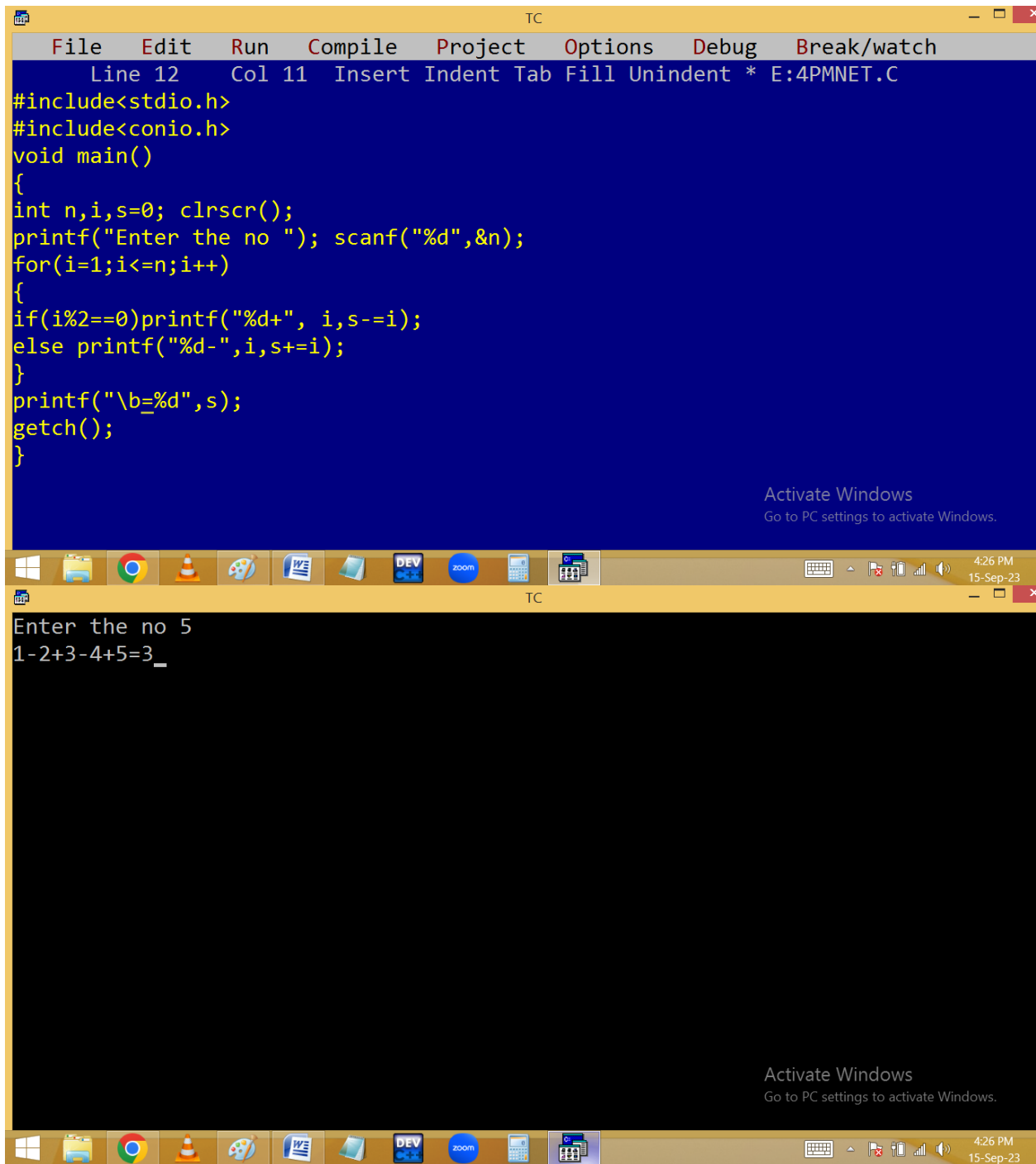


$$n=5 \rightarrow 1-2+3-4+5=3$$

$$\frac{n}{5} \left\{ \begin{array}{l} 1+3+5=9 \\ -2+-4=\frac{-6}{3} \end{array} \right.$$



The image shows two windows of the Turbo C++ (TC) IDE. The top window displays the source code of a C program, and the bottom window shows the program's execution output.

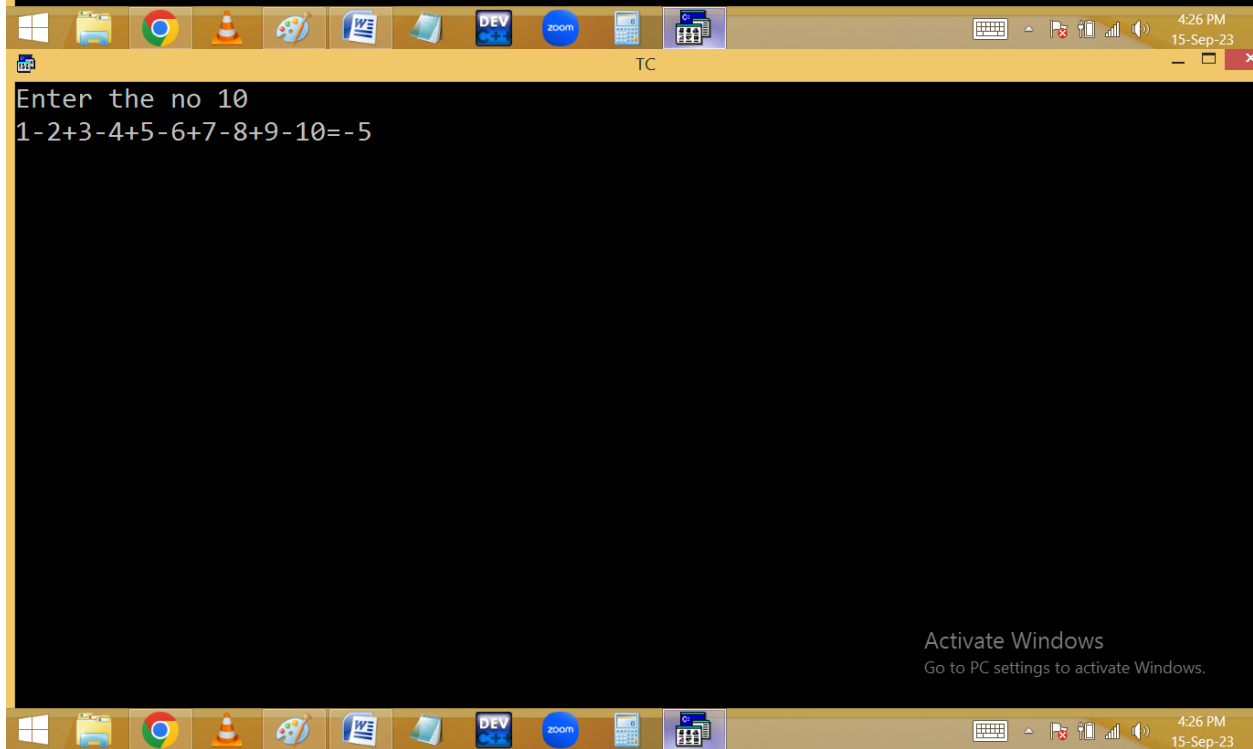
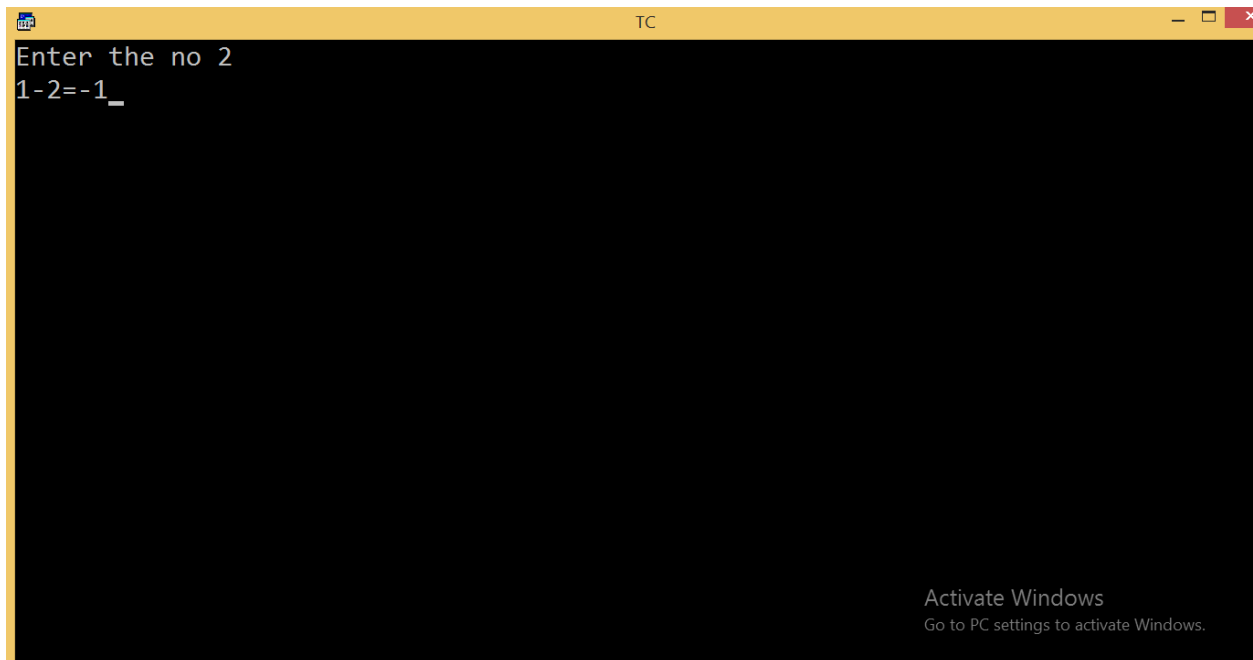
Top Window (Source Code):

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 11 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0; clrscr();
printf("Enter the no "); scanf("%d",&n);
for(i=1;i<=n;i++)
{
if(i%2==0)printf("%d+", i,s-=i);
else printf("%d-",i,s+=i);
}
printf("\b=%d",s);
getch();
}
```

Bottom Window (Execution Output):

```
TC
Enter the no 5
1-2+3-4+5=3_
```

Both windows include a taskbar at the bottom with various application icons and a system tray showing the time as 4:26 PM on 15-Sep-23. An "Activate Windows" watermark is visible in the bottom right of each window.




```

for( i=1; i<=5 ; i++ )
{
if( i%2==0) p("%d+",i,s-=i);
else p("%d-",i,s+=i);
}
p(s);

```

<u>i</u>	<u>s</u>
1	$0+1=1$
2	$1-2=-1$
3	$-1+3=2$
4	$2-4=-2$
5	$-2+5=3$



 $1-2+3-4+5=3$

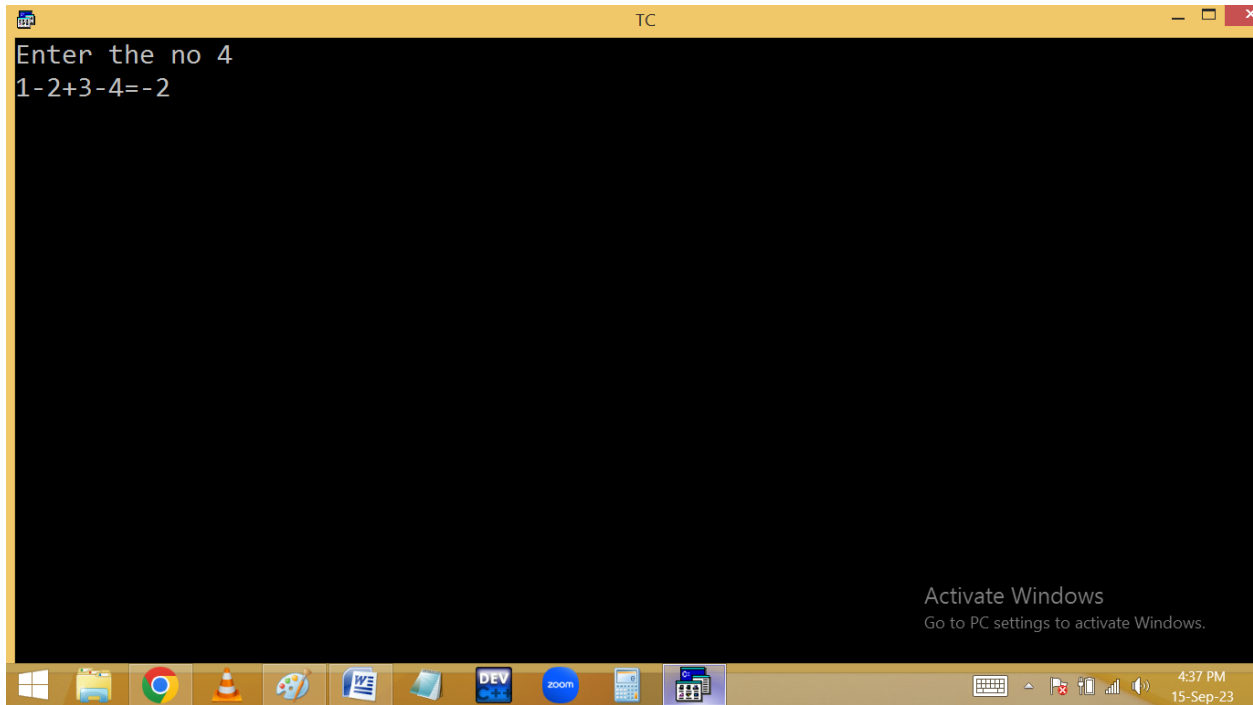
Without using '\b':

The image shows a screenshot of a Turbo C++ (TC) IDE. The top window displays the source code for a C program named E:4PMNET.C. The code is as follows:

```
Line 13 Col 6 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0; clrscr();
printf("Enter the no "); scanf("%d",&n);
for(i=1;i<n;i++)
{
if(i%2==0)printf("%d+", i,s-=i);
else printf("%d-",i,s+=i);
}
if(i%2==0)s-=i;
else s+=i;
printf("%d=%d",i,s);
getch();
}
```

The bottom window shows the program's execution. It prompts the user to "Enter the no 5" and displays the output "1-2+3-4+5=3".

Both windows include a taskbar at the bottom with various application icons and a system tray on the right showing the time as 4:36 PM on 15-Sep-23. A watermark "Activate Windows" is visible in the bottom right corner of both windows.



```

for( i=1; i< 5 ; i++ )
{
    if( i%2==0) p("%d+",i,s-=i);
    else p("%d-",i,s+=i);
}

i%2==0?s-=i: s+=i;

p("%d=%d",i,s);

```

$\begin{array}{r} 1 \\ 2 \\ 3 \\ 4 \\ \checkmark 5 \end{array}$

$\begin{array}{r} 5 \\ 0+1=1 \\ 1-2=-1 \\ -1+3=2 \\ 2-4=-2 \\ -2+5=3 \\ 1-2+3-4+5=3 \end{array}$

Printing below output.

$$N=5 \rightarrow 1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 55$$

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 29 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0; clrscr();
printf("Enter the no "); scanf("%d",&n);
for(i=1;i<n;i++)
{
printf("%d%c+", i,253,s+=i*i);
}
printf("%d%c=%d",i,253,s+i*i);
getch();
}
```

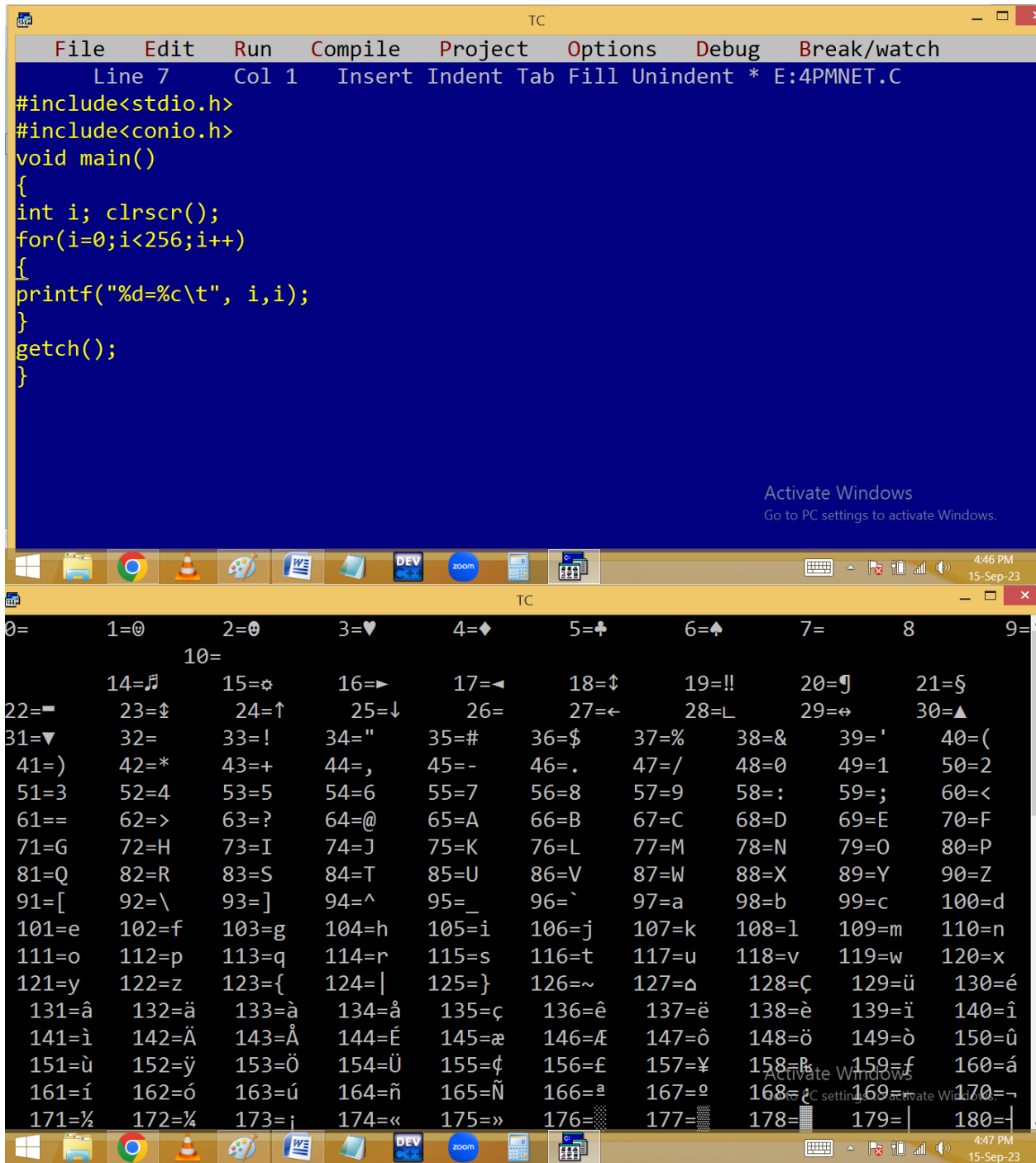
Activate Windows
Go to PC settings to activate Windows.

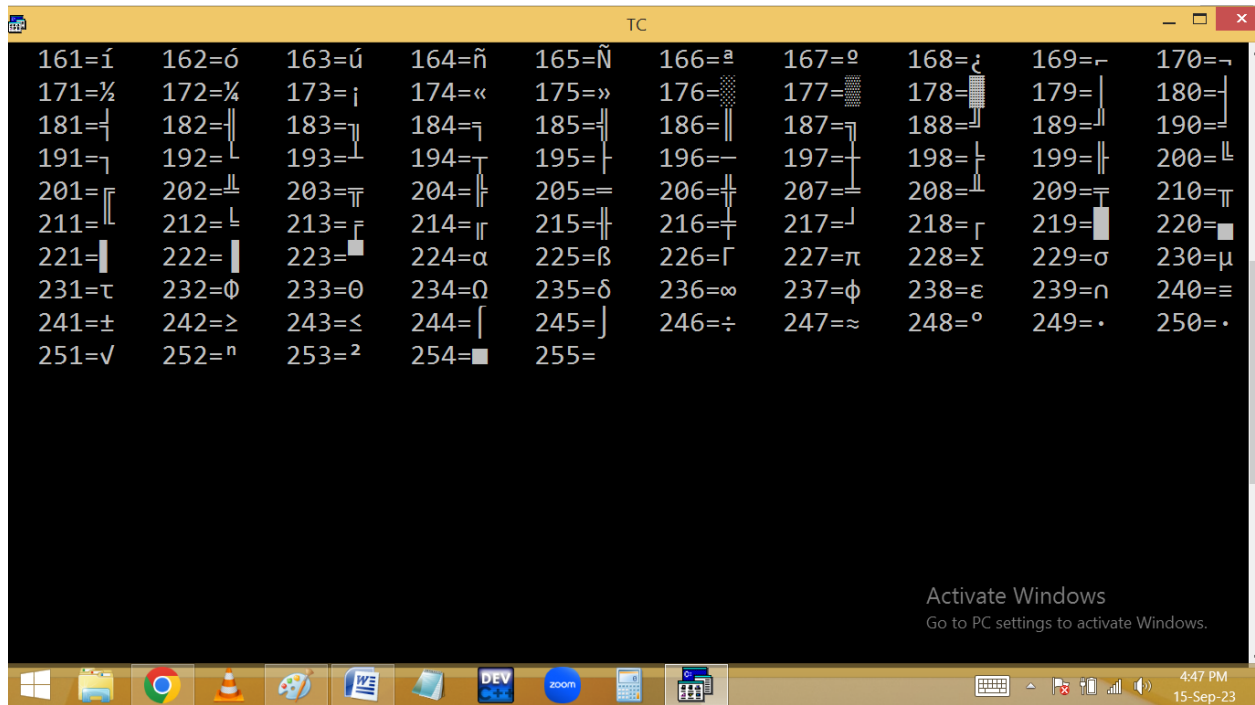
TC

Enter the no 5
1²+2²+3²+4²+5²=55_

Activate Windows
Go to PC settings to activate Windows.

ASCII Table:





Finding 1..n digits sum:

5 → 1+2+3+4+5=15

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares variables `i`, `n`, and `s` (all initialized to 0). It calls `clrscr()` to clear the screen, then prompts the user to enter a value for `n` using `scanf`. A `for` loop iterates from `i=1` to `i=n`, printing each value of `i` followed by a plus sign, and updating `s` by adding `i` to it. After the loop, it prints the final sum `s` and waits for a key press using `getch()`.

The bottom window shows the program's execution. It displays the prompt "Enter n value 5", followed by the output "1+2+3+4+5=15_" where the underscore indicates the cursor position. The taskbar at the bottom shows various application icons and the system clock indicating 4:49 PM on 15-Sep-23.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 19 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
int i,n,s=0; clrscr();
printf("Enter n value "); scanf("%d",&n);
for(i=1;i<=n;i++)printf("%d+", i,s+=i);
printf("\b=%d",s);
getch();
}

TC
Enter n value 5
1+2+3+4+5=15_

Activate Windows
Go to PC settings to activate Windows.
4:49 PM
15-Sep-23
```

Finding digits sum:

123 ➔ 1+2+3=6

The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code of a C program designed to calculate the sum of the digits of a given number. The code is as follows:

```
Line 8      Col 28  Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
    long n; int r,s=0; clrscr();
    printf("Enter n value "); scanf("%ld",&n);
    for( ; n!=0 ; n/=10) s+=n%10;
    printf("Digits sum=%d", s);
    getch();
}
```

The bottom screenshot shows the program's execution. It prompts the user to "Enter n value" and the user has entered "123". The program then outputs "Digits sum=6".

Both screenshots show the standard Windows taskbar at the bottom with various application icons and a system tray displaying the time as 4:53 PM on 15-Sep-23. An "Activate Windows" watermark is visible in the bottom right corner of both IDE windows.

for(; n!=0 ; n/=10) s+=n%10;

p(s);

$$\begin{array}{r} n \\ 123 \\ \hline \end{array} \div 10 = 3 \quad \begin{array}{r} s \\ 3 \\ \hline \end{array} + 0 = 3$$

$$12 \div 10 = 2 + 3 = 5$$

$$1 \div 10 = 1 + 5 = 6$$

□

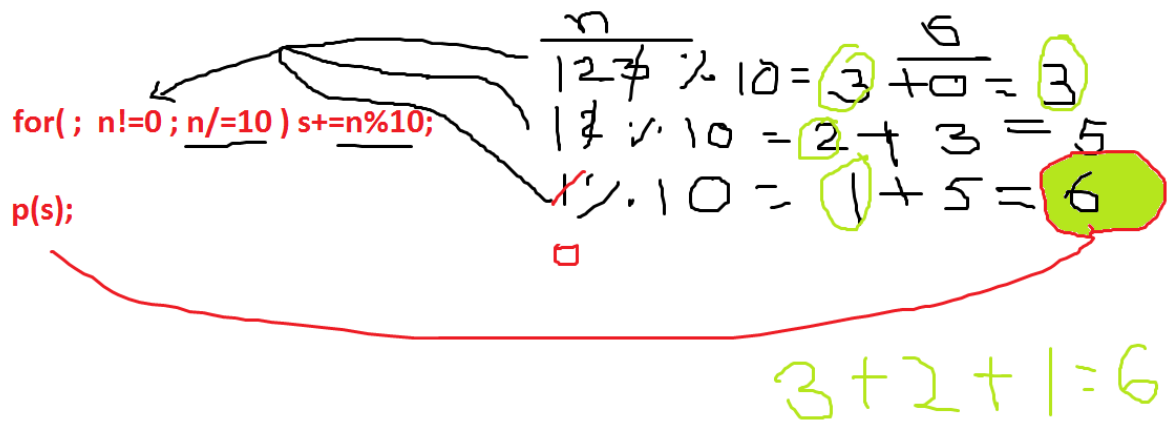
The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code for a C program that reverses a number. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 14 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n,rev; int s=0; clrscr();
printf("Enter n value "); scanf("%ld",&n);
for(rev=0; n!=0; n/=10) rev=rev*10+(n%10);
for( ; rev!=0 ; rev/=10) printf("%d+",rev%10, s+=rev%10);
printf("\b=%d_", s);
getch();
}
```

The bottom screenshot shows the program's execution. It prompts the user to enter a value, and the user has entered 123. The program has calculated the reverse of 123, which is 321, and displayed it as follows:

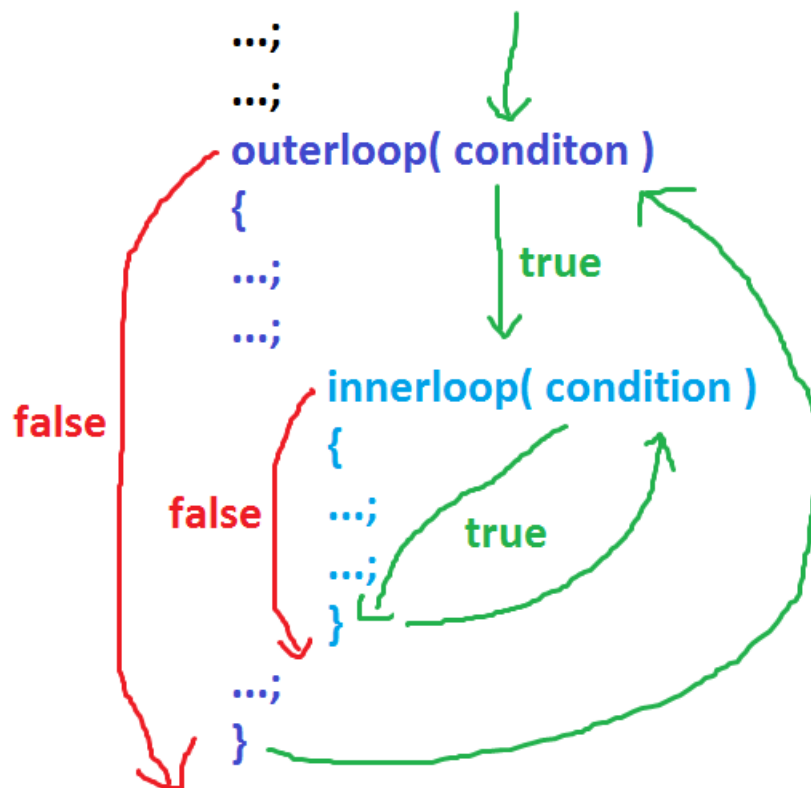
```
Enter n value 123
1+2+3=6_
```

Both screenshots show the Windows taskbar at the bottom with the time 4:57 PM and date 15-Sep-23. An "Activate Windows" watermark is visible in the bottom right corner of both IDE windows.

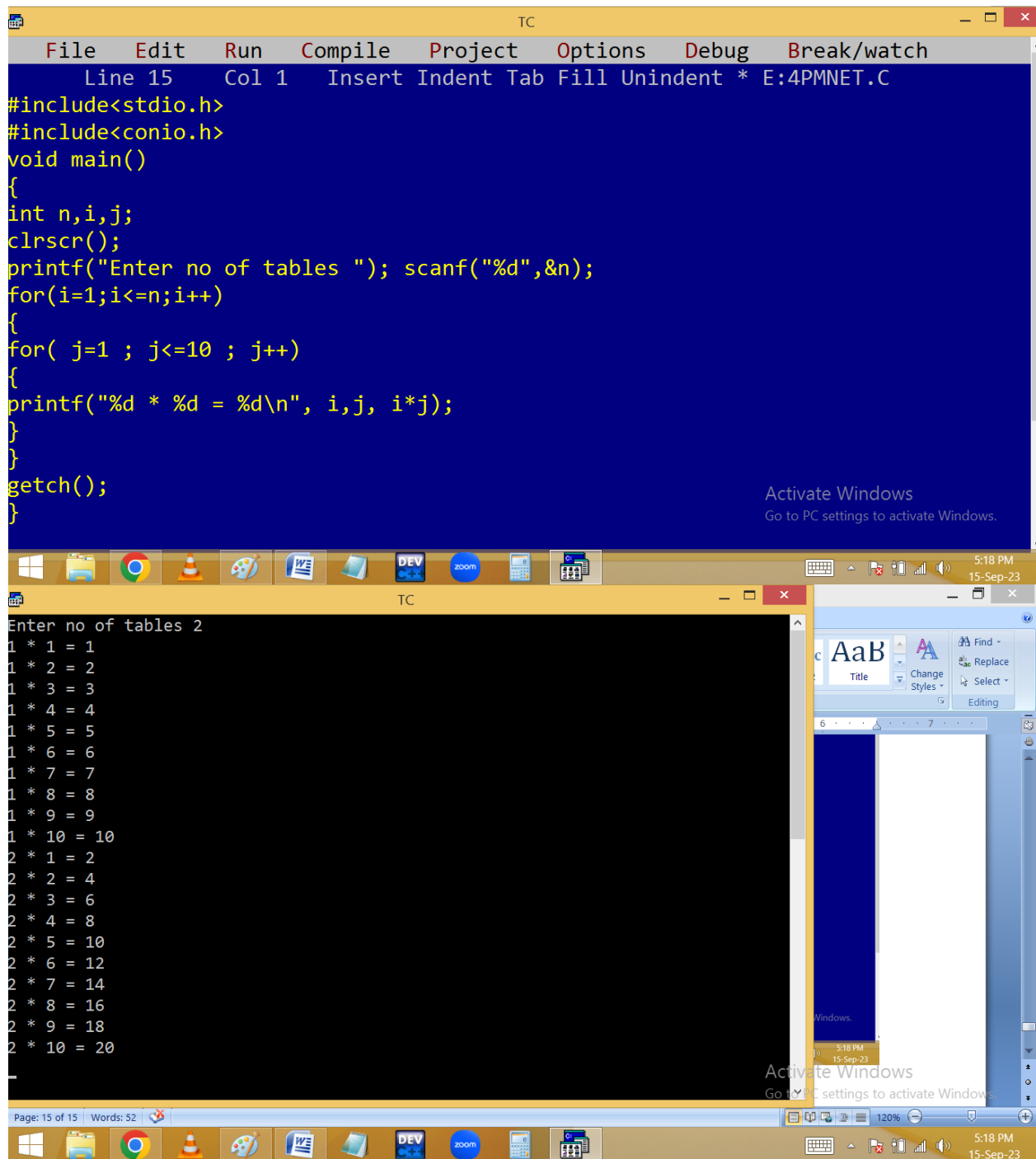


Nested loops:

A loop within another loop is called nested loop.



Printing 1..n tables:



The screenshot displays the Turbo C++ (TC) IDE. The top window shows the source code for a program that prints multiplication tables. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. It prompts the user to enter the number of tables (`n`), then uses nested loops to print tables from 1 to `n`, with each row containing 10 multiplication problems.

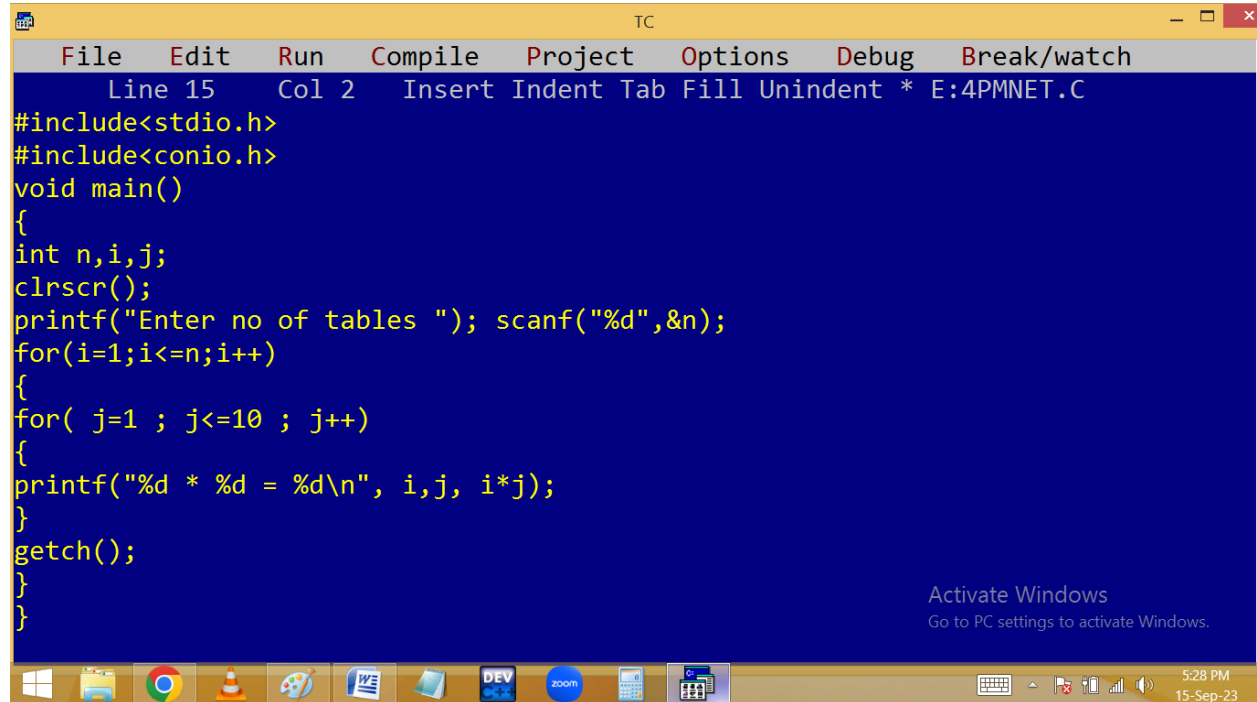
```
File Edit Run Compile Project Options Debug Break/watch
Line 15 Col 1 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
    int n,i,j;
    clrscr();
    printf("Enter no of tables "); scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for( j=1 ; j<=10 ; j++)
        {
            printf("%d * %d = %d\n", i,j, i*j);
        }
    }
    getch();
}
```

The bottom window shows the program's execution. It prompts "Enter no of tables 2" and displays the output for the first two tables. The first table (i=1) shows 10 multiplication problems (1*1 to 1*10). The second table (i=2) shows 10 multiplication problems (2*1 to 2*10).

```
Enter no of tables 2
1 * 1 = 1
1 * 2 = 2
1 * 3 = 3
1 * 4 = 4
1 * 5 = 5
1 * 6 = 6
1 * 7 = 7
1 * 8 = 8
1 * 9 = 9
1 * 10 = 10
2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20
```

The Windows taskbar at the bottom shows the time as 5:18 PM on 15-Sep-23. A watermark "Activate Windows" is visible in the bottom right corner of the IDE windows.

Table by table:



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 15 Col 2 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,j;
clrscr();
printf("Enter no of tables "); scanf("%d",&n);
for(i=1;i<=n;i++)
{
for( j=1 ; j<=10 ; j++)
{
printf("%d * %d = %d\n", i,j, i*j);
}
}
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

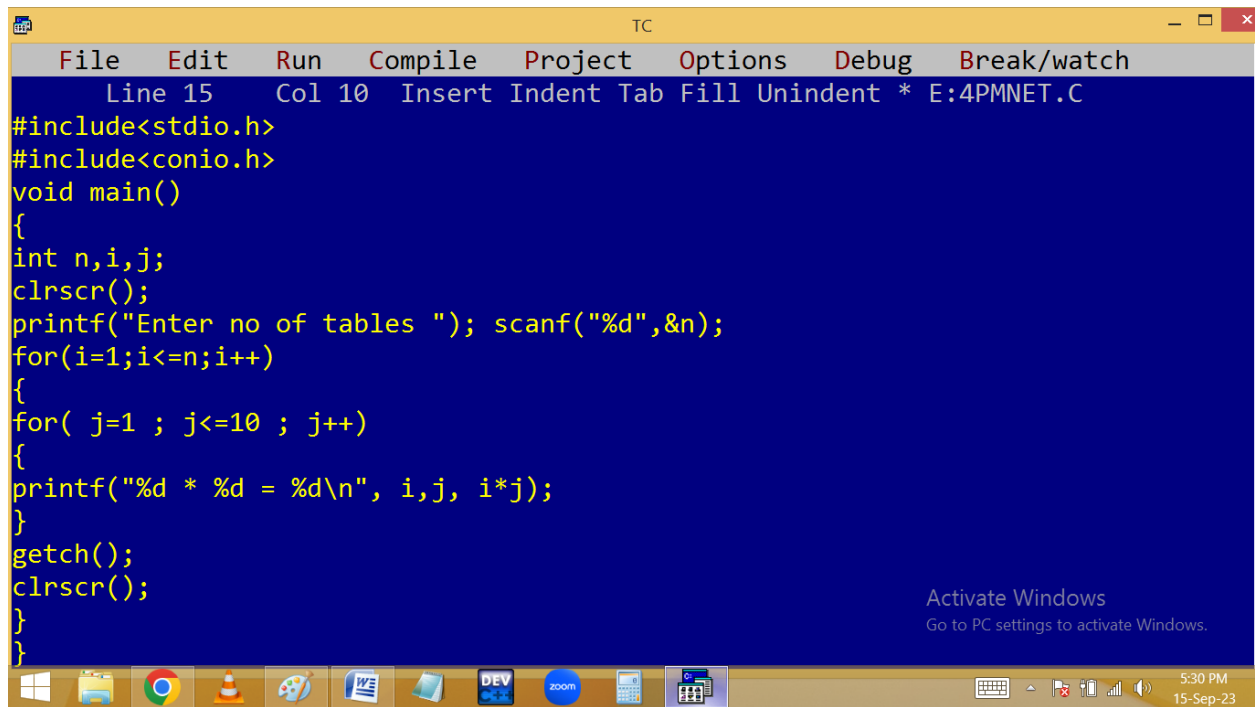
5:28 PM
15-Sep-23


```
TC
Enter no of tables 5
1 * 1 = 1
1 * 2 = 2
1 * 3 = 3
1 * 4 = 4
1 * 5 = 5
1 * 6 = 6
1 * 7 = 7
1 * 8 = 8
1 * 9 = 9
1 * 10 = 10

Activate Windows
Go to PC settings to activate Windows.
```

```
TC
1 * 3 = 3
1 * 4 = 4
1 * 5 = 5
1 * 6 = 6
1 * 7 = 7
1 * 8 = 8
1 * 9 = 9
1 * 10 = 10
2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20

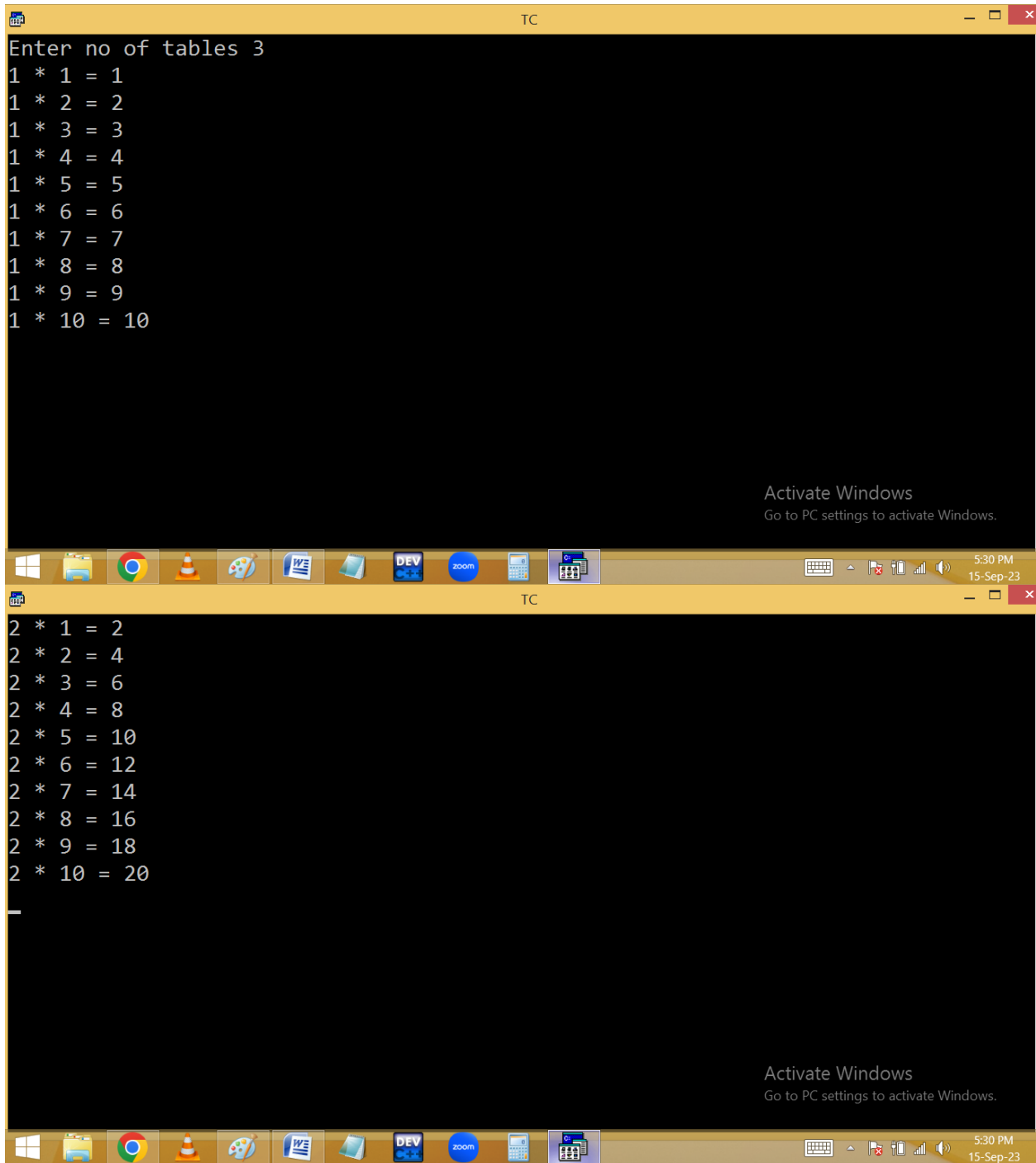
Activate Windows
Go to PC settings to activate Windows.
```

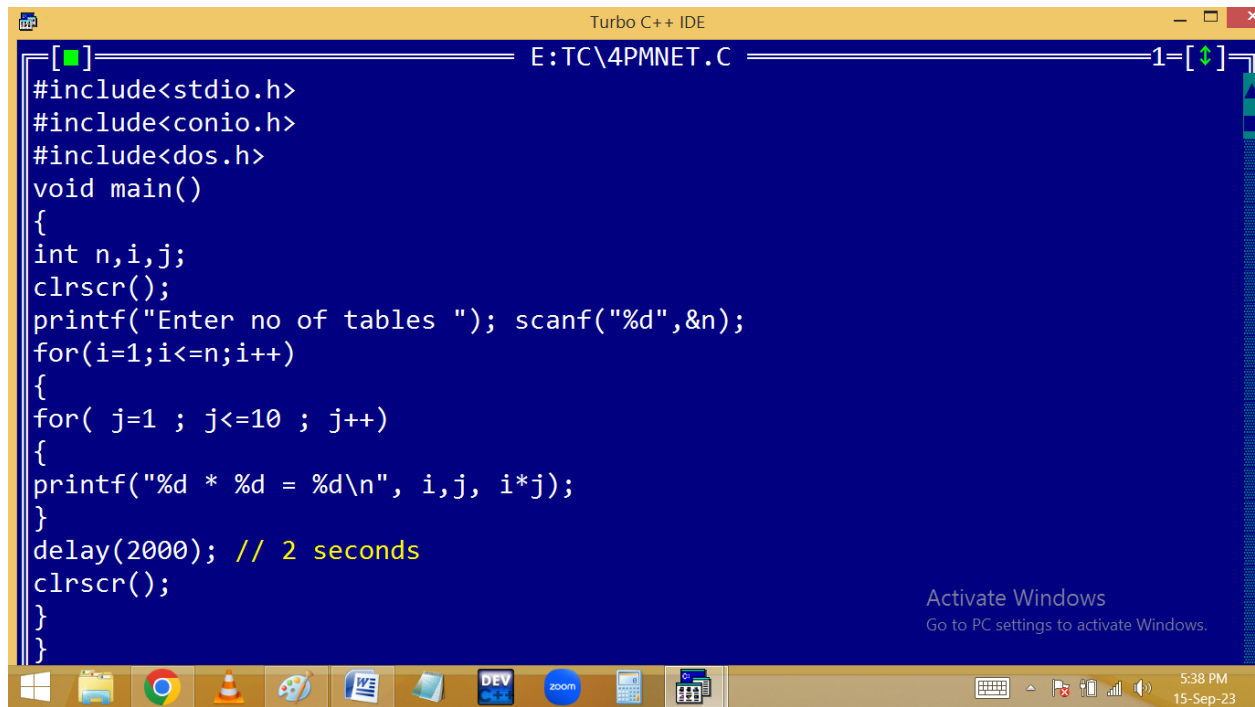


The image shows a screenshot of a Turbo C++ (TC) IDE window. The window has a yellow title bar with the text "TC" and standard window controls. Below the title bar is a menu bar with the following options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The main editing area has a dark blue background with yellow text. The code is as follows:

```
Line 15 Col 10 Insert Indent Tab Fill Unindent * E:4PMNET.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,j;
clrscr();
printf("Enter no of tables "); scanf("%d",&n);
for(i=1;i<=n;i++)
{
for( j=1 ; j<=10 ; j++)
{
printf("%d * %d = %d\n", i,j, i*j);
}
}
getch();
clrscr();
}
}
```

In the bottom right corner of the editing area, there is a message: "Activate Windows Go to PC settings to activate Windows." The Windows taskbar is visible at the bottom, showing icons for the Start menu, File Explorer, Google Chrome, VLC media player, Paint, Word, a folder, DEV, Zoom, a calculator, and a task manager icon. The system tray on the right shows the date and time: "5:30 PM 15-Sep-23".





The image shows a screenshot of the Turbo C++ IDE. The title bar at the top reads "Turbo C++ IDE". The menu bar includes "File", "Edit", "Compiler", "Run", "Debug", "Format", "Help", and "Window". The file name is "E:TC\4PMNET.C". The code in the editor is as follows:

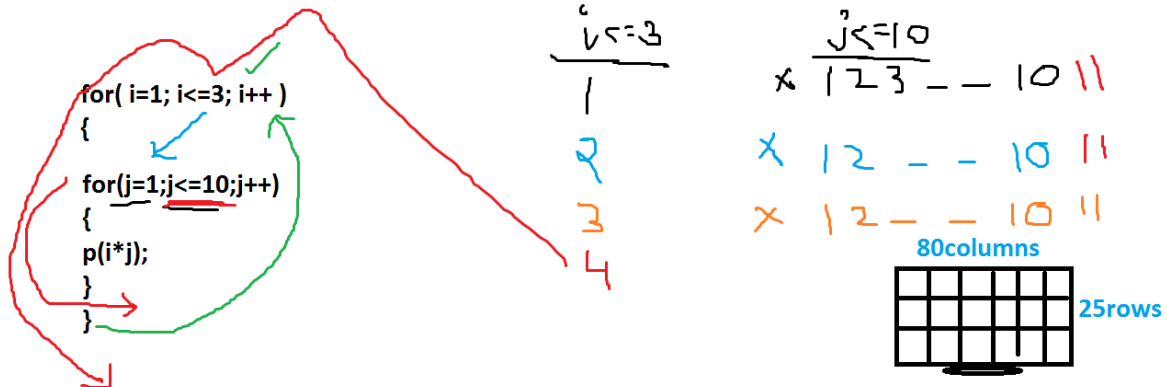
```
[■] E:TC\4PMNET.C 1=[↕]  
#include<stdio.h>  
#include<conio.h>  
#include<dos.h>  
void main()  
{  
int n,i,j;  
clrscr();  
printf("Enter no of tables "); scanf("%d",&n);  
for(i=1;i<=n;i++)  
{  
for( j=1 ; j<=10 ; j++)  
{  
printf("%d * %d = %d\n", i,j, i*j);  
}  
delay(2000); // 2 seconds  
clrscr();  
}  
}
```

An "Activate Windows" watermark is visible in the bottom right corner of the IDE window, with the text "Go to PC settings to activate Windows." Below the code editor is the Windows taskbar, which includes icons for File Explorer, Google Chrome, VLC media player, Paint, Word, a folder, DEV, Zoom, and a calculator. The system tray on the right shows the date and time as "5:38 PM 15-Sep-23".

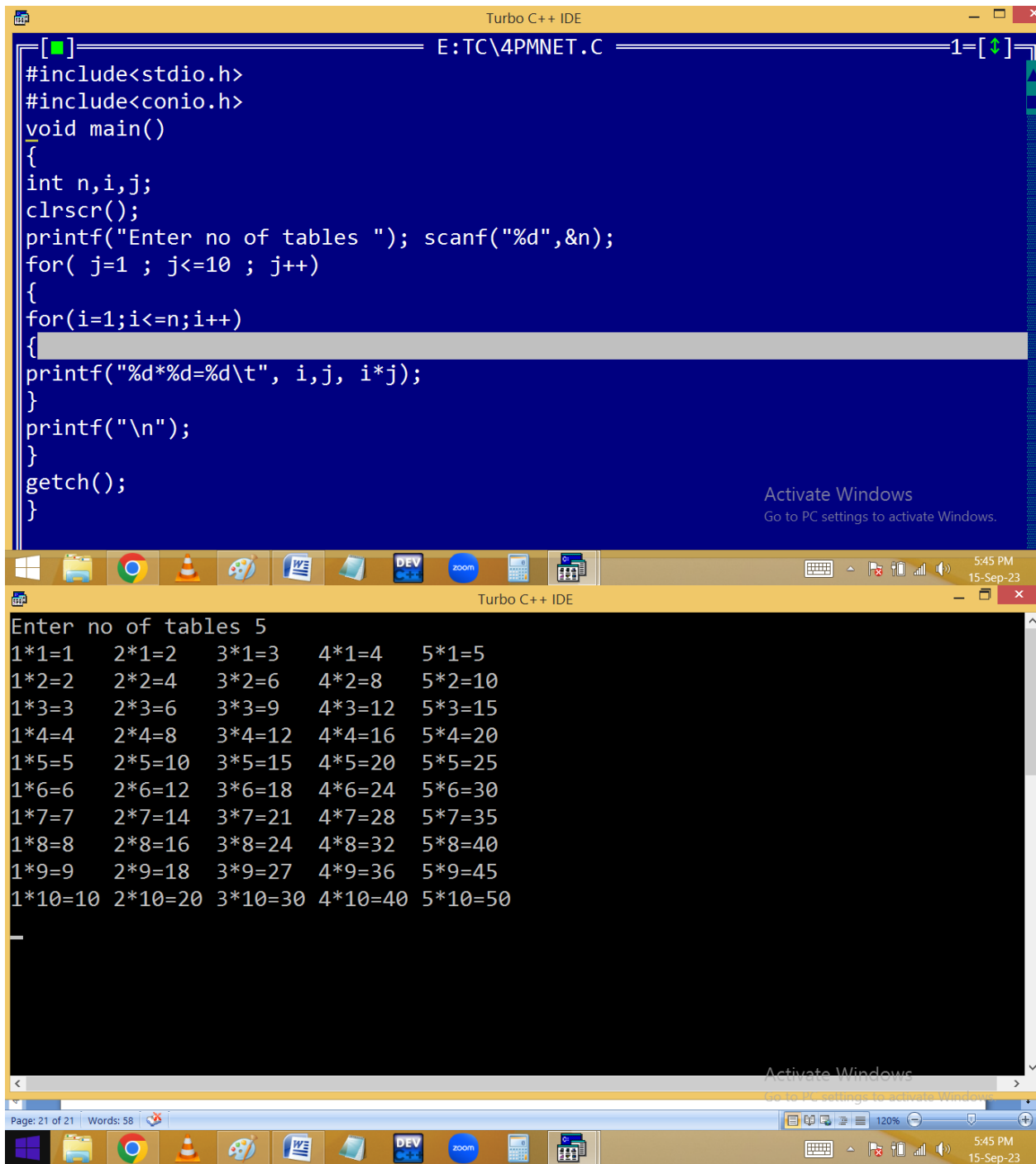
```
Turbo C++ IDE
File Edit Search Run Compile Debug Project Options Window Help
E:TC\4PMNET.C 1=[ ]
#include<stdio.h>
#include<conio.h>
#include<dos.h>
void main()
{
int n,i,j;
clrscr();
printf("Enter no of tables "); scanf("%d",&n);
for(i=1;i<=n;i++)
{
for( j=1 ; j<=10 ; j++)
{
printf("%d * %d = %d\n", i,j, i*j);
delay(100); // 100 milli seconds
}
}
}
```

Activate Windows
Go to PC settings to activate Windows.

5:41 PM
15-Sep-23



Side by side:



```
#include<stdio.h>
#include<conio.h>
void main()
{
    int n,i,j;
    clrscr();
    printf("Enter no of tables "); scanf("%d",&n);
    for( j=1 ; j<=10 ; j++)
    {
        for(i=1;i<=n;i++)
        {
            printf("%d*%d=%d\t", i,j, i*j);
        }
        printf("\n");
    }
    getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

Enter no of tables 5
1*1=1 2*1=2 3*1=3 4*1=4 5*1=5
1*2=2 2*2=4 3*2=6 4*2=8 5*2=10
1*3=3 2*3=6 3*3=9 4*3=12 5*3=15
1*4=4 2*4=8 3*4=12 4*4=16 5*4=20
1*5=5 2*5=10 3*5=15 4*5=20 5*5=25
1*6=6 2*6=12 3*6=18 4*6=24 5*6=30
1*7=7 2*7=14 3*7=21 4*7=28 5*7=35
1*8=8 2*8=16 3*8=24 4*8=32 5*8=40
1*9=9 2*9=18 3*9=27 4*9=36 5*9=45
1*10=10 2*10=20 3*10=30 4*10=40 5*10=50

Activate Windows
Go to PC settings to activate Windows.

Page: 21 of 21 Words: 58 120% 5:45 PM 15-Sep-23

```

for( j=1; j<=10; j++) ✓
{
  for( i=1; i<=3; i++)
  {
    p(i*j\t");
  }
  p("\n");
}

```

$$\begin{array}{r} 5 \\ 1 \overline{) 23} \\ \underline{1} \\ 13 \end{array} \quad \begin{array}{r} 5 \\ 1 \overline{) 1} \\ \underline{1} \\ 0 \end{array}$$

$$1*1=1 \text{----} 2*1=2 \text{----} 3*1=3$$

$$1*2=2 \text{----} 2*2=4 \text{----} 3*2=6$$

$$1*10=10$$