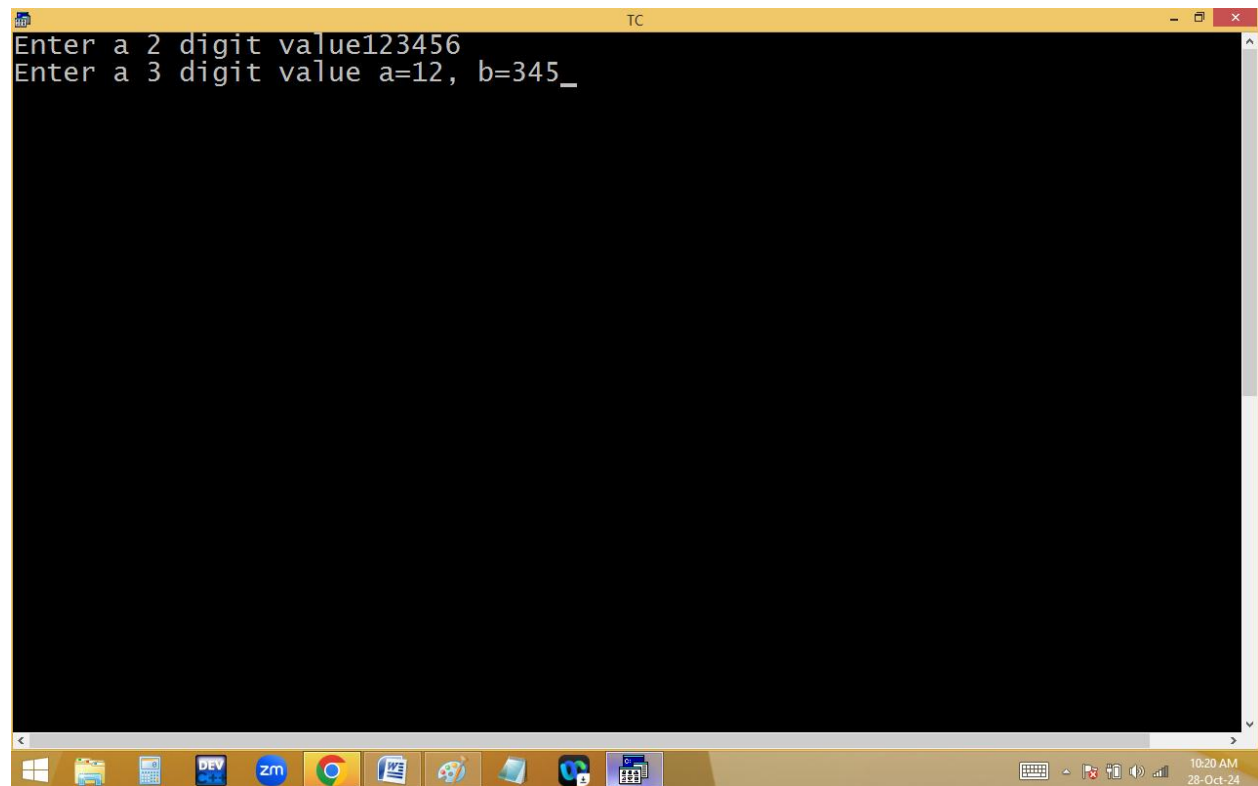
```
Enter a 2 digit value34
Enter a 3 digit value 567
a=34, b=567_
```

Source Code Window (Bottom):

```
#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 IDE interface includes a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch), a status bar (Line 10, Col 10, Insert, Indent, Tab, Fill, Unindent, * E:9AM.C), and a keyboard shortcuts bar (F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, NUM).

```
TC
Enter a 2 digit value123456
Enter a 3 digit value a=12, b=345_
```



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 12 Insert Indent Tab Fill Unindent * E:9AM.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();
}
```

Below the code editor, a command prompt window shows the execution output:

```
Enter a 2 digit value123456
Enter a 3 digit value 123456
a=12, b=123_
```

The IDE interface includes a menu bar at the top, a toolbar with icons for various functions, and a status bar at the bottom showing the time as 10:21 AM on 28-Oct-24.

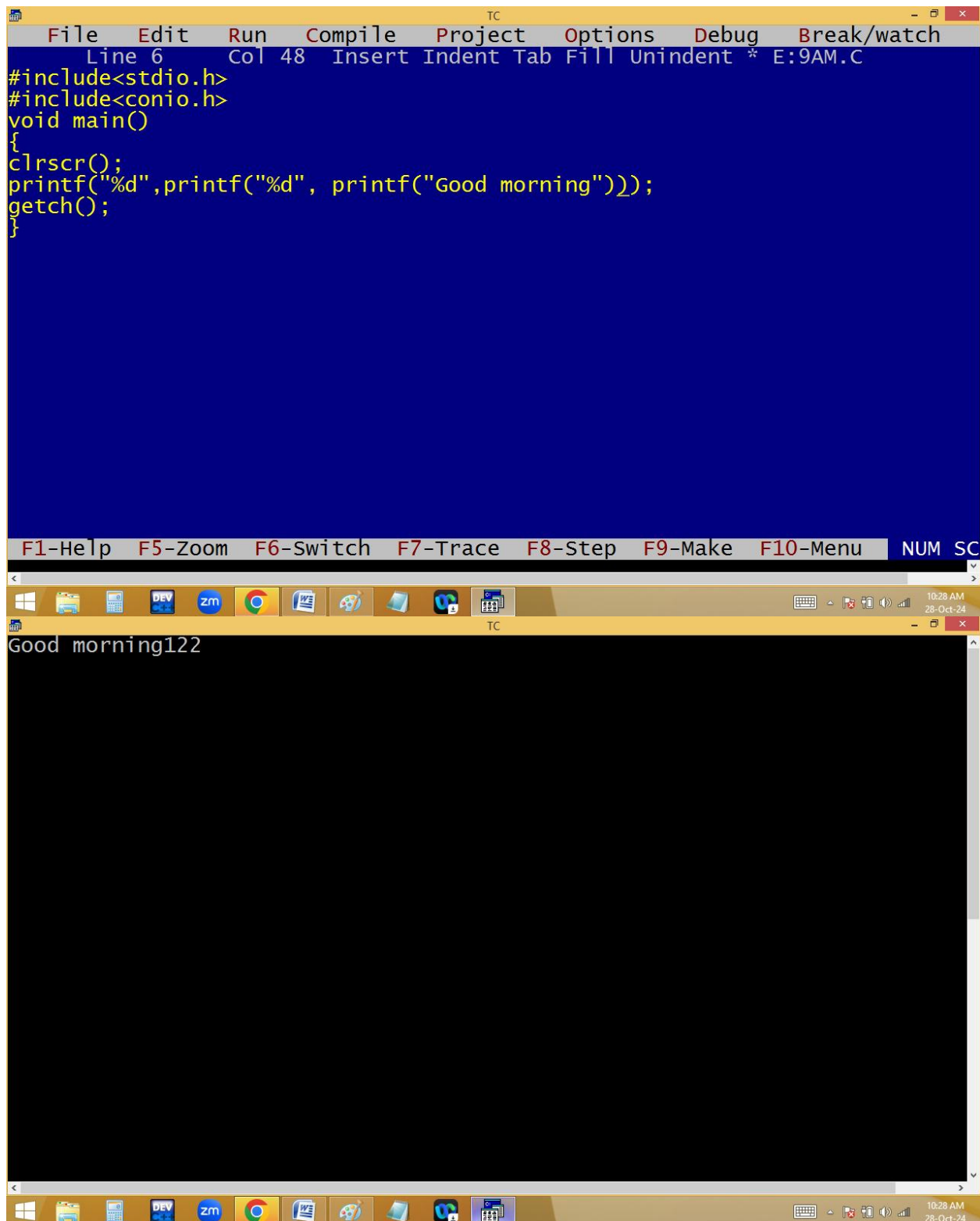
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 7 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d",printf("Hi")==scanf("%d%d"));
getch();
}
```

Below the code editor, a function key bar contains shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The bottom window shows the output of the program:

```
Hi2 8
1_
```

The Windows taskbar at the bottom includes icons for various applications and the system clock, which shows 10:26 AM on 28-Oct-24.



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

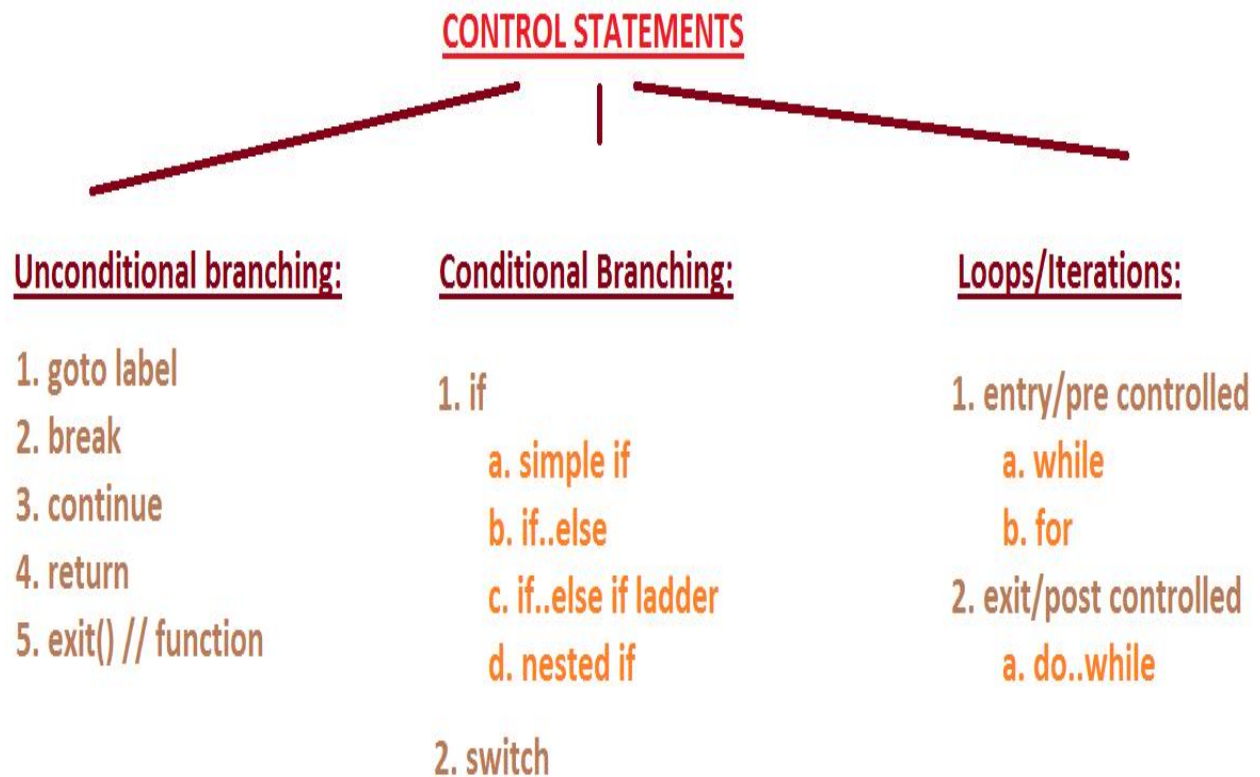
```
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 48 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d",printf("%d", printf("Good morning")));
getch();
}
```

Below the editor is a toolbar with various function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, NUM SC. The bottom window, also titled 'TC', shows the output of the program: 'Good morning122'. The Windows taskbar at the bottom includes icons for the Start menu, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and the TC application. The system clock in the bottom right corner indicates the time is 10:28 AM on 28-Oct-24.

CONTROL STATEMENTS / CONTROL STRUCTURES

They are used to control the program execution order.

In c we are using the following control statements.



goto label:

It is used to transfer program execution from one place to another place [label].

In this process it is jumping from one area to another without any condition. Hence it is also called **unconditional** jumping statement.

Syntax:

```
.....;  
.....;  
goto label;  
.....;  
.....;  
label:  
.....;  
.....;
```

Here **goto** is a keyword.

Label is an identifier is used to identify the area[line].

Every label should be end with : (colon)

Keywords not allowed in labels i.e. label should be user defined.

Duplicate labels not allowed.

There is no space between go and to.

Label naming rules are similar to the identifier rules.

Note: goto label working style is similar to loops some times.

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

```
Line 15 Col 6 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
goto a;
c:
puts("good night"); goto last;
b:
puts("good evening");
goto c;
a:
puts("good morning");
goto b;
last:
getch();
}
```

Below the editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is a toolbar with various function keys: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, NUM, and SC.

The bottom window is a command prompt or console, showing the output of the program:

```
good morning
good evening
good night
```

The Windows taskbar at the bottom of the screen shows the time as 10:46 AM on 28-Oct-24. The taskbar includes icons for the Start menu, File Explorer, DEV, zm, Google Chrome, Word, Paint, and the TC application.

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

```
Line 8 Col 37 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
goto a;
c:
puts("good night"); getch(); return;_
b:
puts("good evening");
goto c;
a:
puts("good morning");
goto b;
}
```

Below the editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is a toolbar with various function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM SC.

The bottom window is the output console, which displays the program's output:

```
good morning
good evening
good night
```

The Windows taskbar at the bottom of the screen shows the time as 10:48 AM on 28-Oct-24. The taskbar includes icons for the Start menu, File Explorer, DEV C++, Zoom, Google Chrome, Word, Paint, and the TC application.

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

```
Line 3   Col 9   Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<stdlib.h> /* #include<process.h> */
void main()
{
clrscr();
goto a;
c:
puts("good night"); getch(); exit(0);
b:
puts("good evening");
goto c;
a:
puts("good morning");
goto b;
}
```

Below the editor is a "Watch" window, which is currently empty. The bottom window is the command prompt, showing the output of the program:

```
good morning
good evening
good night
```

The Windows taskbar at the bottom shows the time as 10:49 AM and 10:50 AM on 28-Oct-24. The Turbo C++ window title bar includes menu options: File, Edit, Run, Compile, Project, Options, Debug, Break/watch.

