C - PROGRAM STRUCTURE

It illustrates[Describes] how to write a program in c-language.

Every programming language is having a particular structure and we should have to follow this structure.

C-Programming structure is divided into the following parts.

- **[documentation section]**
- **Header files / Proto types / Preprocessor**
- **[global variables]**
- **[function declarations & definitions]**
- **void main() / main() / int main()**
- **Other statements.**

Generally documentation section consists of program headings, definitions etc and They should be represented with comments.

The statements that are enclosed in between /* and */ are called comments.

Comments never participate in program execution. They are only for user understandability or display purpose.

C-Language supports comment block only.

Eg:

/*

……;

……..;

*/

C++ supports comment block and single line comments.

Eg: // ……

Header files consists of function definitions, global variables, macros etc.

We can declare the header files at any place of our program. But before going to use the relevant function, its header file should be declared. It is recommended to declare the header files at the top of the program.

Every header file should be started with **#include**. Here **#** is a **preprocessor** indicator.

We can place header files in angled brackets

< > or double quotes **“ “**.

Header file never ends with **semicolon(;)**.

Note: In C^{++}, we should have to declare header files at the top only.

The variables that are declared before main() or top of the program are called **global variables** and they can be accessed from anywhere in our program. They are optional.

Function declarations and definitions contain function header and body.

* Every C-Program execution starts from main() function and travel towards down. Hence it is also called **top-down** approach.

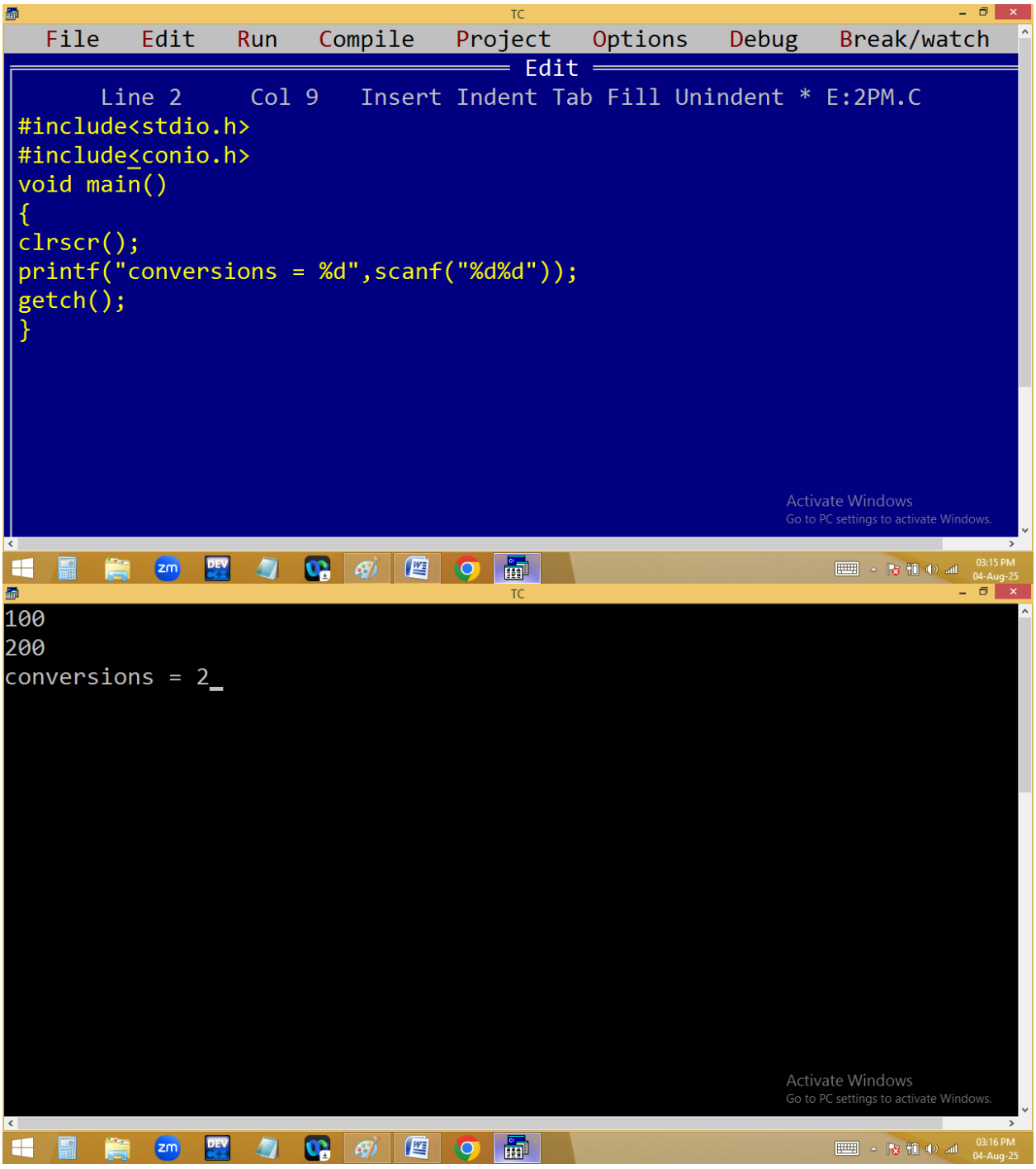
* The operating system is calling the main() for execution.

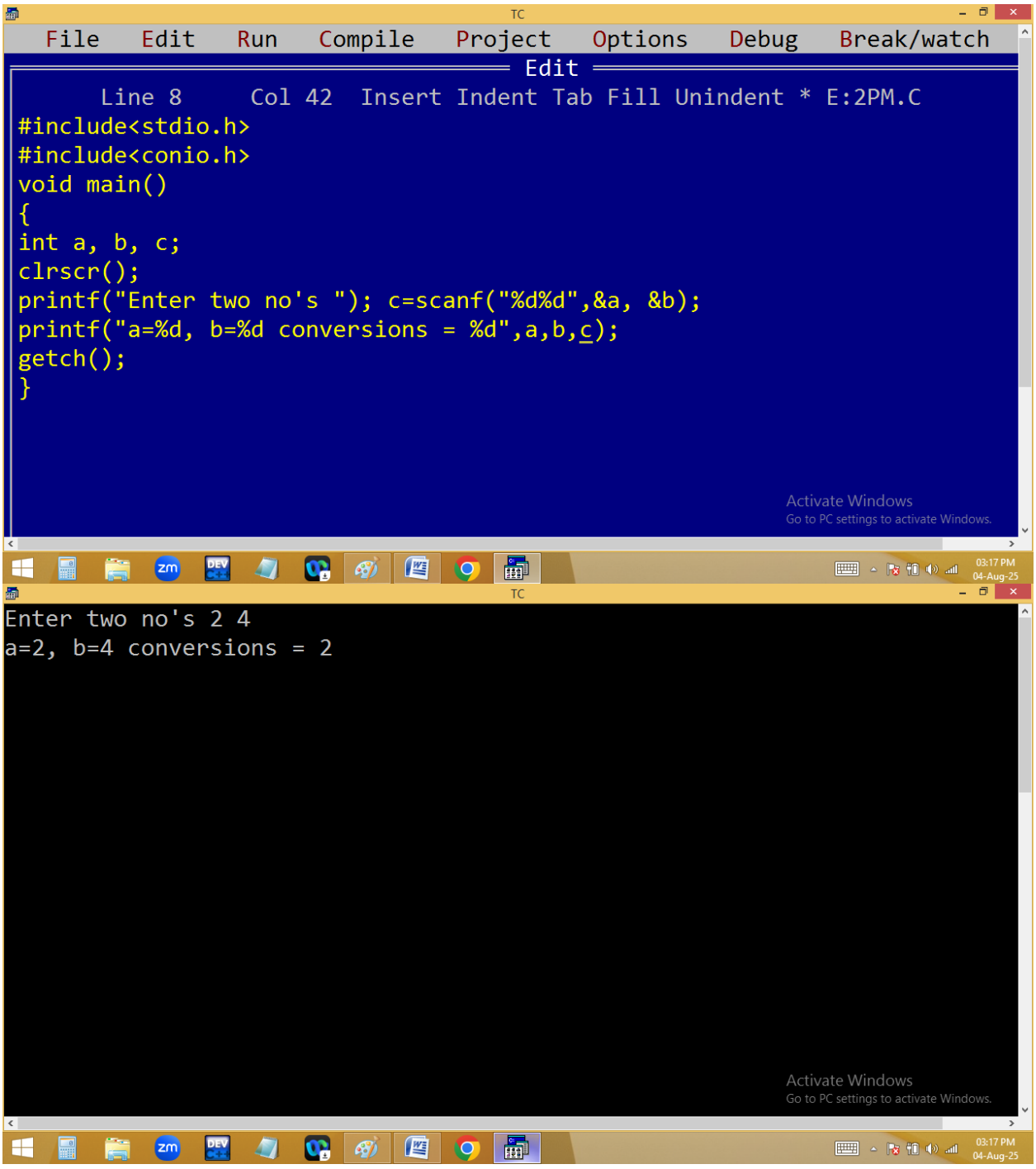
* Without main(), C-Program never executed but compiled.

* main() is predefined function with user defined body. main() doesn't have any header file. One program have to maintain one main() only. We can create alternate for main(). Other statements are changed from program to program.

Note: It is recommended to write C programs in lower case only. Every statement should have to end with semicolon main().

Finding no of conversion characters in scanf():

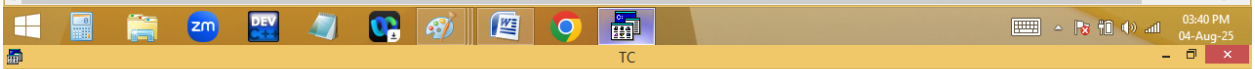

TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 2 Col 9 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("conversions = %d",scanf("%d%d"));
getch();
}
Activate Windows
Go to PC settings to activate Windows.
03:15 PM
04-Aug-25
TC
100
200
conversions = 2
Activate Windows
Go to PC settings to activate Windows.
03:16 PM
04-Aug-25



Conversions:

TC

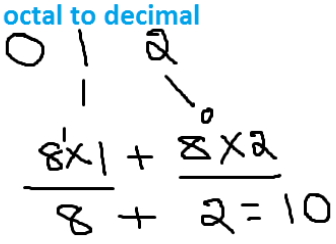
```
      Line 1     Col 33  Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d\n",012); /* octal to decimal */
printf("%o\n",45);  /* dec  to octal */
printf("%d\n",0x35); /* hex to decimal */
printf("%x\n",35);  /* dec to hexa */
printf("%x\n",45);
printf("%X\n",95);
printf("%x\n",025); /* oct to hexa */
printf("%o\n", 0x44); /* hexa to oct */
printf("%x",-2<<2);  /*  fff8 */
getch();
}
```

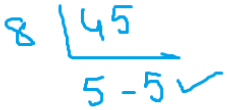
TC

```
10
55
53
23
2d
5F
15
104
fff8
```

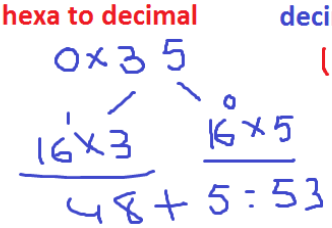

octal to decimal



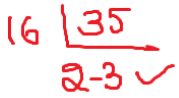
dec to octal

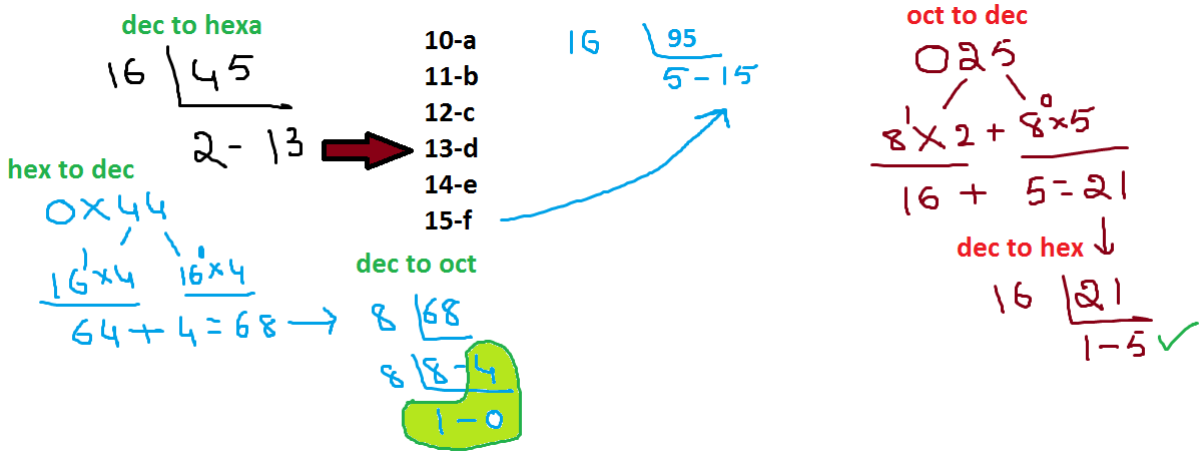


hexa to decimal



decimal to hexa





-2 << 2 = fff8

-2<<2= -8

8 = 0000 0000 0000 1000

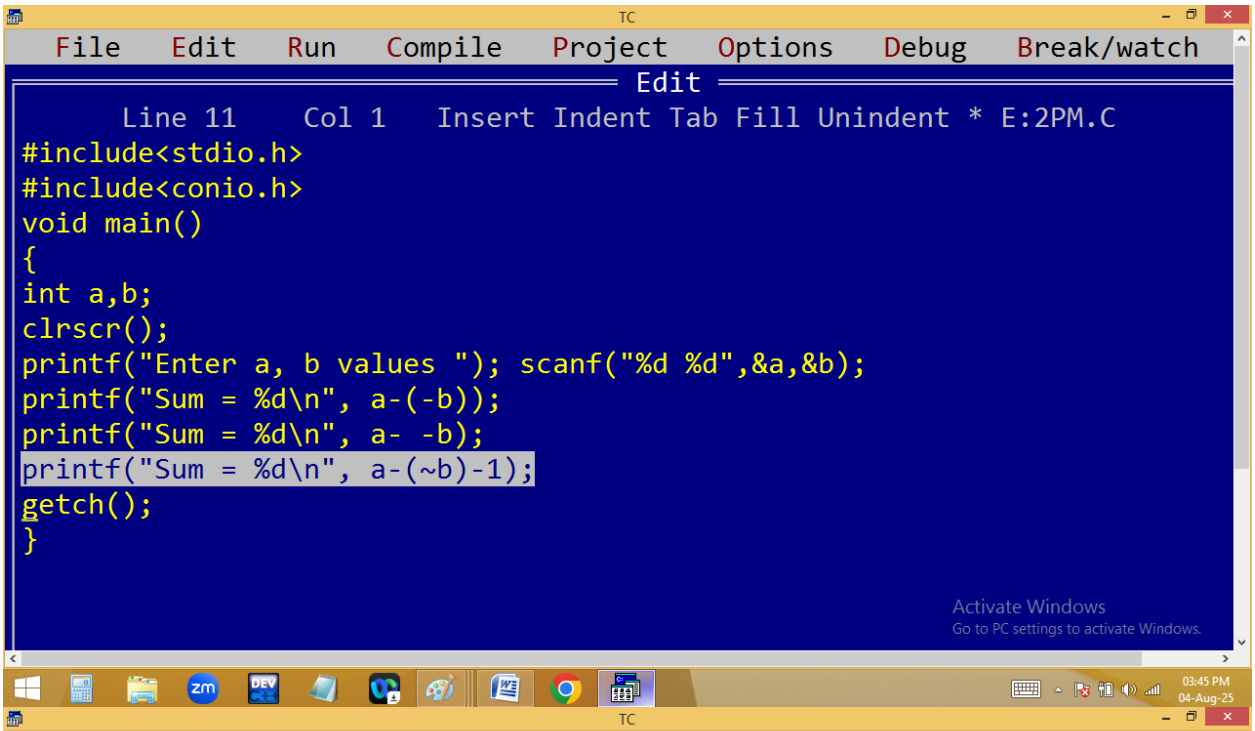
~ = 1111 1111 1111 0111

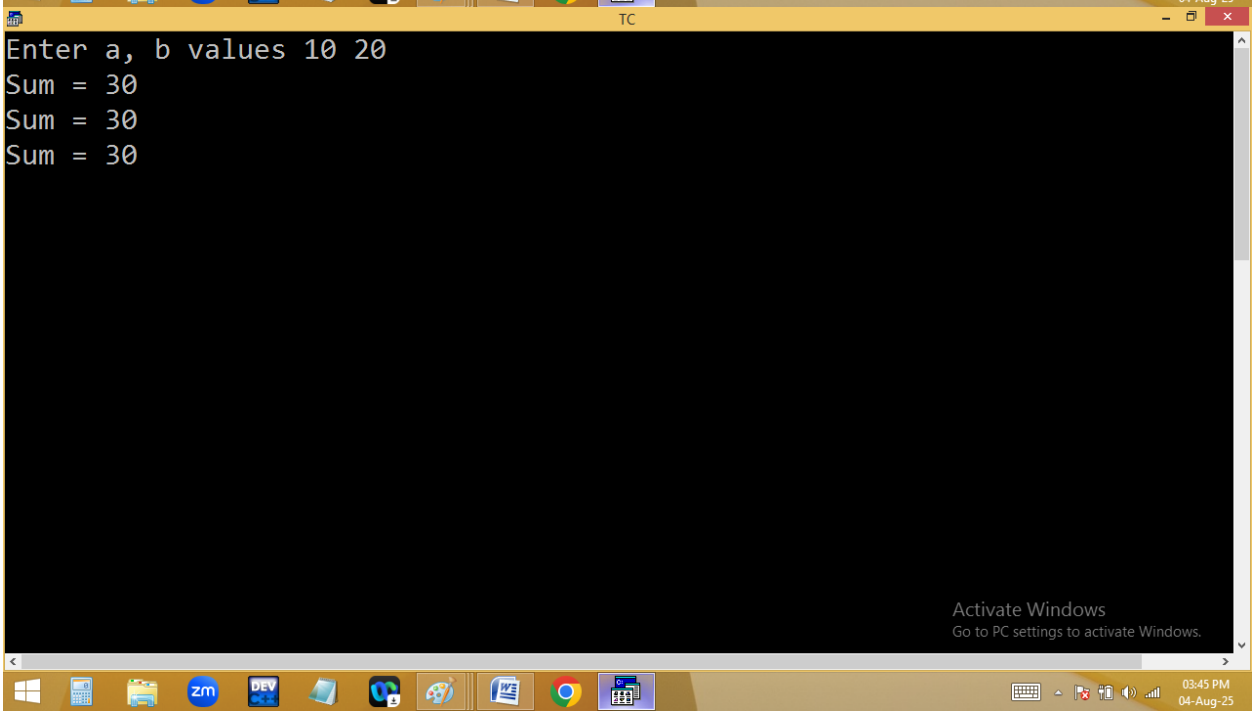
2~ 0000 0000 0000 0001

1111 1111 1111 1000

f f f 8

Read two numbers and add without using + operator?





a=10

b=20

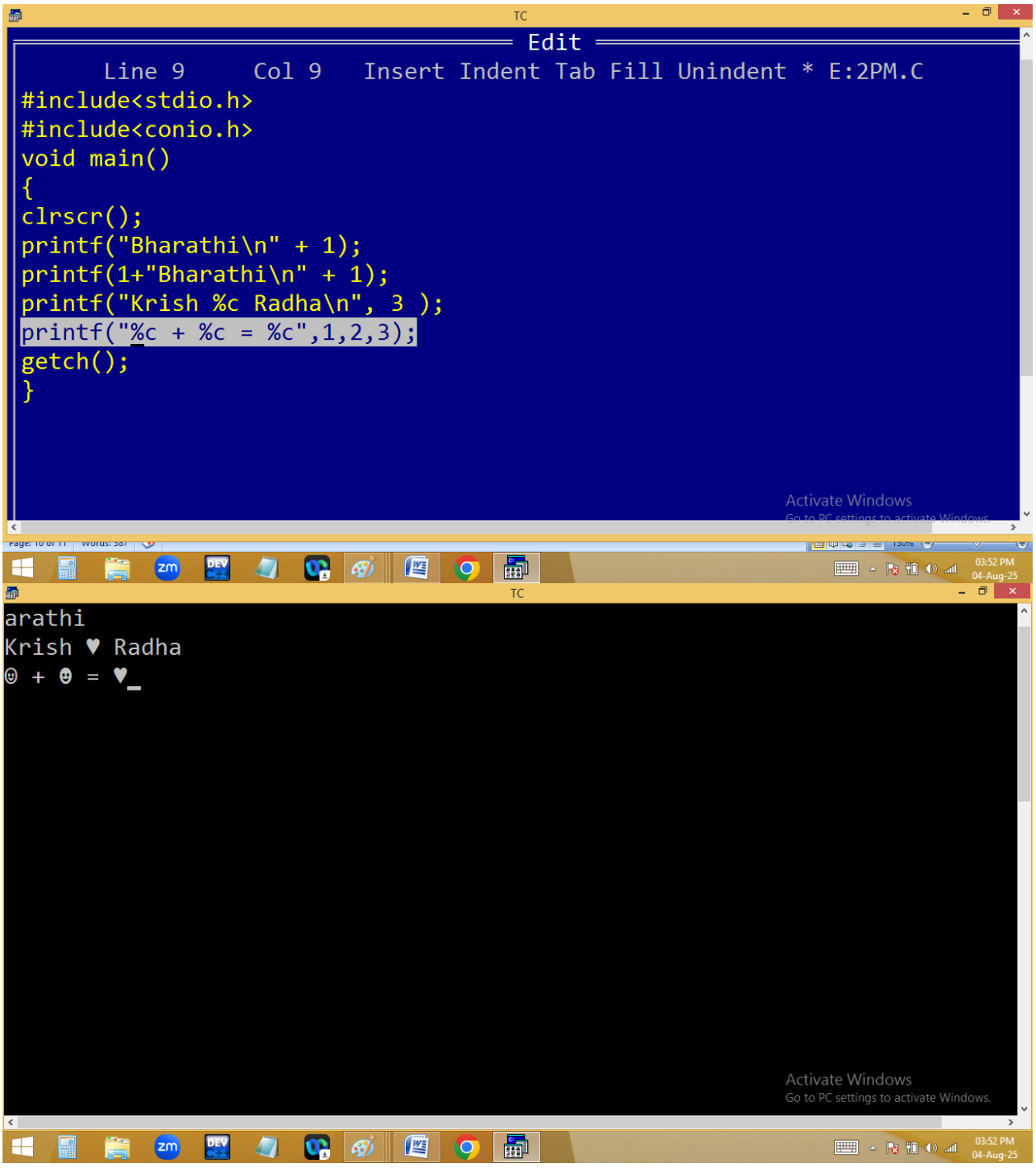
a-(~b)-1

10-(~20)-1

10-(-21) -1

10+21-1=30

n = -(n+1) ==> -(20+1)==> -21


TC
Edit
Line 9 Col 9 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("Bharathi\n" + 1);
printf(1+"Bharathi\n" + 1);
printf("Krish %c Radha\n", 3);
printf("%c + %c = %c",1,2,3);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
03:52 PM
04-Aug-25
TC
arathi
Krish ♥ Radha
☺ + ☻ = ♥
Activate Windows
Go to PC settings to activate Windows.
03:52 PM
04-Aug-25