

Ternary / conditional operator ?:

It is similar to if else / ladder if in working style.

It allows to complete if else / ladder if in a single statement.

When we are working with if else/ladder if it is going to take more than one line of statements. Ternary operator is going to finish the same task in a single statement.

But the difference between if ...else and ternary operator is ternary operator supports only one statement at a time and if supports any number of statements.

It is having 3 expressions. Hence it is called ternary operator.

It is starting with a condition. Hence it is called conditional operator.

Syntax:

condition ? true statement : false statement ;
 ↑ ↑ ↑
exp1/op1 exp2/op2 exp3/op3

If condition true, statement after ? executed.

If condition false, statement after : is executed.

When compared with if else, conditional operator **performance is high**.

Conditional part ? true part : false part ;

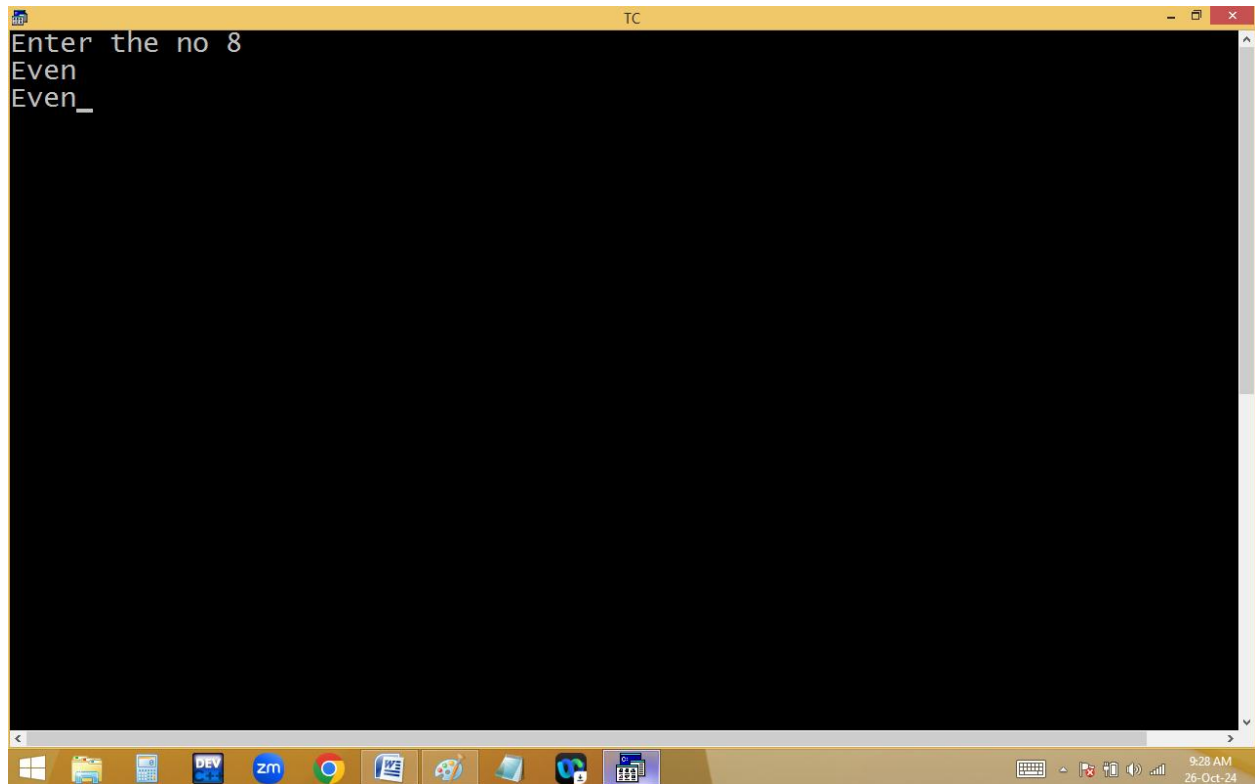
Write a c program to find even/odd without using if..else /
write a c program to find even/odd using single statement:

$4 \% 2 = 0$
if($n \% 2 == 0$) p("even");
 $5 \% 2 = 1$
else p("odd");

$8 \% 2 = 0$
 $n \% 2 == 0 ? \text{"Even"} : \text{"Odd"};$
 $7 \% 2 = 1$

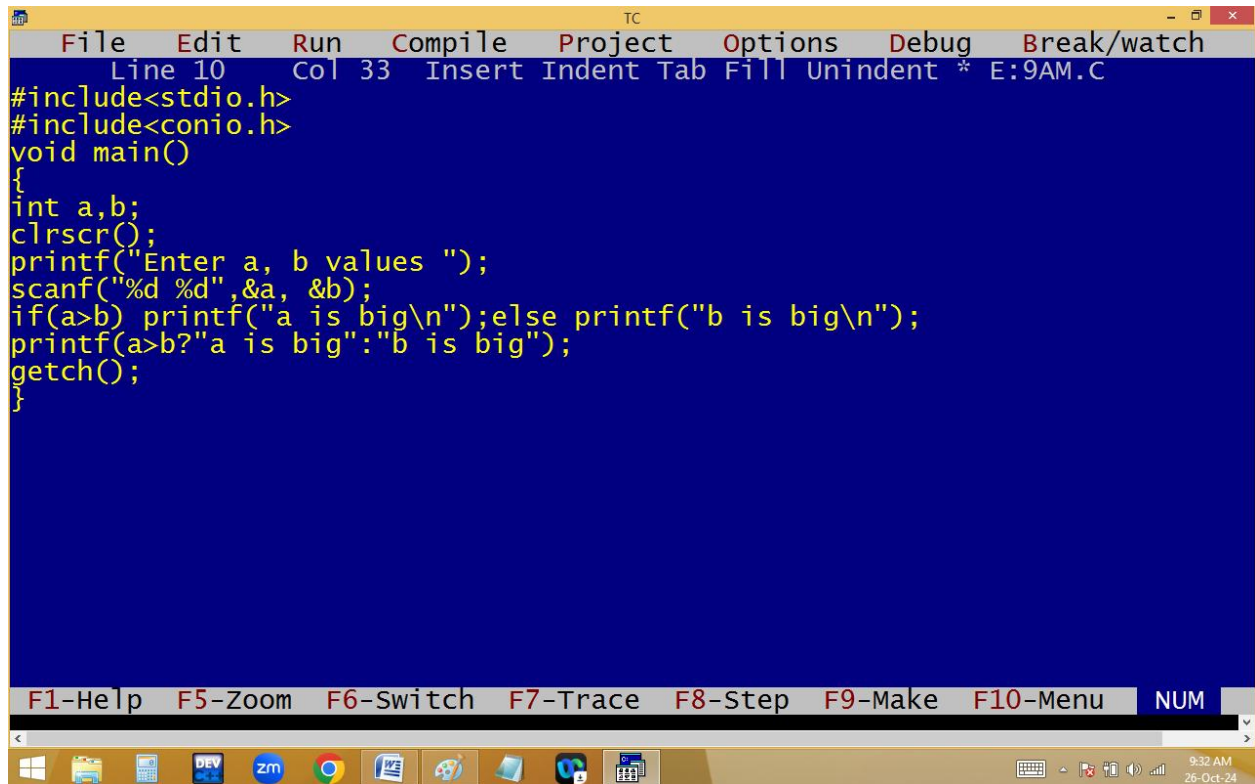
```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 47 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter the no ");
scanf("%d",&n);
if(n%2==0)printf("Even\n"); else printf("Odd\n");
printf(n%2==0?"Even":"Odd");
getch();
}
```

Enter the no 7
odd
odd_



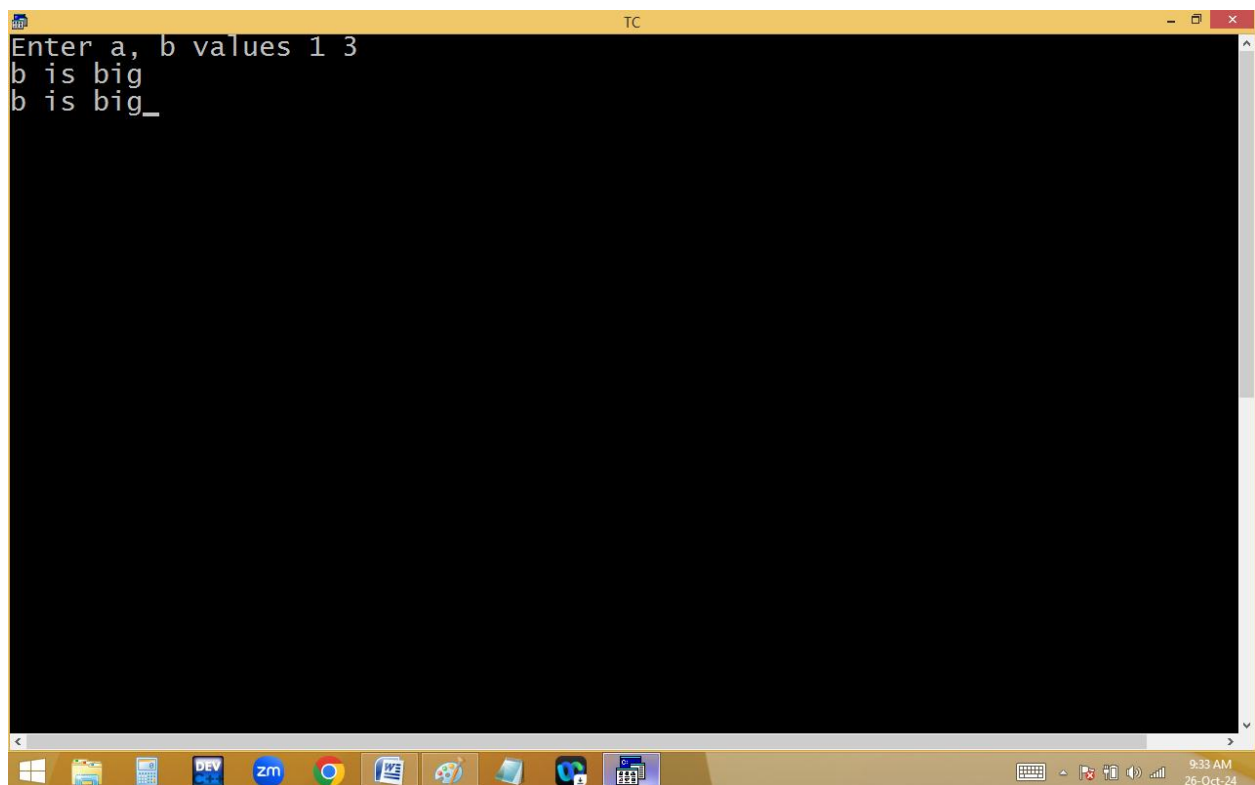
```
Enter the no 8
Even
Even_
```

Finding max in 2 no's using ternary operator?



The screenshot shows the Turbo C++ IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the bottom shows F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The code in the editor is as follows:

```
Line 10 Col 33 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values ");
scanf("%d %d",&a, &b);
if(a>b) printf("a is big\n");else printf("b is big\n");
printf(a>b?"a is big":"b is big");
getch();
}
```

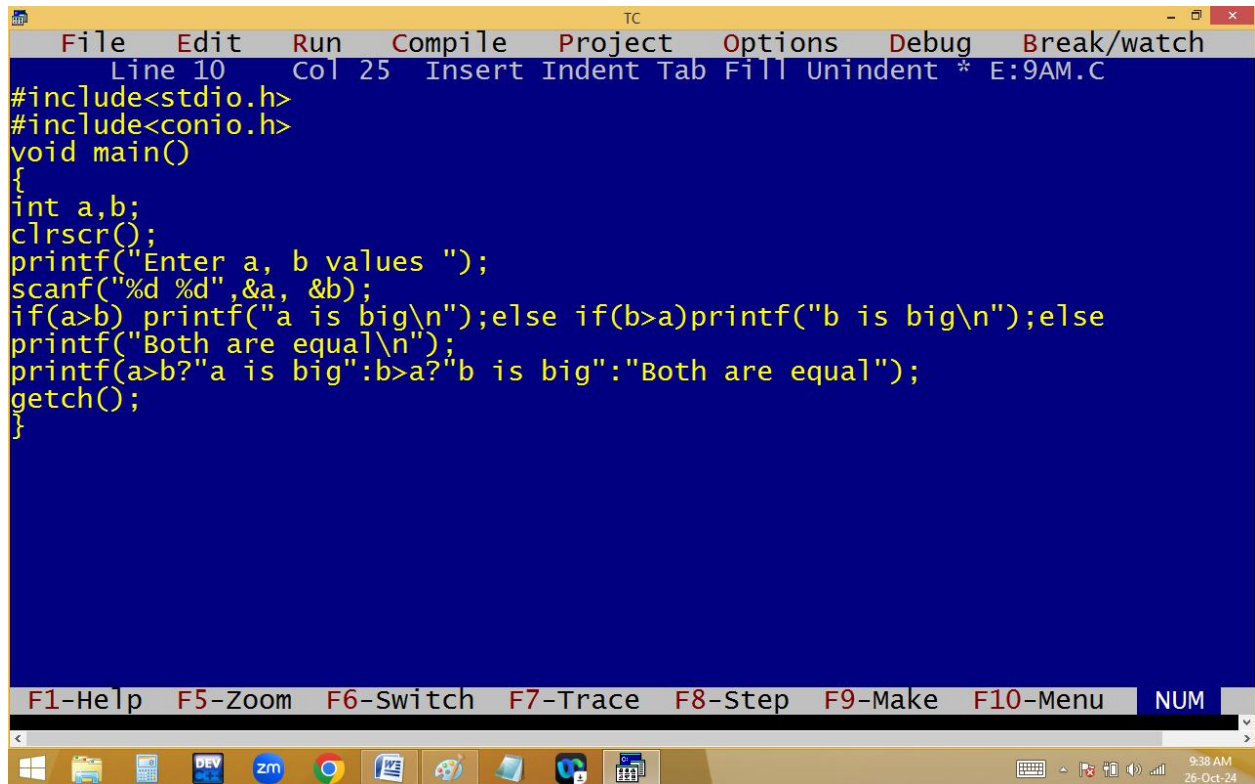


The screenshot shows the Turbo C++ IDE with a black background, displaying the output of the program. The text on the screen is:

```
Enter a, b values 1 3
b is big
b is big_
```

```
TC
Enter a, b values 9 2
a is big
a is big
```

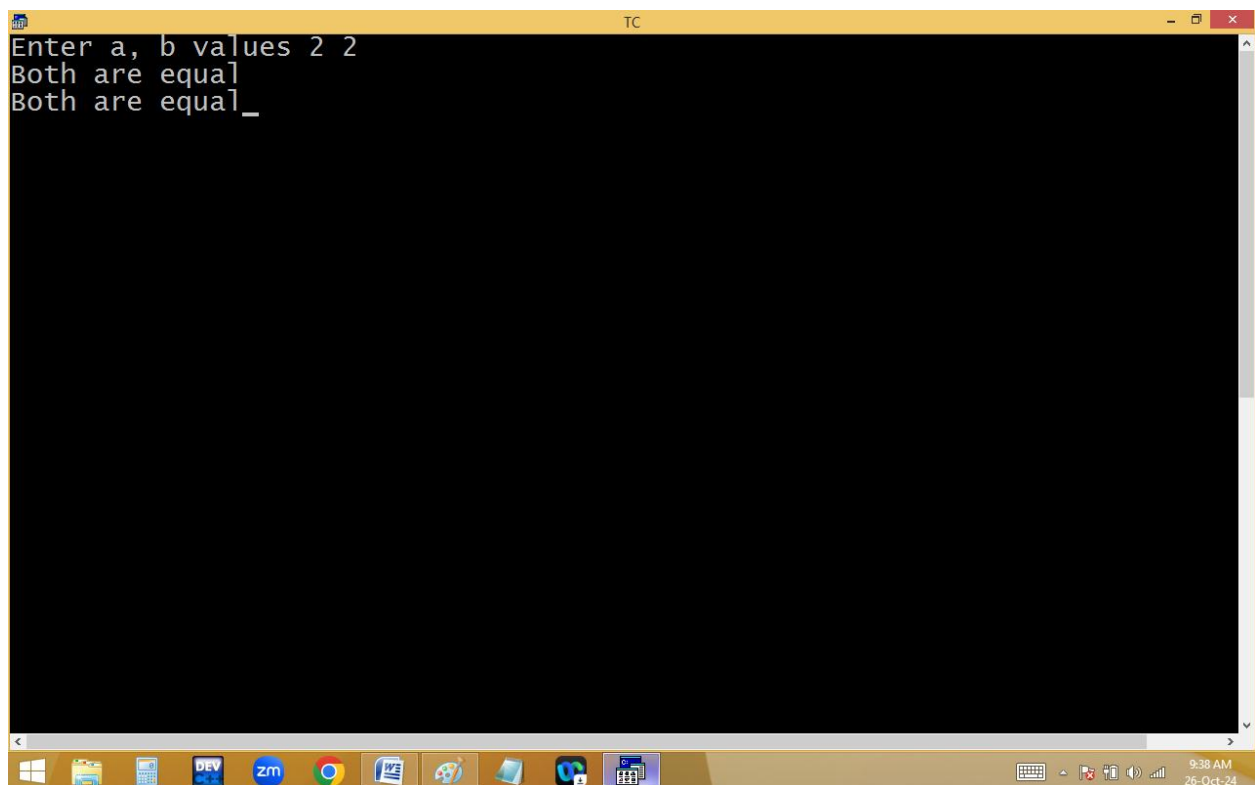
```
TC
Enter a, b values 3 3
b is big
b is big
```



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 10 Col 25 Insert Indent Tab Fill Unindent * E:9AM.C'. The code in the editor is as follows:

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

The bottom status bar 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 bottom includes icons for File Explorer, DEV C++, Zoom, Chrome, Word, Paint, and the Start menu, along with system tray icons and the date/time '9:38 AM 26-Oct-24'.



The screenshot shows the Turbo C++ (TC) IDE with a black background, displaying the output of the program. The text shown is:

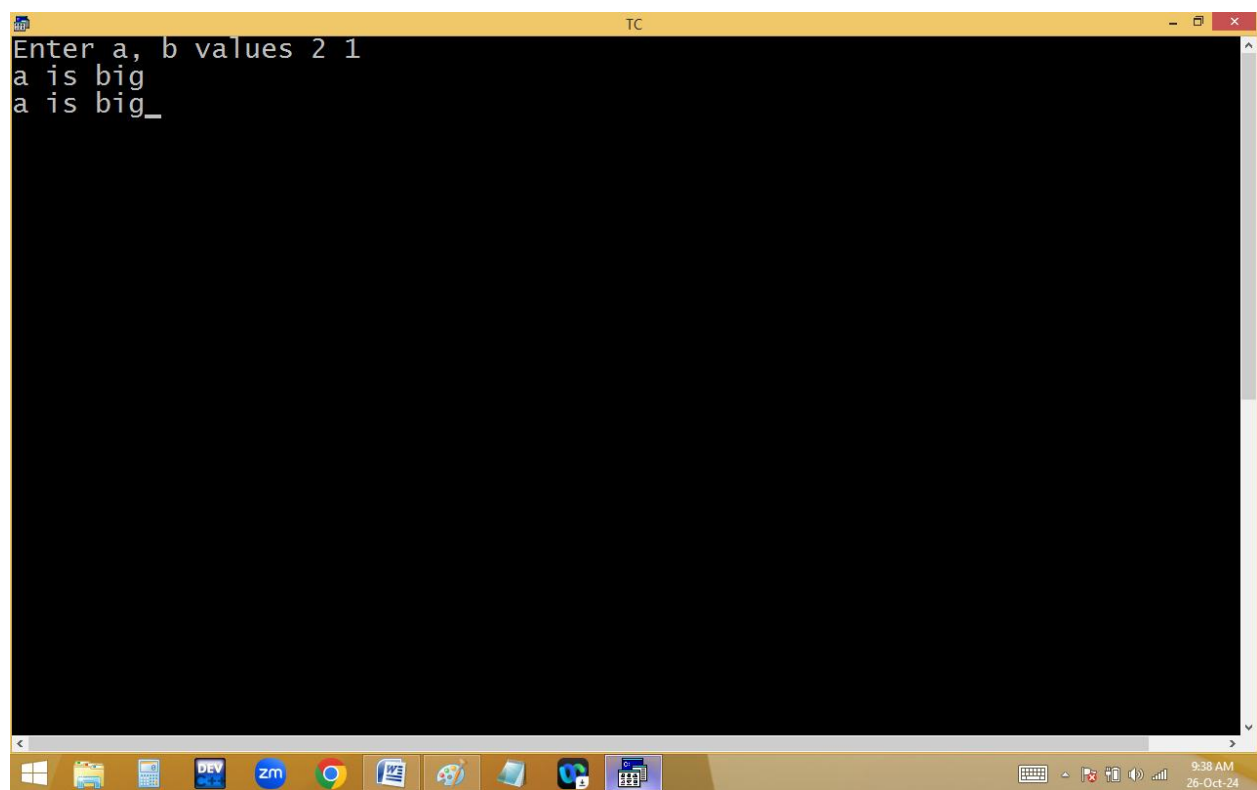
```
Enter a, b values 2 2
Both are equal
Both are equal_
```

The Windows taskbar at the bottom is identical to the first screenshot, showing the same set of application icons and system tray information.

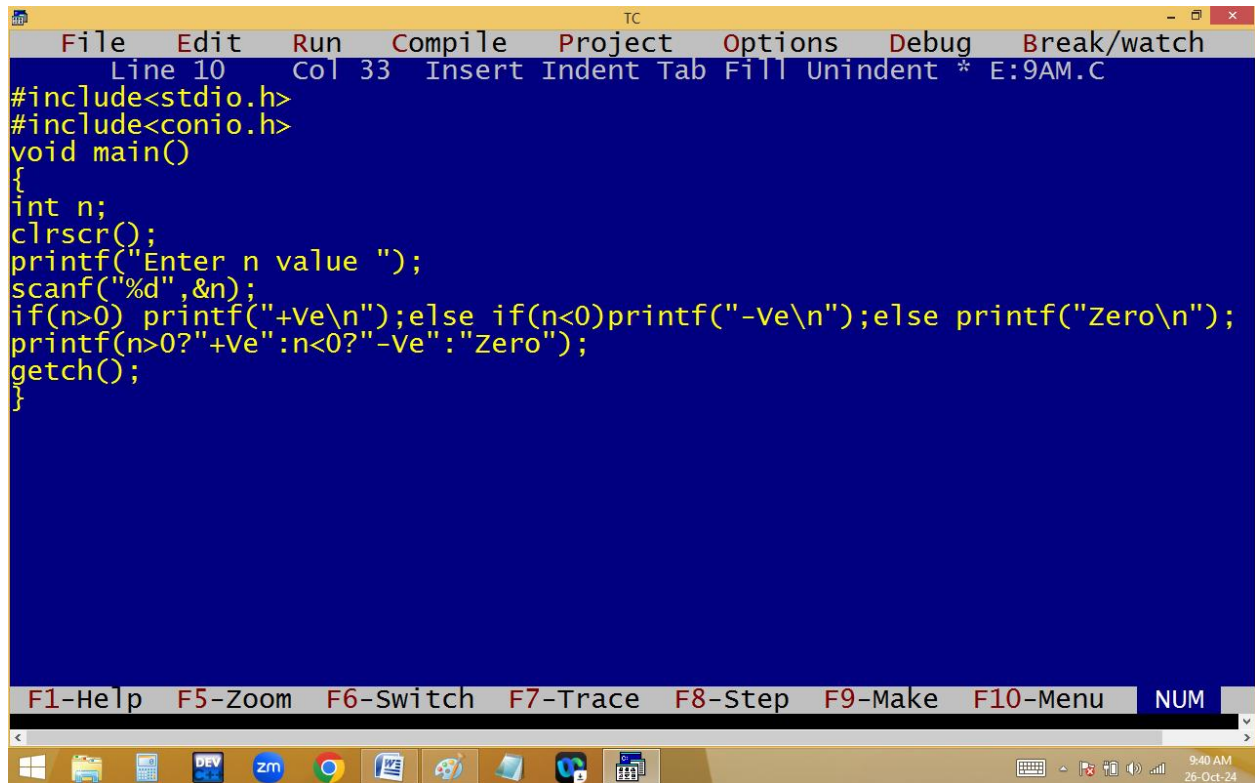

```
TC
Enter a, b values 1 2
b is big
b is big
```



```
TC
Enter a, b values 2 1
a is big
a is big_
```




Finding +Ve / -Ve / 0 using ternary operator



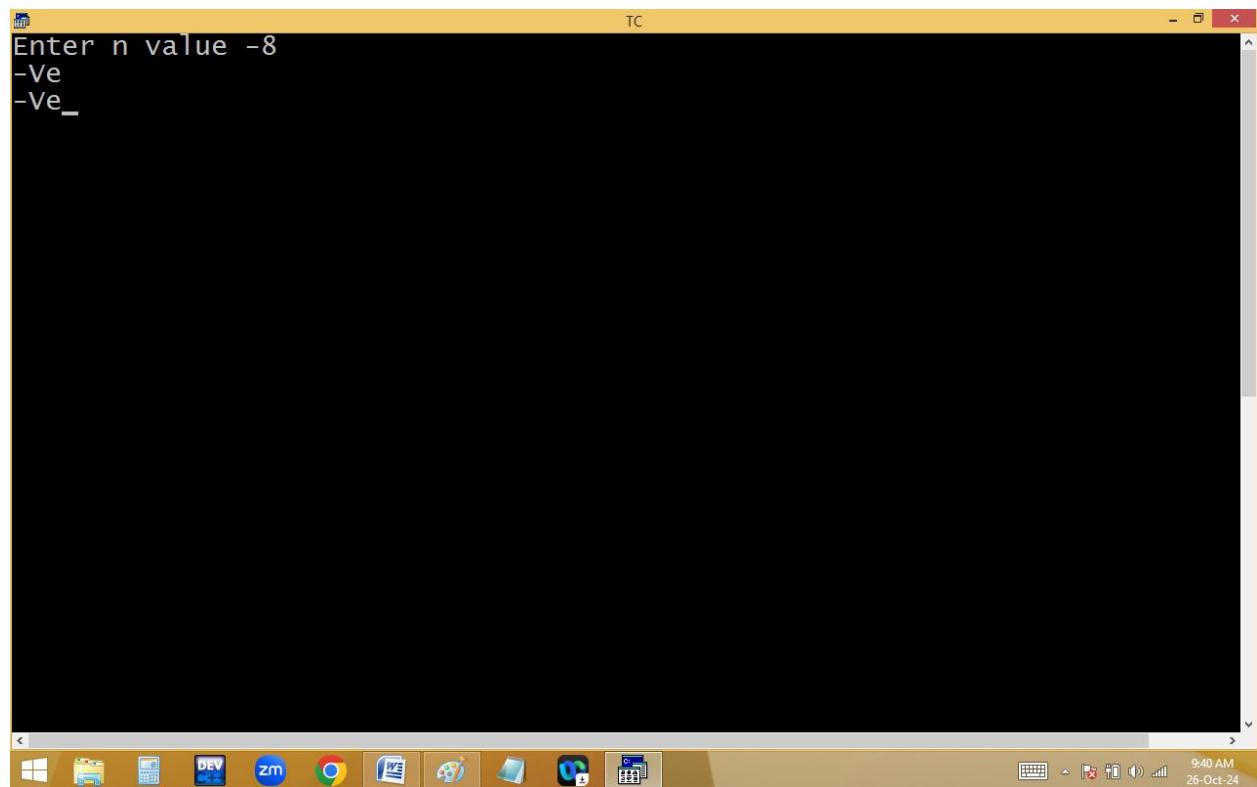
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 33 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter n value ");
scanf("%d",&n);
if(n>0) printf("+ve\n");else if(n<0)printf("-ve\n");else printf("Zero\n");
printf(n>0?" +ve":n<0?" -ve":"Zero");
getch();
}
```

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




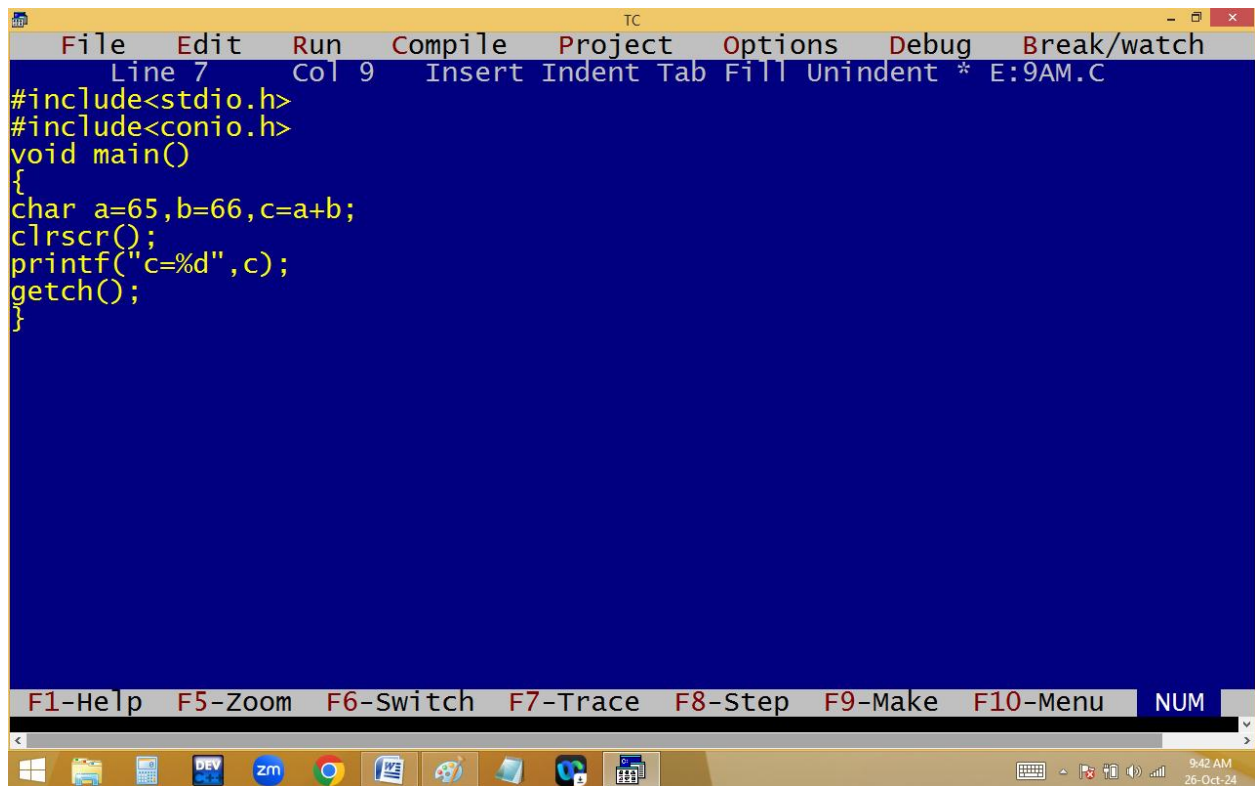
```
TC
Enter n value 9
+ve
+ve_
```

```
TC
Enter n value -8
-Ve
-Ve_
```



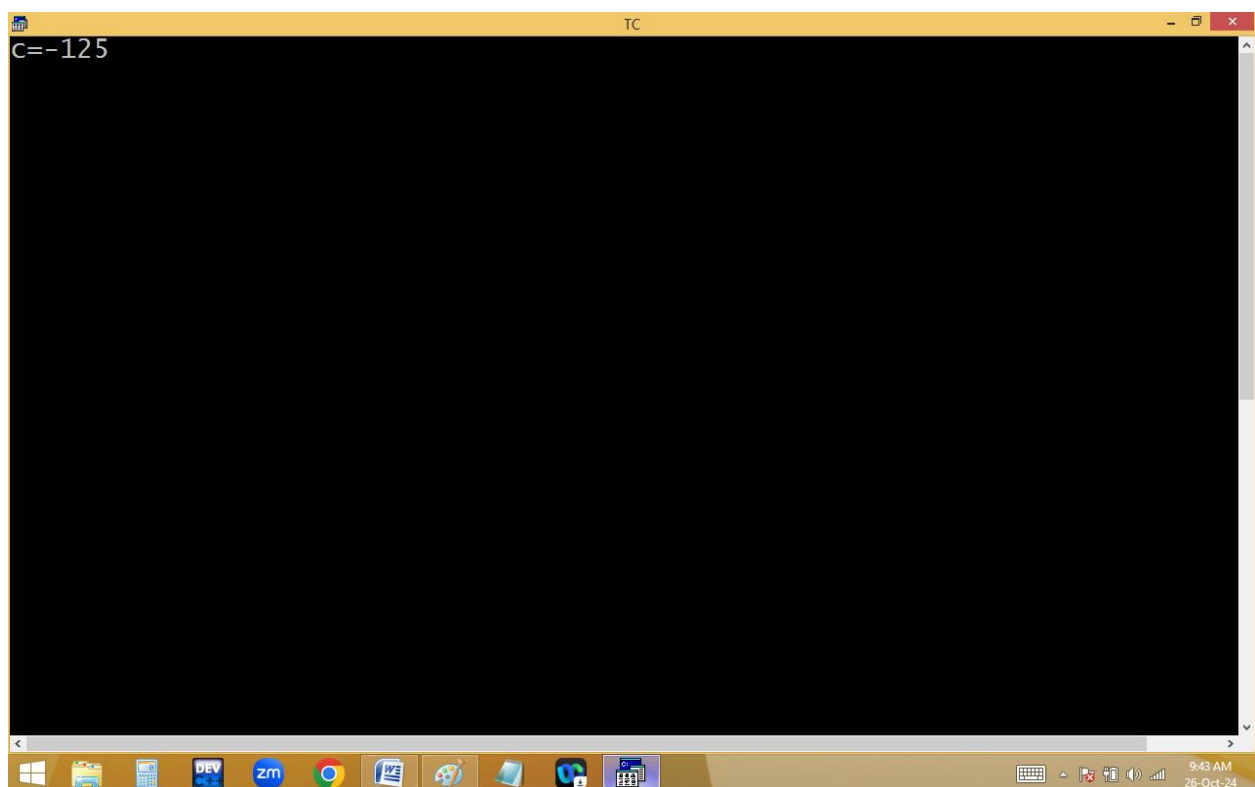
```
TC
Enter n value 0
Zero
Zero_
```





```
File Edit Run Compile Project Options Debug Break/watch
Line 7 Col 9 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
char a=65,b=66,c=a+b;
clrscr();
printf("c=%d",c);
getch();
}
```

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



```
TC
c=-125
```

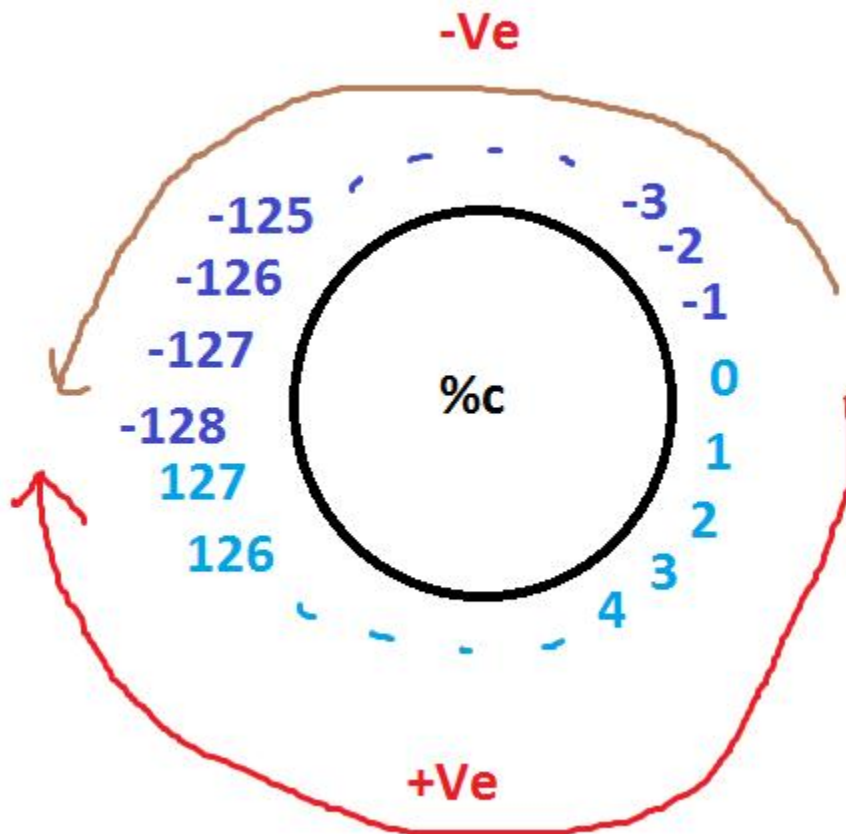
9:43 AM 26-Oct-24

Character cycle:

C using ASCII character set, which comes with 256 characters. They are divided into 2 types.

1. Signed characters → -128 to +127 → %c
2. Unsigned characters → 0 to 255 → %c

singed / unsigned char cycle



singed / unsigned char

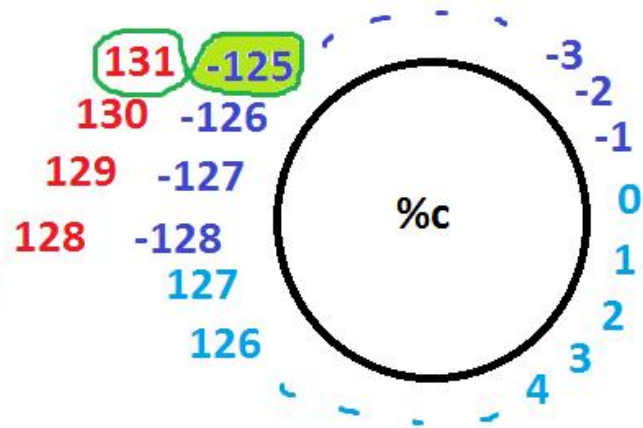
a= 65

b= 66

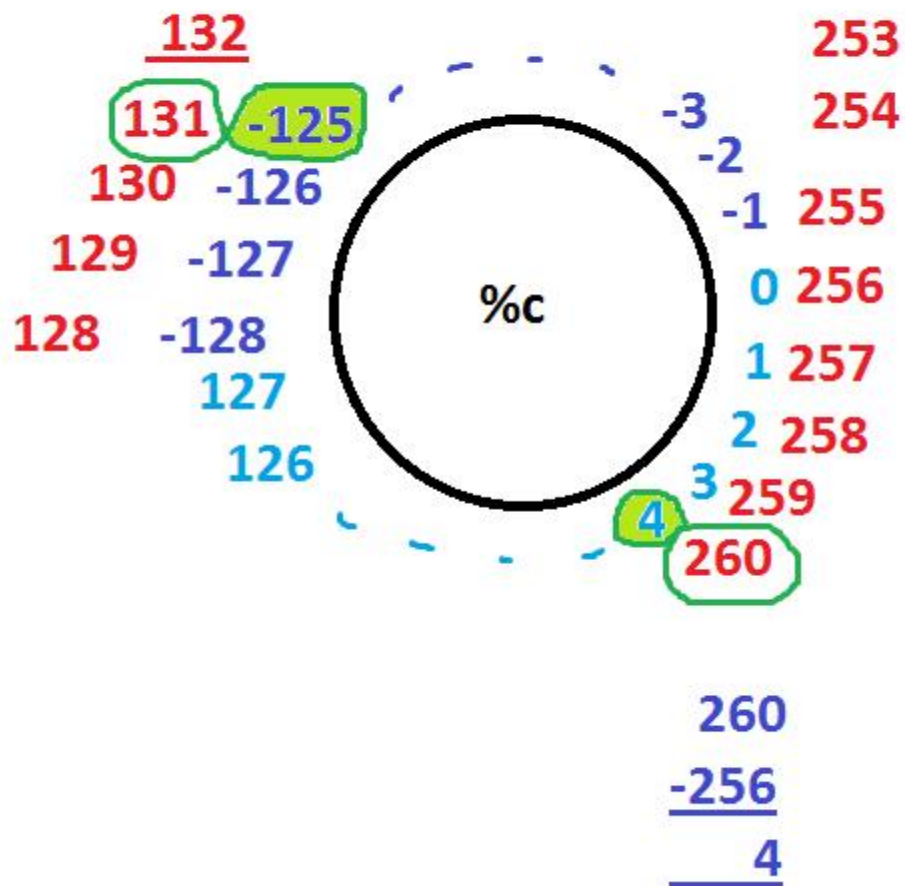
c=131

$$\begin{array}{r} 131 \\ -128 \\ \hline 3 \end{array} + 3 = -125$$

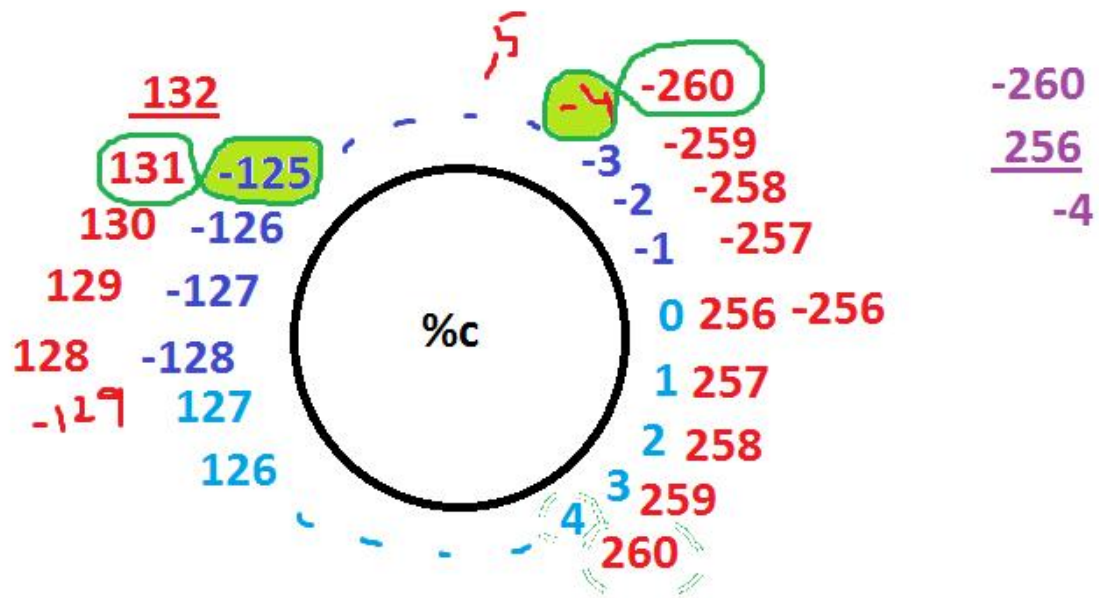
$$\begin{array}{r} 256 \\ 131 \\ \hline -125 \\ \hline \end{array}$$

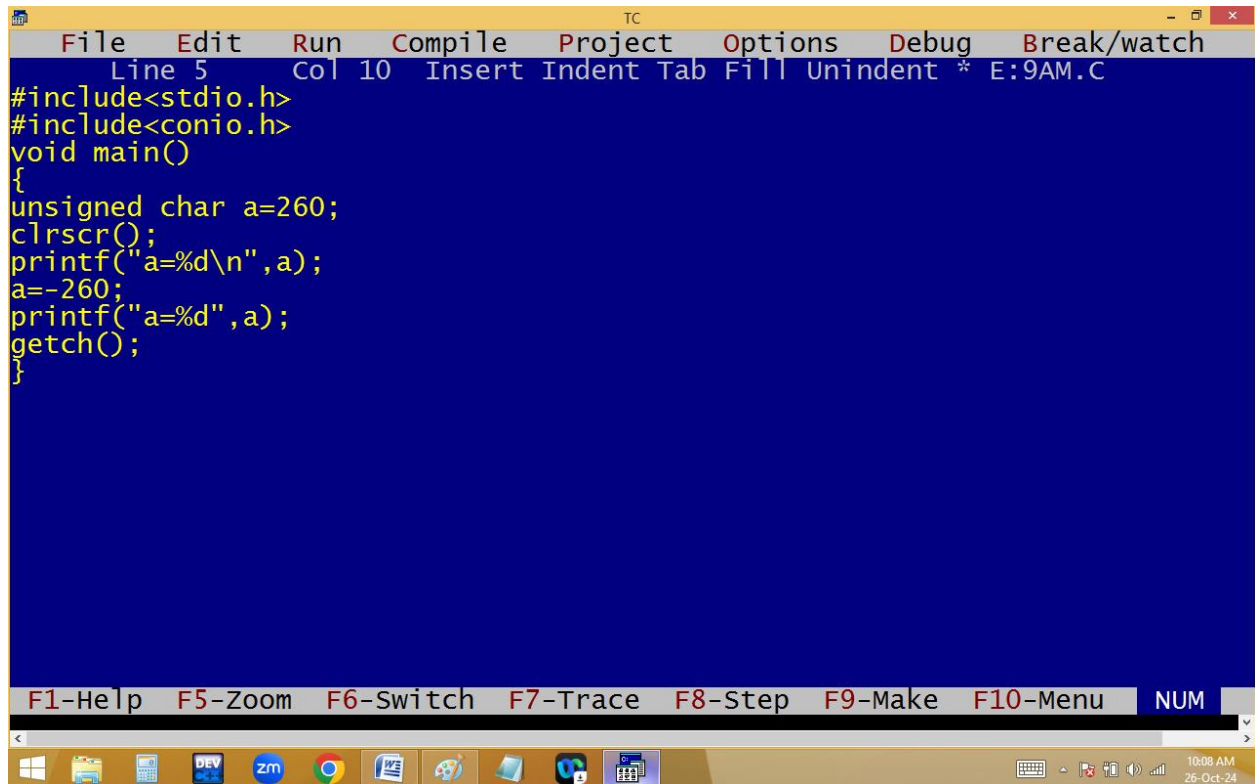


singed / unsigned char



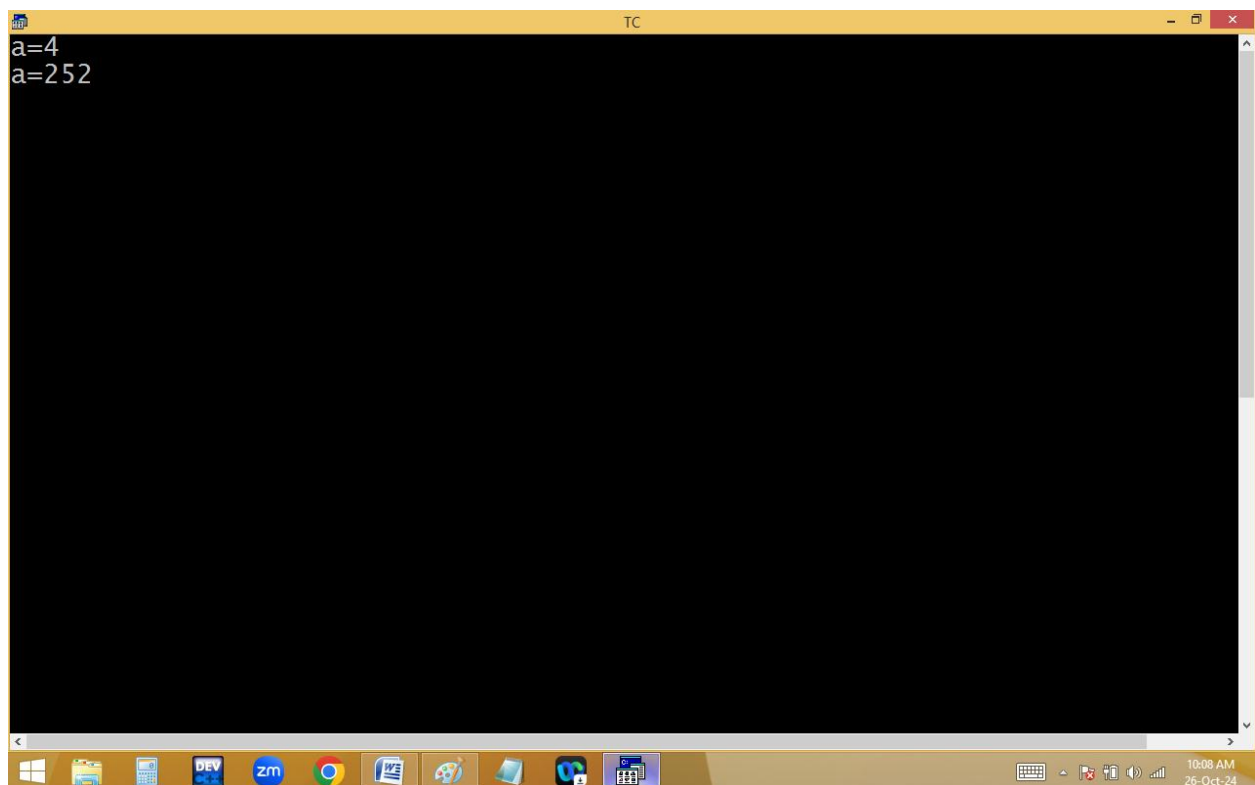
singed / unsigned char





```
File Edit Run Compile Project Options Debug Break/watch
Line 5 Col 10 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
unsigned char a=260;
clrscr();
printf("a=%d\n",a);
a=-260;
printf("a=%d",a);
getch();
}
```

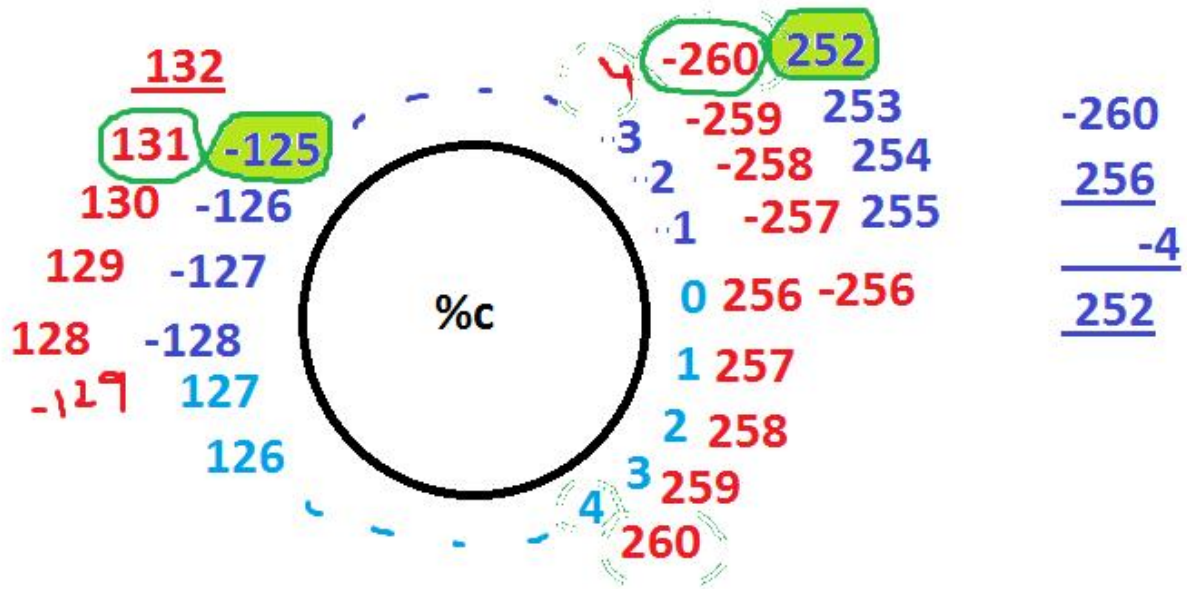
F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM

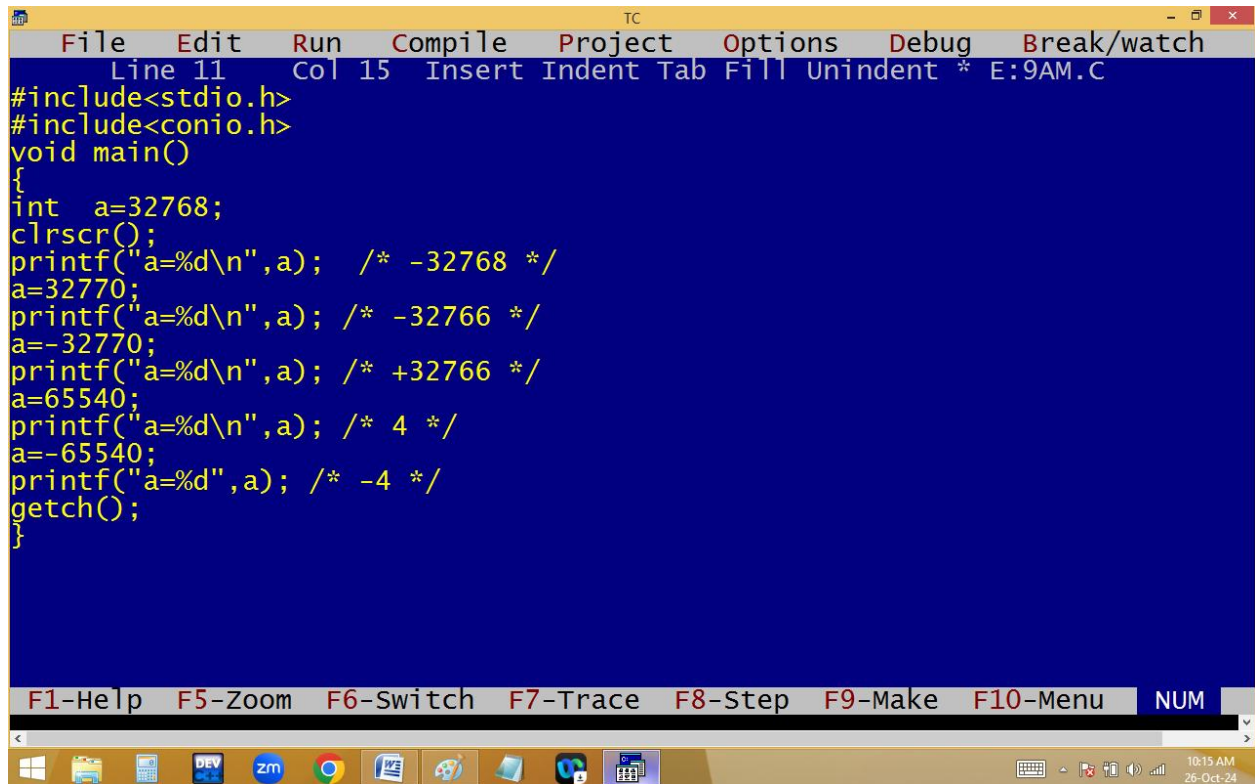


```
a=4
a=252
```

10:08 AM 26-Oct-24

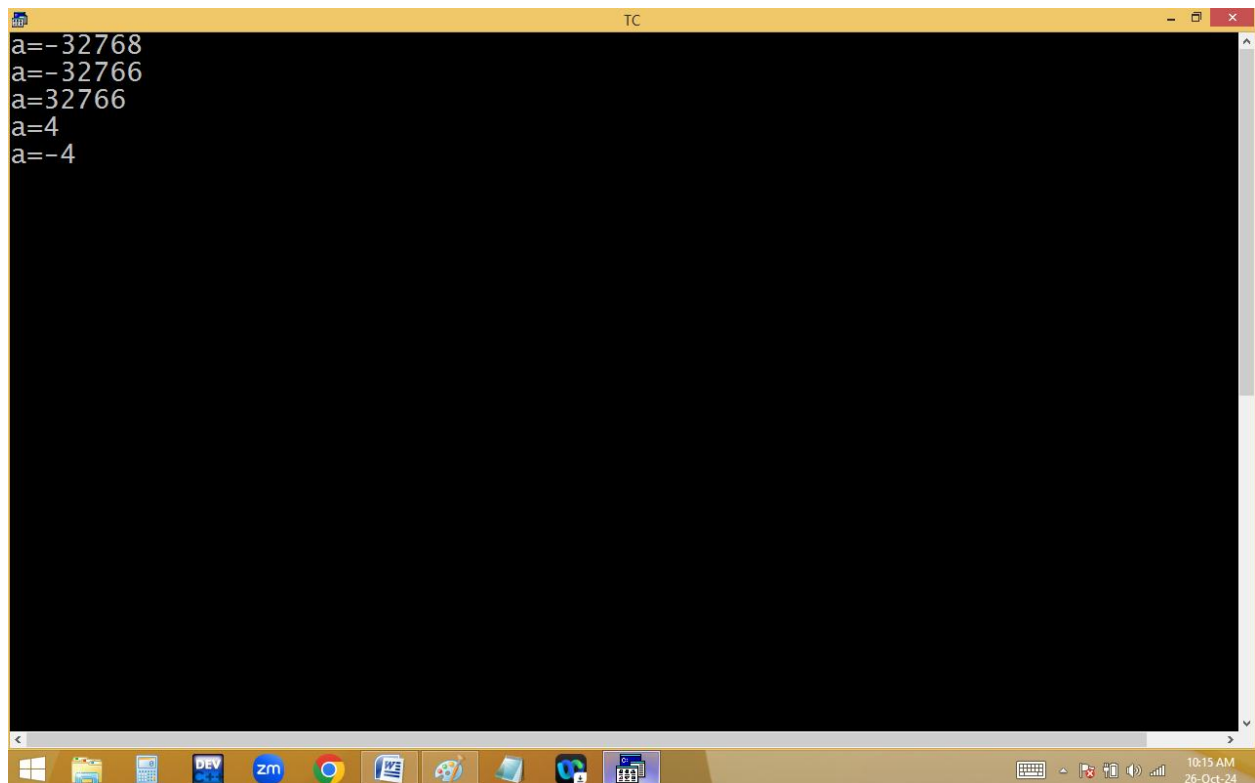
unsigned char





```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 15 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=32768;
clrscr();
printf("a=%d\n",a); /* -32768 */
a=32770;
printf("a=%d\n",a); /* -32766 */
a=-32770;
printf("a=%d\n",a); /* +32766 */
a=65540;
printf("a=%d\n",a); /* 4 */
a=-65540;
printf("a=%d",a); /* -4 */
getch();
}
```

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



```
TC
a=-32768
a=-32766
a=32766
a=4
a=-4
```

Int cycle:

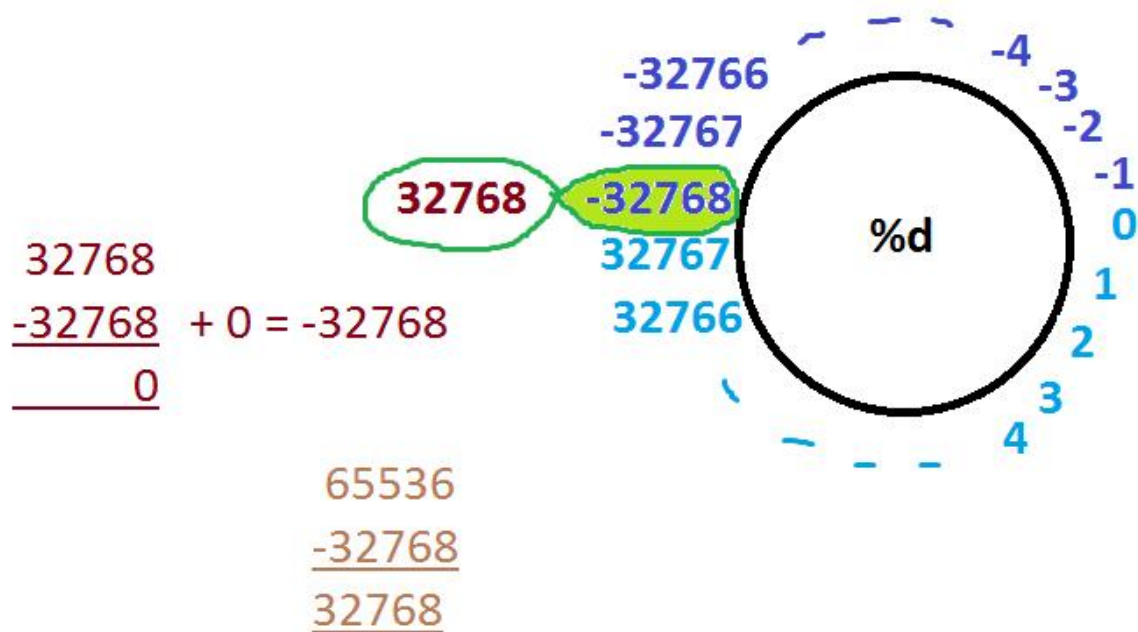
C is working under 16 bit compiler i.e. $2^{16} = 65536$

Again this value divided into 2 types.

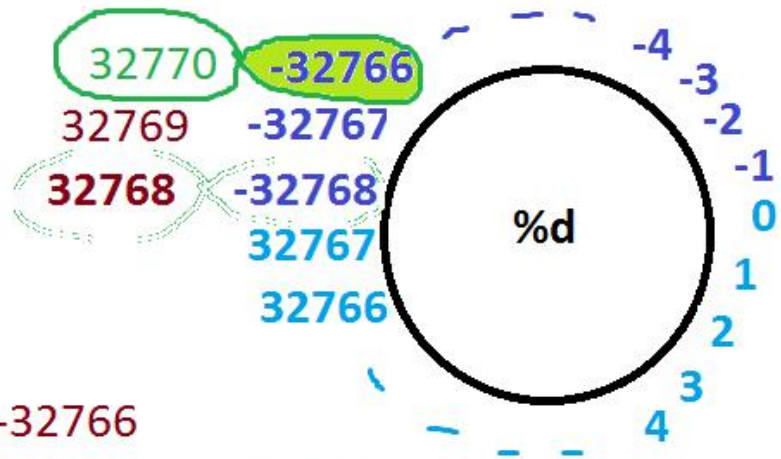
1. Signed int \rightarrow -32768 to +32767
2. Unsigned int \rightarrow 0 to 65535

signed int cycle

a = 32768



signed int cycle

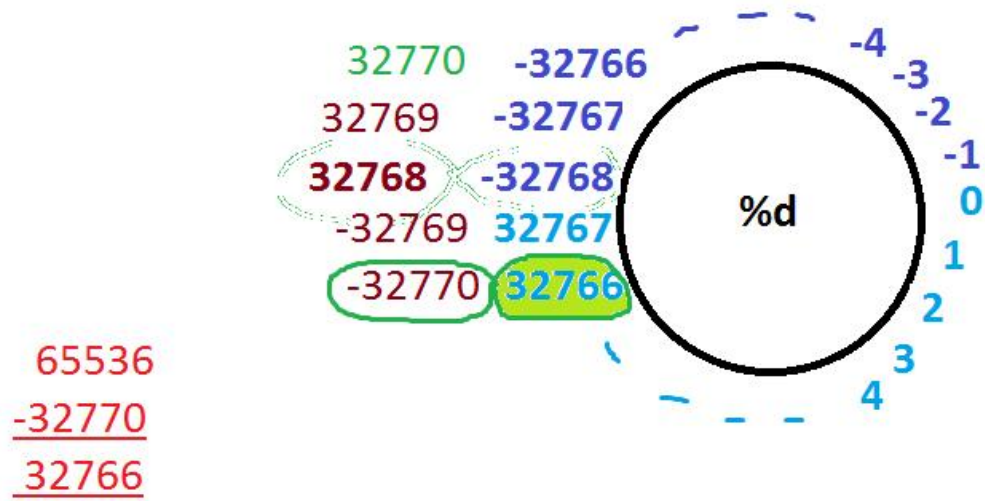


$$\begin{array}{r} 32770 \\ -32768 \\ \hline 2 \end{array} + 2 = -32766$$

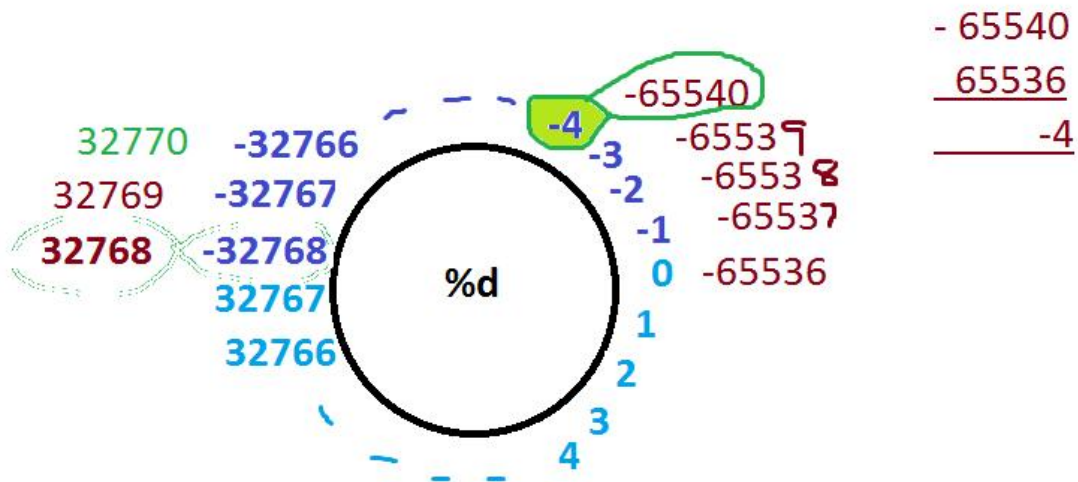
$$\begin{array}{r} 65536 \\ 32770 \\ -32766 \\ \hline \end{array}$$

signed int cycle

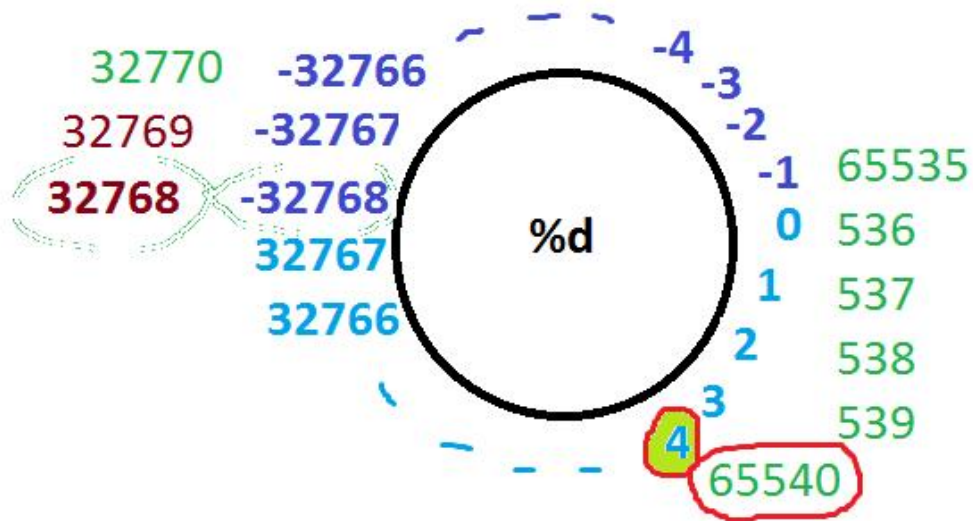
a = -32770



signed int cycle



signed int cycle

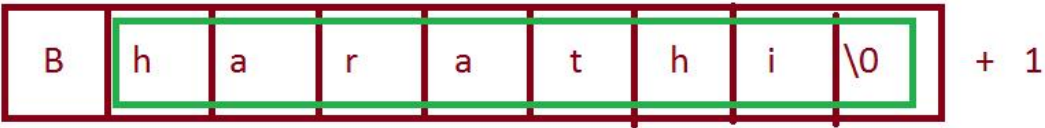


5540
-65536
4


```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 23 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
clrscr();
printf("%10.2f\n",1.5); /* - - - - - 1.20 */
printf("%-10.2f\n",1.5);
printf("%.2f\n",floor(1.5));
printf("%.2f\n",ceil(1.5));
printf("%.2f\n",1.5555);
printf("%.2f\n",1.2222);
printf("%.2f\n",1.2245);
printf("%.2f\n",1.9999);
getch();
}
```

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

```
TC
1.50
1.50
1.00
2.00
1.56
1.22
1.22
2.00
```



474 475 476



Base addr+1

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 13 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
clrscr();
printf("%10s\n","Kishore");
printf("%.3s\n","Kishore");
printf("%10.3s\n","Kishore");
printf("Bharathi\n"+1);
printf("Bharathi\n"+2);
printf("Bharathi addr %u\n","Bharathi");
printf("%d\n"+1,999);
printf("%d\n"+1);
getch();
}
```

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

```
TC
Kishore
Kis
Kis
harathi
arathi
Bharathi addr 486
d
d
```

