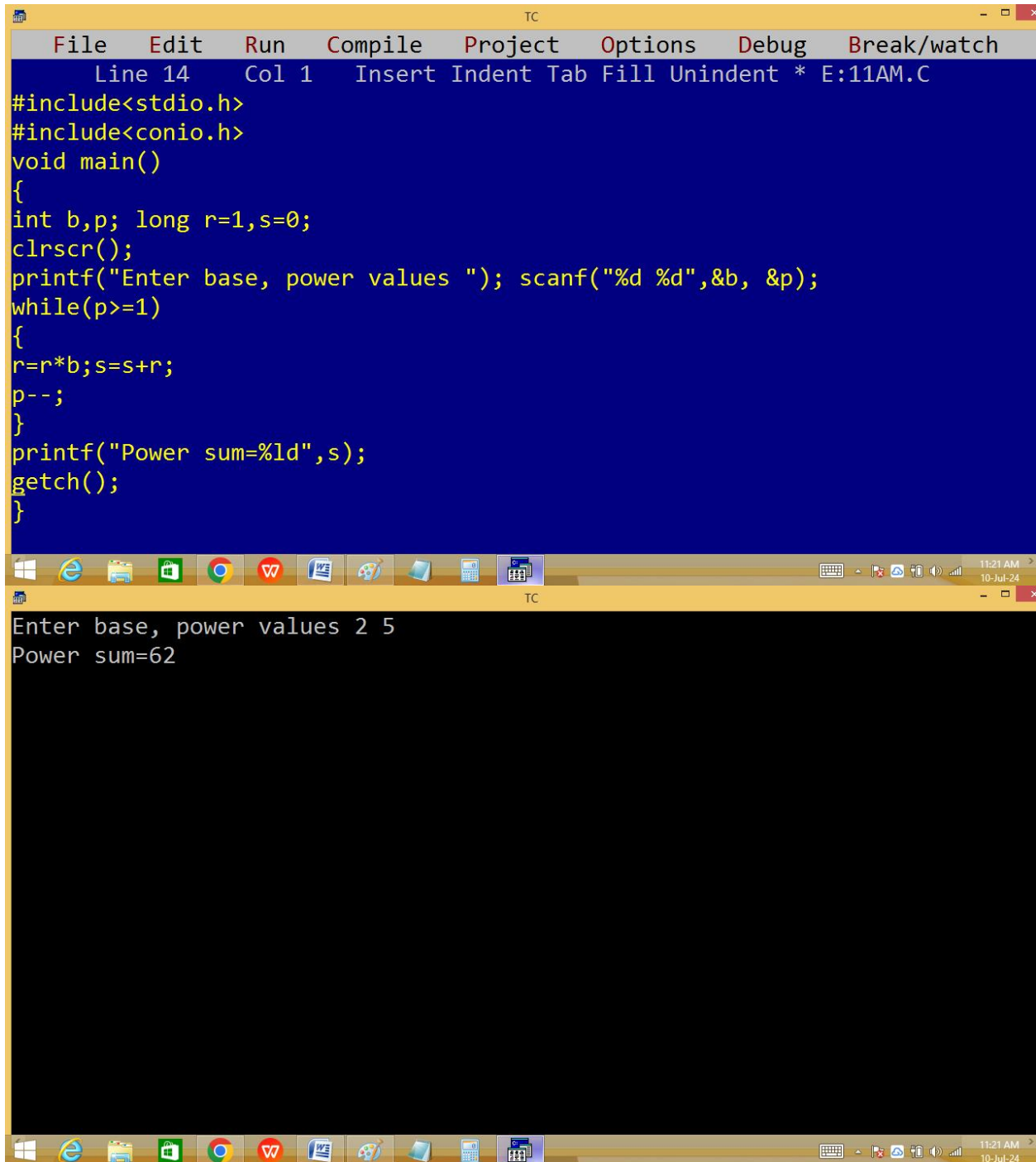


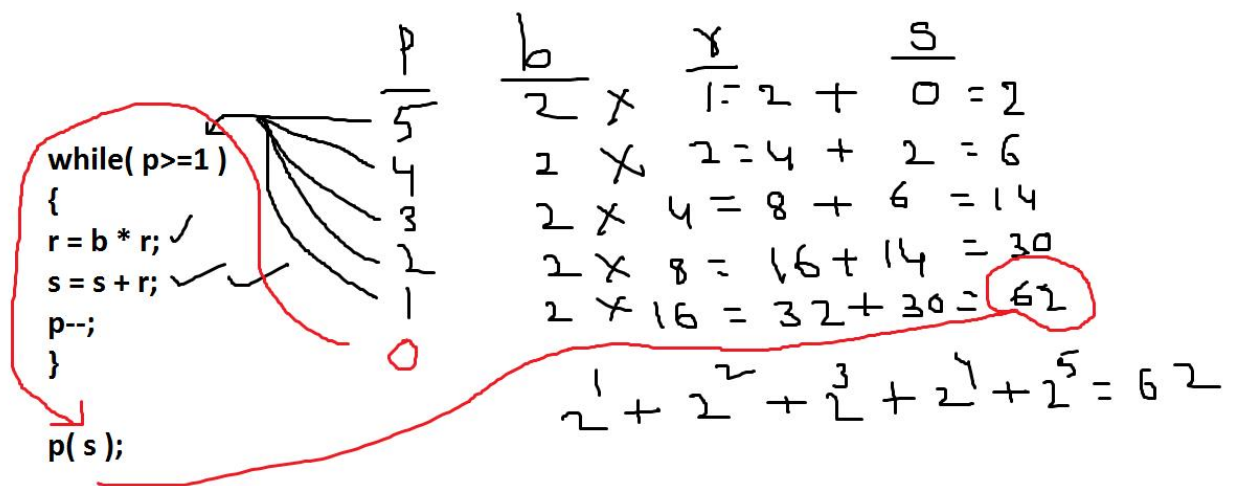
Finding power sum:



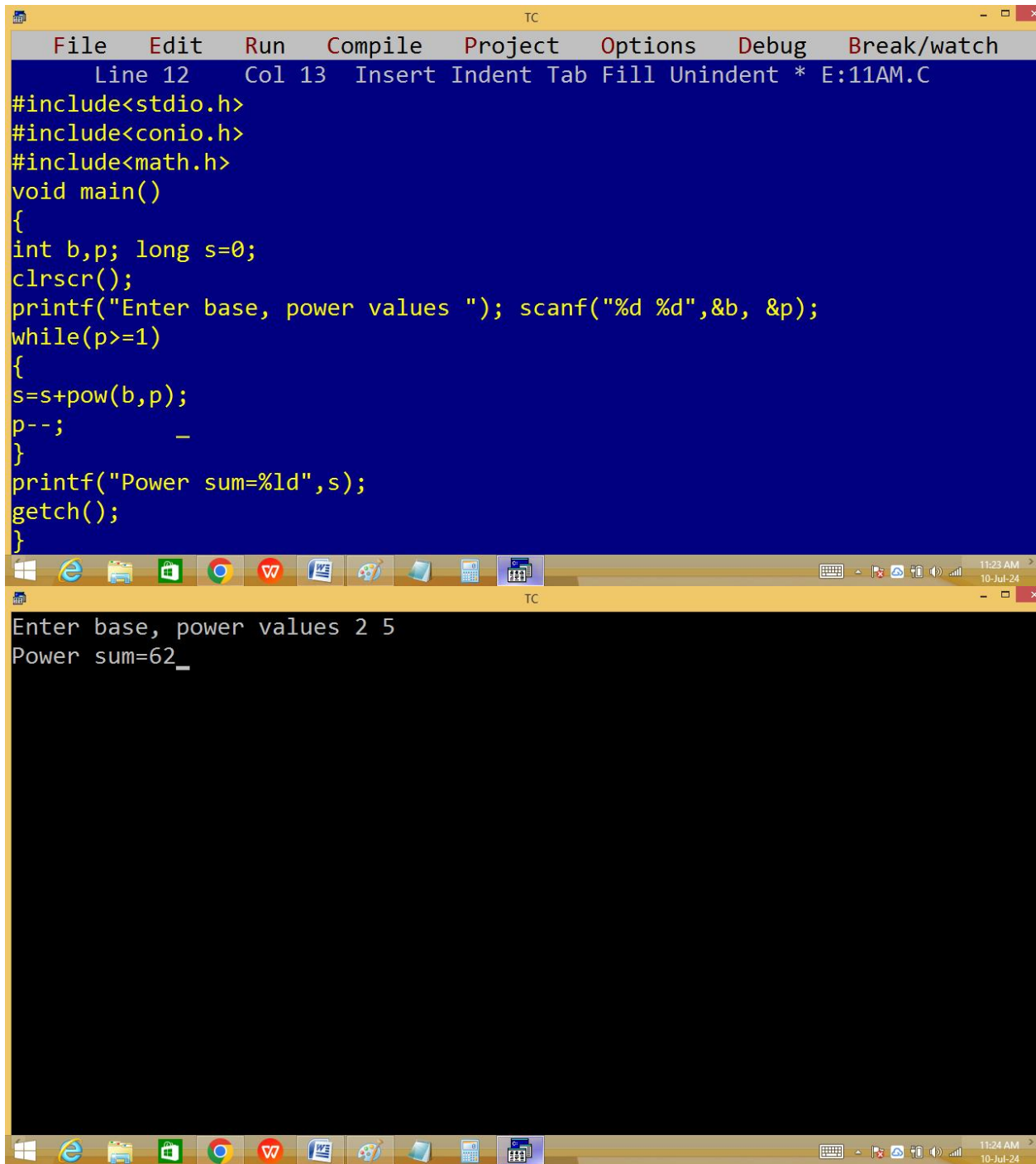
The screenshot displays the Turbo C++ (TC) IDE. The top window shows the source code for a program titled 'E:11AM.C'. The code calculates the power sum of two input values, base (b) and power (p). It uses a while loop to iteratively calculate the sum of powers of the base. The bottom window shows the program's execution output.

```
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 1 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int b,p; long r=1,s=0;
clrscr();
printf("Enter base, power values "); scanf("%d %d",&b, &p);
while(p>=1)
{
r=r*b;s=s+r;
p--;
}
printf("Power sum=%ld",s);
getch();
}
```

Enter base, power values 2 5
Power sum=62



using pow():



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 13 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
int b,p; long s=0;
clrscr();
printf("Enter base, power values "); scanf("%d %d",&b, &p);
while(p>=1)
{
s=s+pow(b,p);
p--;
}
printf("Power sum=%ld",s);
getch();
}
```

Enter base, power values 2 5
Power sum=62_

TC

```

while( p >= 1 )
{
    s = s + pow(b,p);
    p--;
}
p(s);

```

$2^5=32$
 $2^4=16$
 $2^3=8$
 $2^2=4$
 $2^1=2$

b	x	y	s
2	x	1 = 2	+ 0 = 2
2	x	2 = 4	+ 2 = 6
2	x	4 = 8	+ 6 = 14
2	x	8 = 16	+ 14 = 30
2	x	16 = 32	+ 30 = 62

$$2^1 + 2^2 + 2^3 + 2^4 + 2^5 = 62$$

Finding of digits in given no.

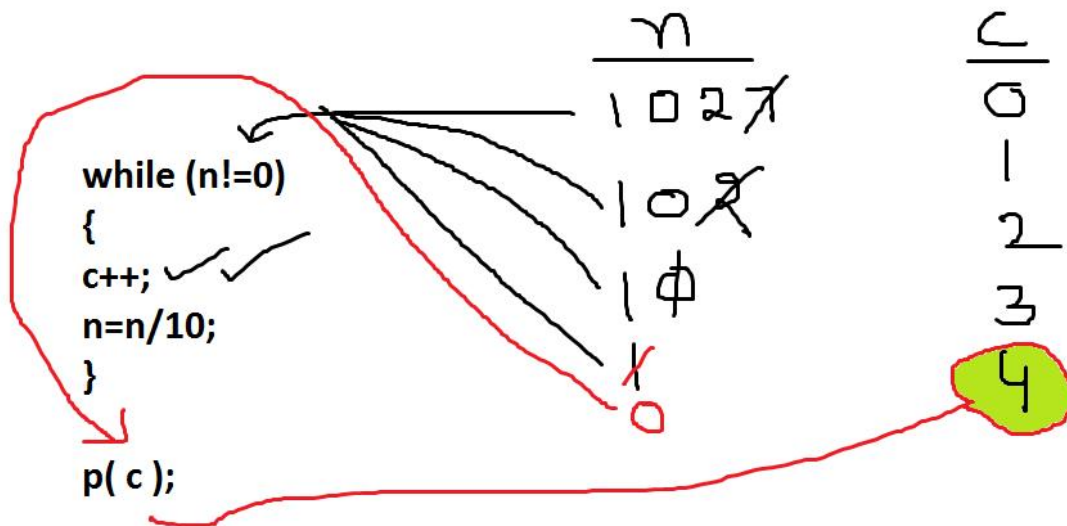
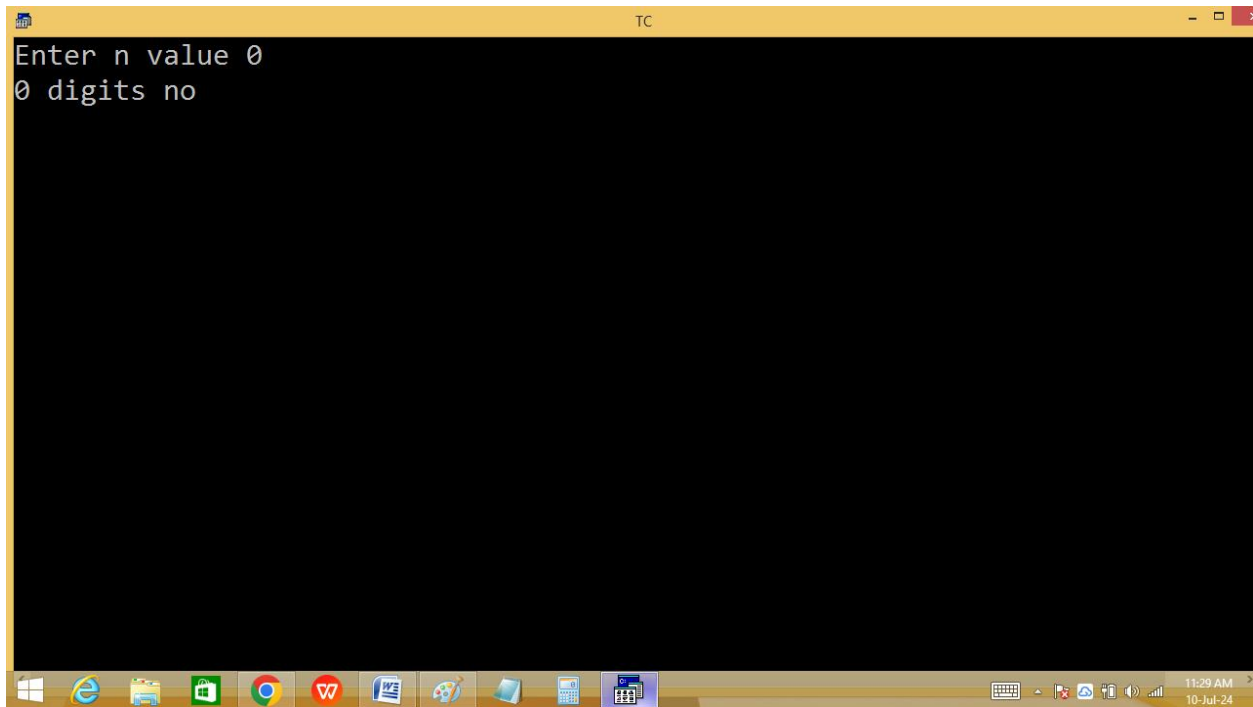
Eg: 1027 → 4 digits

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program designed to count the number of digits in an integer. The code includes headers for `stdio.h` and `conio.h`, and uses `scanf` to read an integer `n`. A `while` loop repeatedly divides `n` by 10 until it reaches 0, incrementing a counter `c` each time. The final count is printed using `printf`, and `getch()` is used to pause the program.

```
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 24 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int c=0;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
while(n!=0)
{
c++;
n=n/10;
}
printf("%d digits no",c);
getch();
}
```

The bottom window shows the program's execution. It prompts the user to "Enter n value" and the input `-1036` is entered. The program then outputs `4 digits no_`, indicating that the number -1036 has 4 digits. The taskbar at the bottom shows the system time as 11:28 AM on 10-Jul-24.

Enter n value -1036
4 digits no_



Note: Any `no/10` removes last digit.

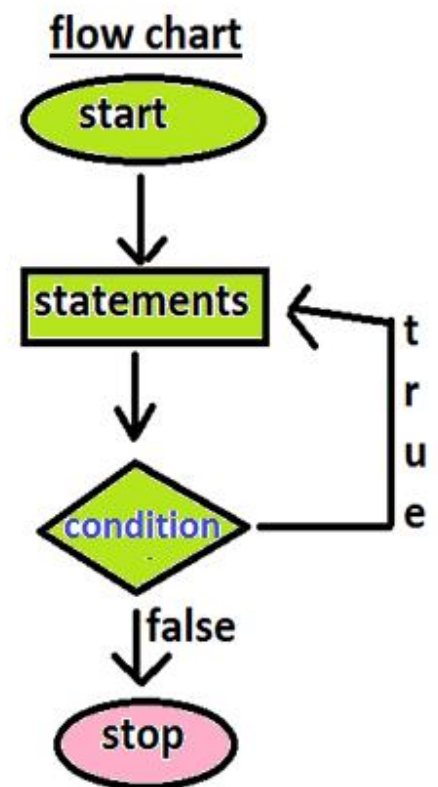
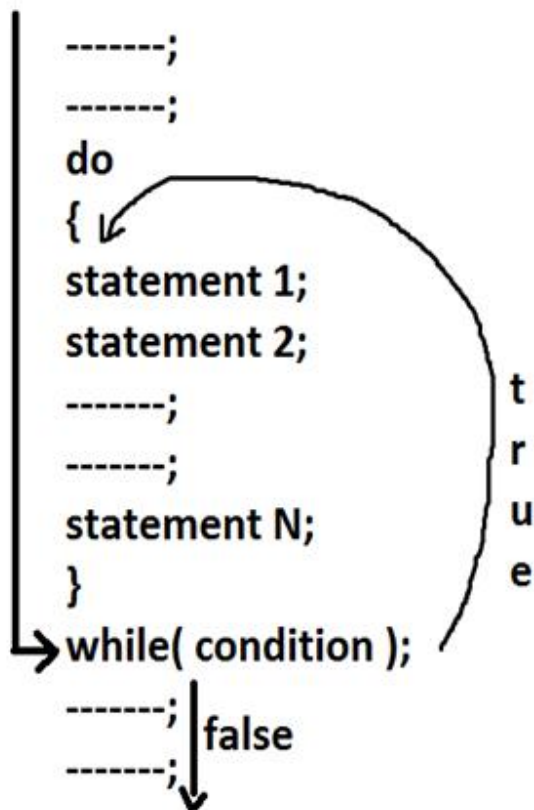
do..while:

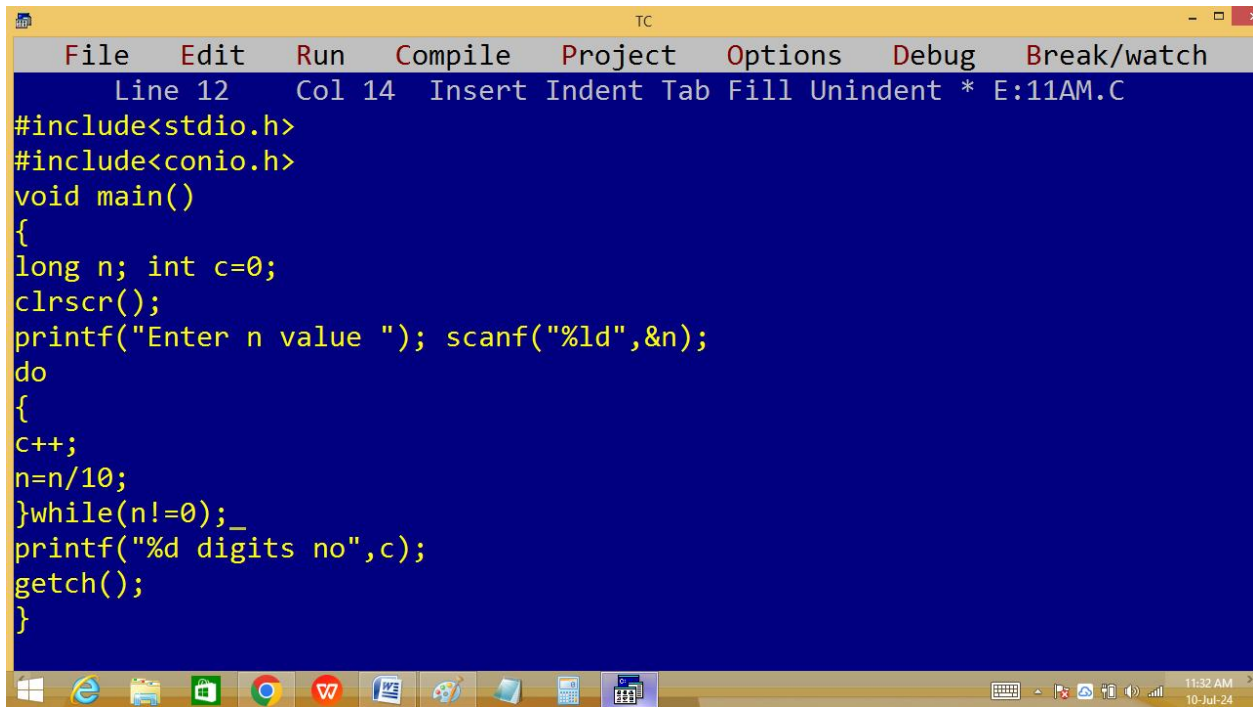
do .. while:

- It is an exit control loop. i.e. in a do while the condition is tested at last.
- Here do , while are the keywords.
- It is also used to repeat a program several times based on a condition.
- In a do while, do block statements are executed first and later while condition is tested. If the while condition is true then once again the do block statements are repeated. Like this the process is continued until the while condition becomes false.
- In do while, the while should be end with semicolon (;) .
- Regardless of while condition, the do statements are executed at least one time. Due to this sometimes we are

getting unwanted results [garbage values].

- Use do while whenever it is compulsory because of in do while the program is controlled at the bottom / last.

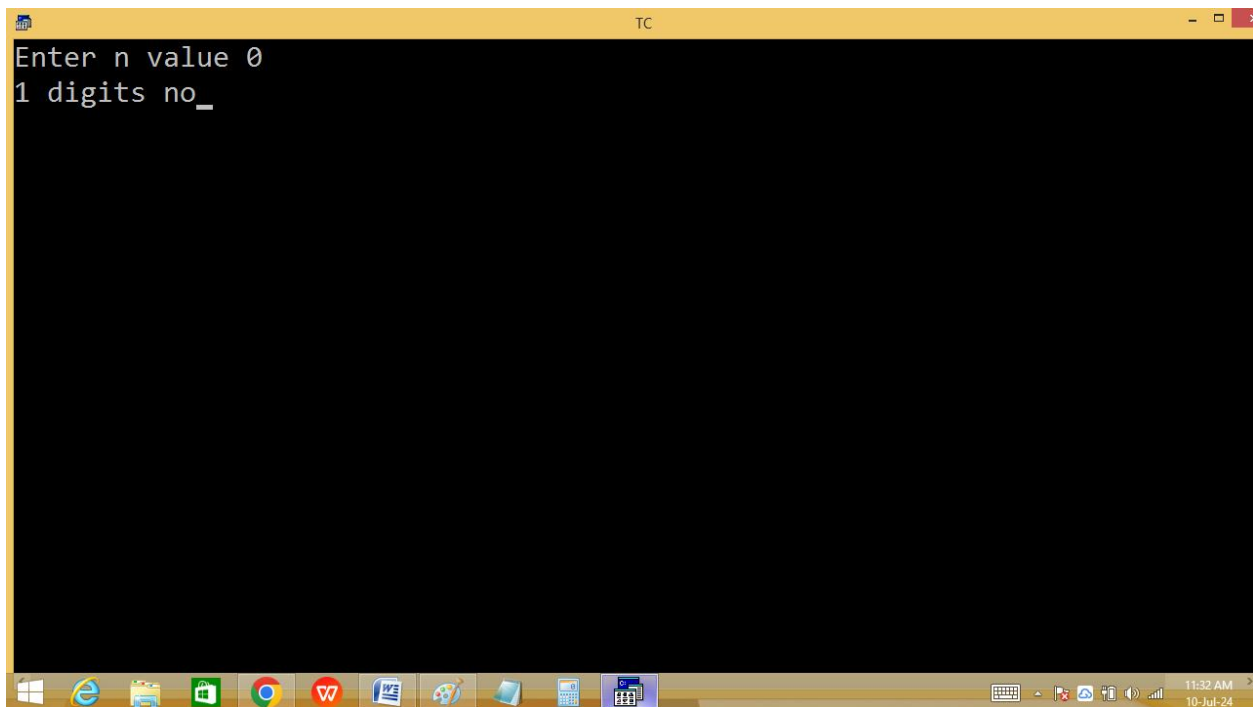




The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 12, Col 14, Insert, Indent, Tab, Fill, Unindent, *, E:11AM.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int c=0;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
do
{
c++;
n=n/10;
}while(n!=0);_
printf("%d digits no",c);
getch();
}
```

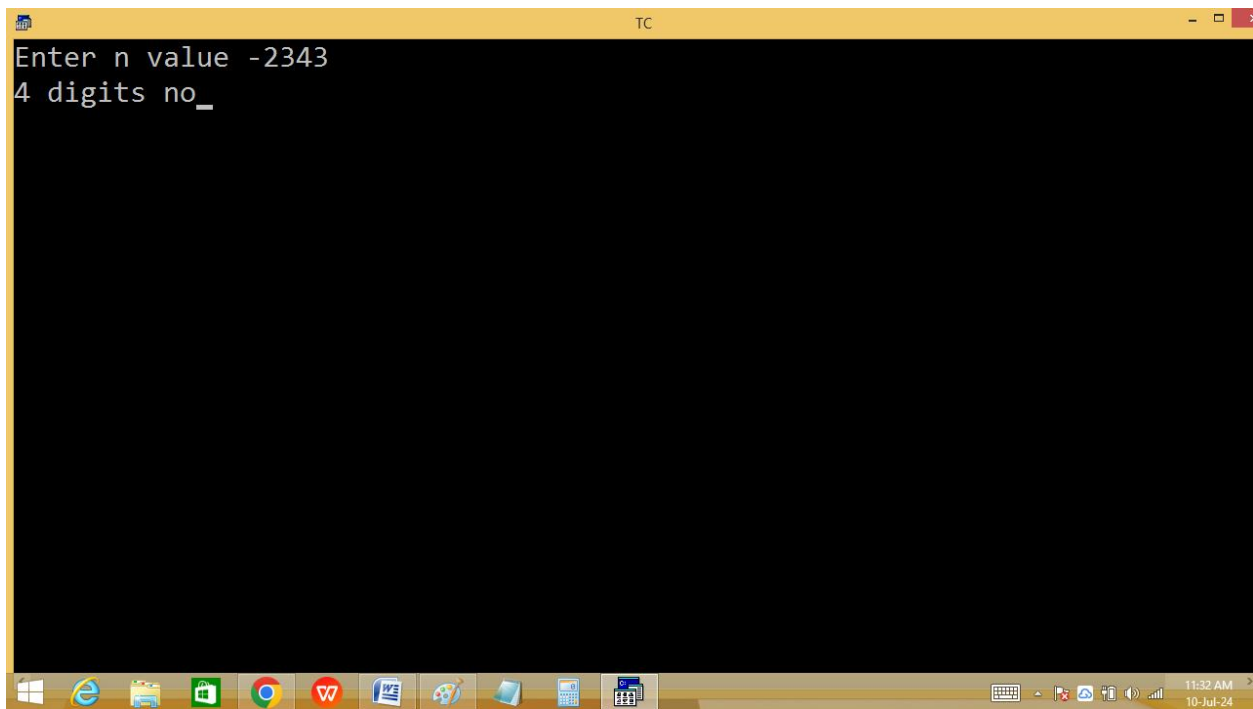
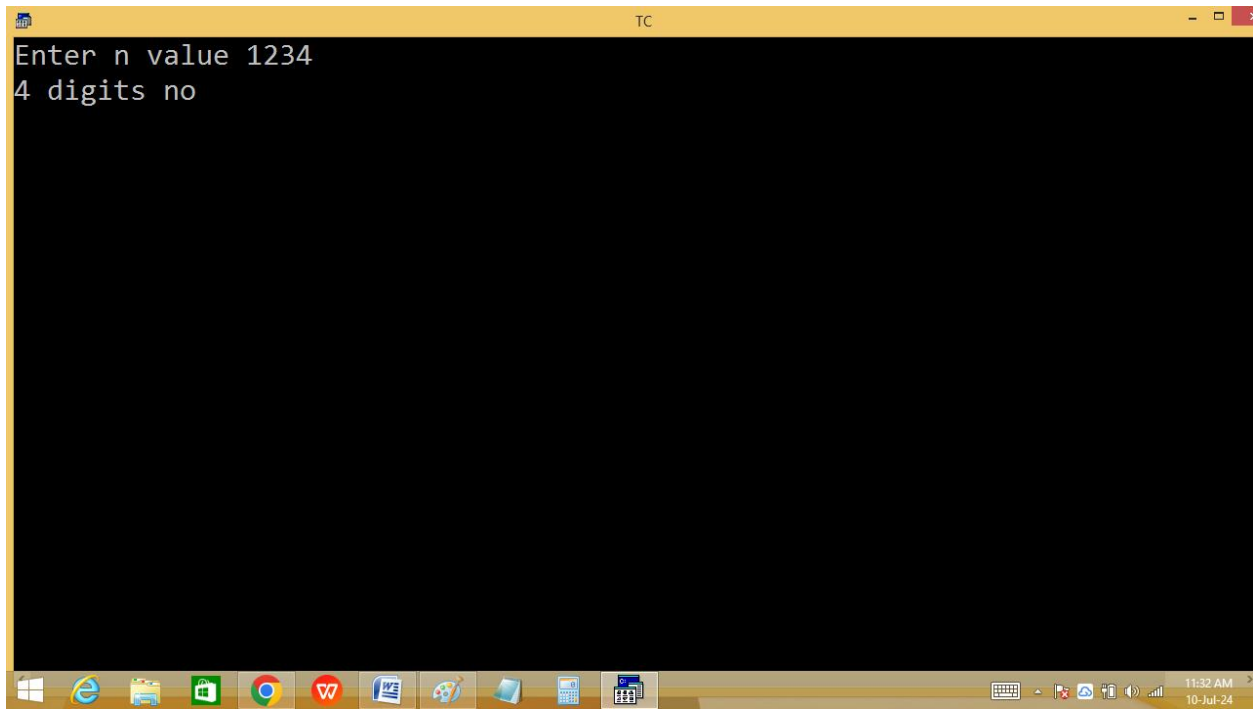
The Windows taskbar at the bottom shows the Start button and several application icons, including Internet Explorer, File Explorer, Google Chrome, and others. The system clock in the bottom right corner displays 11:32 AM on 10-Jul-24.

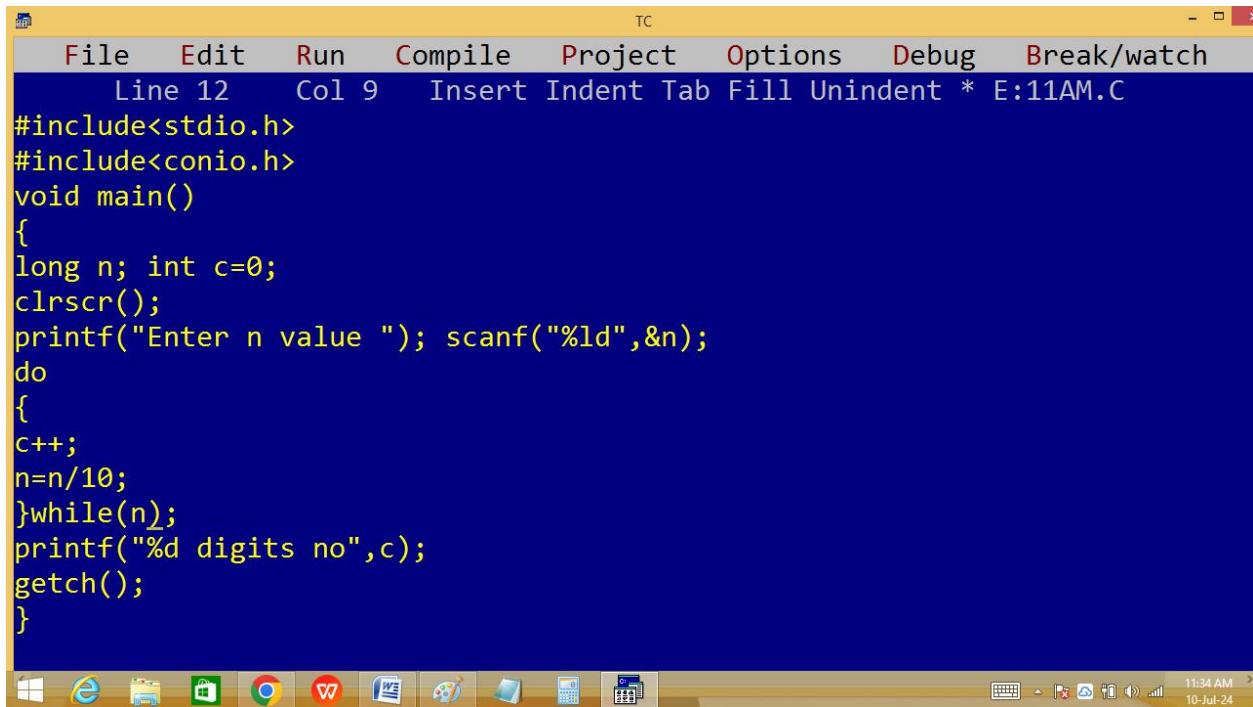


The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar as the first image. The output window displays the program's execution results:

```
Enter n value 0
1 digits no_
```

The Windows taskbar at the bottom is identical to the first image, showing the same application icons and system clock (11:32 AM on 10-Jul-24).

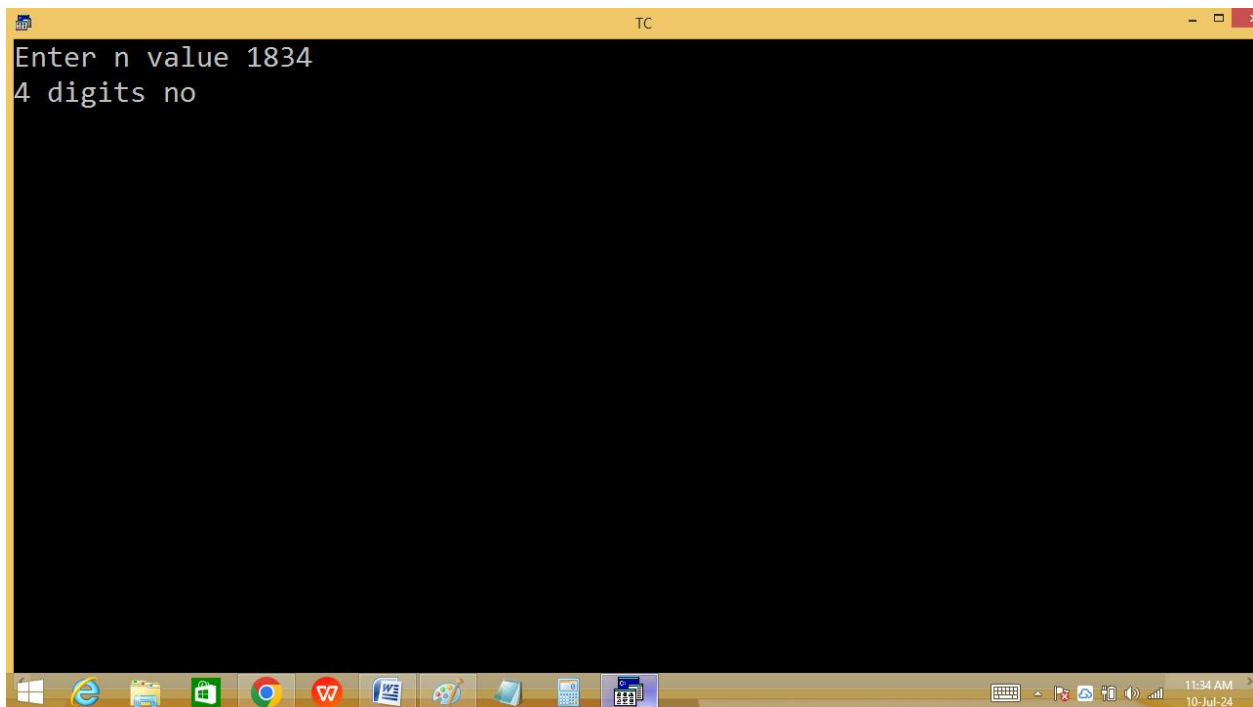




The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar and a menu bar containing File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 12 Col 9 Insert Indent Tab Fill Unindent * E:11AM.C'. The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int c=0;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
do
{
c++;
n=n/10;
}while(n);
printf("%d digits no",c);
getch();
}
```

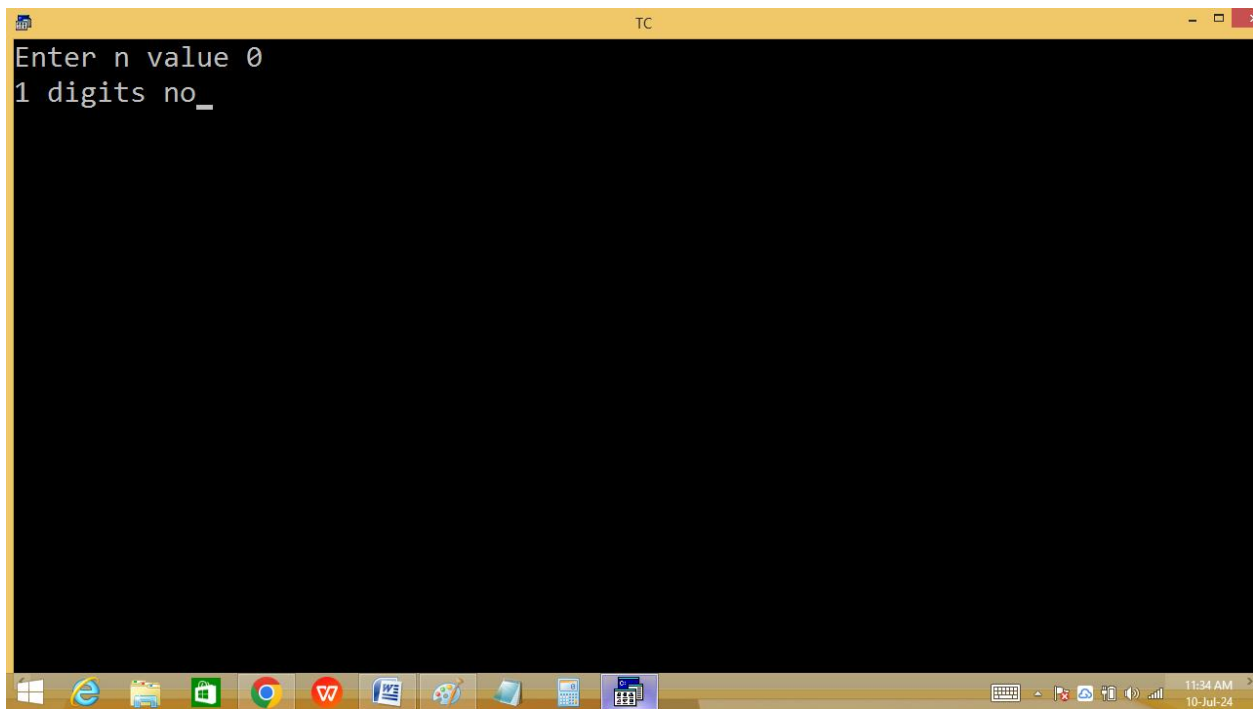
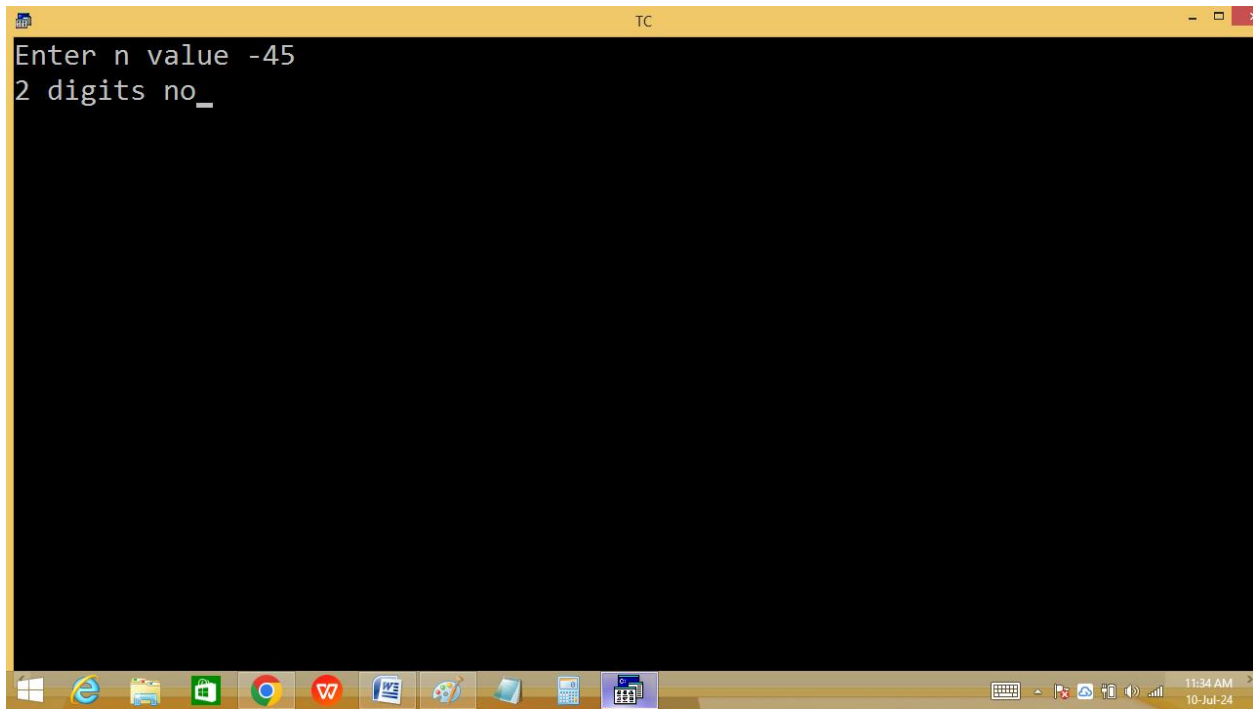
The Windows taskbar at the bottom shows various application icons and the system clock indicating 11:34 AM on 10-Jul-24.



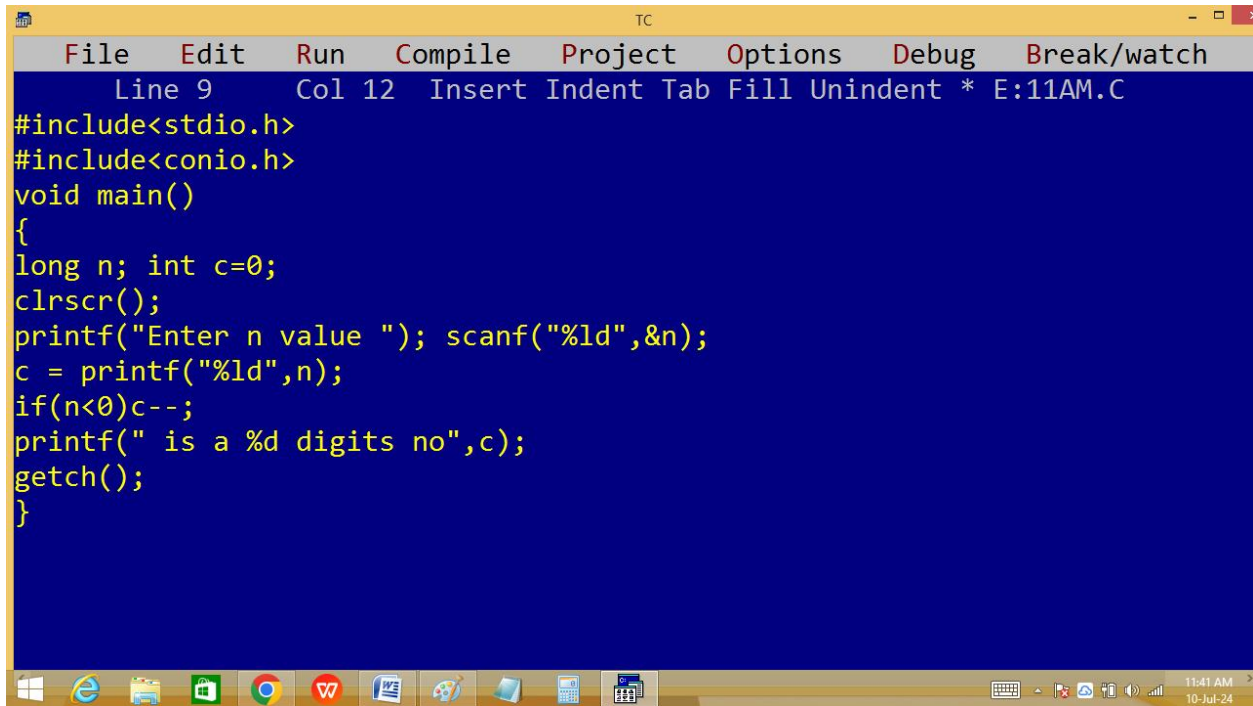
The screenshot shows the Turbo C++ (TC) IDE with a yellow title bar. The main editing area has a black background and displays the output of the program:

```
Enter n value 1834
4 digits no
```

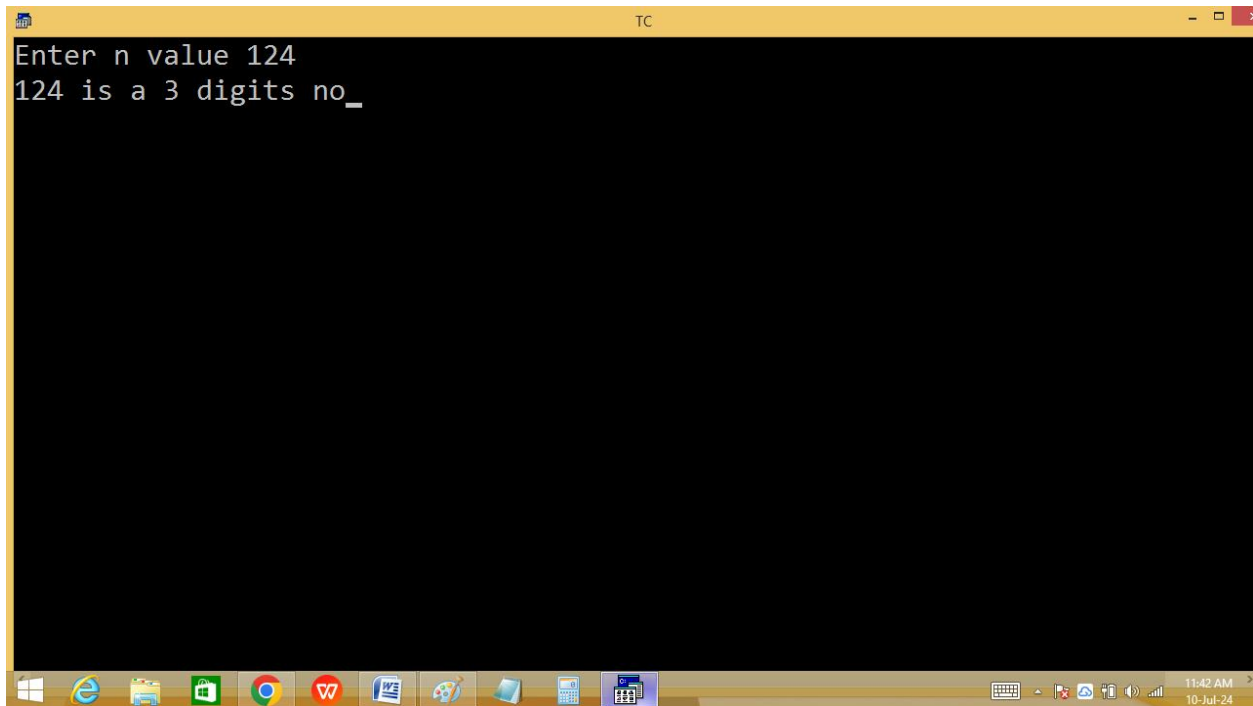
The Windows taskbar at the bottom is identical to the first screenshot, showing the same application icons and system clock.



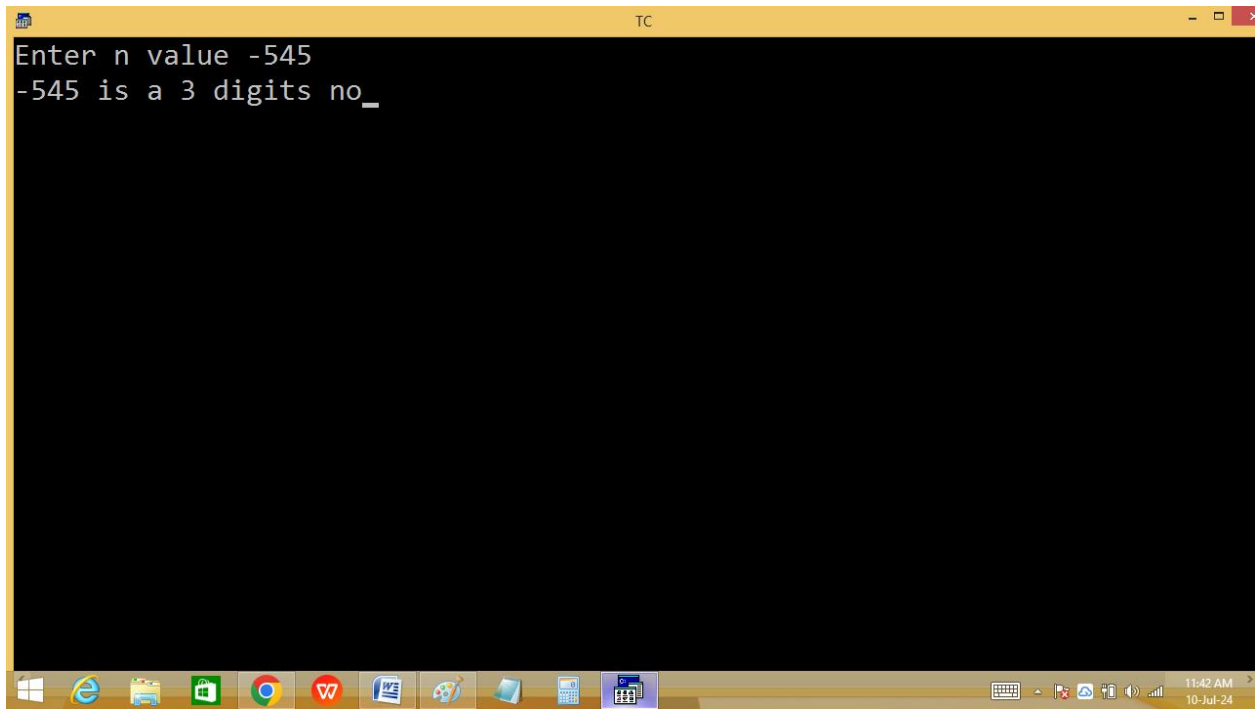
Without using loop:/goto label:



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 12 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int c=0;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
c = printf("%ld",n);
if(n<0)c--;
printf(" is a %d digits no",c);
getch();
}
```



```
TC
Enter n value 124
124 is a 3 digits no_
```



```
TC
Enter n value 0
0 is a 1 digits no
```

\swarrow
 $c = p(125);$

$p(c);$
 \swarrow

$\overline{125}$

Finding no of even, odd, zero digits in given no.

eg: 1023 \rightarrow 1 even, 2 odd, 1 zero

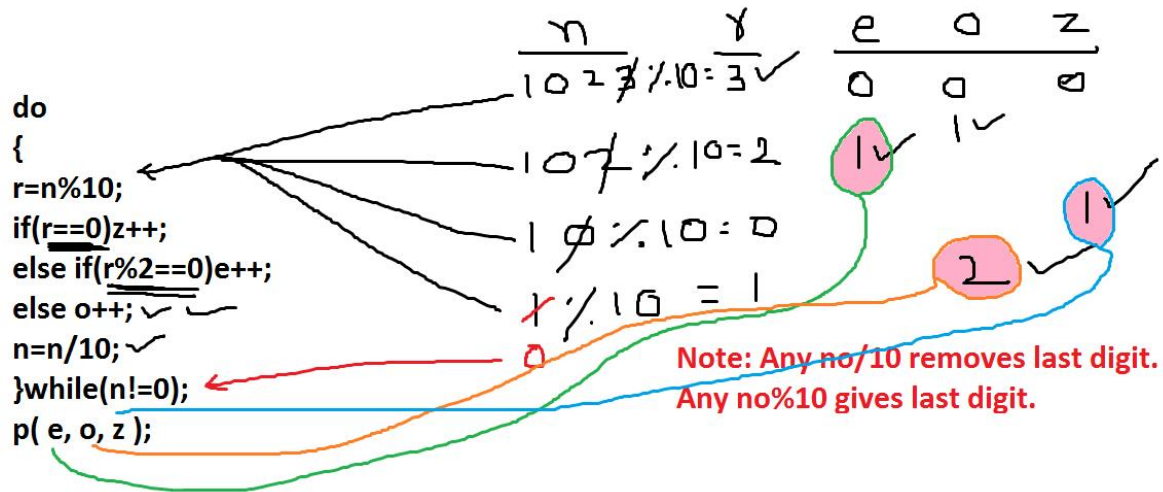
```
TC
Line 17 Col 9 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int r,e,o,z;
clrscr();
e=o=z=0;
printf("Enter n value "); scanf("%ld",&n);
do
{
r=n%10;
if(r==0)z++; else if(r%2==0)e++; else o++;
n=n/10;
}while(n!=0);
printf("%d even, %d odd, %d zero",e,o,z);
getch();
}
```

```
TC
Enter n value 10203040
2 even, 2 odd, 4 zero_
```



```
TC
Enter n value -1023
1 even, 2 odd, 1 zero_
```

```
TC
Enter n value 0
0 even, 0 odd, 1 zero_
```



Finding max, min digits in given no.

91247 → min=1, max=9

```

#include<stdio.h>
#include<conio.h>
void main()
{
long n; int r,max=-9, min=9;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
do
{
r=n%10;
if(min>r)min=r; if(max<r)max=r;
n=n/10;
}while(n!=0);
printf("Min=%d, Max=%d",min, max);
getch();
}

```

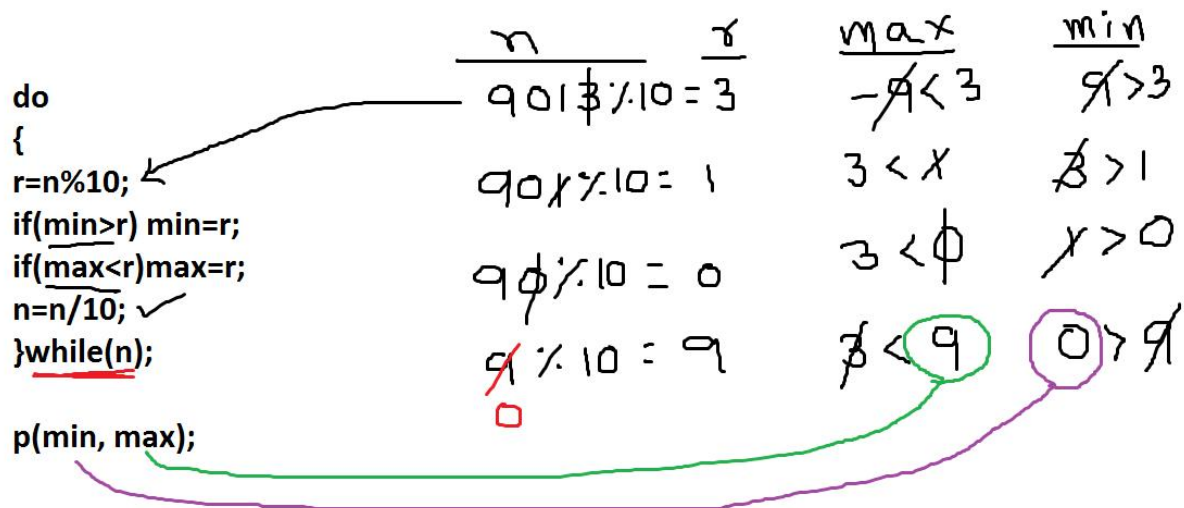
```
TC
Enter n value 102937
Min=0, Max=9_
```

```
TC
Enter n value -1234
Min=-4, Max=-1
```

```

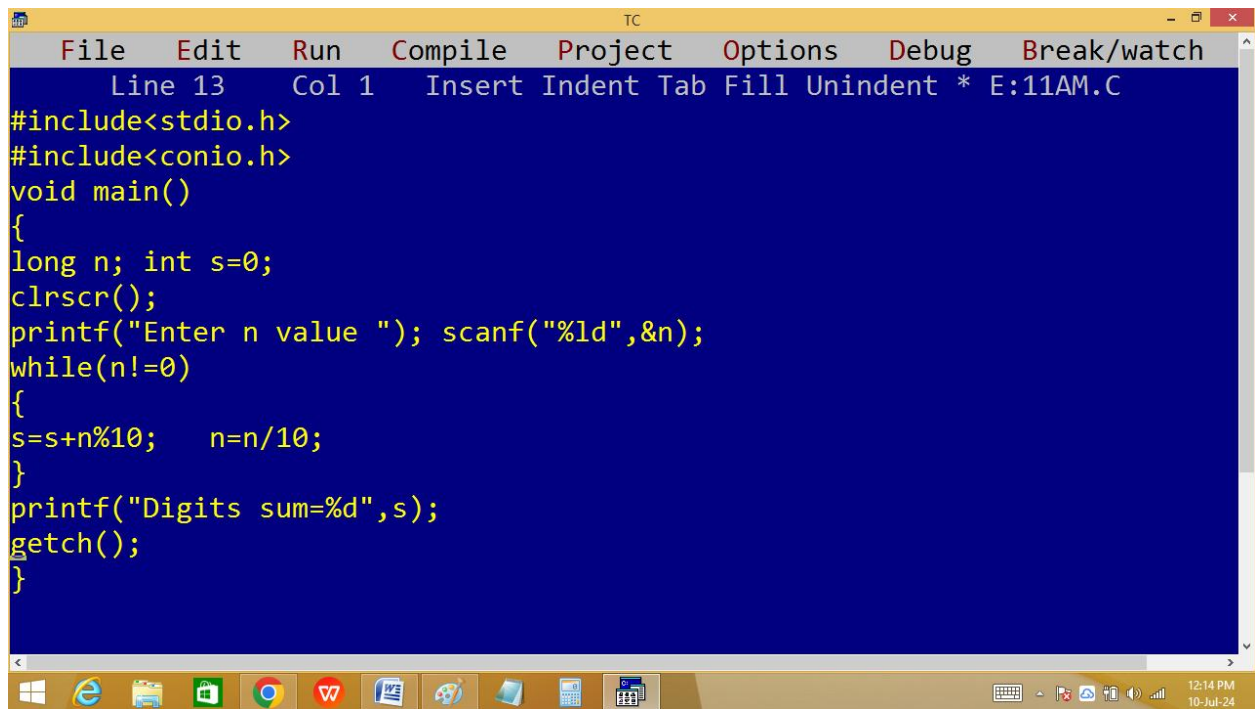
Enter n value 0
Min=0, Max=0

```



finding digits sum:

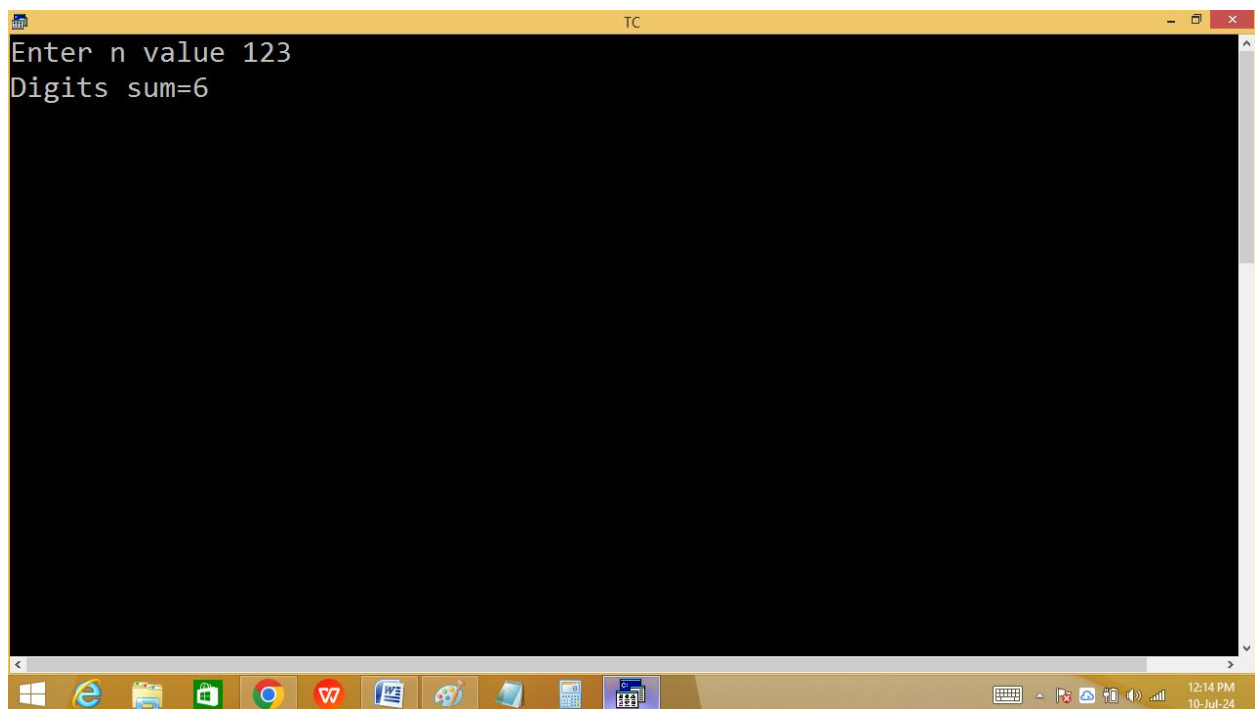
Eg: 123 → 1+2+3=6



The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 13, Col 1, Insert Indent Tab Fill Unindent * E:11AM.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    long n; int s=0;
    clrscr();
    printf("Enter n value "); scanf("%ld",&n);
    while(n!=0)
    {
        s=s+n%10;    n=n/10;
    }
    printf("Digits sum=%d",s);
    getch();
}
```

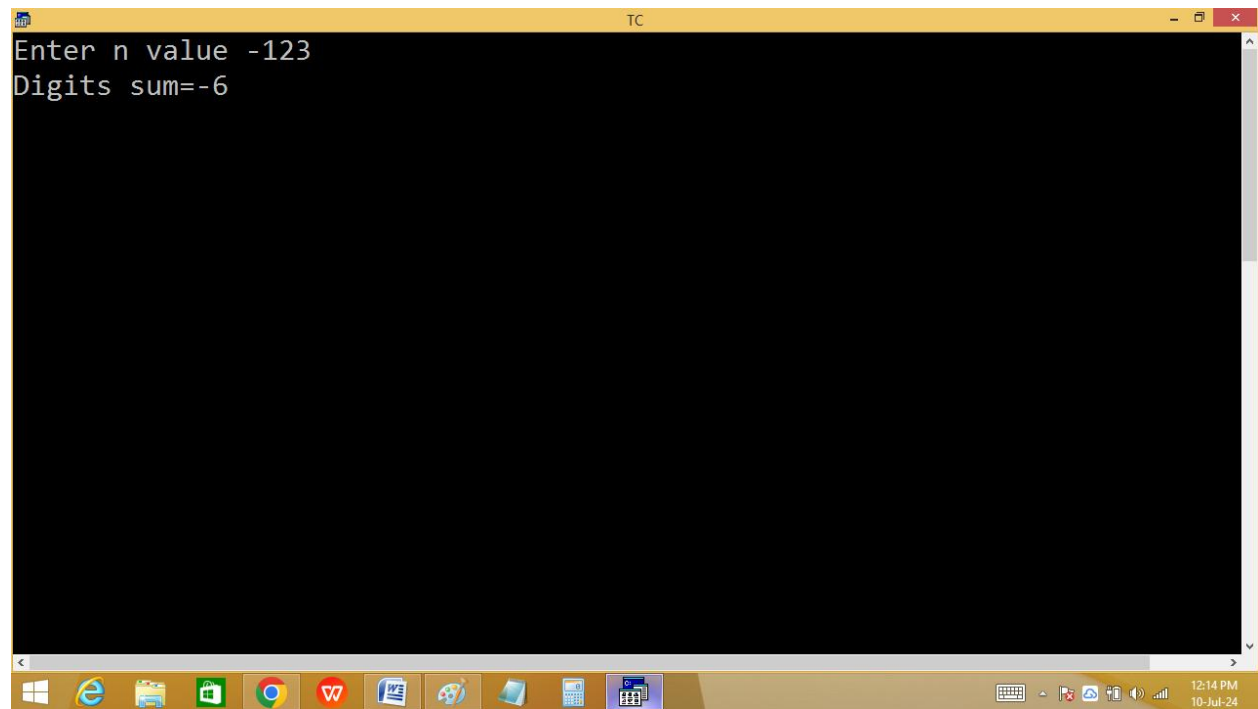
The Windows taskbar at the bottom shows the time as 12:14 PM on 10-Jul-24.



The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar. The output of the program is displayed in the console window:

```
Enter n value 123
Digits sum=6
```

The Windows taskbar at the bottom shows the time as 12:14 PM on 10-Jul-24.

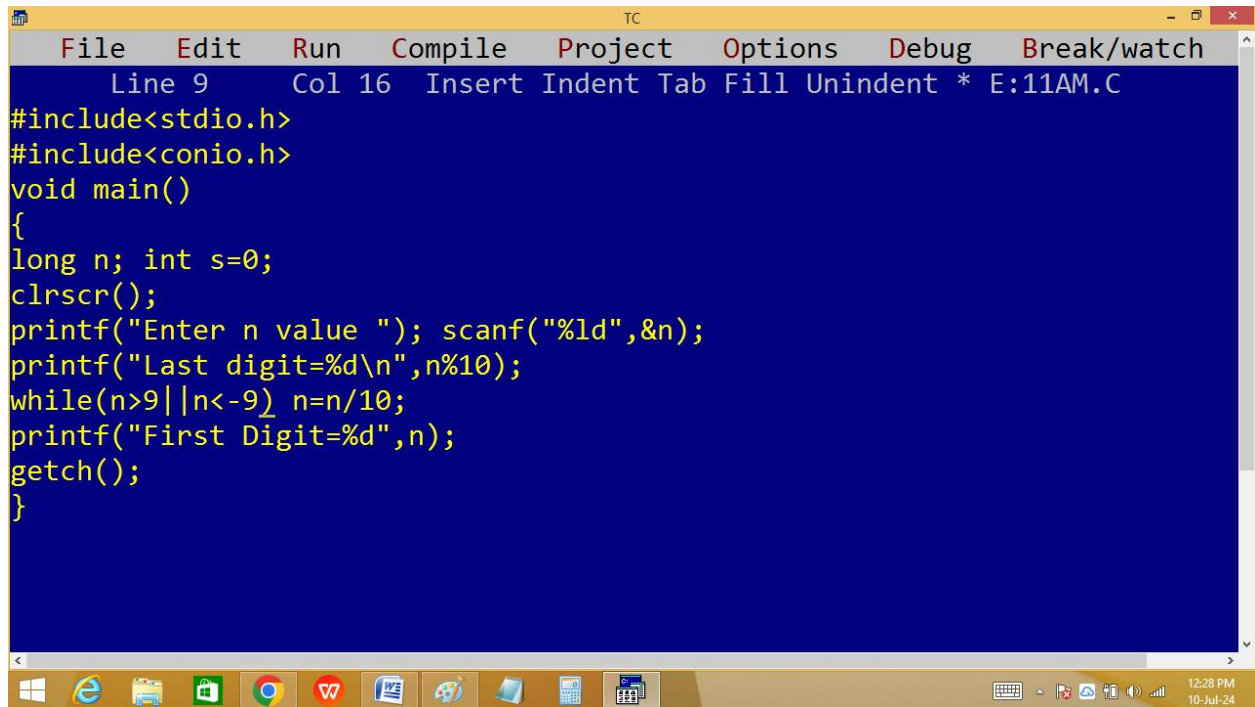


```
TC
Enter n value 0
Digits sum=0
```

$$\begin{array}{r} n \\ \hline 123 \% 10 = 3 + 0 = 3 \\ 12 \% 10 = 2 + 3 = 5 \\ 1 \% 10 = 1 + 5 = 6 \end{array}$$

Printing 1st and last digits of given no.

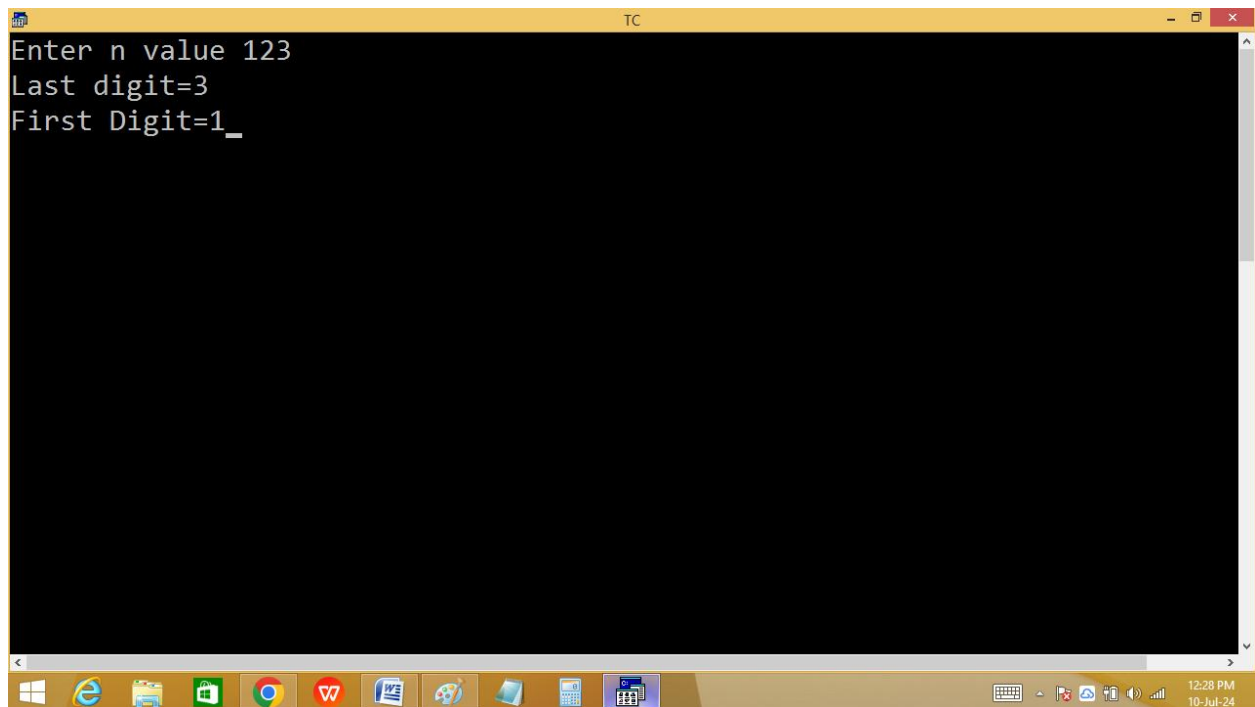
Eg: 2078 → 8 last digit, 2 first digit.



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 9 Col 16 Insert Indent Tab Fill Unindent * E:11AM.C'. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int s=0;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
printf("Last digit=%d\n",n%10);
while(n>9||n<-9) n=n/10;
printf("First Digit=%d",n);
getch();
}
```

The Windows taskbar at the bottom shows various application icons and the system clock displaying 12:28 PM on 10-Jul-24.

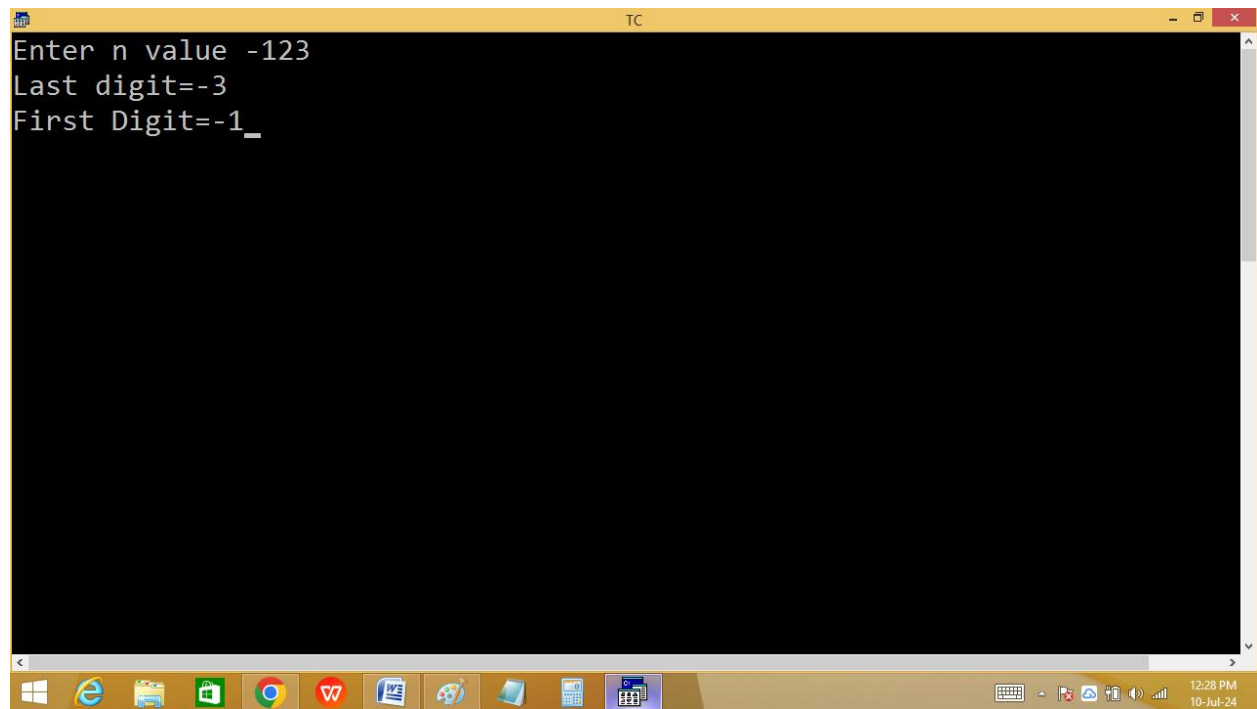


The screenshot shows the Turbo C++ (TC) IDE with a black background, displaying the output of the program. The text on the screen is:

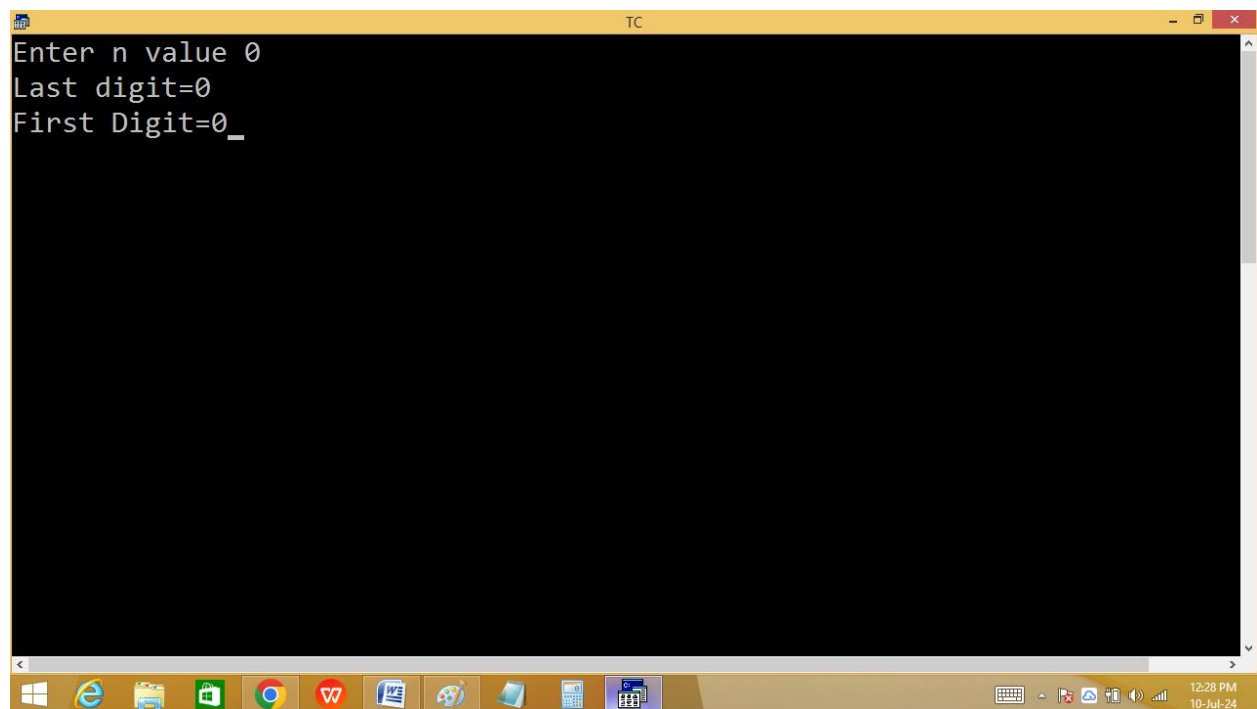
```
Enter n value 123
Last digit=3
First Digit=1_
```

The Windows taskbar at the bottom is visible, showing the same application icons and system clock as the first screenshot.


```
TC
Enter n value -123
Last digit=-3
First Digit=-1_
```



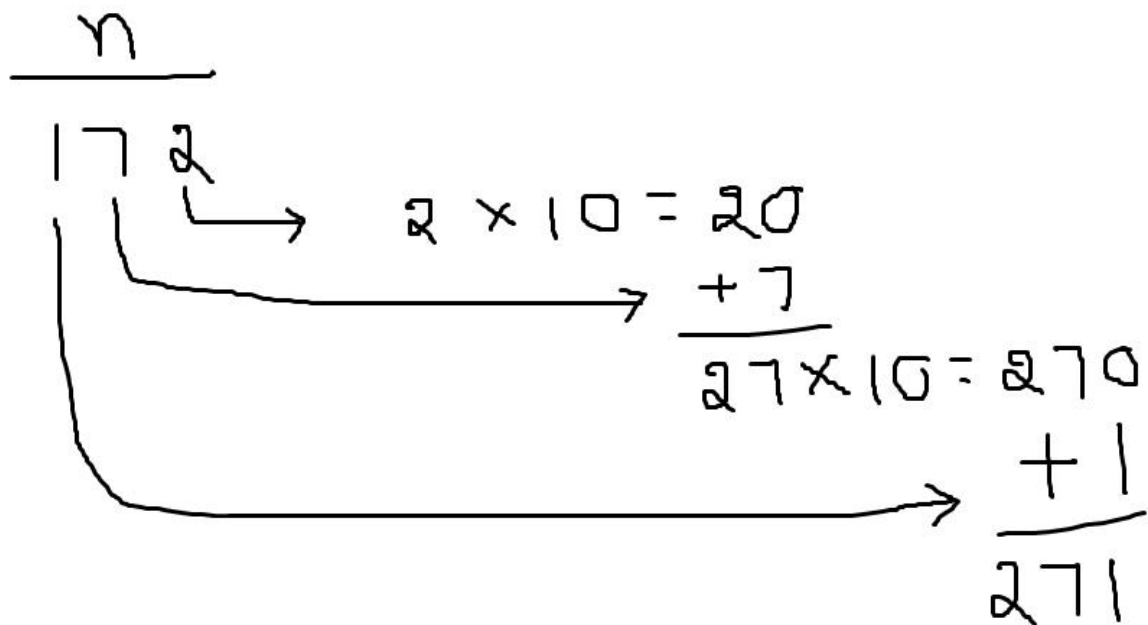
```
TC
Enter n value 0
Last digit=0
First Digit=0_
```



```
TC
Enter n value 9
Last digit=9
First Digit=9_
```

6 \leftarrow $\frac{n}{10}$
p("Last digit=%d\n", n%10);
while(n>9) n/=10;
p(n); \leftarrow ~~7316~~

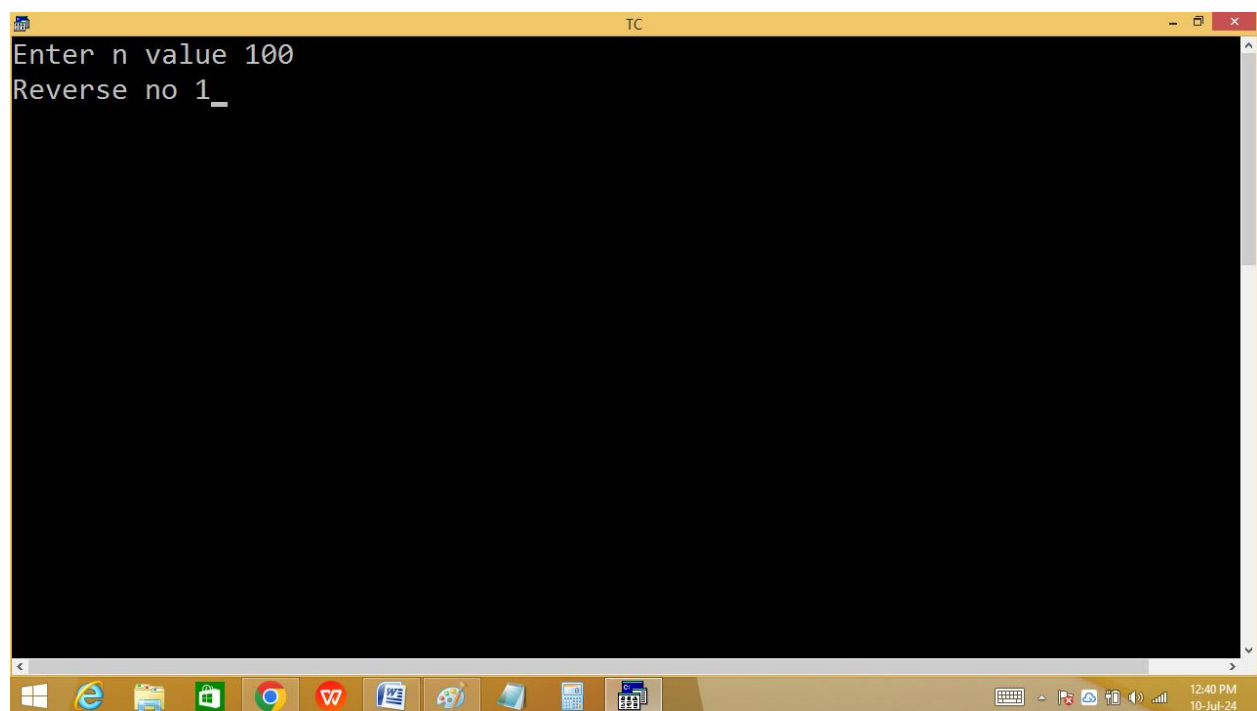
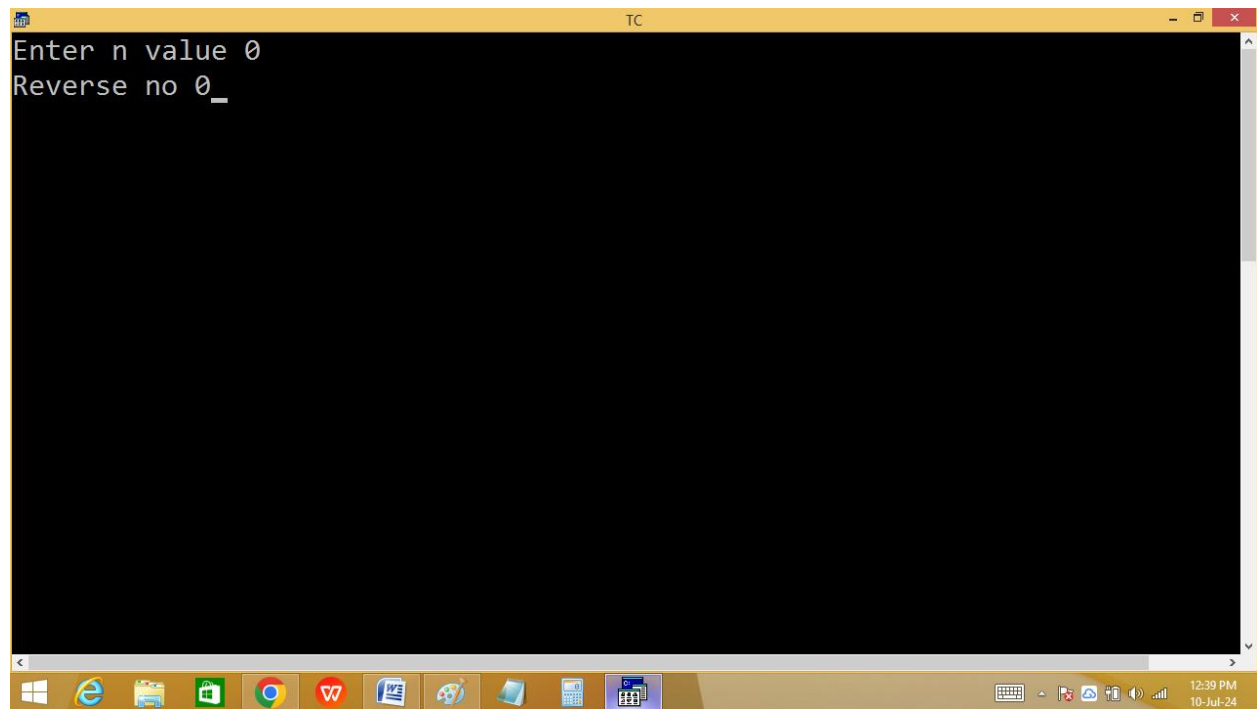
Reverse no:

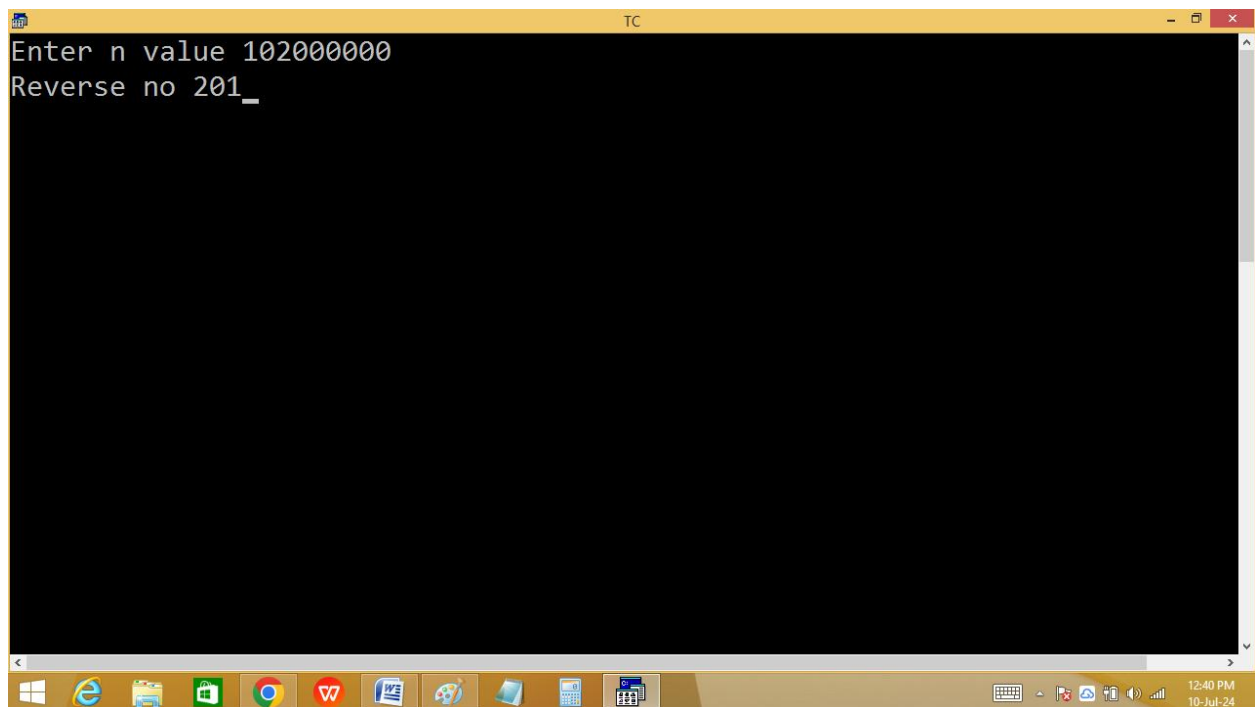


```
#include<stdio.h>
#include<conio.h>
void main()
{
long n,rev=0;int r;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
while(n)
{
r=n%10;
rev=rev*10+r;
n=n/10;
}
printf("Reverse no %ld",rev);
getch();
}
```

```
TC
Enter n value 1234567
Reverse no 7654321_
```

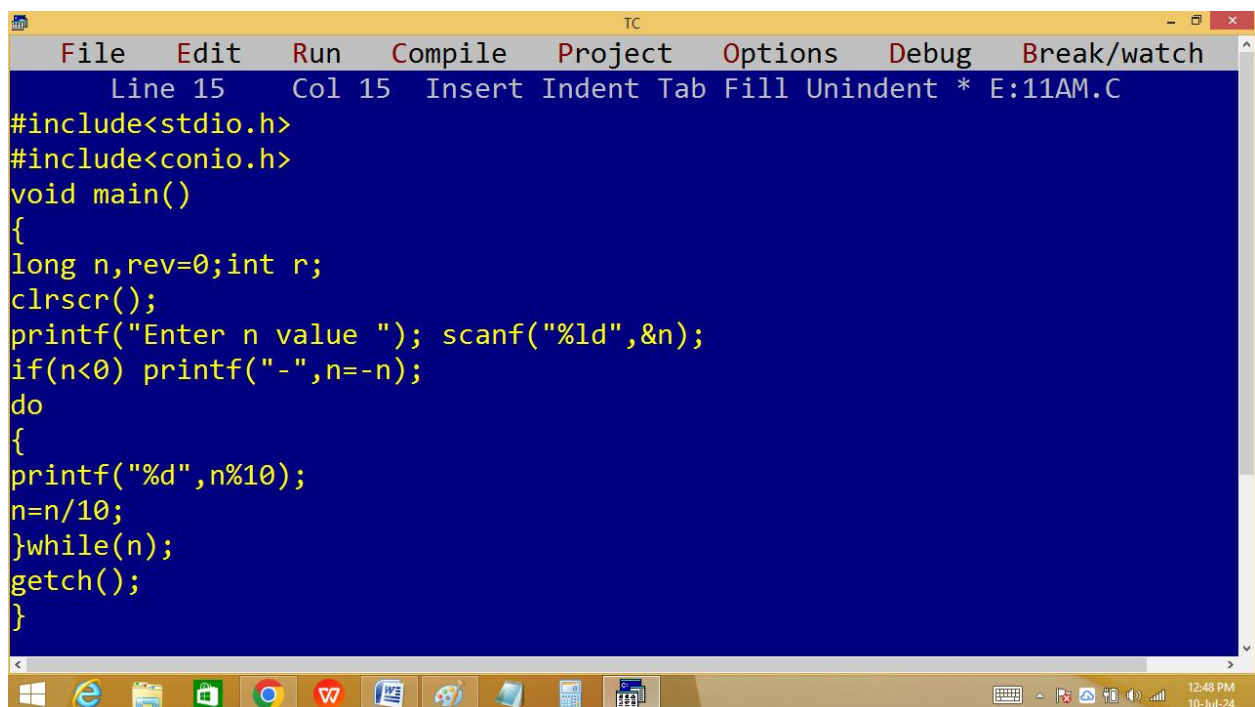
```
TC
Enter n value -1023
Reverse no -3201_
```





```
Enter n value 102000000
Reverse no 201_
```

Printing 100 as 001:



```
File Edit Run Compile Project Options Debug Break/watch
Line 15 Col 15 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n,rev=0;int r;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
if(n<0) printf("-",n=-n);
do
{
printf("%d",n%10);
n=n/10;
}while(n);
getch();
}
```

