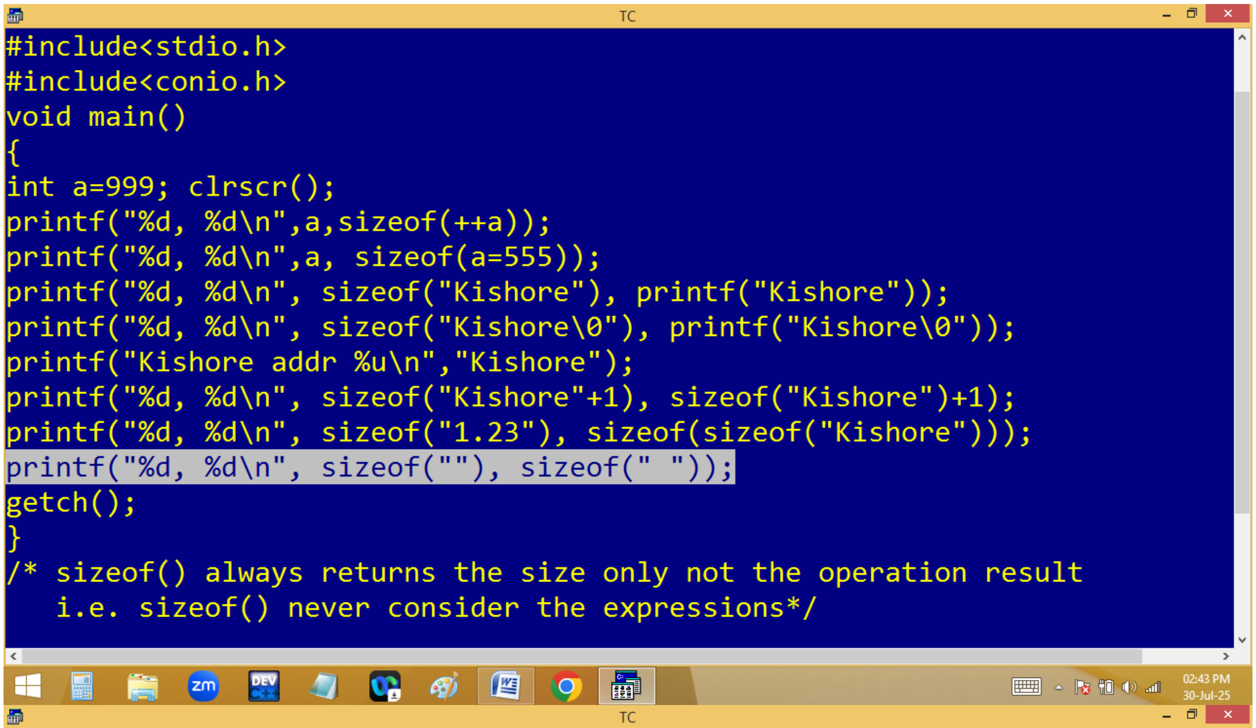
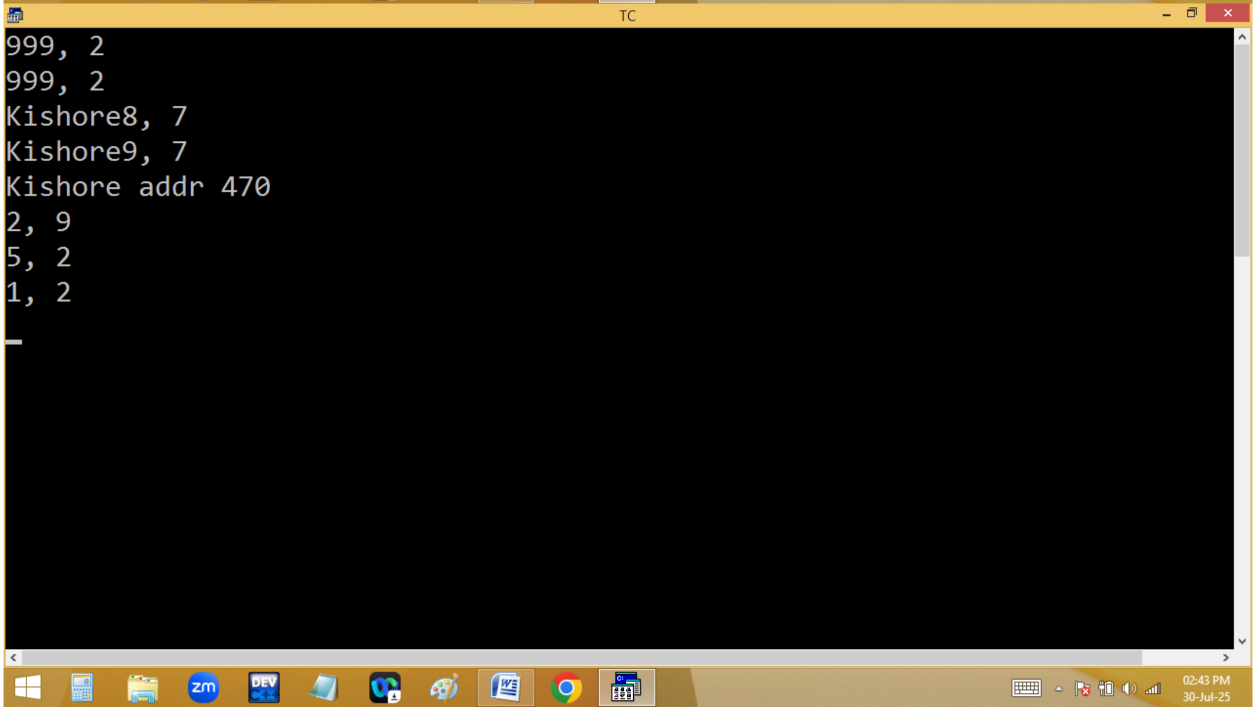
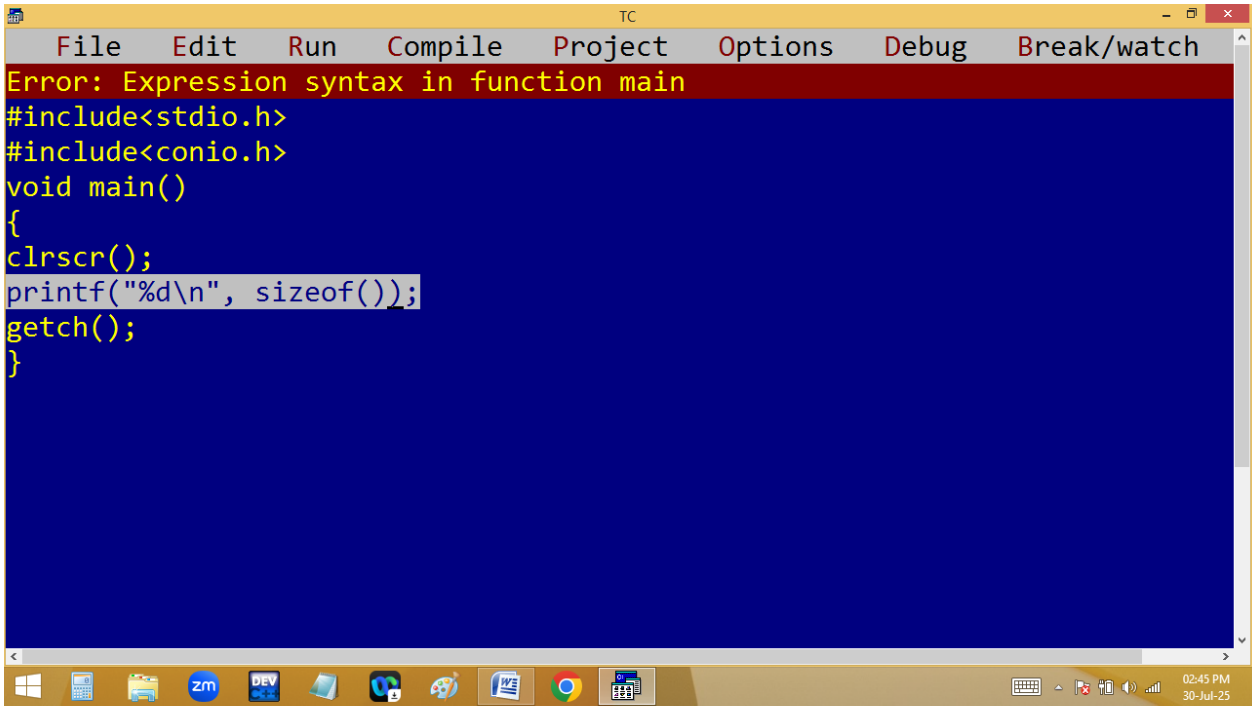


```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=999; clrscr();
printf("%d, %d\n",a,sizeof(++a));
printf("%d, %d\n",a, sizeof(a=555));
printf("%d, %d\n", sizeof("Kishore"), printf("Kishore"));
printf("%d, %d\n", sizeof("Kishore\0"), printf("Kishore\0"));
printf("Kishore addr %u\n","Kishore");
printf("%d, %d\n", sizeof("Kishore"+1), sizeof("Kishore")+1);
printf("%d, %d\n", sizeof("1.23"), sizeof(sizeof("Kishore")));
printf("%d, %d\n", sizeof(""), sizeof(" "));
getch();
}
/* sizeof() always returns the size only not the operation result
   i.e. sizeof() never consider the expressions*/
```



```
999, 2
999, 2
Kishore8, 7
Kishore9, 7
Kishore addr 470
2, 9
5, 2
1, 2
```



```
Error: Expression syntax in function main
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d\n", sizeof());
getch();
}
```

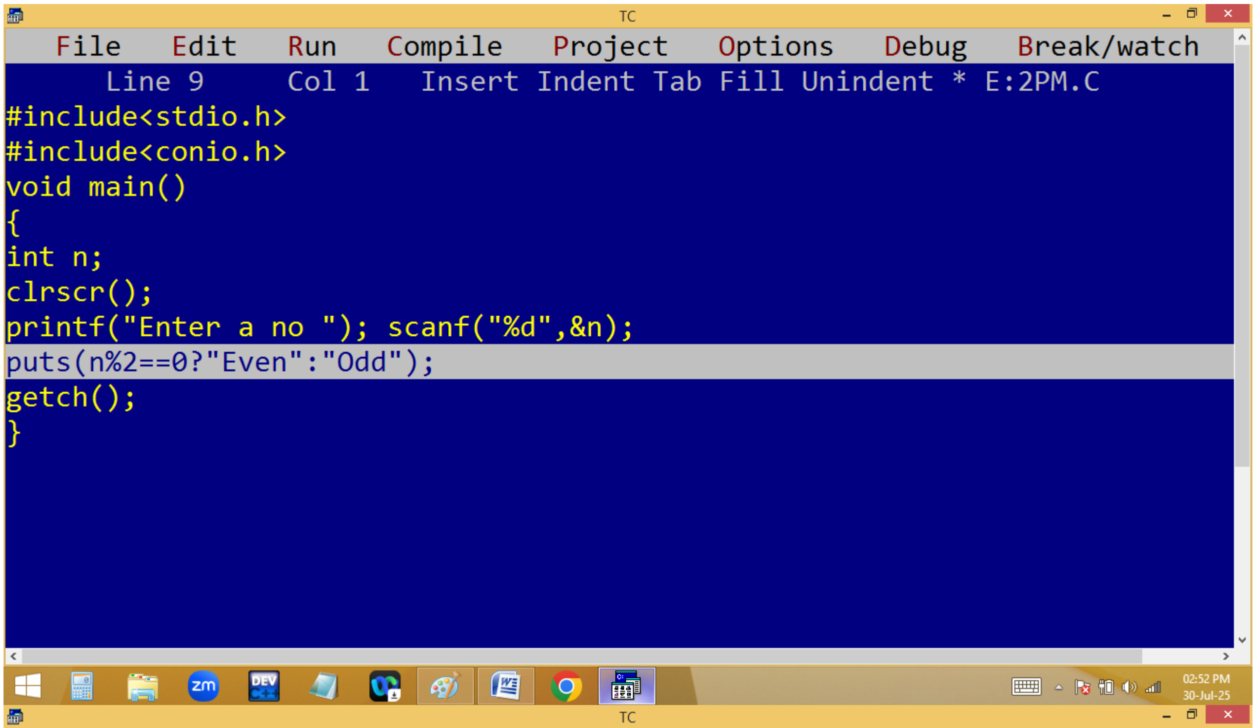
Ternary / conditional operator [?:]

It require three operands. It is going to start with condition. Hence it is also called conditional operator.

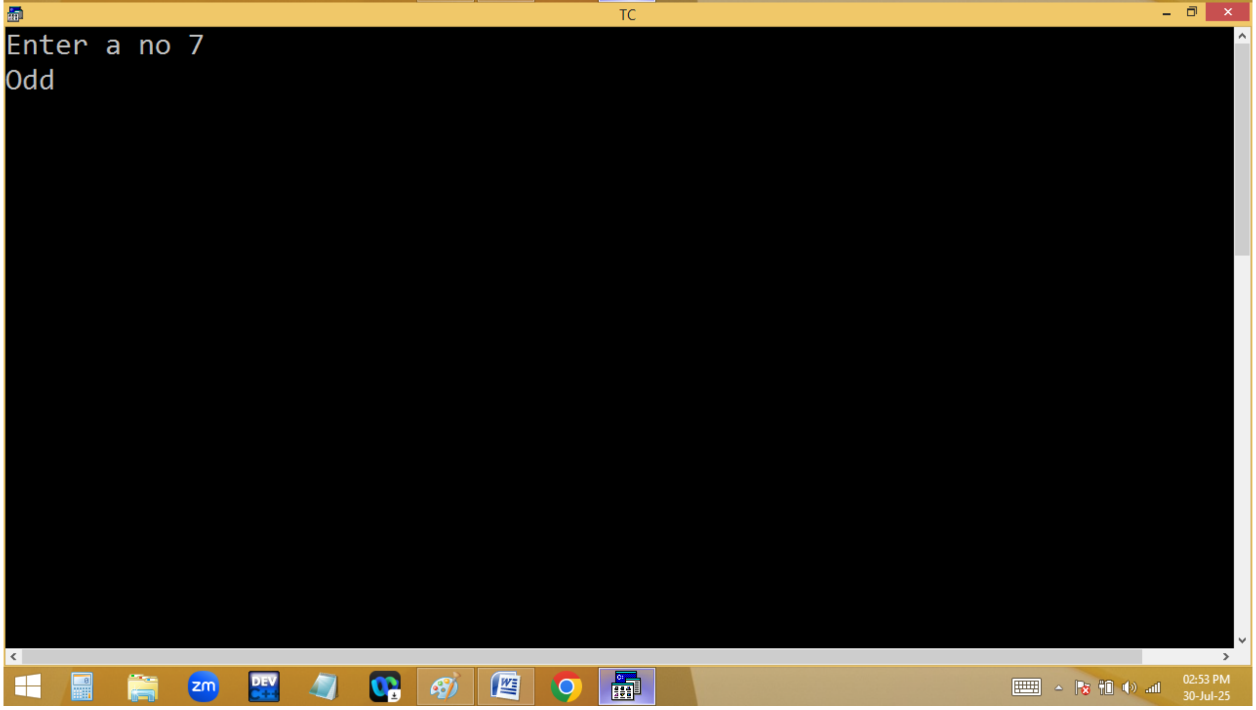
Syntax:

Conditional part ? true part : false part ;

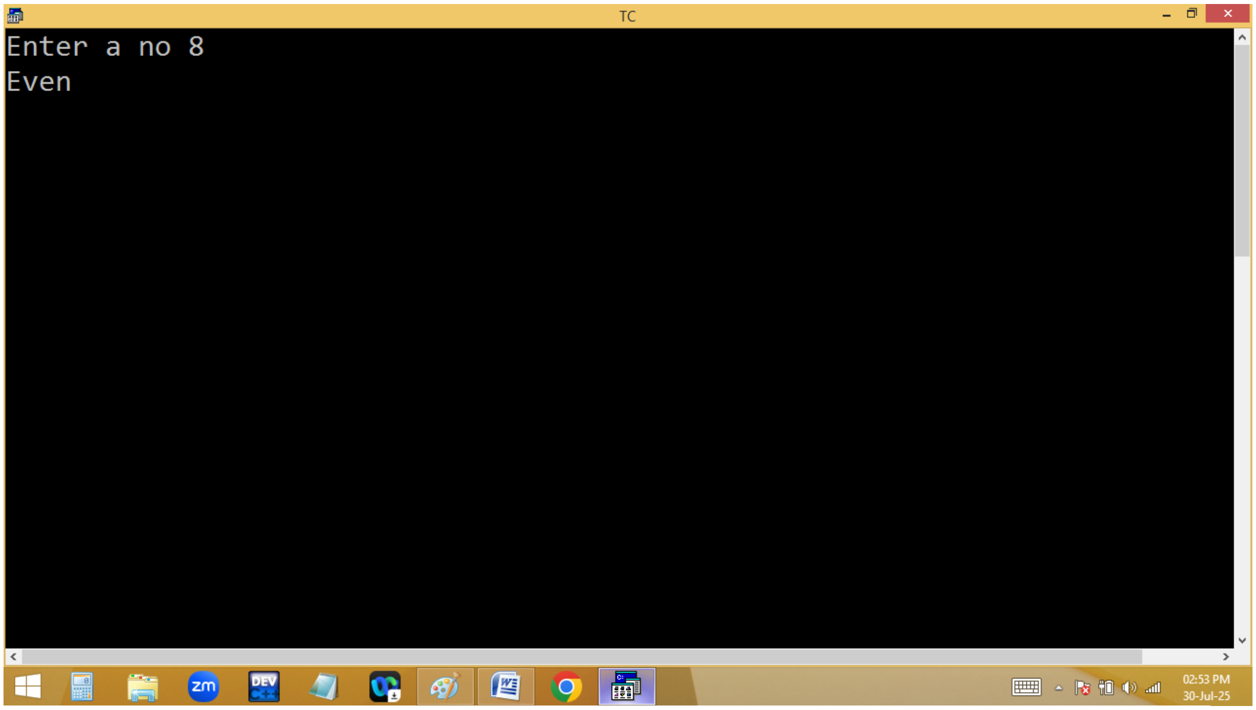
Finding even/odd using ternary op?


TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
02:52 PM
30-Jul-25

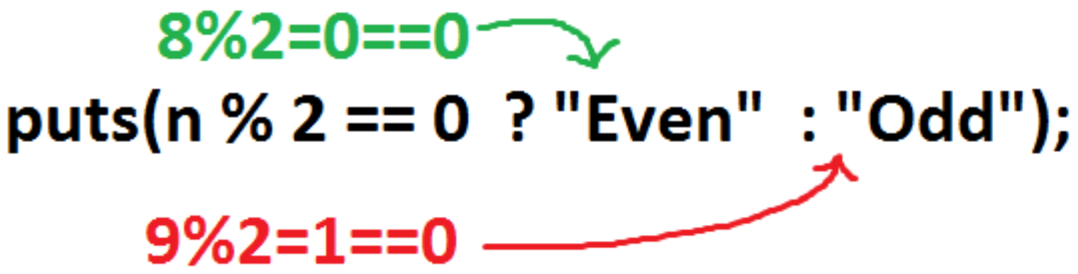
```
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter a no "); scanf("%d",&n);
puts(n%2==0?"Even":"Odd");
getch();
}
```



```
Enter a no 7
Odd
```



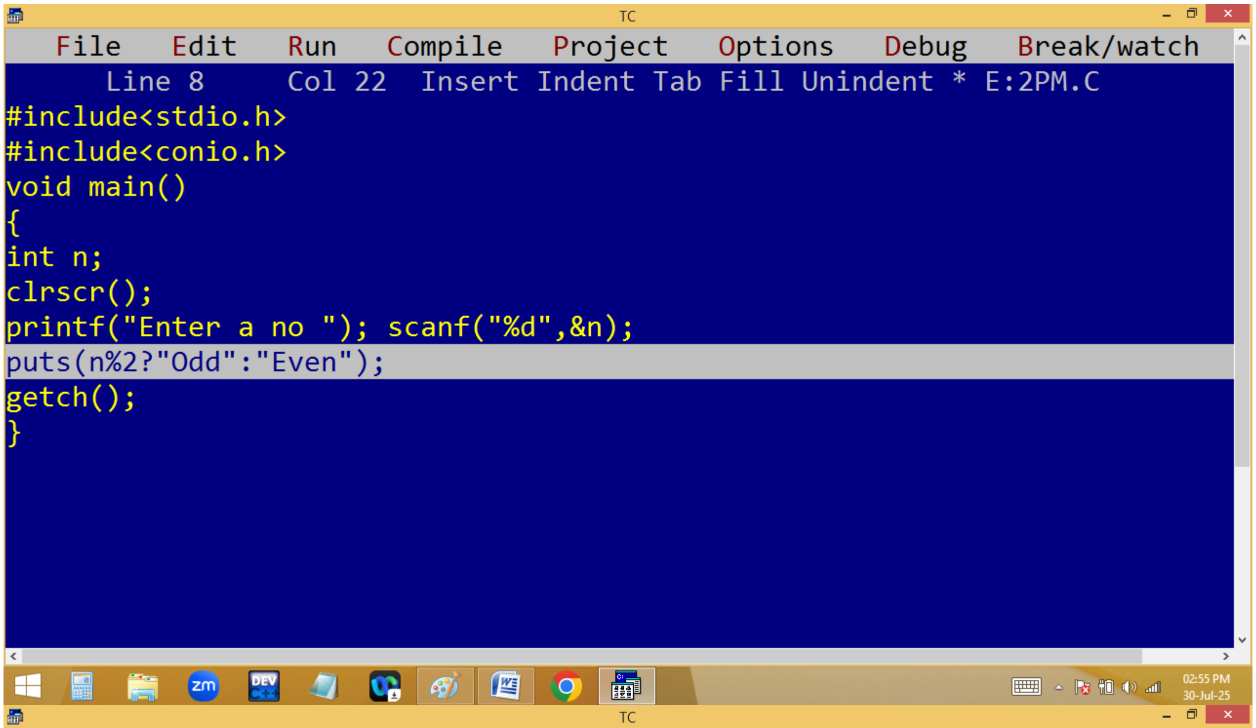
```
Enter a no 8
Even
```



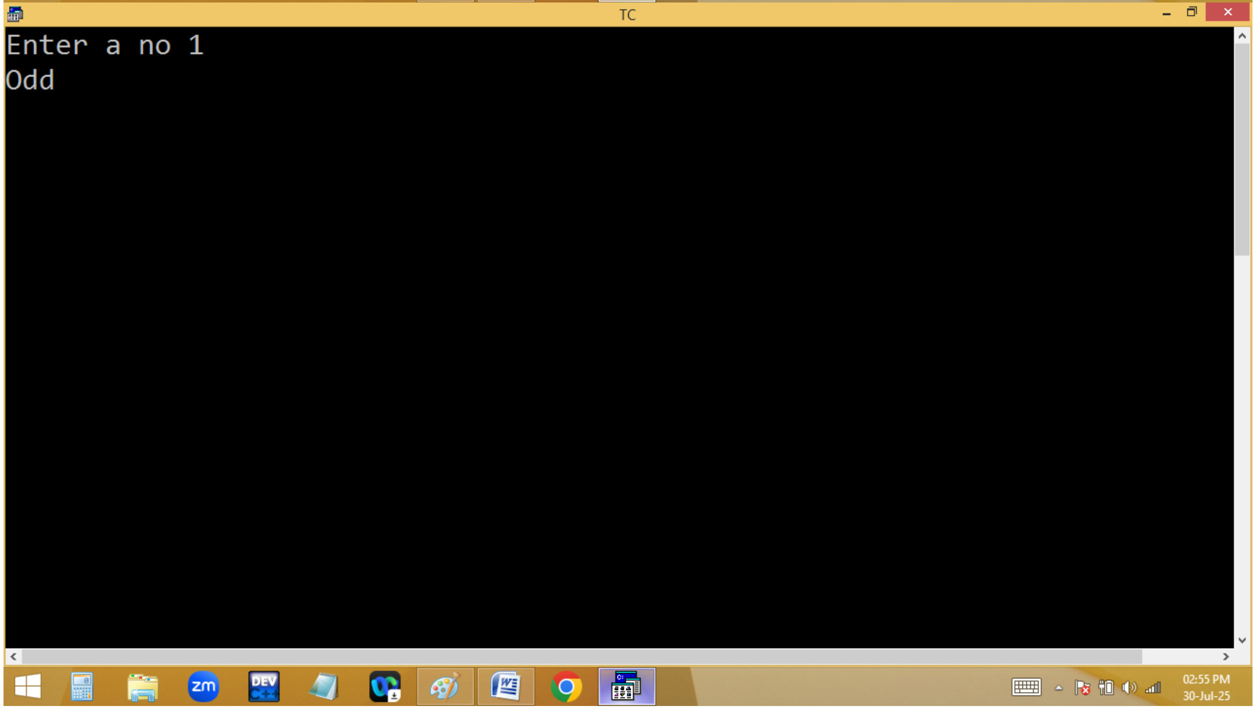
8%2=0==0

```
puts(n % 2 == 0  ? "Even"  : "Odd");
```

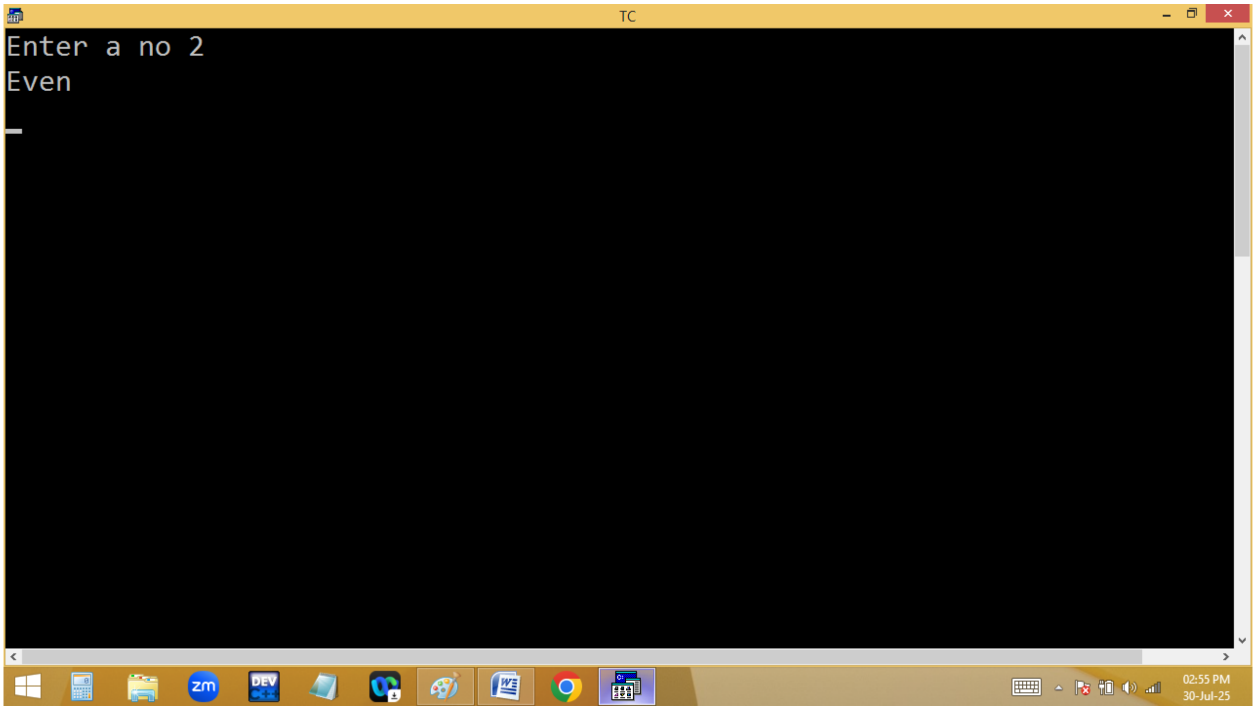
9%2=1==0



```
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter a no "); scanf("%d",&n);
puts(n%2?"Odd":"Even");
getch();
}
```

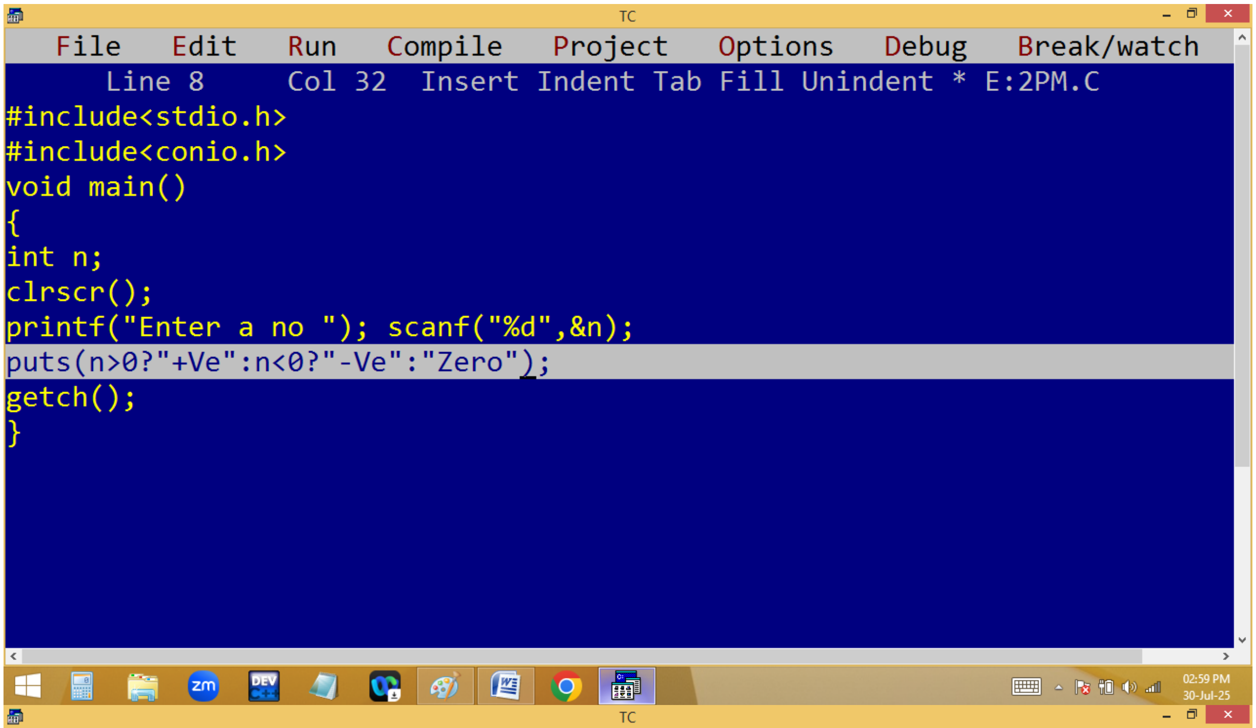


```
Enter a no 1
Odd
```

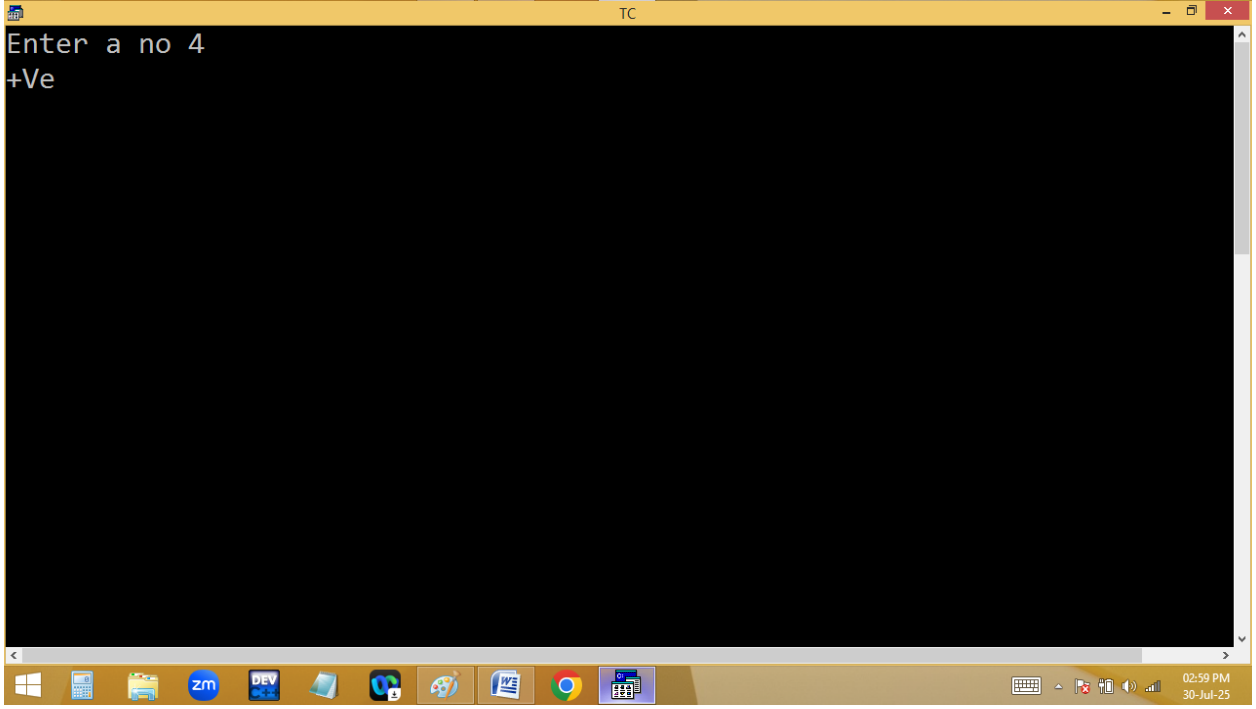


```
Enter a no 2
Even
```

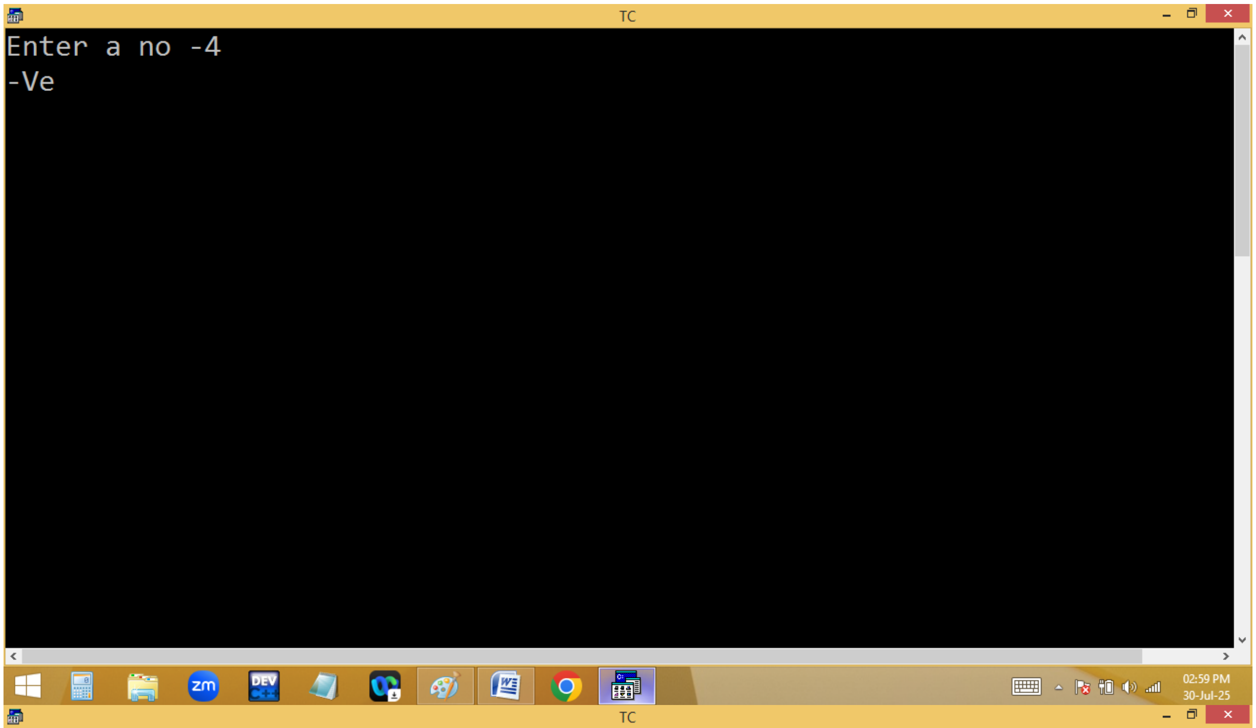
Finding +Ve / -Ve / Zero using ternary operator?


TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 32 Insert Indent Tab Fill Unindent * E:2PM.C
02:59 PM
30-Jul-25

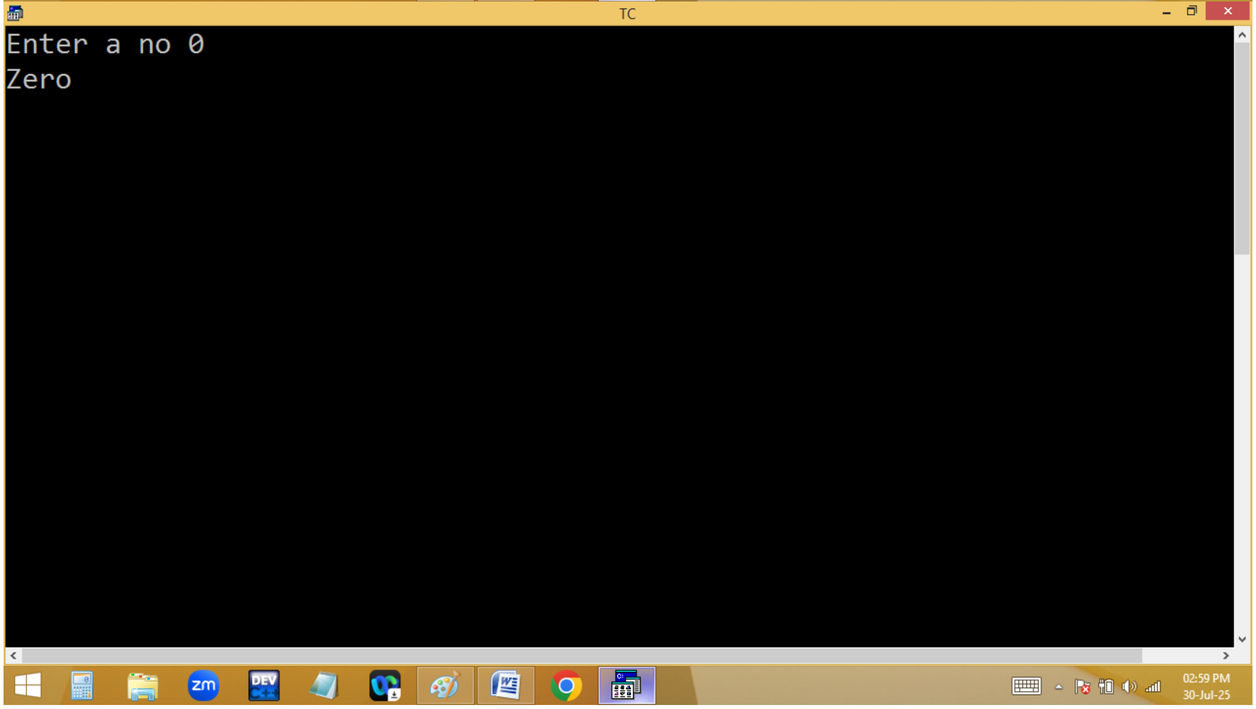
```
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter a no "); scanf("%d",&n);
puts(n>0?"+Ve":n<0?"-Ve":"Zero");
getch();
}
```



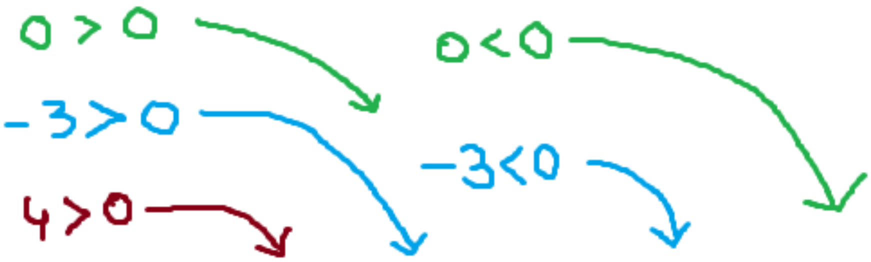
```
Enter a no 4
+Ve
```



```
Enter a no -4
-Ve
```

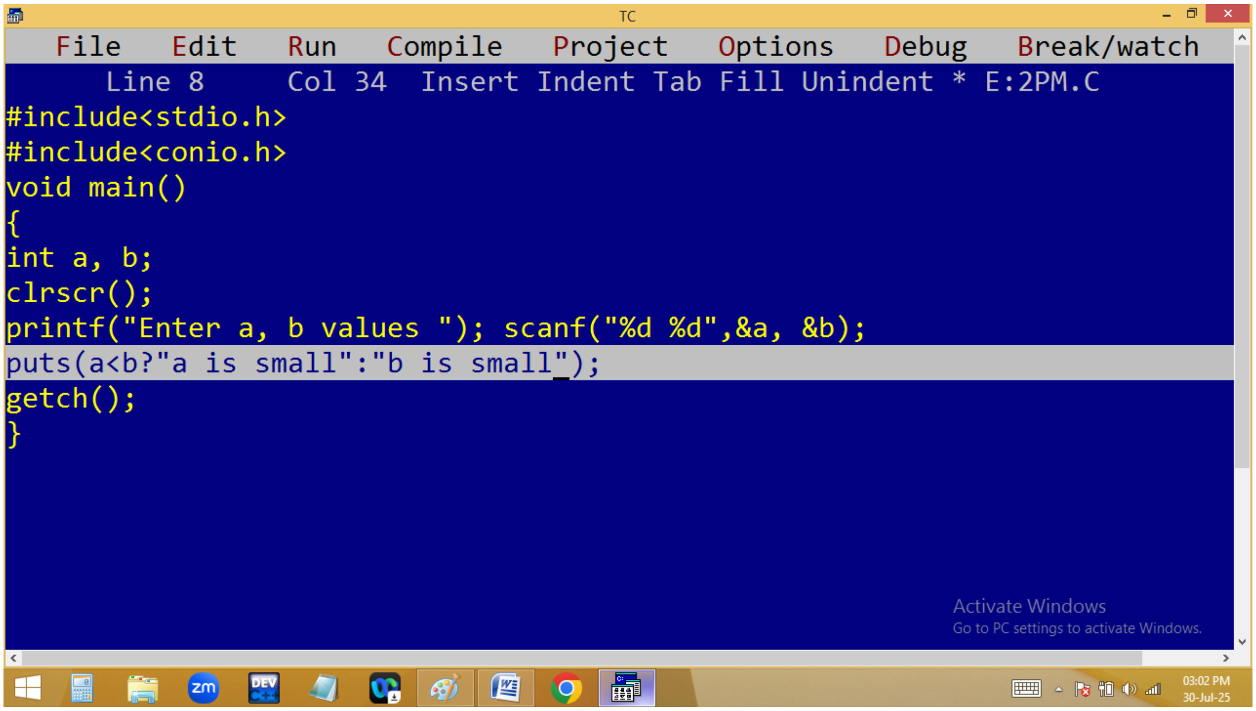


```
Enter a no 0
Zero
```

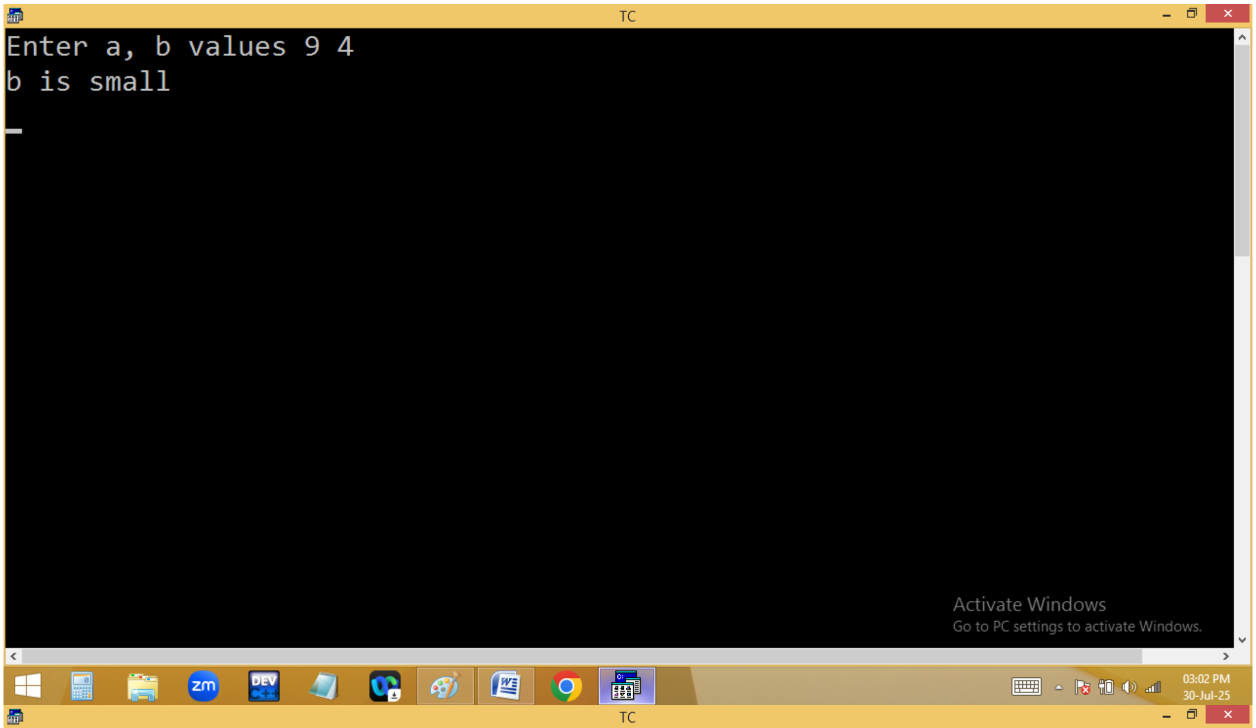


puts(n>0 ? "+Ve" : n<0 ? "-Ve" : "Zero");

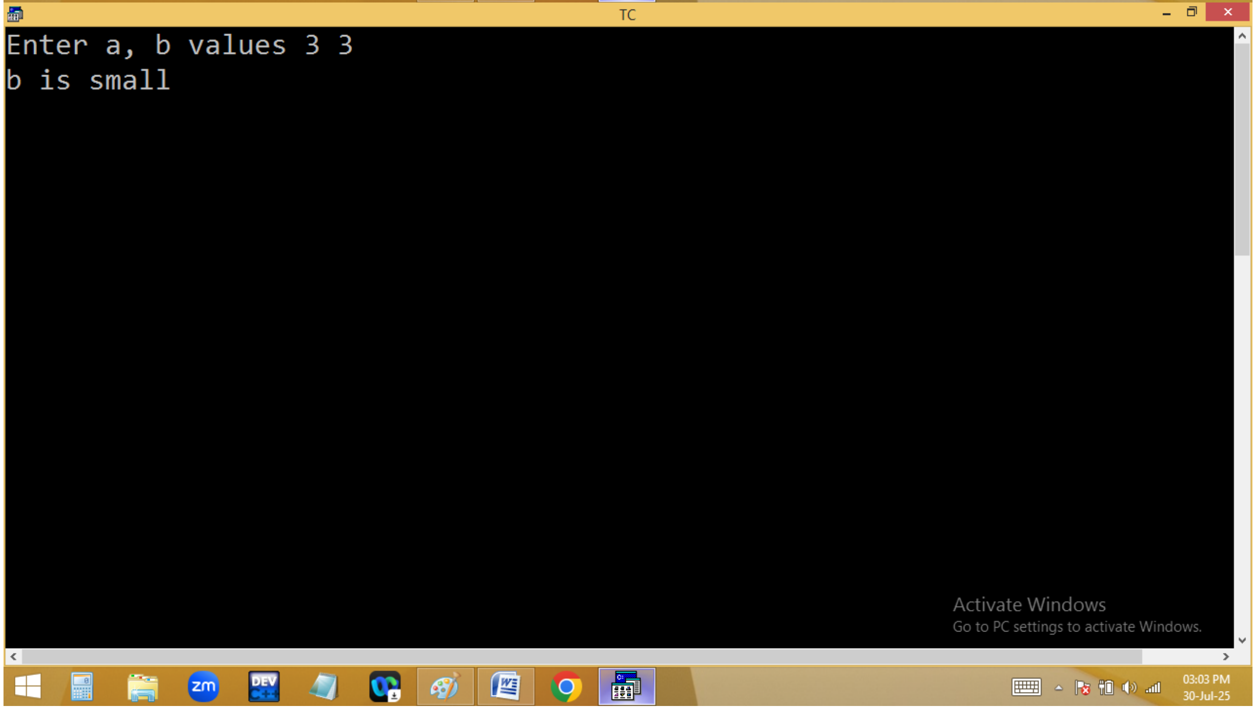
Finding min in 2 no's:


TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 34 Insert Indent Tab Fill Unindent * E:2PM.C
Activate Windows
Go to PC settings to activate Windows.
03:02 PM
30-Jul-25

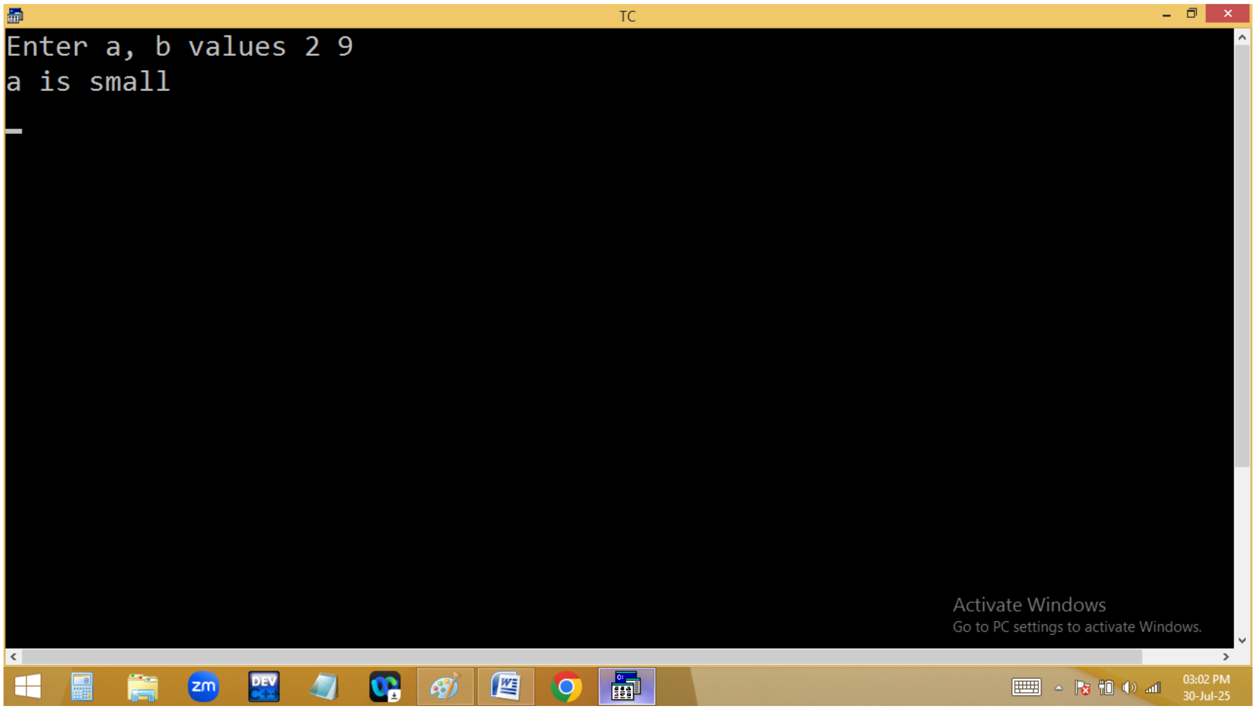
```
#include<stdio.h>
#include<conio.h>
void main()
{
int a, b;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
puts(a<b?"a is small":"b is small");
getch();
}
```



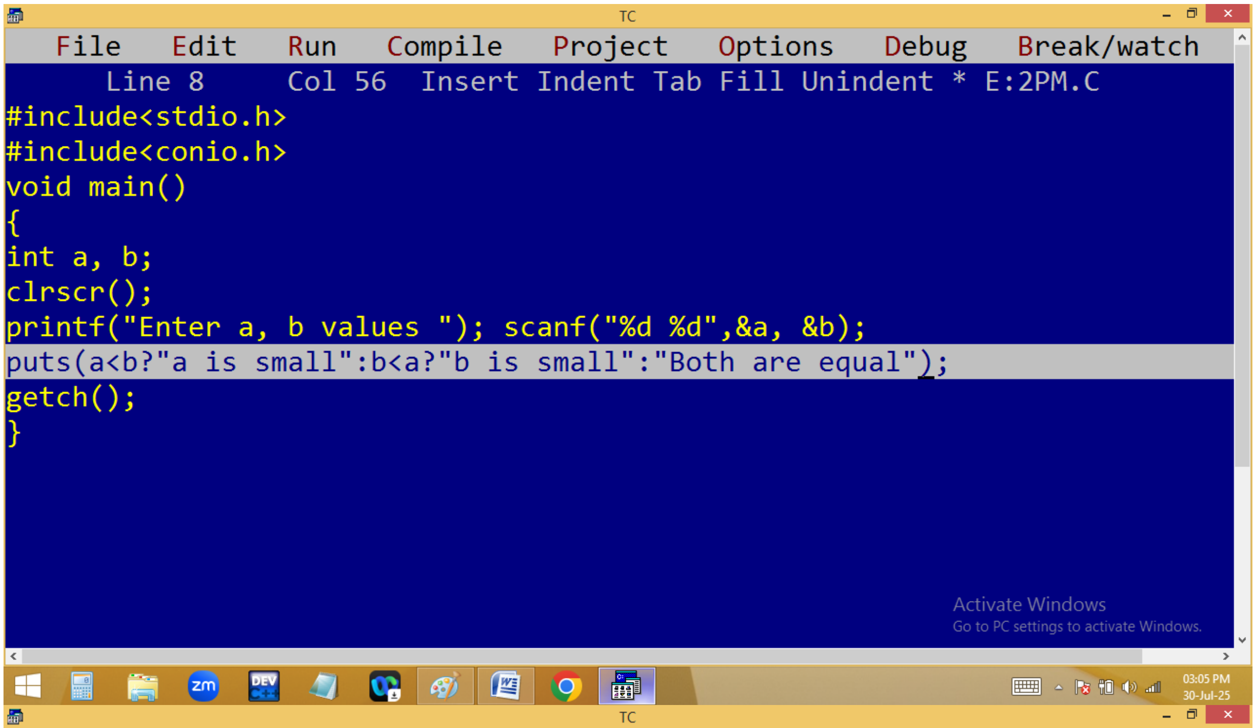
```
Enter a, b values 9 4
b is small
_
```



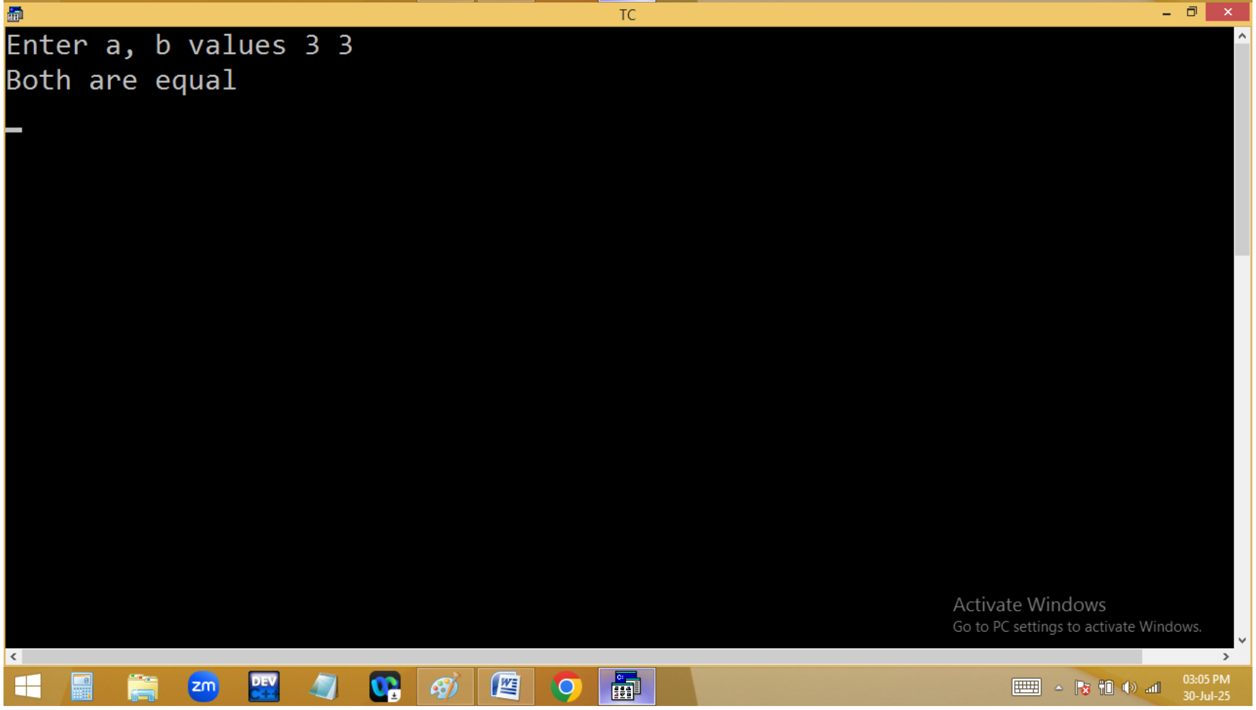
```
Enter a, b values 3 3
b is small
```



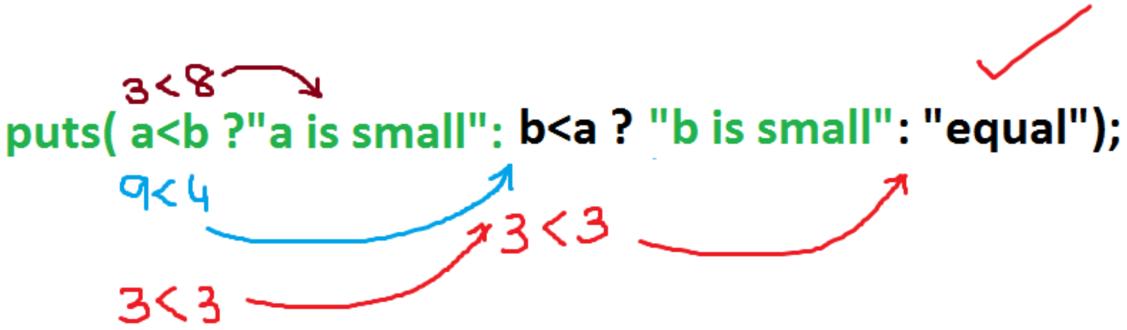
```
Enter a, b values 2 9
a is small
```


TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 56 Insert Indent Tab Fill Unindent * E:2PM.C
Activate Windows
Go to PC settings to activate Windows.
03:05 PM
30-Jul-25

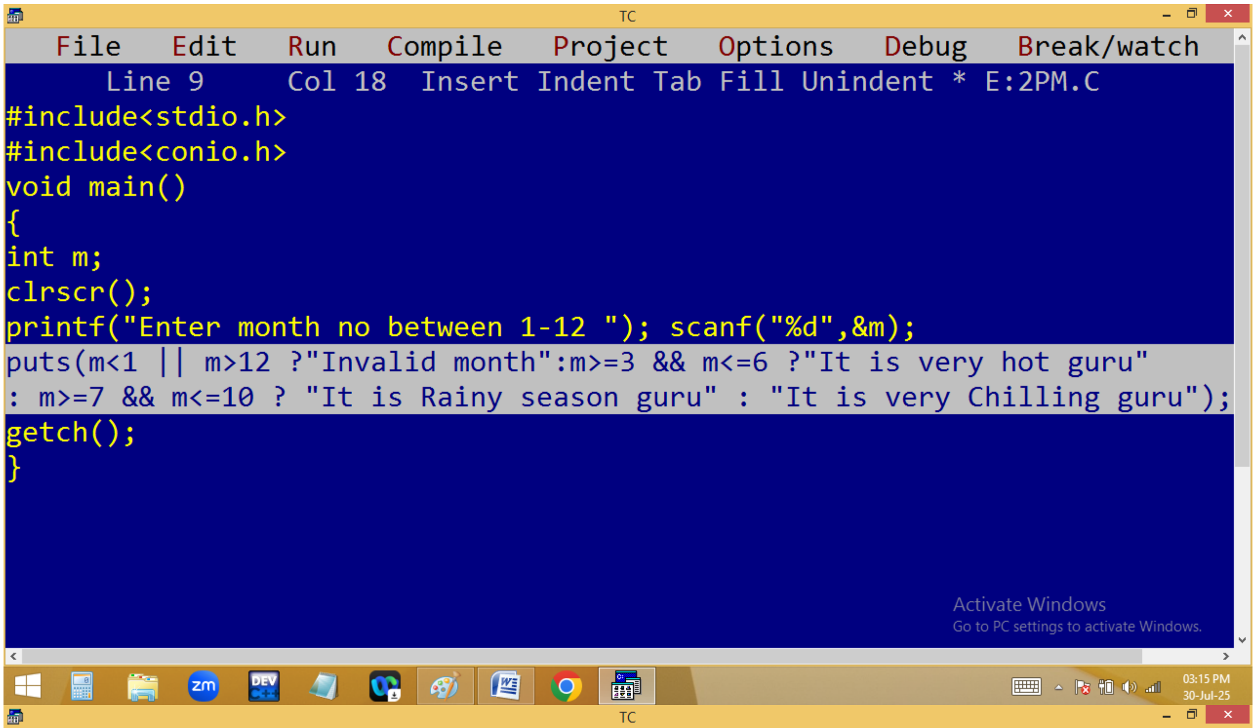
```
#include<stdio.h>
#include<conio.h>
void main()
{
int a, b;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
puts(a<b?"a is small":b<a?"b is small":"Both are equal");
getch();
}
```



```
Enter a, b values 3 3
Both are equal
```

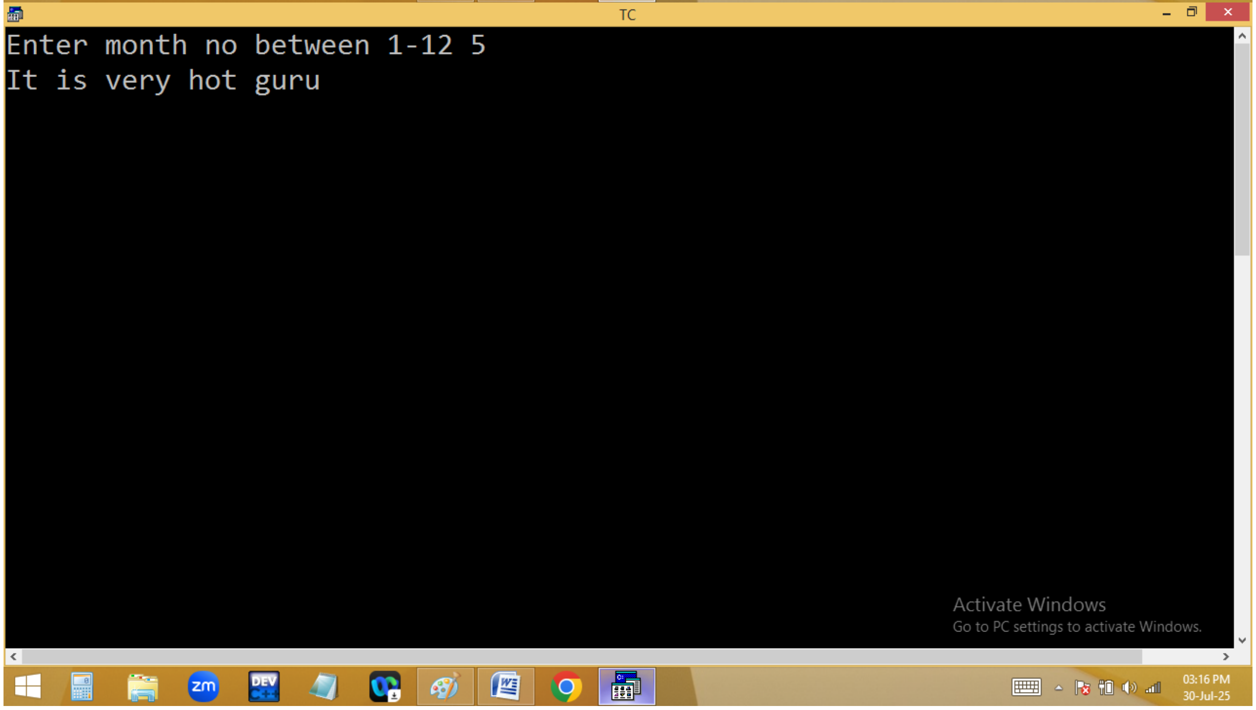


```
puts( a<b ?"a is small": b<a ? "b is small": "equal");
```

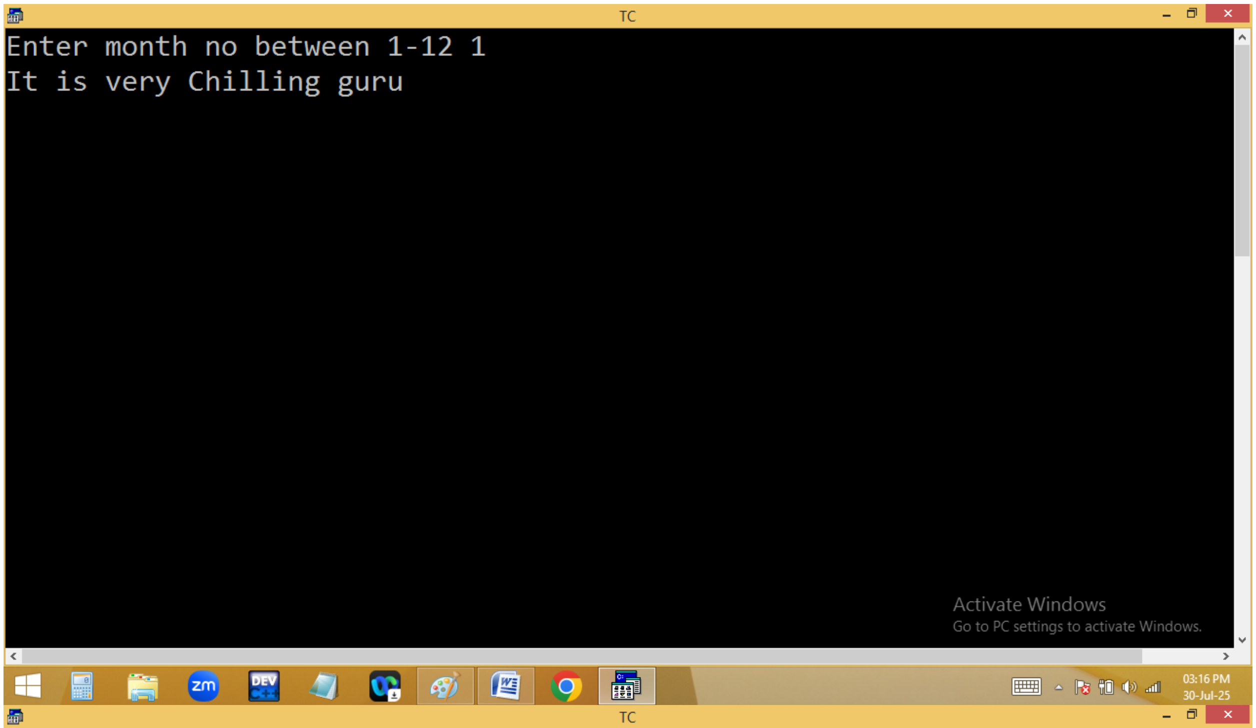


TC
File
Edit
Run
Compile
Project
Options
Debug
Break/watch
Line 9   Col 18 Insert Indent Tab Fill Unindent * E:2PM.C
Activate Windows
Go to PC settings to activate Windows.
03:15 PM
30-Jul-25

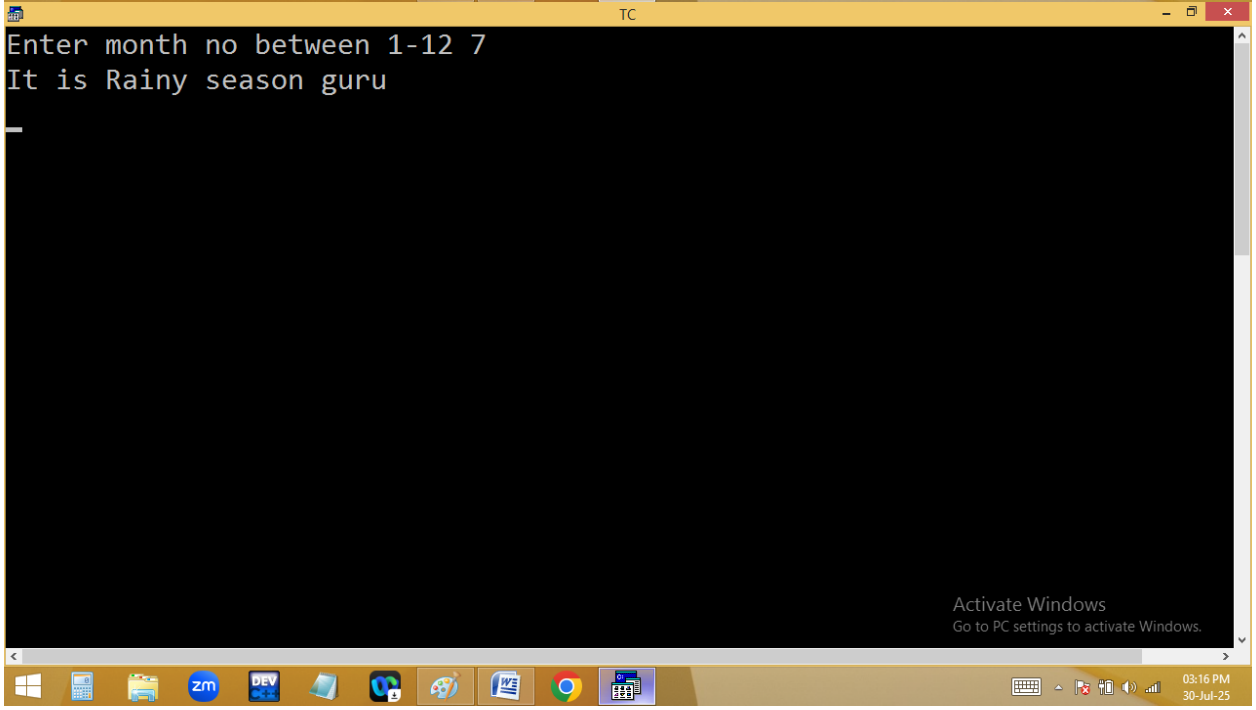
```
#include<stdio.h>
#include<conio.h>
void main()
{
int m;
clrscr();
printf("Enter month no between 1-12 "); scanf("%d",&m);
puts(m<1 || m>12 ?"Invalid month":m>=3 && m<=6 ?"It is very hot guru"
: m>=7 && m<=10 ? "It is Rainy season guru" : "It is very Chilling guru");
getch();
}
```



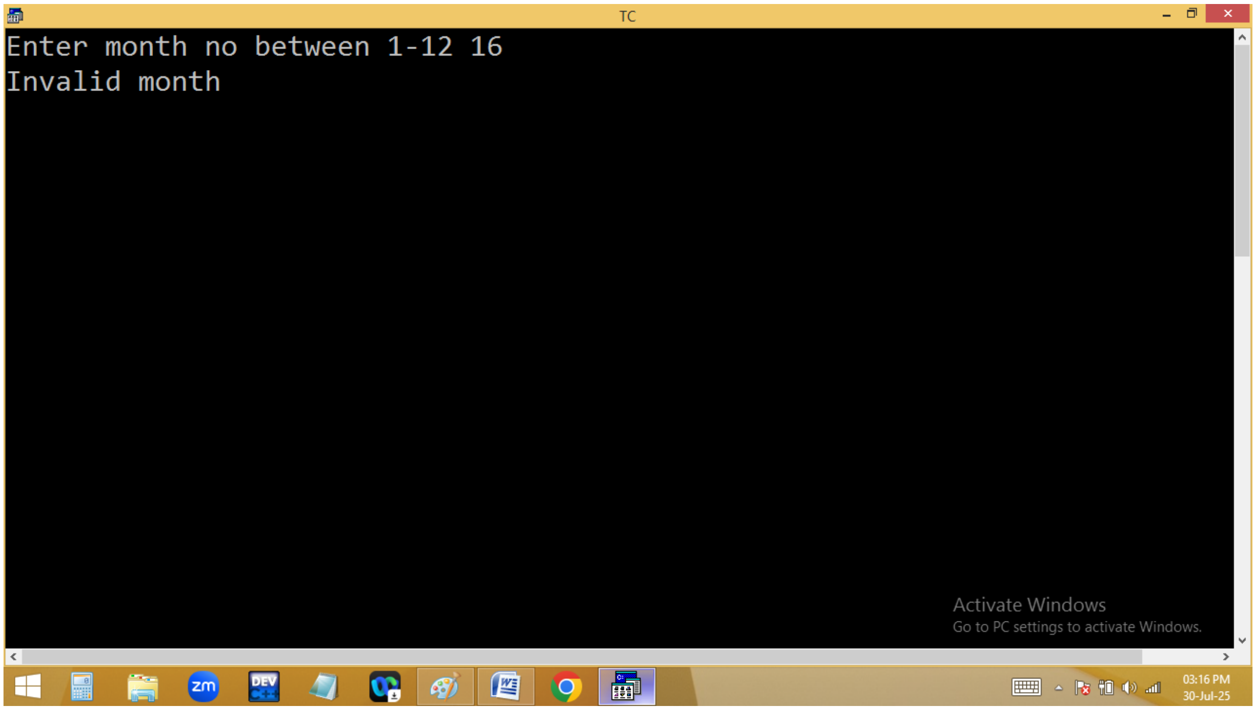
```
Enter month no between 1-12 5
It is very hot guru
```



```
Enter month no between 1-12 1
It is very Chilling guru
```

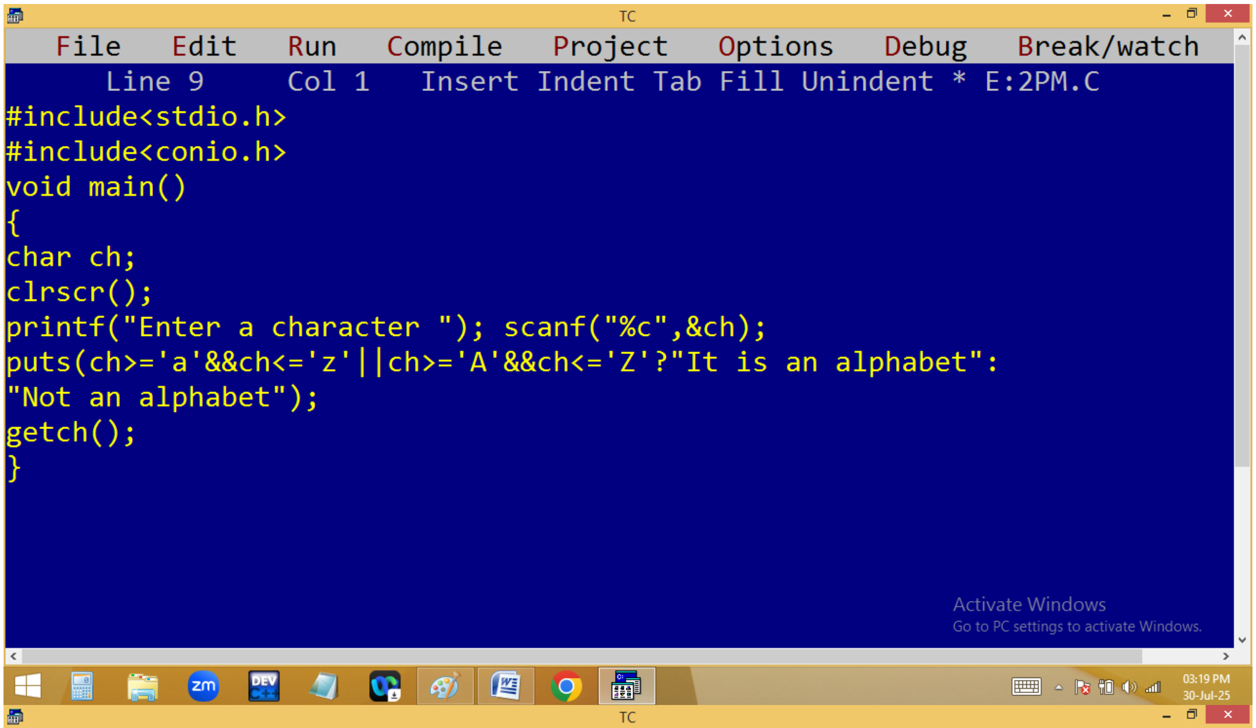


```
Enter month no between 1-12 7
It is Rainy season guru
```

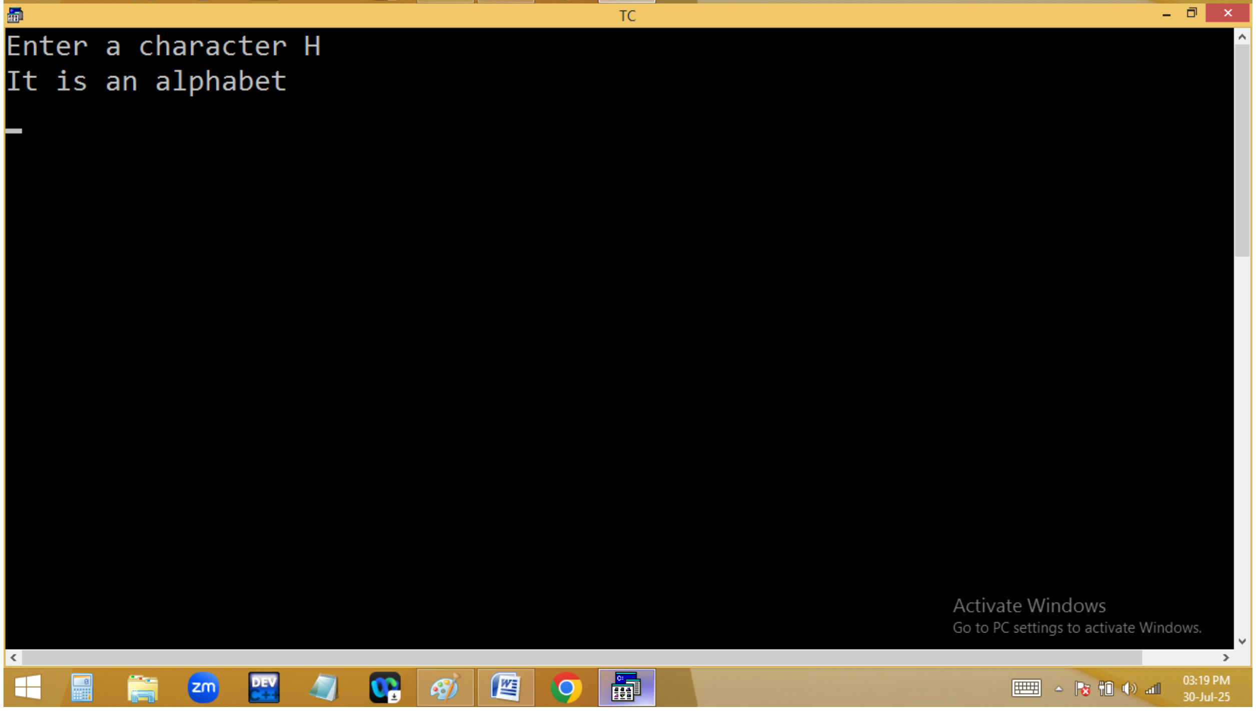


```
Enter month no between 1-12 16
Invalid month
```

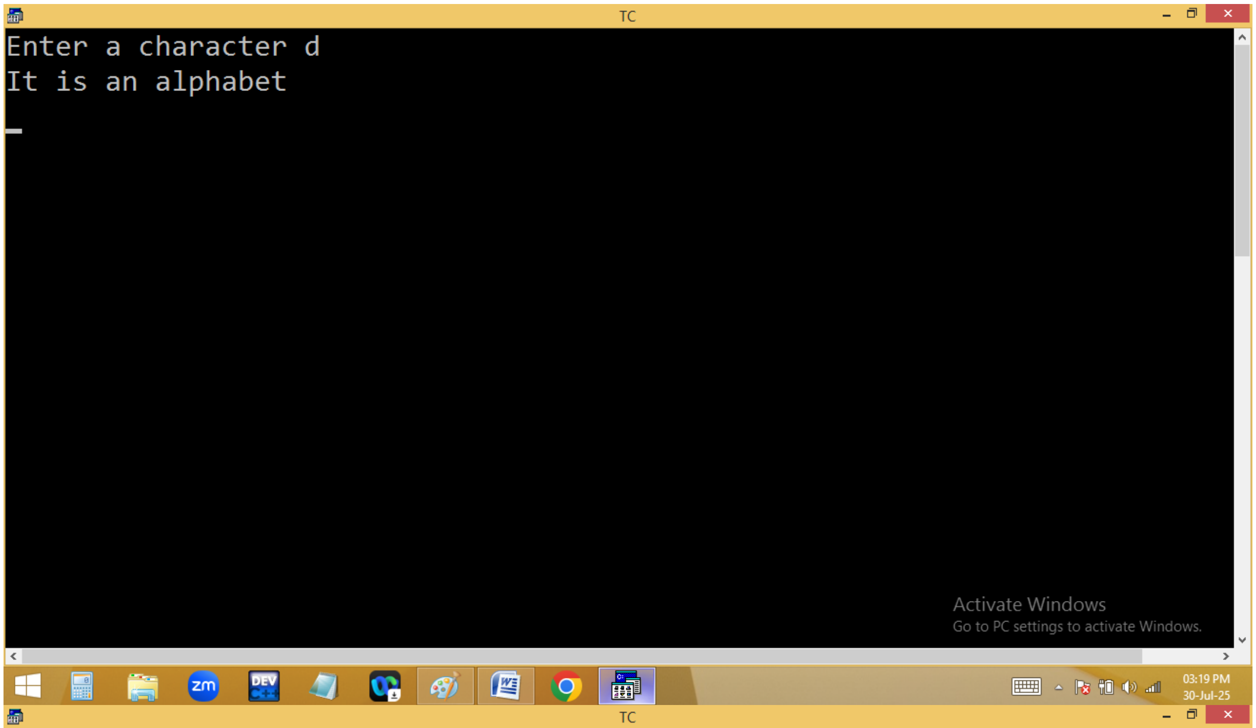
Finding given char is alphabet or not using ternary operator?


TC
File
Edit
Run
Compile
Project
Options
Debug
Break/watch
Line 9 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
Activate Windows
Go to PC settings to activate Windows.
03:19 PM
30-Jul-25

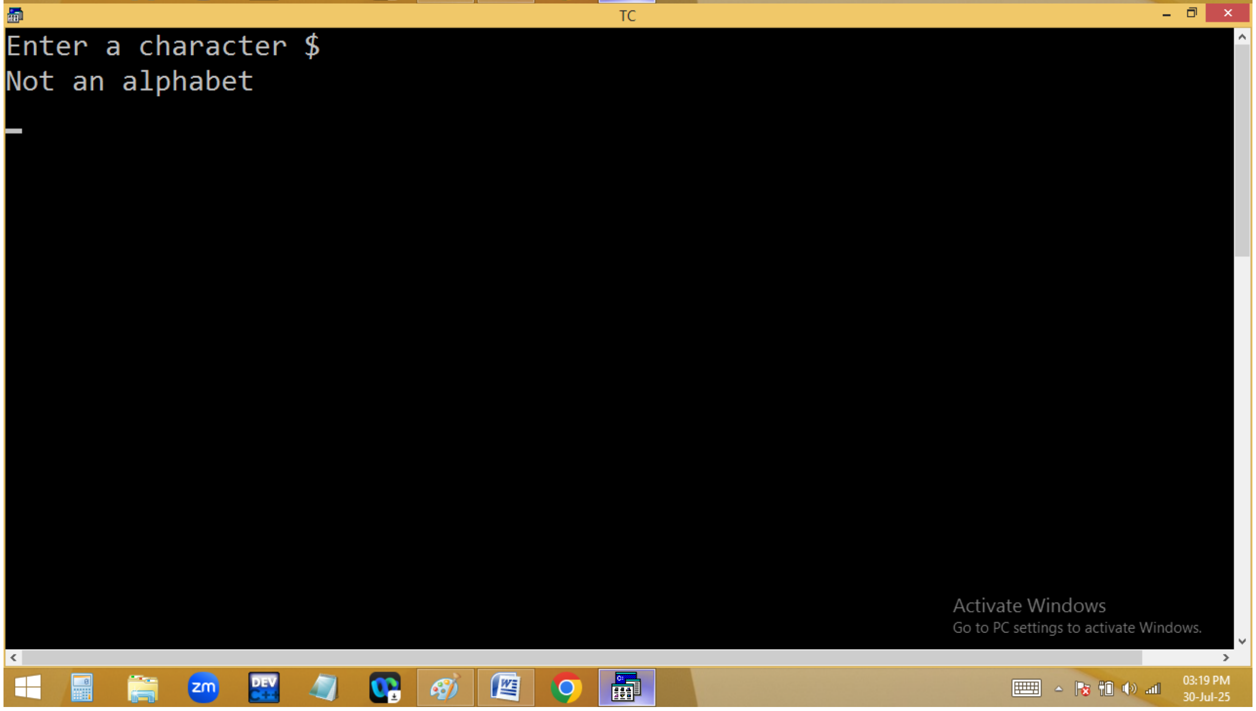
```
#include<stdio.h>
#include<conio.h>
void main()
{
char ch;
clrscr();
printf("Enter a character "); scanf("%c",&ch);
puts(ch>='a'&&ch<='z'||ch>='A'&&ch<='Z'?"It is an alphabet":
"Not an alphabet");
getch();
}
```



```
Enter a character H
It is an alphabet
```



```
Enter a character d
It is an alphabet
```



```
Enter a character $
Not an alphabet
```

Bitwise operators?

They work on bits [0,1].

It is one of the low level feature of c.

They work on int data only.

C comes with 16 bit compiler. Hence in c language the bitwise operators are limited from 2^0 to 2^{15}

We have to take only the 1's position, not the 0 positions. Because of any number * 0 gives again 0.

When starting bit is 0, the given no is positive no. if the starting bit 1 it is a negative no. hence the starting big is also called sign bit.

The bitwise operators very much used in os, device drivers, translators development.

They are faster than normal operators.

C comes with 6 bitwise operators?

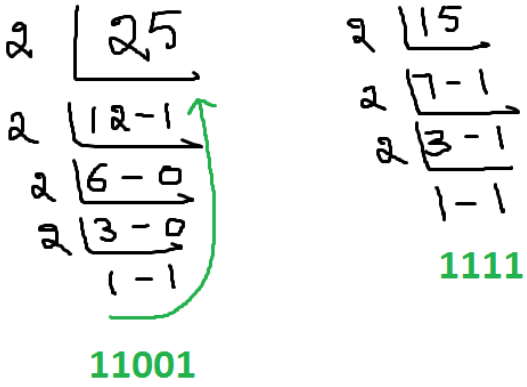
1. **& - bitwise and**
2. **| - bitwise or**
3. **^ - Xor – Exclusive Or**

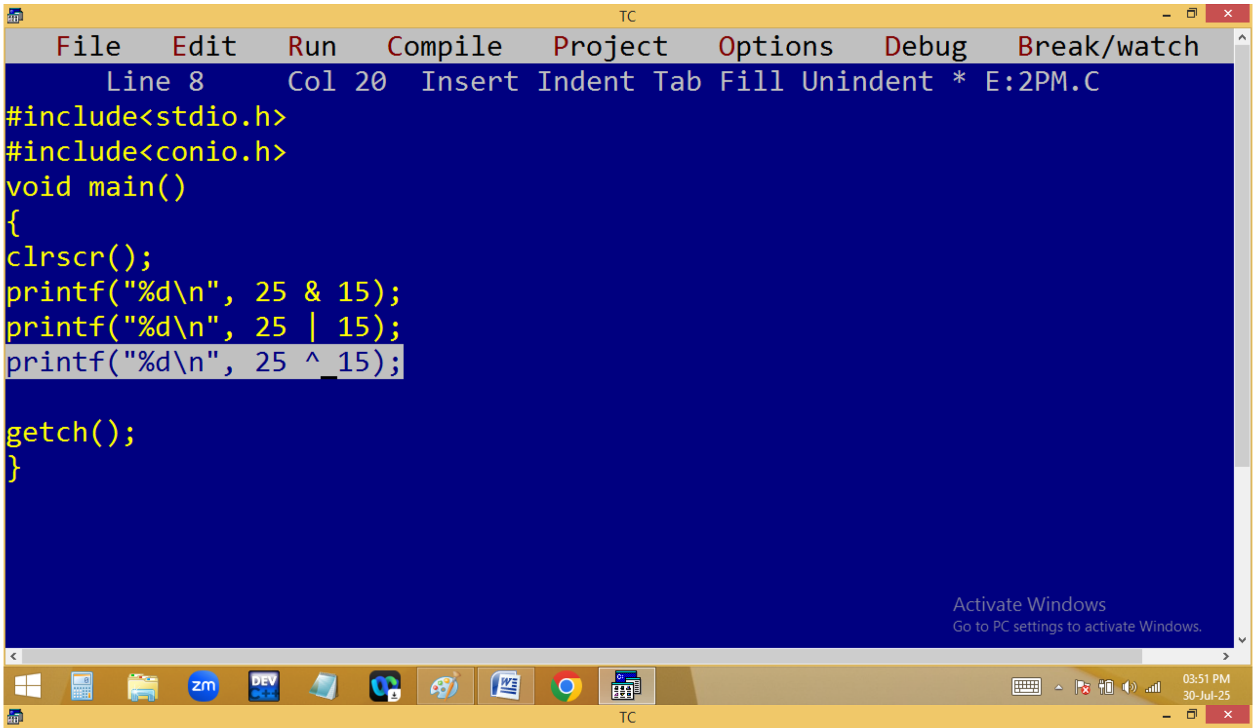
4. ~ - compliment op
5. << - left shift
6. >> - right shift

& - bitwise and: When both bits are 1 then result bit also 1 otherwise result is 0.

Eg: 25 & 15 = 9

25 & 15 = 9

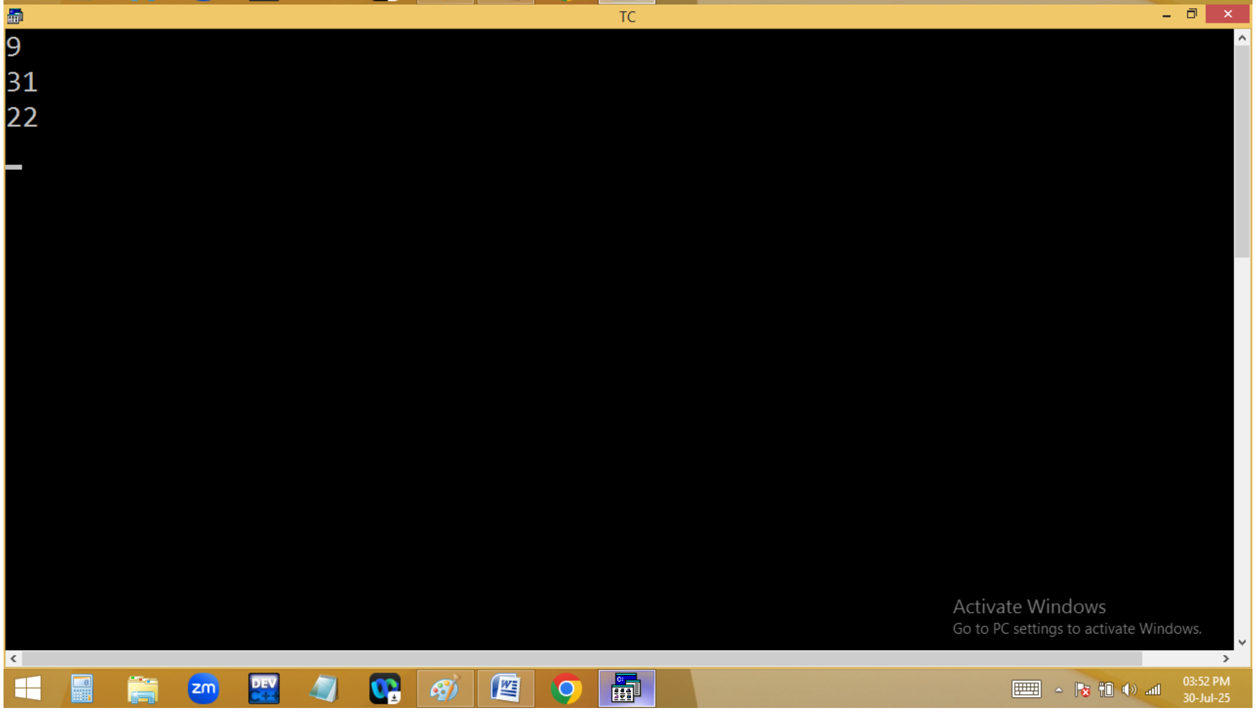




TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 20 Insert Indent Tab Fill Unindent * E:2PM.C
Activate Windows
Go to PC settings to activate Windows.
03:51 PM
30-Jul-25

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d\n", 25 & 15);
printf("%d\n", 25 | 15);
printf("%d\n", 25 ^ 15);

getch();
}
```



```
9
31
22
```

25 ^ 15 =

25 = 0000 0000 0001 1001

15 = 0000 0000 0000 1111

0000 0000 0001 11

16 + +4+2 = 22

2 | 25
2 | 12 - 1
2 | 6 - 0
2 | 3 - 0
1 - 1

11001

2 | 15
2 | 7 - 1
2 | 3 - 1
1 - 1

1111