

Removing duplicate elements from array:

```
TC
#include<stdio.h>#include<conio.h>
void main()
{
int a[100],n,i,j,k;
clrscr();
printf("Enter array size 1-100 "); scanf("%d",&n);
printf("Enter %d elements ",n);for(i=0;i<n;i++)scanf("%d",&a[i]);
for(i=0;i<n;i++)
{
for(j=i+1;j<n;j++)
{
if(a[i]==a[j])
{
for(n--,k=j;k<n;k++)a[k]=a[k+1];j--;
}
}
}
printf("Elements ");for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
```

Enter array size 1-100 9
Enter 9 elements 1 2 3 3 2 1 2 1 3
Elements 1 2 3

TC

```

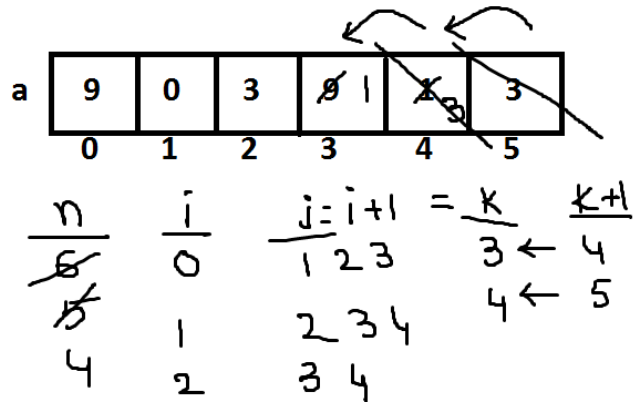
Enter array size 1-100 5
Enter 5 elements 1 1 1 1 1
Elements      1

```

```

for(i=0;i<n;i++)
{
for(j=i+1;j<n;j++)
{
if(a[i]==a[j])
{
for(n--,k=j;k<n;k++)a[k]=a[k+1];
j--;
}
}
}

```



Two dimensional arrays:

Array with several rows and columns is called two dimensional array.

Array with two subscripting operators [] [].

It is a **constant pointer**.

It is an **implicit double pointer**.

It is array of array. i.e. collection of one dimensional array.

It is an $m \times n$ matrix.

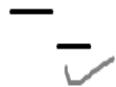
Syntax:

Datatype variable [rows][cols]={elements};

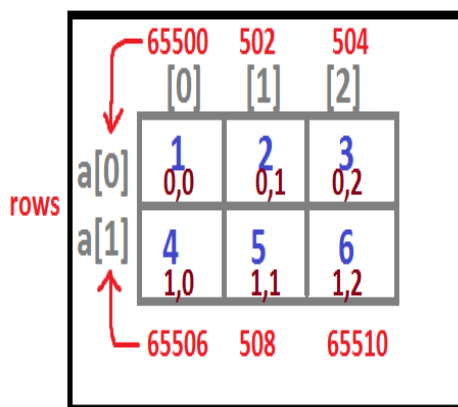
Eg:

```
int a[2][3]={{1,2,3},{4,5,6}}};
```

```
int a[2][3]={{1,2,3},{4,5,6}}};
```



ram stack



columns

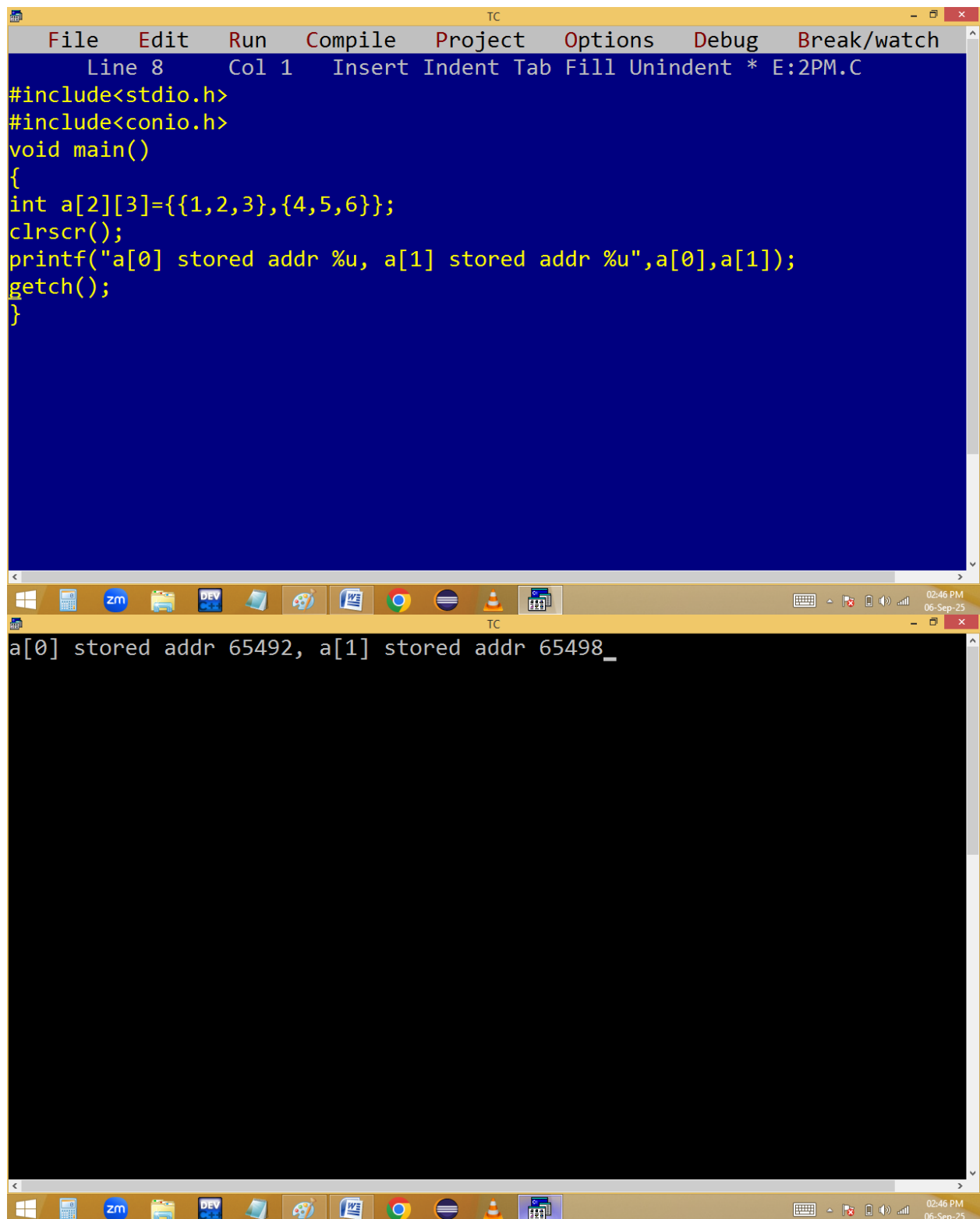
$p(a[0][0]) ==> 1$

$65500 + 0 * 2 == 65500 ==> \text{value at } 65500 \text{ is } 1$

$p(a[1][2]) ==> 6$

$65506 + 2 * 2 = 65510 ==> \text{value at } 65510 ==> 6$

Finding address of a 2×3 matrix:



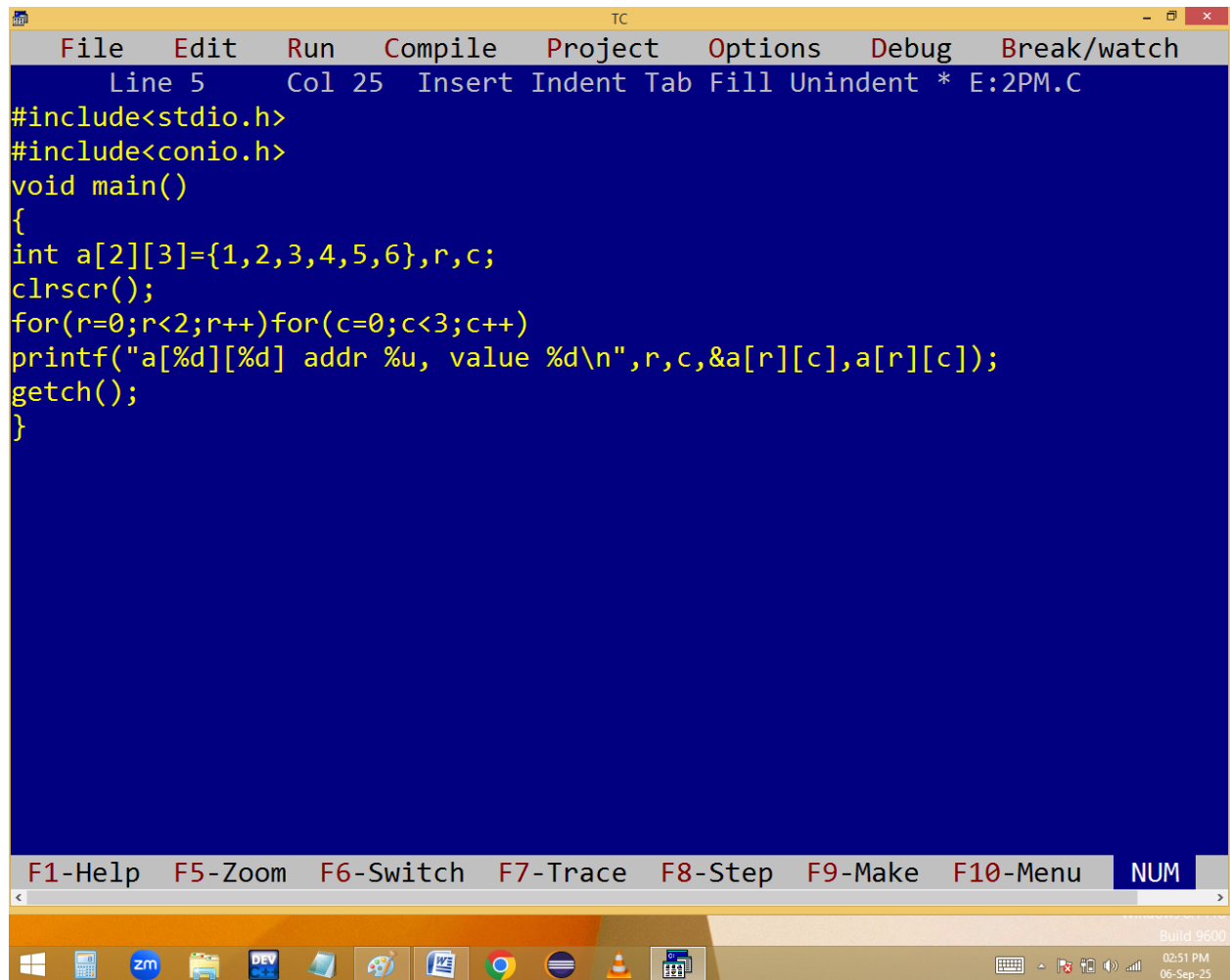
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3},{4,5,6}};
clrscr();
printf("a[0] stored addr %u, a[1] stored addr %u",a[0],a[1]);
getch();
}

a[0] stored addr 65492, a[1] stored addr 65498_
TC
02:46 PM
06-Sep-25
```

Printing cell position, value and address of a 2*3 matrix:

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 60 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3},{4,5,6}},r,c;
clrscr();
for(r=0;r<2;r++)for(c=0;c<3;c++)
printf("a[%d][%d] addr %u, value %d\n",r,c,&a[r][c],a[r][c]);
getch();
}

a[0][0] addr 65492, value 1
a[0][1] addr 65494, value 2
a[0][2] addr 65496, value 3
a[1][0] addr 65498, value 4
a[1][1] addr 65500, value 5
a[1][2] addr 65502, value 6
```

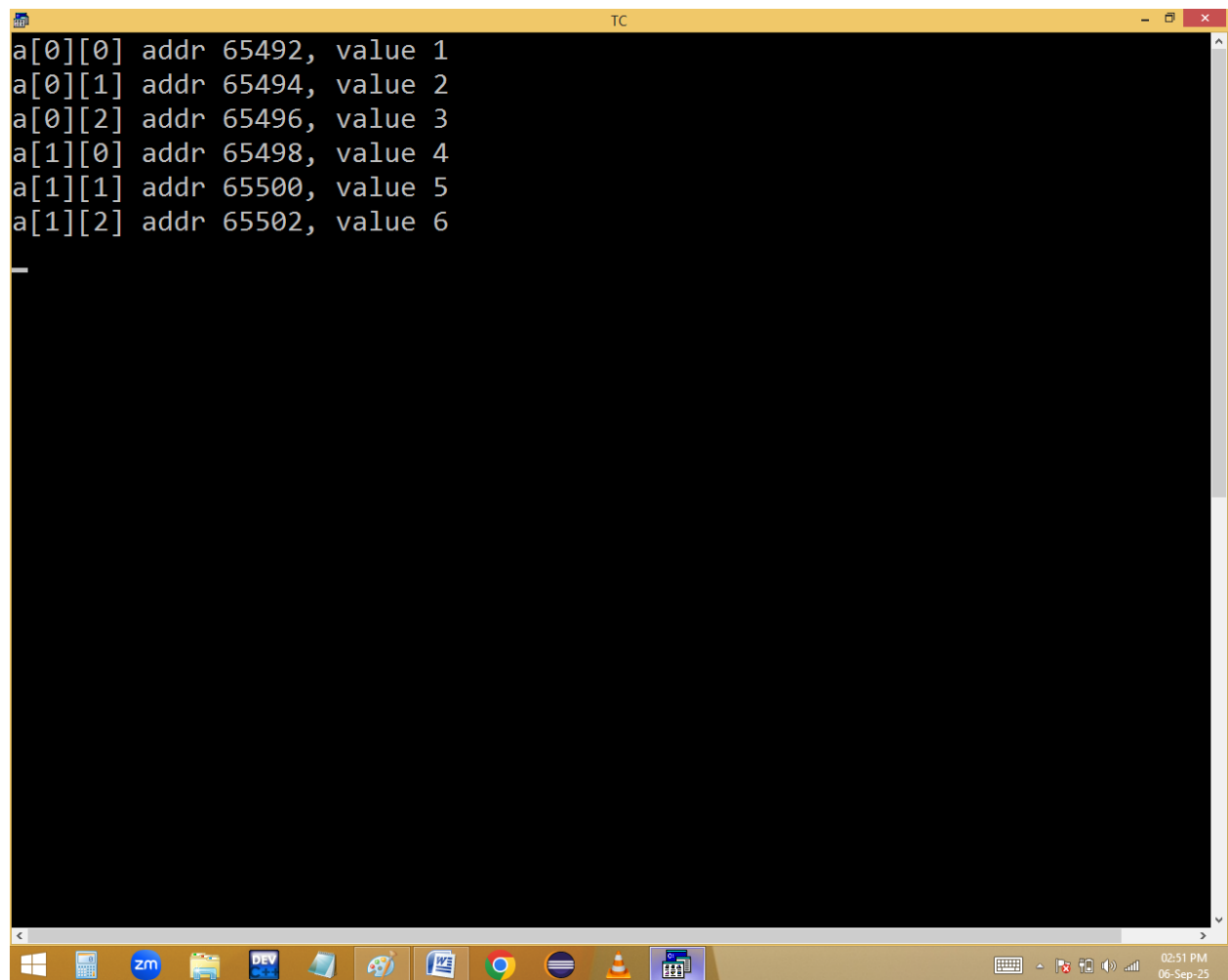


The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 5", "Col 25", and "Insert" mode. The file name is "E:2PM.C". The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={1,2,3,4,5,6},r,c;
clrscr();
for(r=0;r<2;r++)for(c=0;c<3;c++)
printf("a[%d][%d] addr %u, value %d\n",r,c,&a[r][c],a[r][c]);
getch();
}
```

The bottom status bar shows function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and a NUM key. The Windows taskbar at the bottom includes icons for the Start menu, calculator, ZM, file explorer, DEV, and several other applications. The system tray on the right shows the date and time as "02:51 PM 06-Sep-25" and the build number "Build 9600".

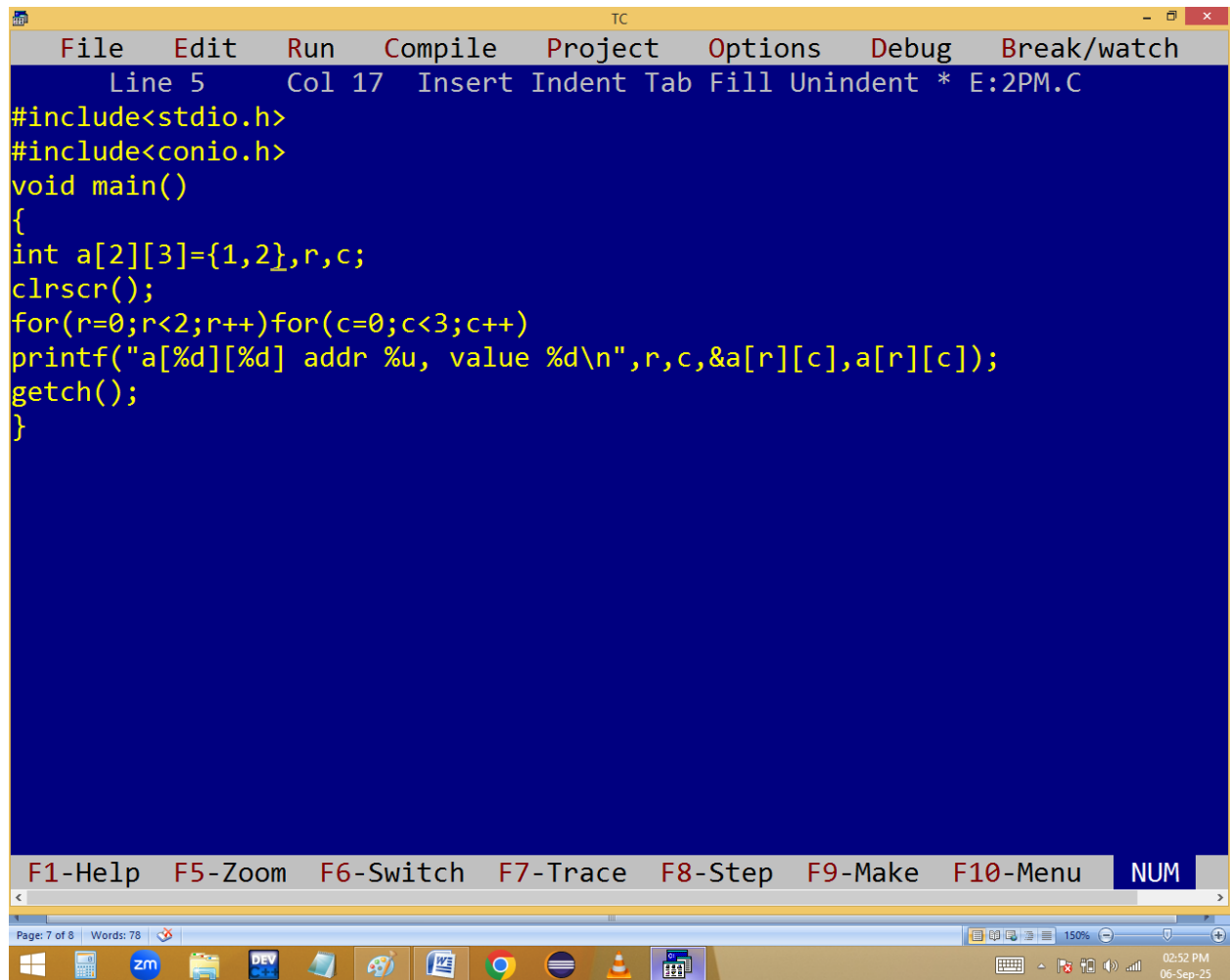
```
TC
a[0][0] addr 65492, value 1
a[0][1] addr 65494, value 2
a[0][2] addr 65496, value 3
a[1][0] addr 65498, value 4
a[1][1] addr 65500, value 5
a[1][2] addr 65502, value 6
```



The image shows a Windows desktop environment. A terminal window titled 'TC' is open, displaying a list of memory addresses and their corresponding values for a 2D array. The data is as follows:

Index	Address	Value
a[0][0]	65492	1
a[0][1]	65494	2
a[0][2]	65496	3
a[1][0]	65498	4
a[1][1]	65500	5
a[1][2]	65502	6

The taskbar at the bottom contains several icons: Windows Start button, Task View, ZOOM, File Explorer, DEV, a folder icon, a paint application, a document icon, Google Chrome, a globe icon, a VLC media player icon, and a calendar icon. The system tray on the right shows the time as 02:51 PM and the date as 06-Sep-25.

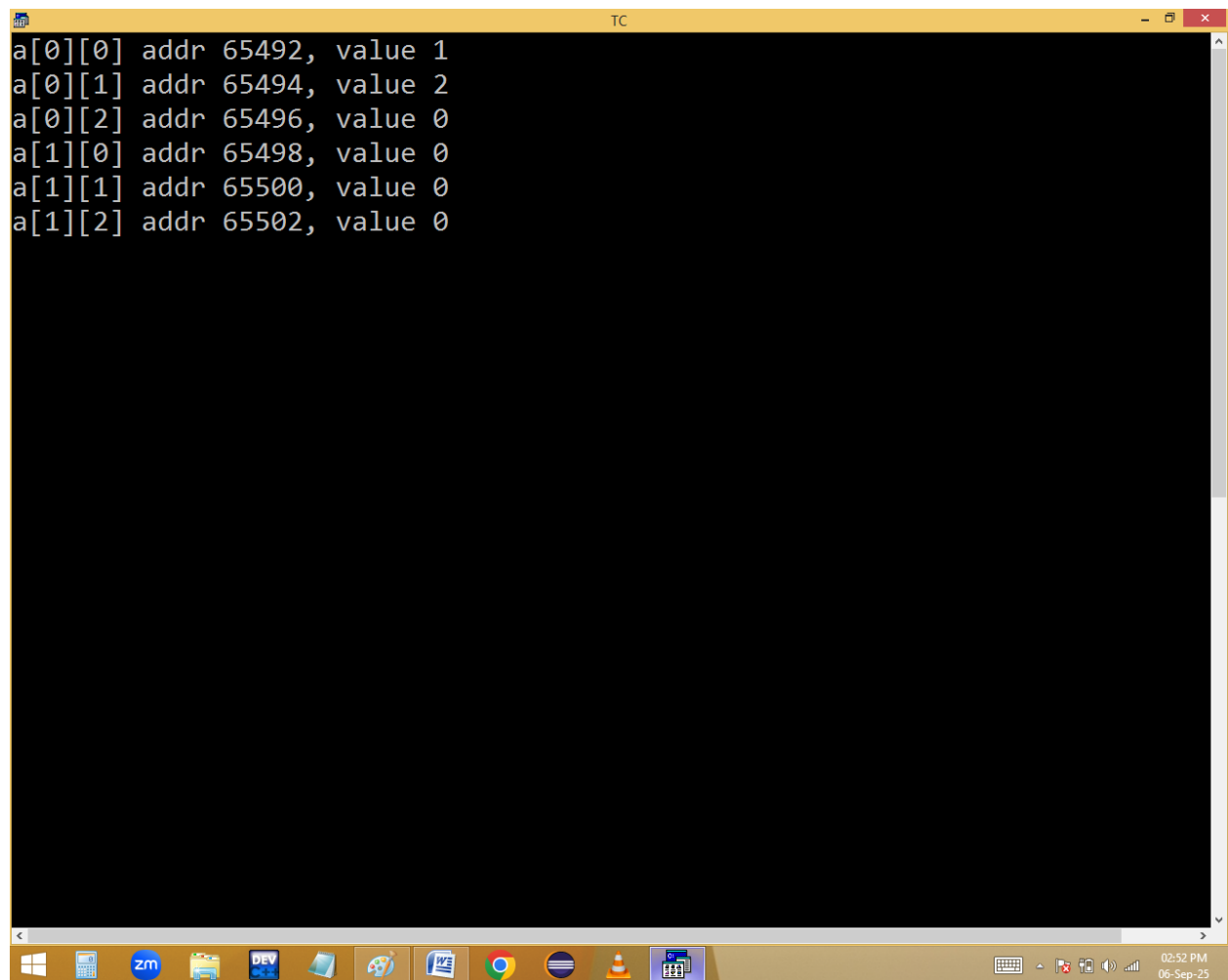


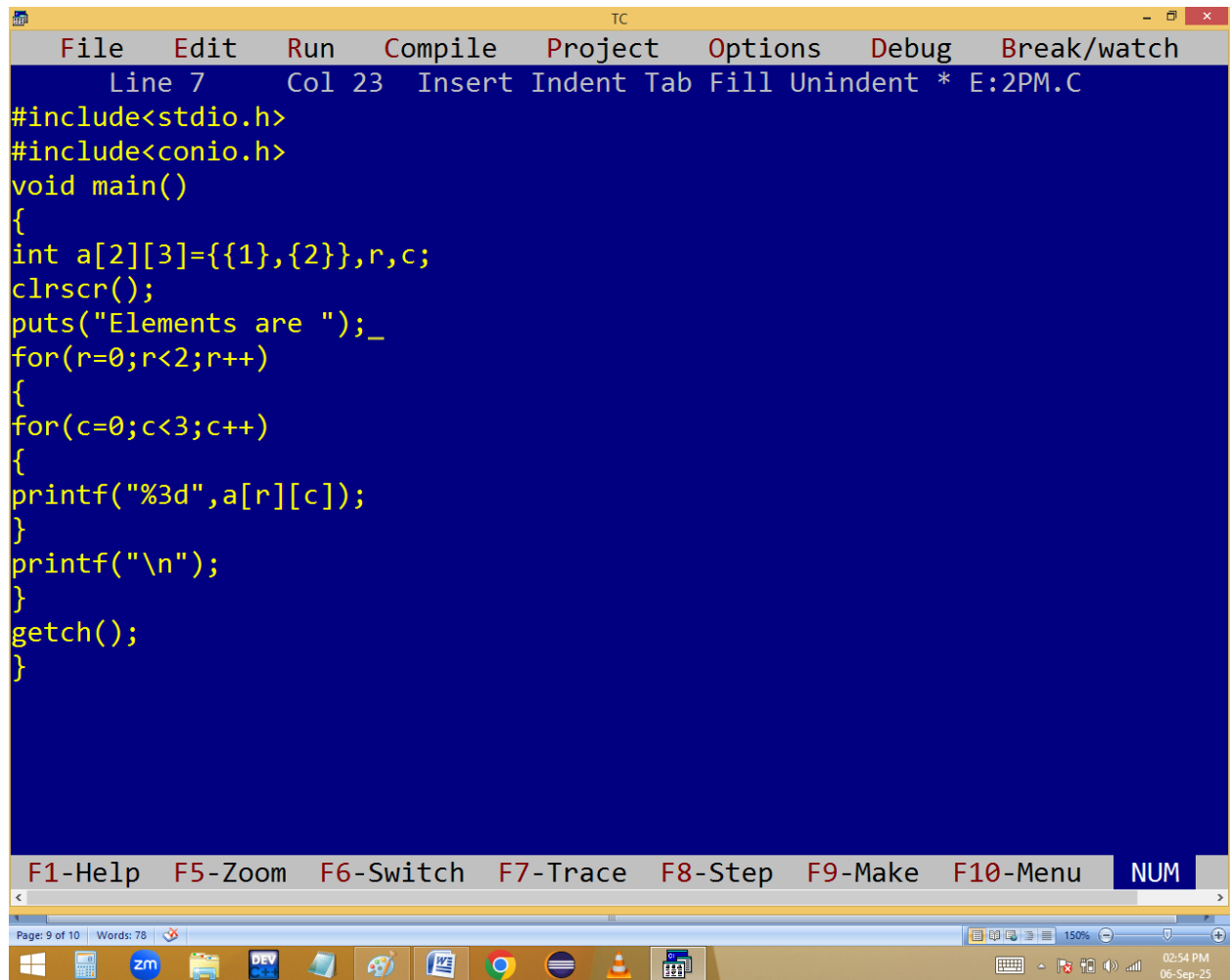
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 5 Col 17 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={1,2},r,c;
clrscr();
for(r=0;r<2;r++)for(c=0;c<3;c++)
printf("a[%d][%d] addr %u, value %d\n",r,c,&a[r][c],a[r][c]);
getch();
}
```

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

Page: 7 of 8 Words: 78 150% 02:52 PM 06-Sep-25


```
TC
a[0][0] addr 65492, value 1
a[0][1] addr 65494, value 2
a[0][2] addr 65496, value 0
a[1][0] addr 65498, value 0
a[1][1] addr 65500, value 0
a[1][2] addr 65502, value 0
```

The image is a screenshot of a Windows 10 desktop. A terminal window titled 'TC' is open, displaying six lines of text that show memory addresses and their corresponding values for a 2D array. The text is as follows: 'a[0][0] addr 65492, value 1', 'a[0][1] addr 65494, value 2', 'a[0][2] addr 65496, value 0', 'a[1][0] addr 65498, value 0', 'a[1][1] addr 65500, value 0', and 'a[1][2] addr 65502, value 0'. The terminal window has a black background and white text. Below the terminal window is the Windows taskbar, which contains several icons: the Start button, Task View, File Explorer, Zoho Mail, a folder icon, a 'DEV' icon, a document icon, a paint application, a Notepad icon, Google Chrome, a blue circular icon, a VLC media player icon, and a calendar icon. On the right side of the taskbar, there are system tray icons for network, volume, and power, along with the system clock showing '02:52 PM' and the date '06-Sep-25'.

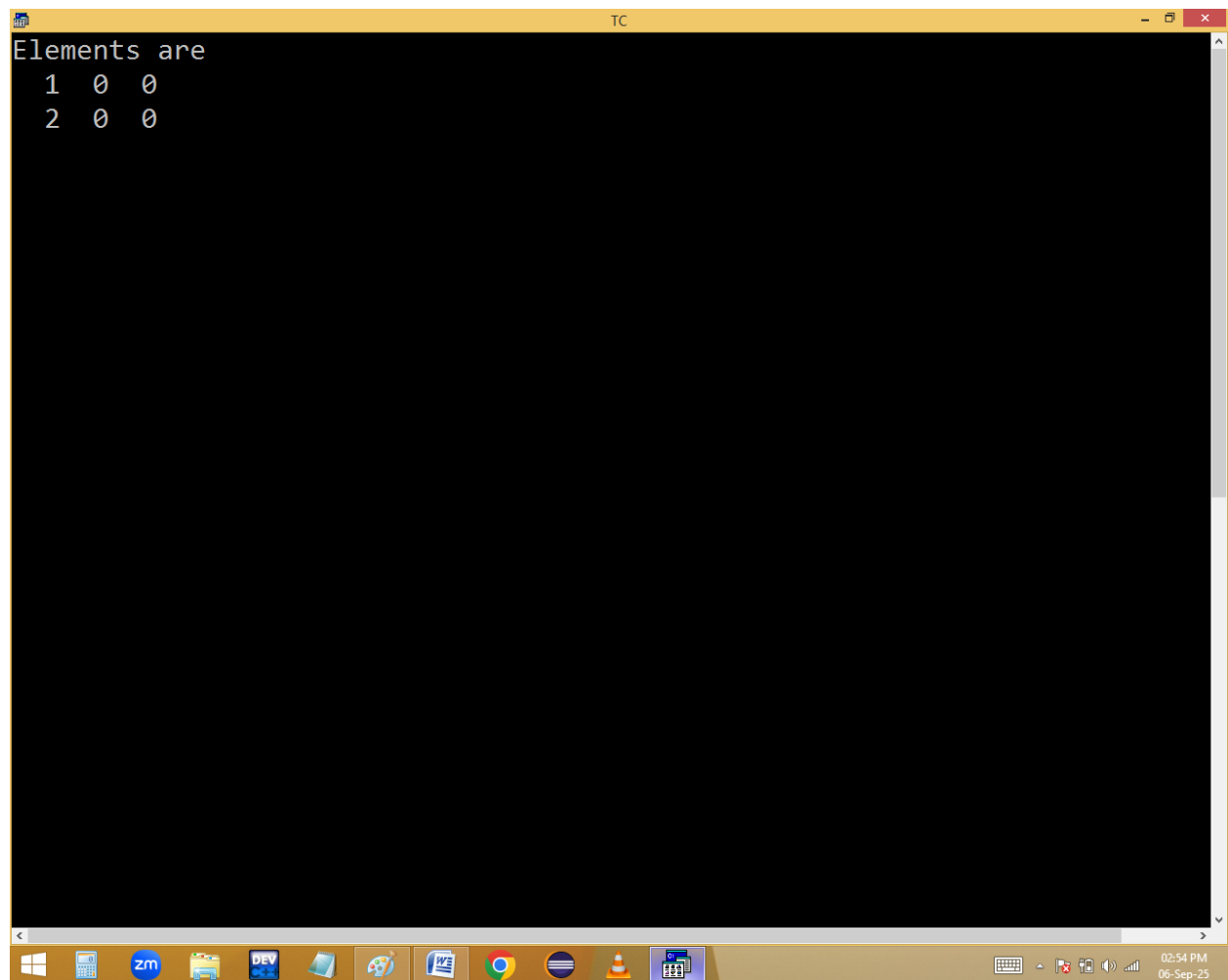


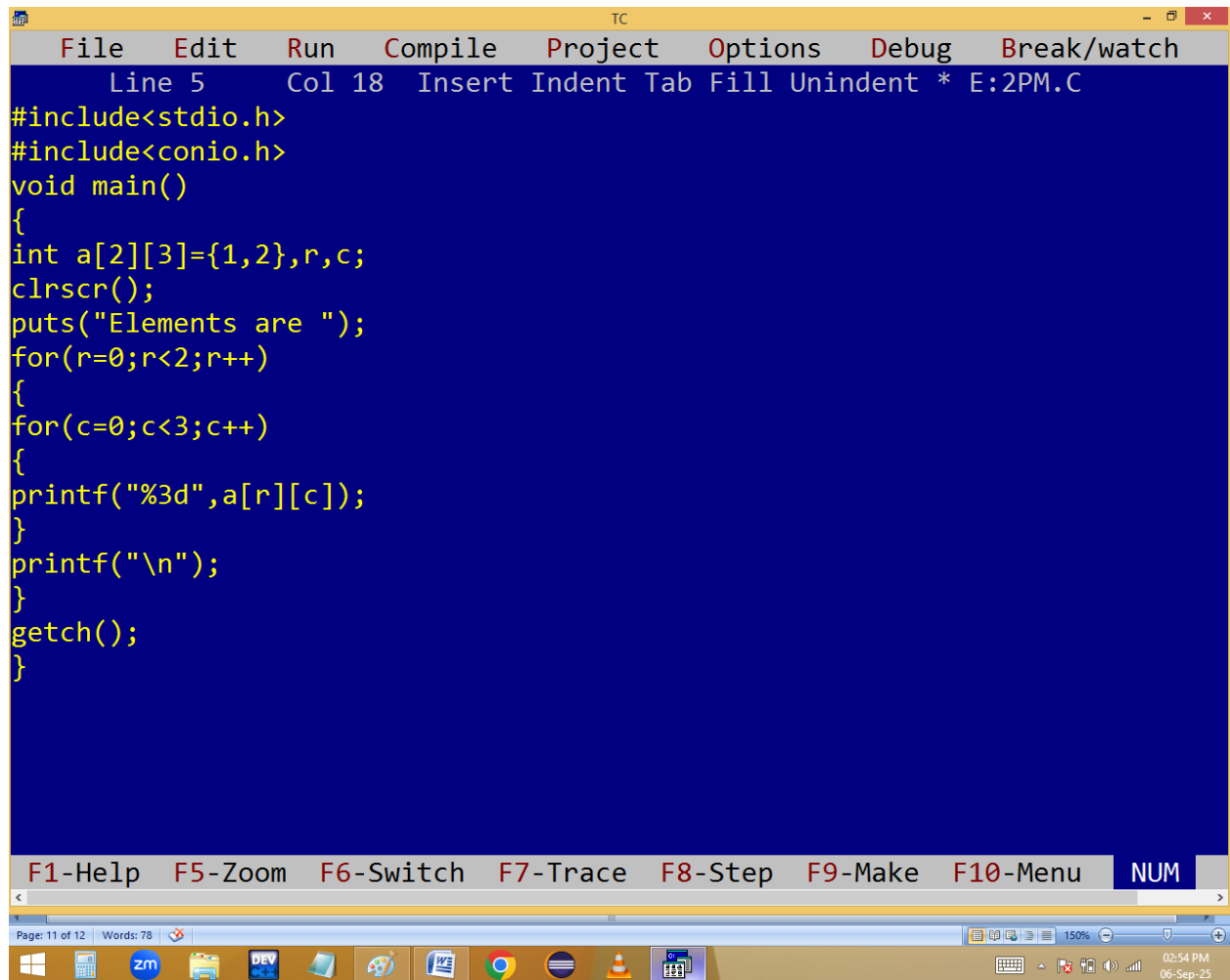
The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 7", "Col 23", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1},{2}},r,c;
clrscr();
puts("Elements are ");_
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

Below the code editor, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and a NUM key. The bottom status bar shows "Page: 9 of 10", "Words: 78", and a taskbar with various application icons. The system clock in the bottom right corner displays "02:54 PM" and "06-Sep-25".

```
TC
Elements are
1 0 0
2 0 0
```



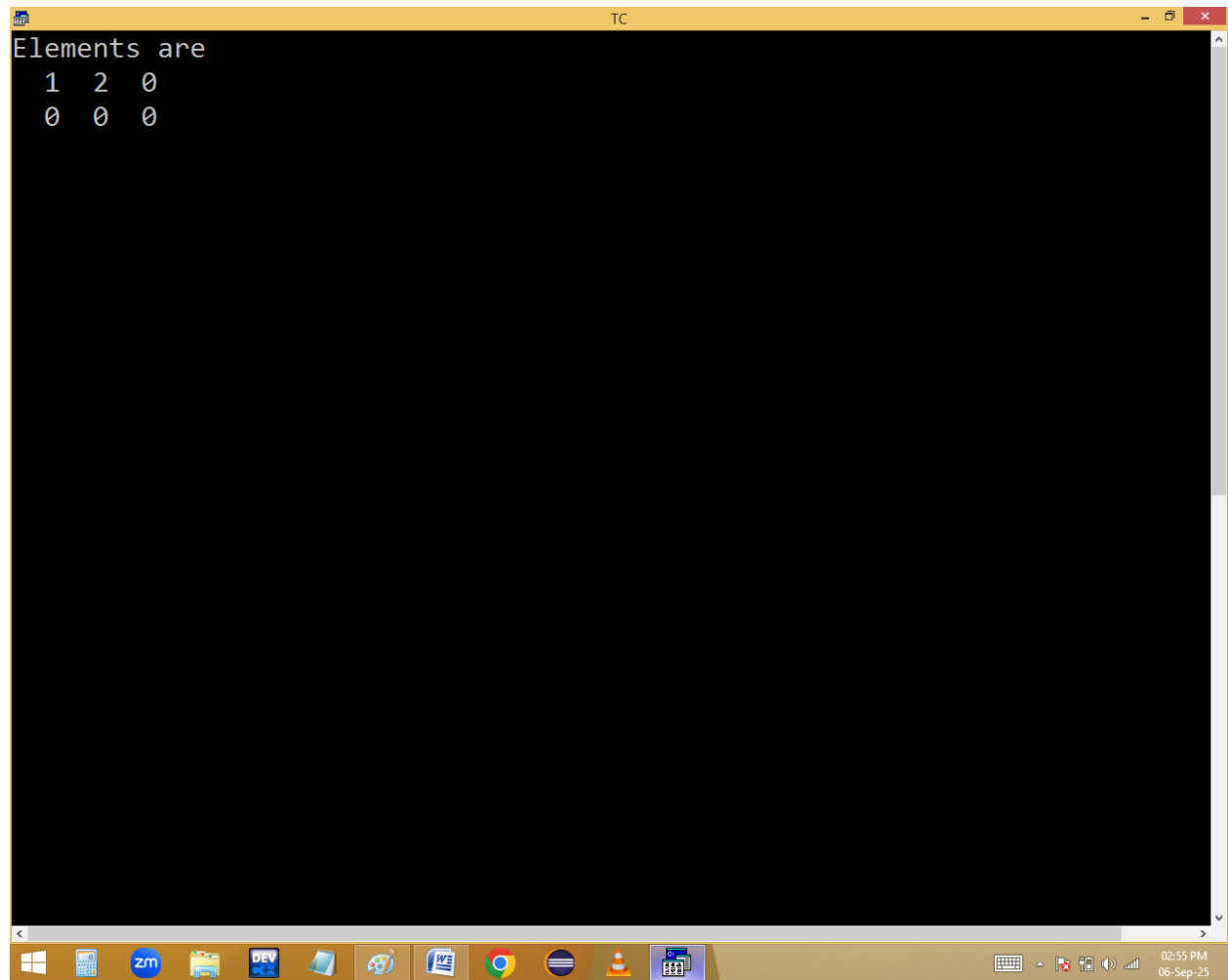


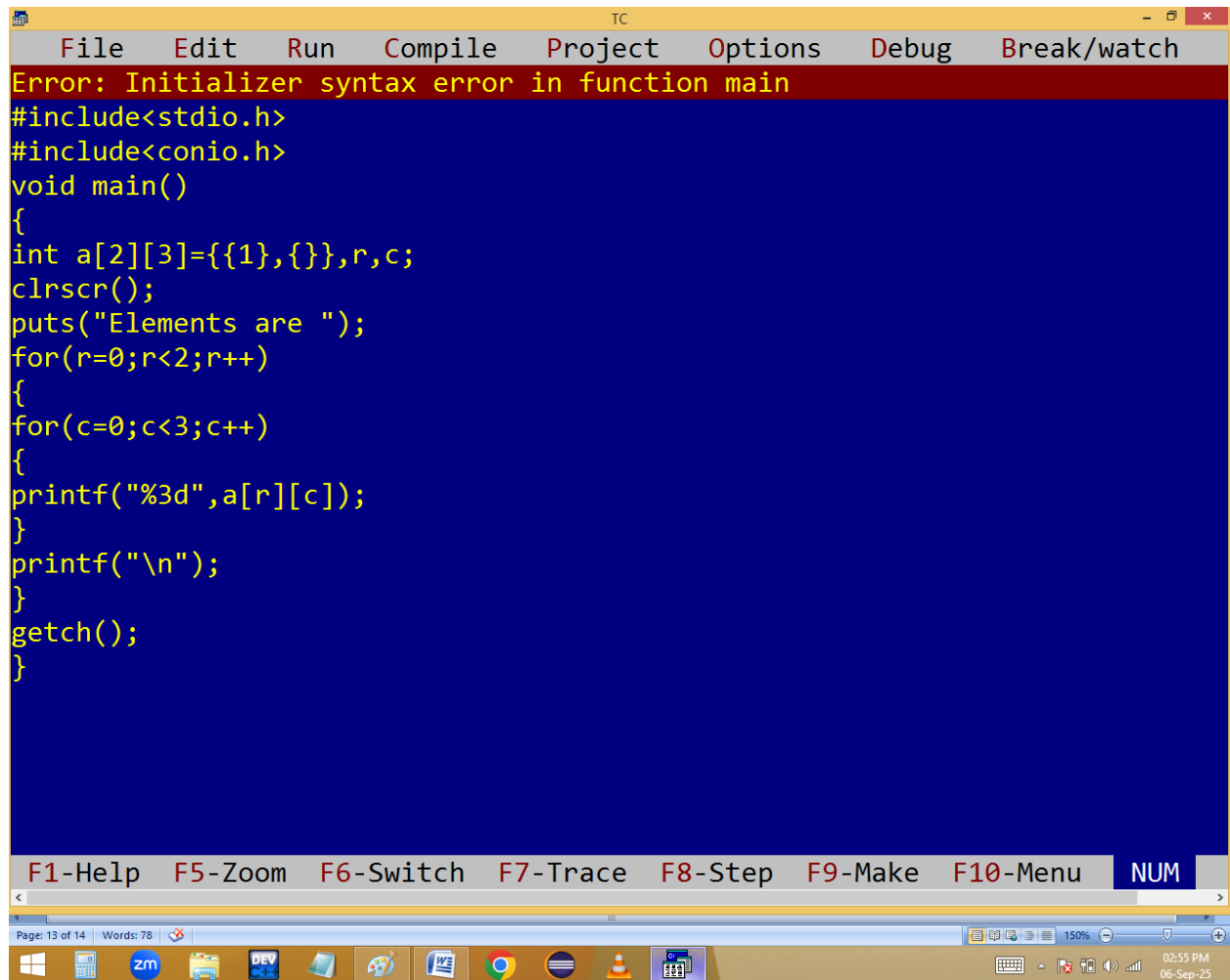
The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 5", "Col 18", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={1,2},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

Below the code editor, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and a NUM key. The bottom status bar shows "Page: 11 of 12", "Words: 78", and a taskbar with various application icons. The system clock in the bottom right corner displays "02:54 PM" and "06-Sep-25".

```
TC
Elements are
1 2 0
0 0 0
```

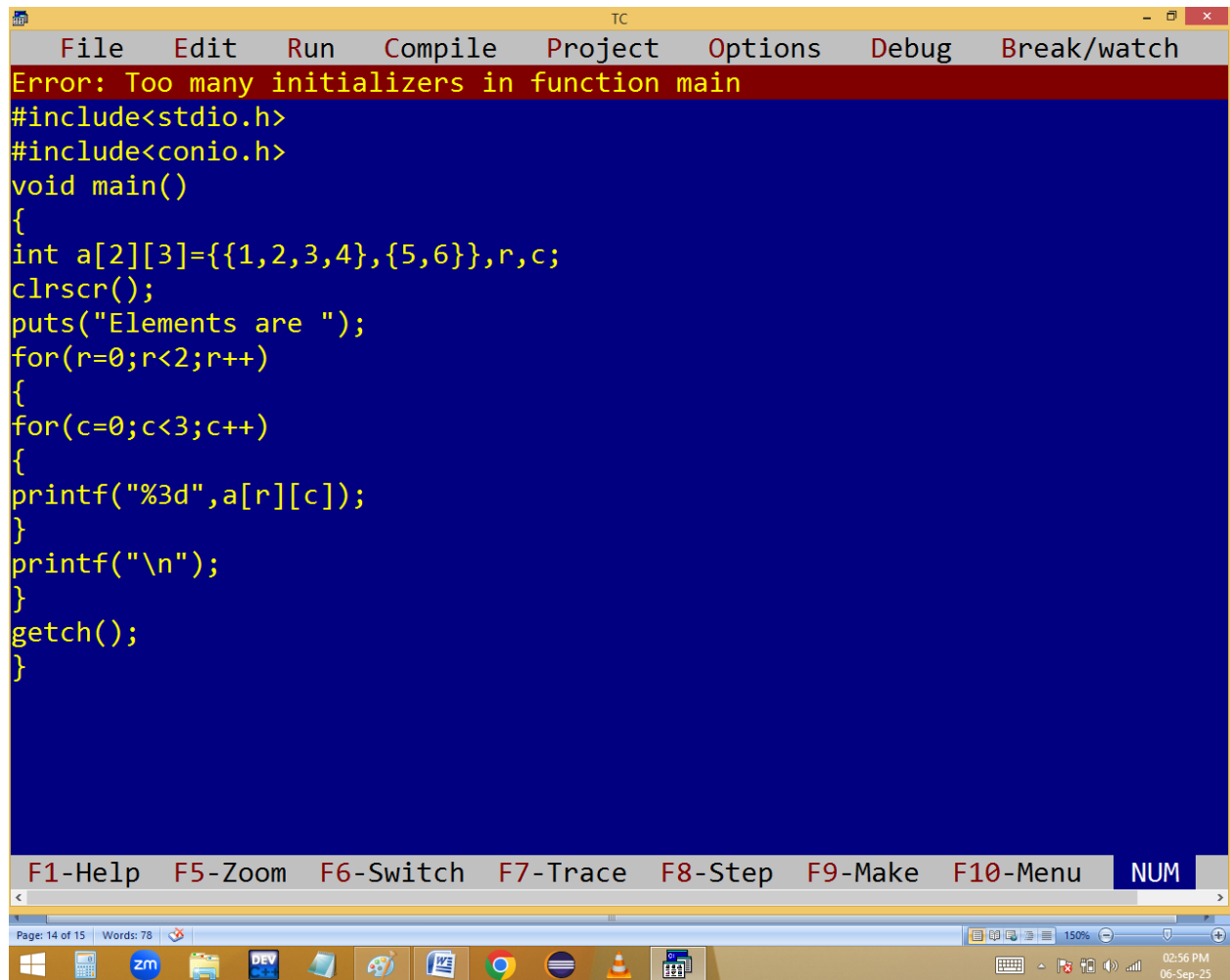




The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. At the top, there is a menu bar with the following options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. Below the menu bar, a red error message is displayed: "Error: Initializer syntax error in function main". The code being edited is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1},{}},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

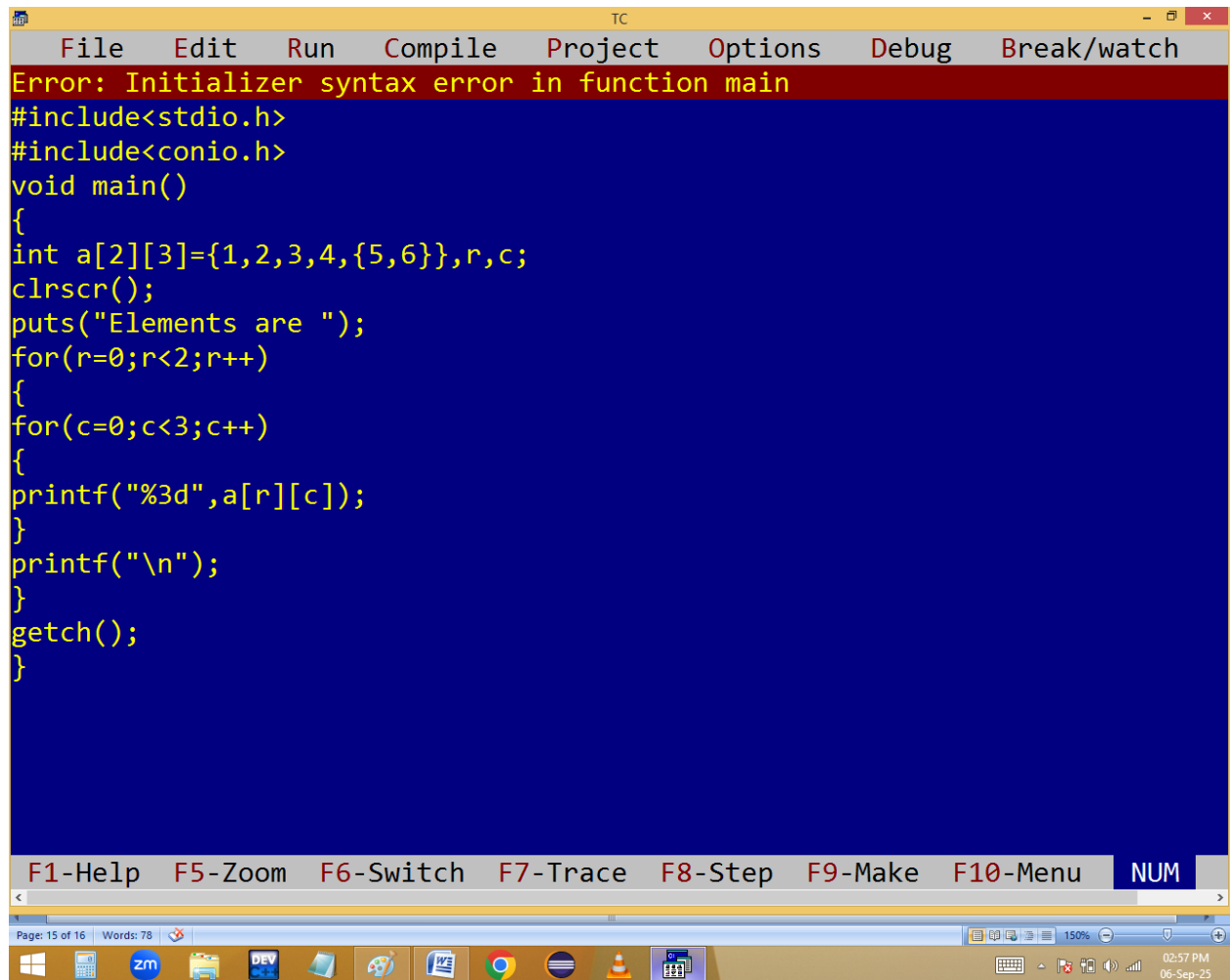
At the bottom of the IDE window, there is a toolbar with the following labels: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. Below the toolbar, there is a status bar showing "Page: 13 of 14" and "Words: 78". The Windows taskbar is visible at the very bottom, showing various icons including the Start button, taskbar, and system tray. The system tray shows the time as 02:55 PM and the date as 06-Sep-25.



The image shows a screenshot of the Turbo C++ (TC) IDE. The title bar at the top reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". A red error message banner at the top of the editor area states: "Error: Too many initializers in function main". The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3,4},{5,6}},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

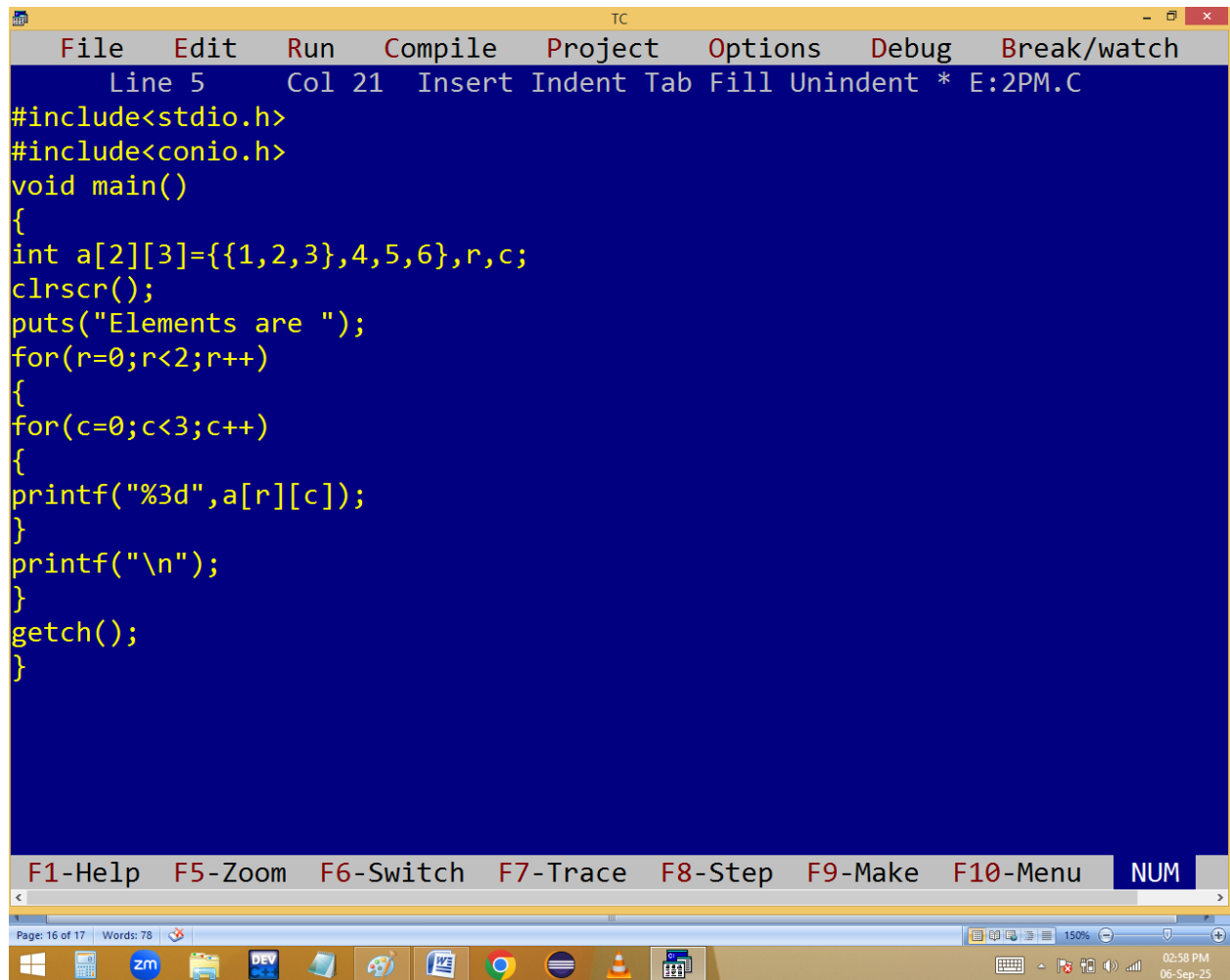
Below the code editor, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", "F10-Menu", and a "NUM" button. The status bar at the bottom indicates "Page: 14 of 15" and "Words: 78". The Windows taskbar at the very bottom shows various application icons and the system clock displaying "02:56 PM" on "06-Sep-25".



The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. At the top, there is a menu bar with the following options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. Below the menu bar, a red error message is displayed: "Error: Initializer syntax error in function main". The code being edited is a C program that includes `<stdio.h>` and `<conio.h>`. The `main` function is defined and contains the following code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={1,2,3,4,{5,6}},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

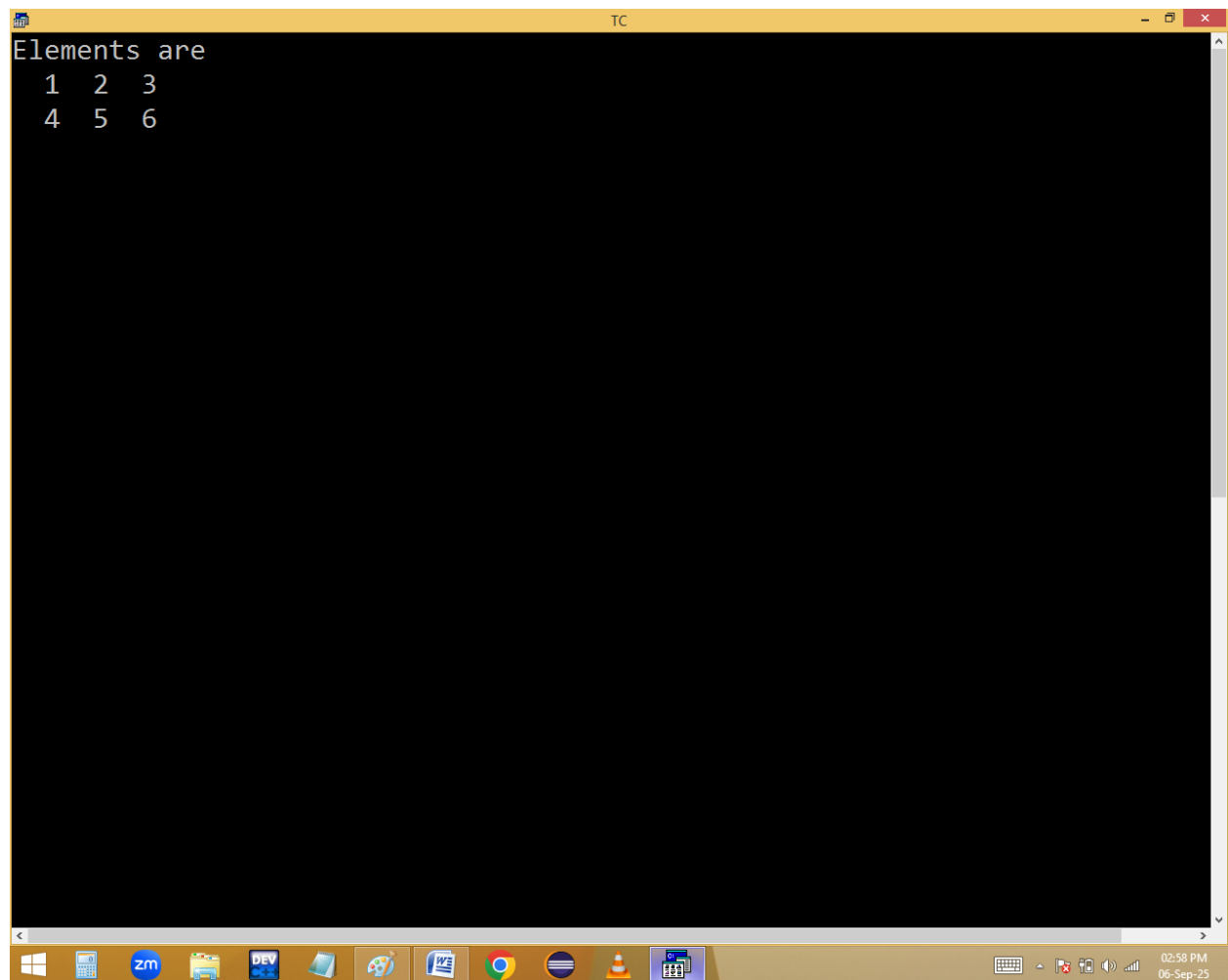
At the bottom of the IDE window, there is a status bar with the following text: "Page: 15 of 16 Words: 78". Below the IDE window, the Windows taskbar is visible, showing various icons including the Start button, a calculator, a Zm icon, a folder, a DEV icon, a paint application, a Notepad application, a Google Chrome browser, a Firefox browser, a VLC media player, and a calendar application. The system clock in the bottom right corner shows the time as 02:57 PM and the date as 06-Sep-25.



The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 5", "Col 21", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3},4,5,6},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

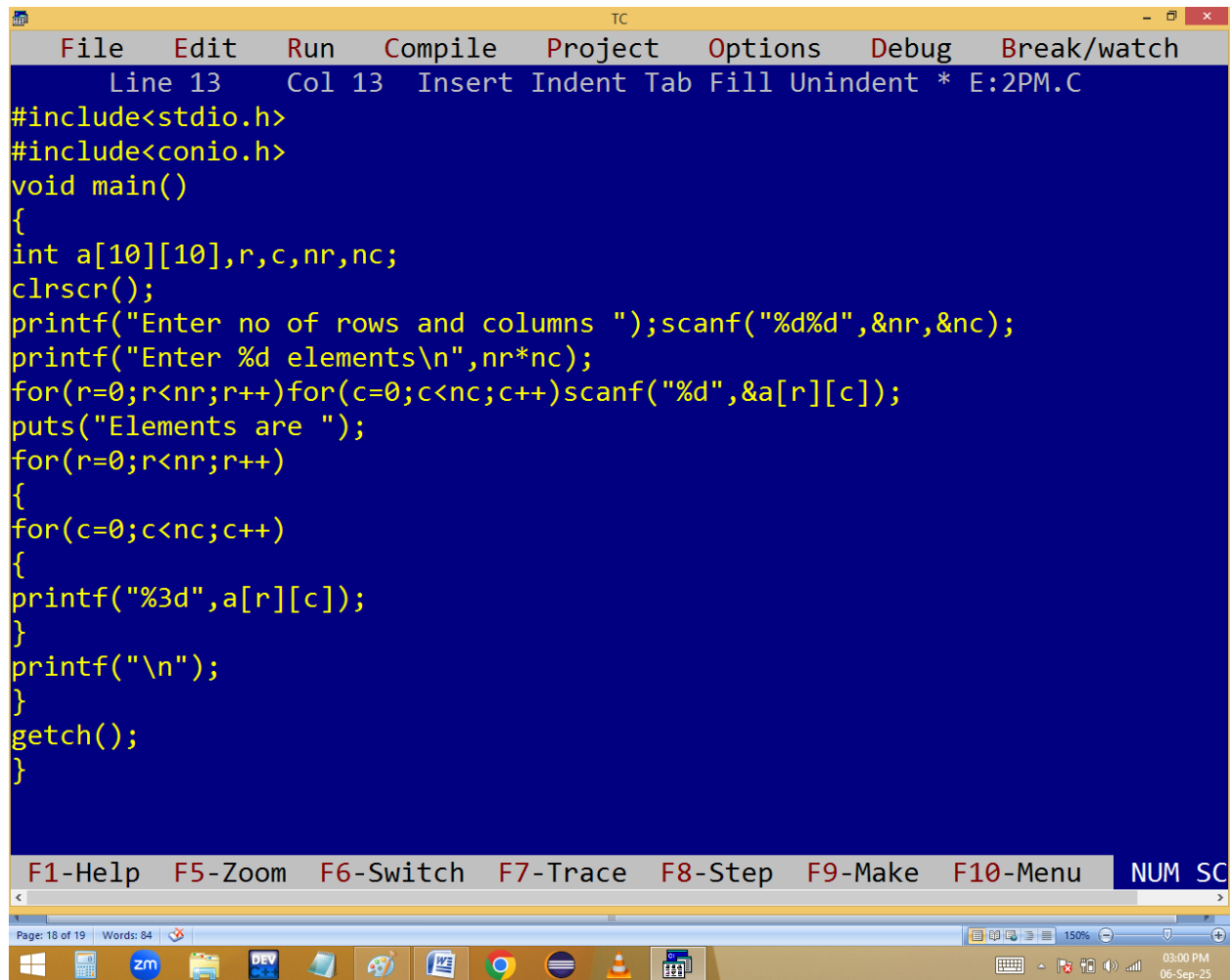
Below the code editor, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", "F10-Menu", and a "NUM" button. The bottom status bar shows "Page: 16 of 17", "Words: 78", and a Windows taskbar at the very bottom with various application icons and a system clock showing "02:58 PM" on "06-Sep-25".



The image shows a screenshot of a Turbo C++ (TC) window. The window has a yellow title bar with the text "TC" in the center. The main area of the window is black and contains the following text in white: "Elements are", "1 2 3", and "4 5 6". The text is arranged in three lines. The first line is "Elements are", the second line is "1 2 3", and the third line is "4 5 6". The window has a standard Windows taskbar at the bottom with various icons including the Start button, a calculator, a ZM icon, a folder, a DEV icon, a paint palette, a notepad, a Chrome browser, a globe, a VLC media player, and a calendar. The system tray on the right shows the time as 02:58 PM and the date as 06-Sep-25.

```
Elements are
1 2 3
4 5 6
```

Reading and printing of array elements:

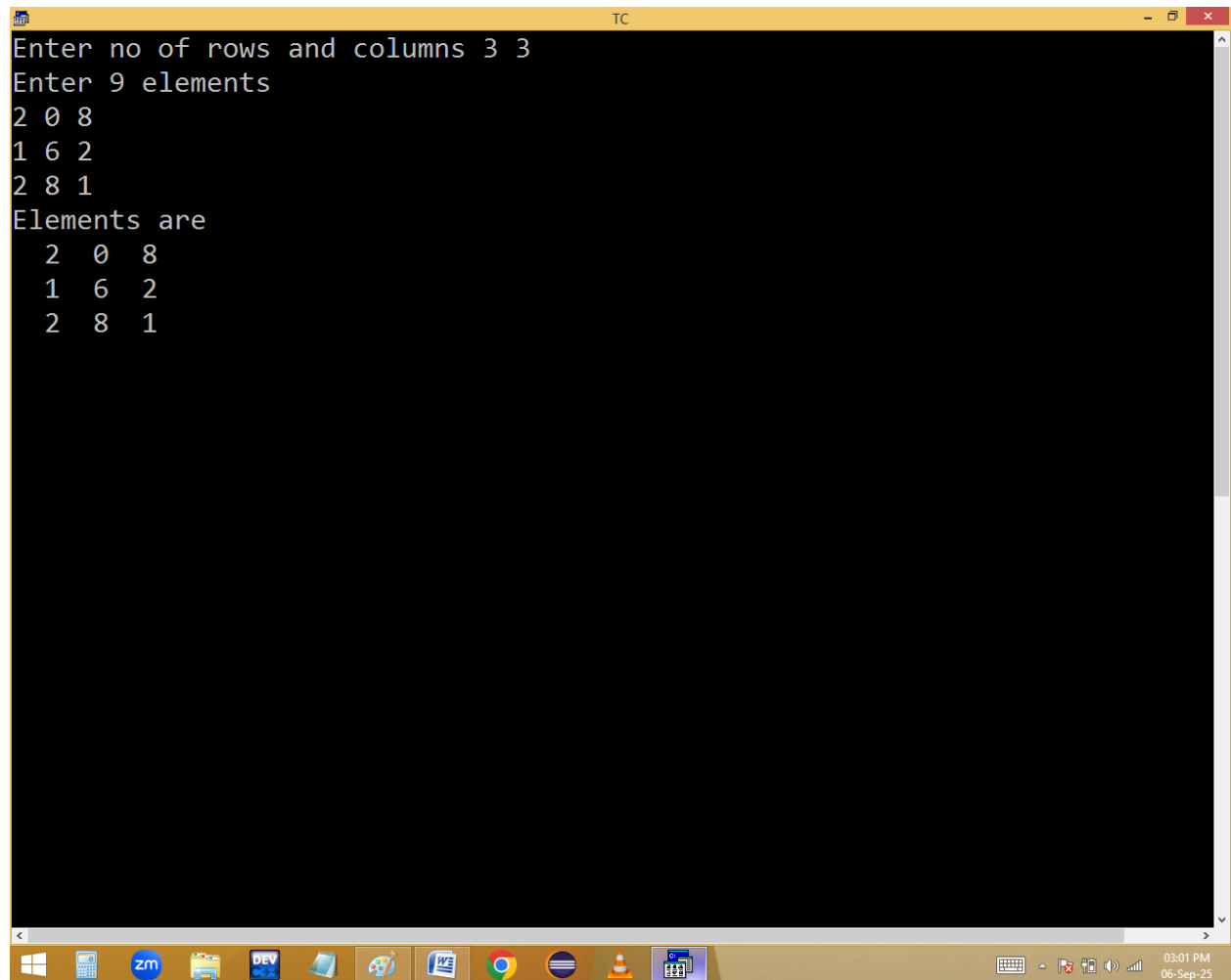


The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 13", "Col 13", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
puts("Elements are ");
for(r=0;r<nr;r++)
{
for(c=0;c<nc;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

Below the code, a toolbar contains function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", "F10-Menu", and "NUM SC". The bottom status bar shows "Page: 18 of 19", "Words: 84", a zoom level of "150%", and the date/time "03:00 PM 06-Sep-25". The Windows taskbar at the very bottom displays various application icons including ZOOM, DEV, and a calendar.

```
TC
Enter no of rows and columns 3 3
Enter 9 elements
2 0 8
1 6 2
2 8 1
Elements are
  2  0  8
  1  6  2
  2  8  1
```

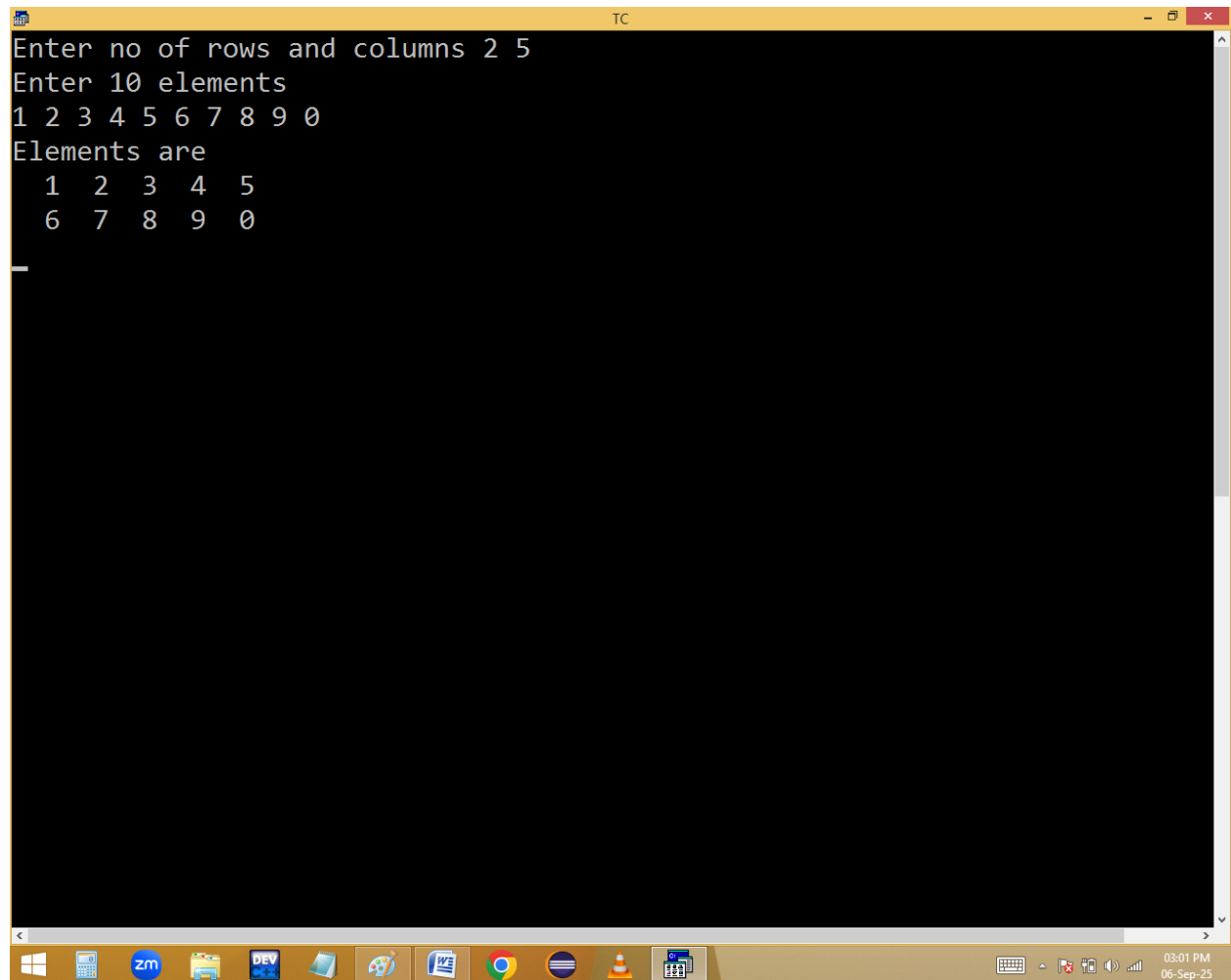


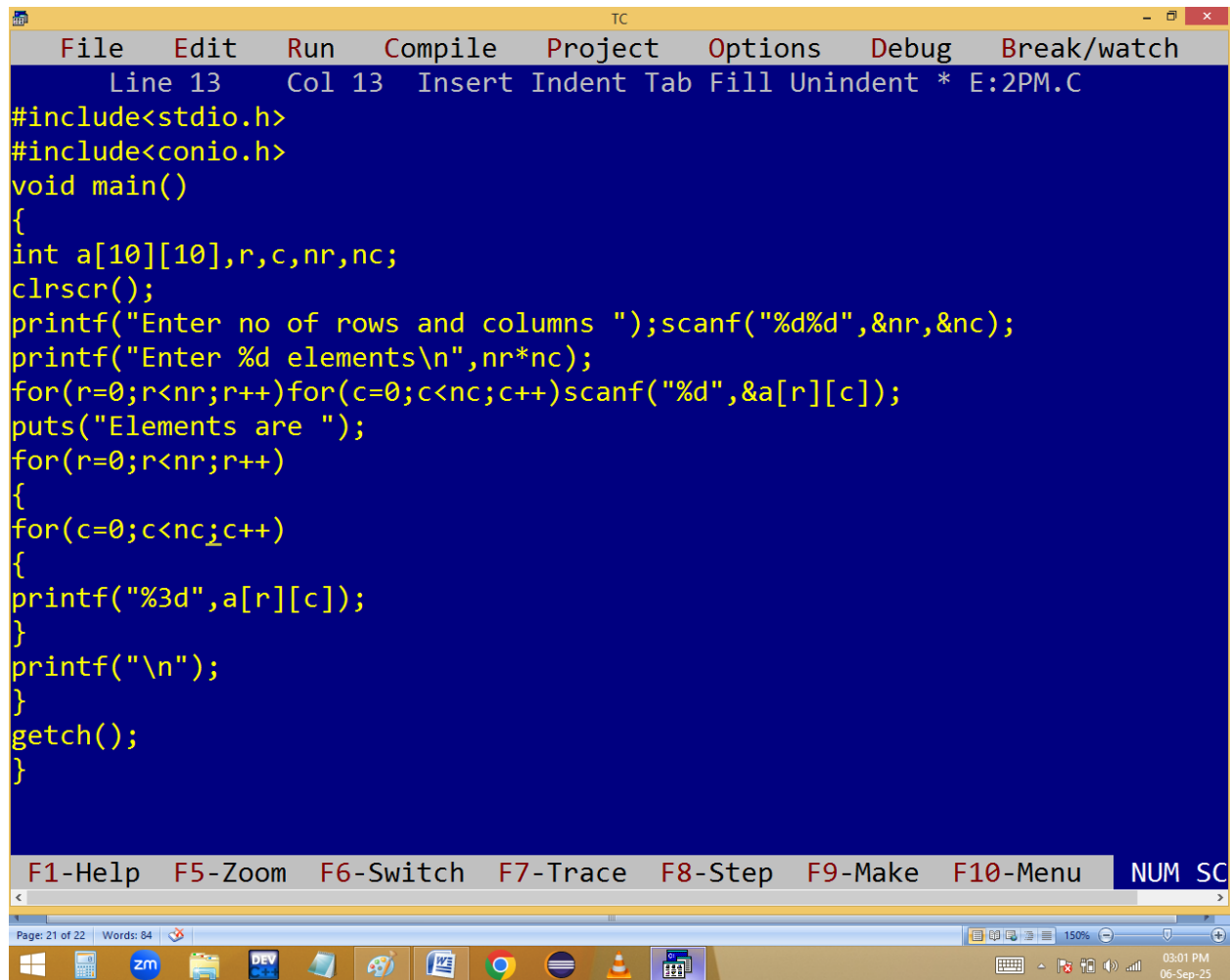
The screenshot shows a Windows 10 desktop environment. A terminal window titled "TC" is open, displaying the execution of a C program. The program prompts the user to enter the number of rows and columns (3 3) and then 9 elements. The elements are entered as 2 0 8, 1 6 2, and 2 8 1. The program then outputs the elements in a formatted grid.

2	0	8
1	6	2
2	8	1

The taskbar at the bottom shows various application icons including Windows, Calculator, Zoom, File Explorer, DEV, Paint, Word, Chrome, Edge, VLC, and a calendar. The system clock indicates 03:01 PM on 06-Sep-25.

```
TC
Enter no of rows and columns 2 5
Enter 10 elements
1 2 3 4 5 6 7 8 9 0
Elements are
  1  2  3  4  5
  6  7  8  9  0
```





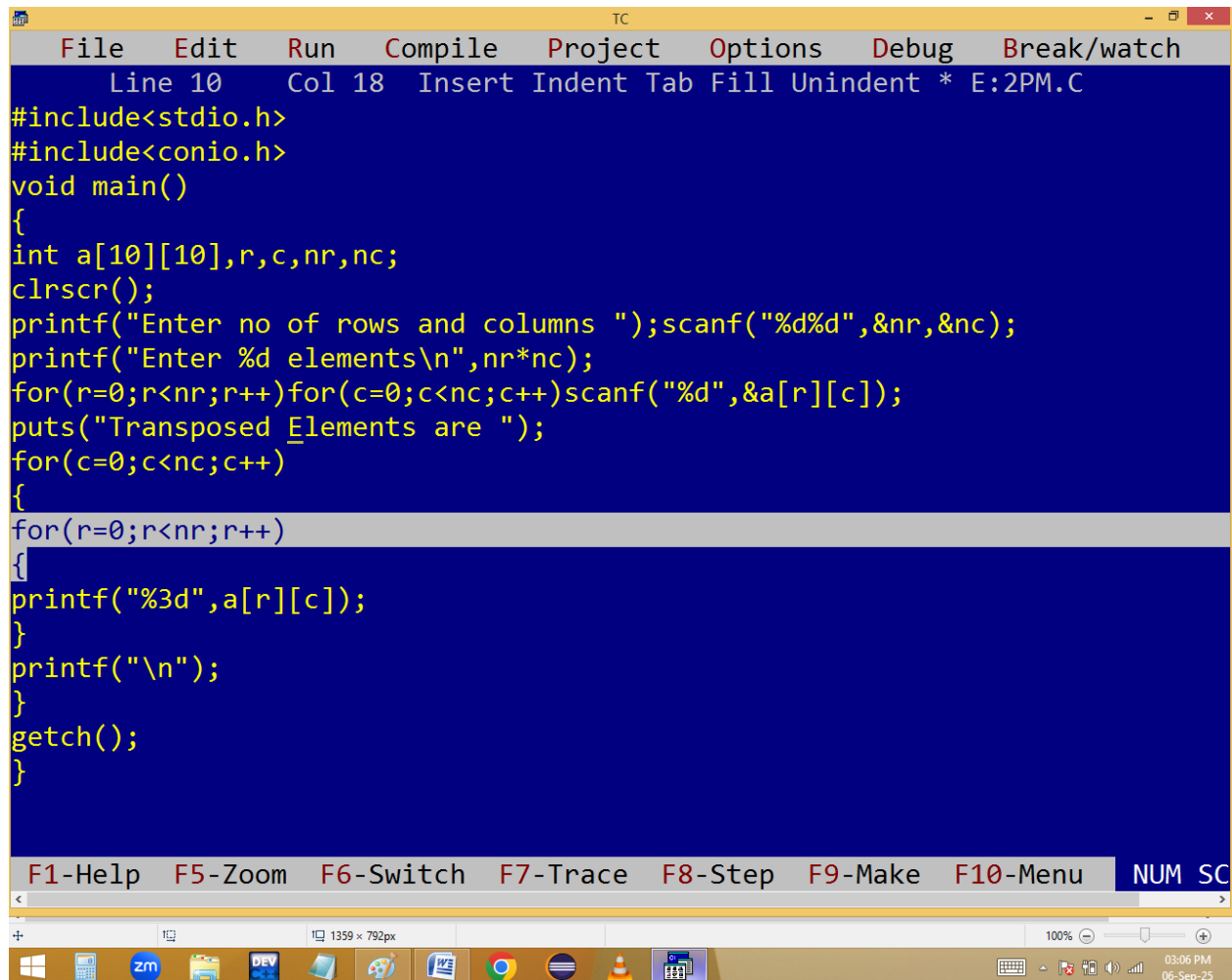
The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 13", "Col 13", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
puts("Elements are ");
for(r=0;r<nr;r++)
{
for(c=0;c<nc;c++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

Below the code, a toolbar contains function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", "F10-Menu", and "NUM SC". The bottom status bar shows "Page: 21 of 22", "Words: 84", a zoom level of "150%", and the date/time "03:01 PM 06-Sep-25". The Windows taskbar at the very bottom displays various application icons including ZOOM, DEV, and a calendar.

```
TC
Enter no of rows and columns 2 5
Enter 10 elements
1 2 3 4 5 6 7 8 9 0
Elements are
  1  2  3  4  5
  6  7  8  9  0
```

Transpose of $n \times n$ matrix:



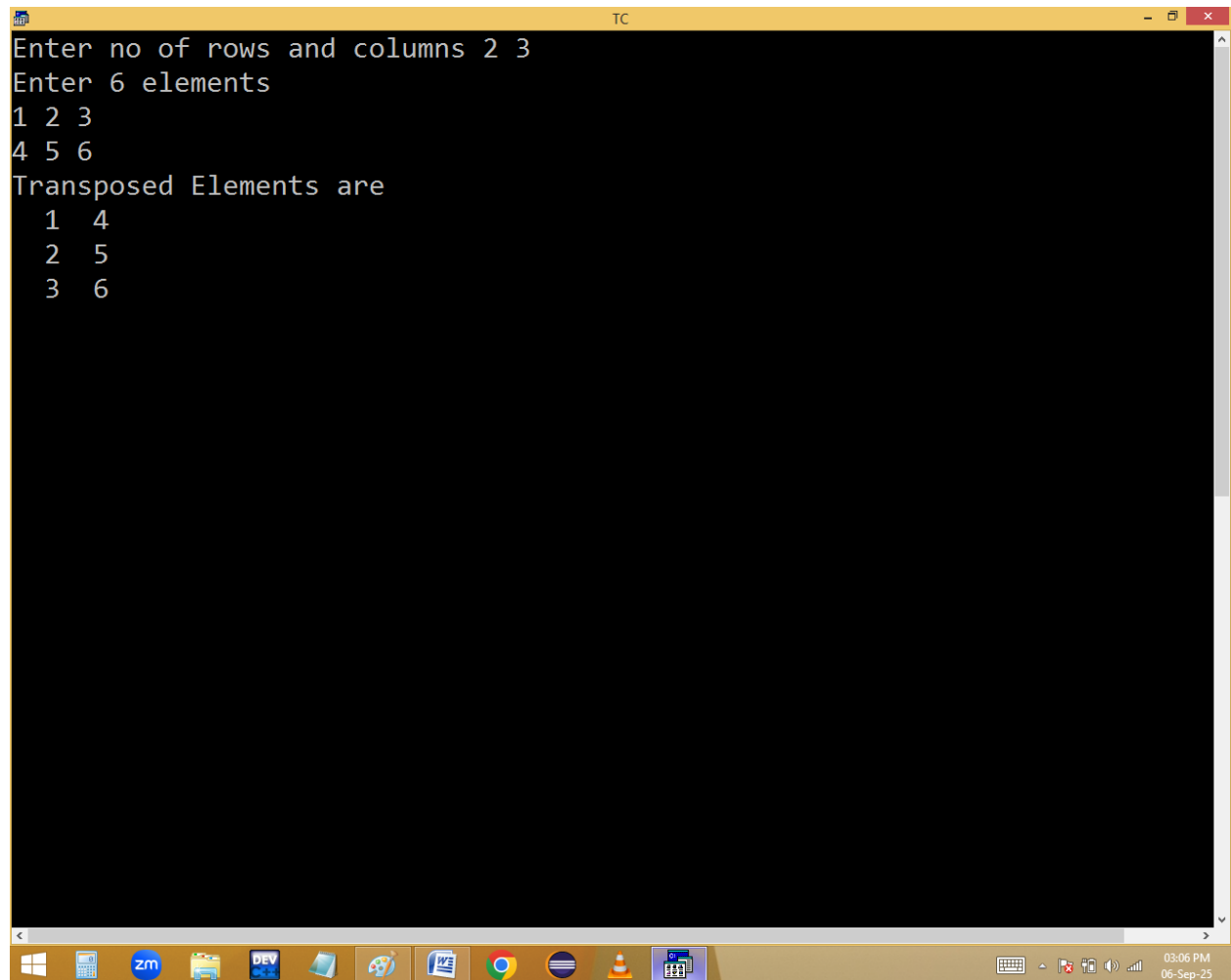
The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 10", "Col 18", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a dark blue background with yellow text. The code is a C program for transposing a matrix. It includes `<stdio.h>` and `<conio.h>`, and defines a `main` function. Inside `main`, it declares a 10x10 integer array `a`, and variables `r`, `c`, `nr`, and `nc`. It calls `clrscr()` to clear the screen. It prompts the user to enter the number of rows and columns using `scanf`, storing them in `nr` and `nc`. It then prompts for the matrix elements, using a nested loop to read them into array `a`. After reading, it prints the transposed elements using another nested loop, printing each element followed by a space and a newline. Finally, it calls `getch()` to wait for a key press before exiting. The bottom status bar shows function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", "F10-Menu", and "NUM SC". The Windows taskbar at the bottom shows various icons including the Start button, task view, and several application icons like Zoom, File Explorer, Dev-C++, and Chrome. The system clock in the bottom right corner shows "03:06 PM" and "06-Sep-25".

```
File Edit Run Compile Project Options Debug Break/watch
Line 10 Col 18 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
puts("Transposed Elements are ");
for(c=0;c<nc;c++)
{
for(r=0;r<nr;r++)
{
printf("%3d",a[r][c]);
}
printf("\n");
}
getch();
}
```

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

1359 x 792px 100% 03:06 PM 06-Sep-25


```
TC
Enter no of rows and columns 2 3
Enter 6 elements
1 2 3
4 5 6
Transposed Elements are
1 4
2 5
3 6
```



```
for( c=0; c<3; c++ )
```

```
{
```

```
for( r=0; r<2; r++ )
```

```
{
```

```
    p( a[r][c] );
```

```
}
```

```
    p("\n"); ✓
```

```
}
```

$\frac{r}{0}$ | ~~1~~ | $\frac{c}{0}$

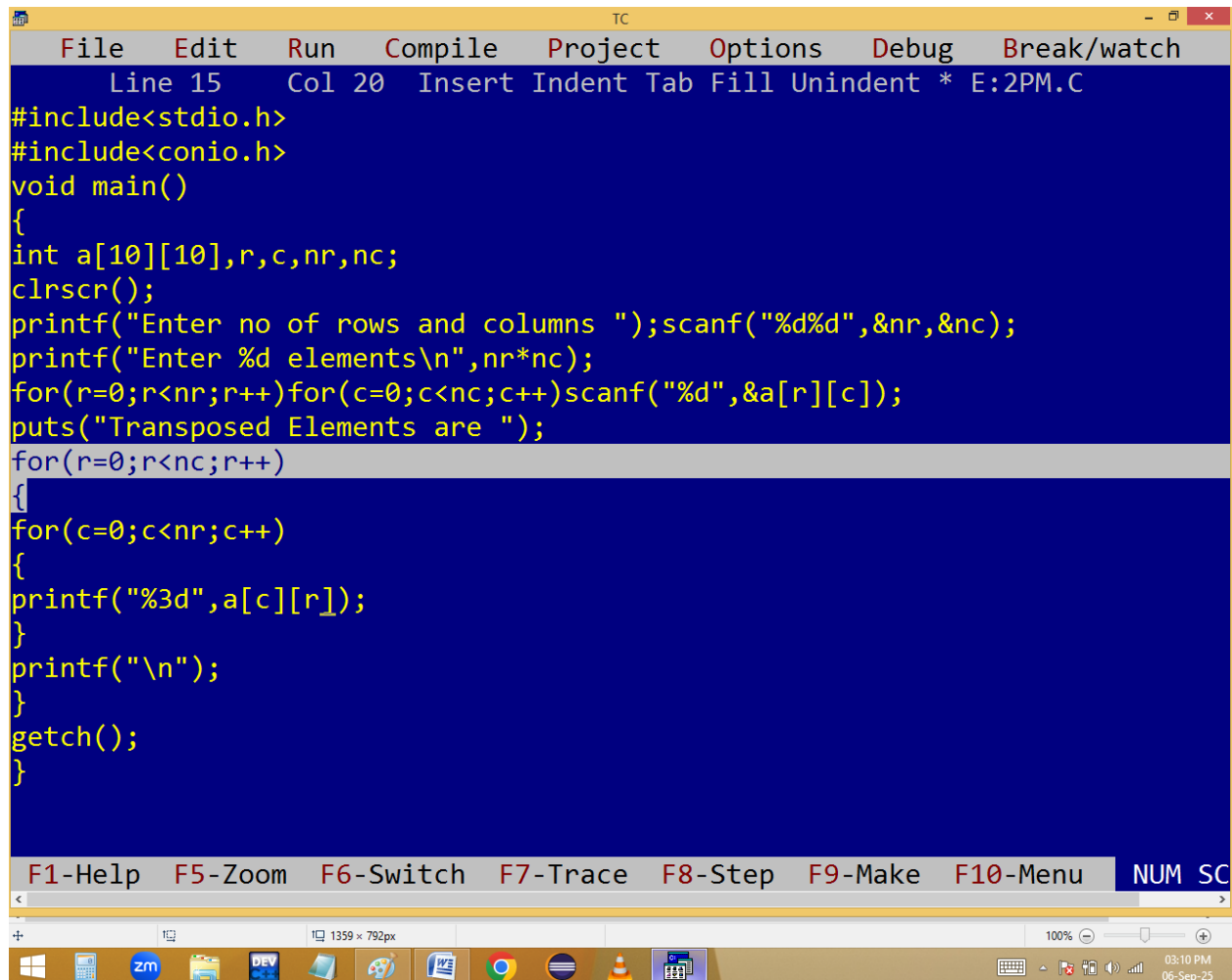
0 | ~~1~~ | 1

0 | ~~1~~ | 2

~~3~~

1 0,0	2 0,1	3 0,2
4 1,0	5 1,1	6 1,2

✓ 1	✓ 4
✓ 2	✓ 5
✓ 3	✓ 6



The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 15 Col 20 Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
puts("Transposed Elements are ");
for(r=0;r<nc;r++)
{
for(c=0;c<nr;c++)
{
printf("%3d",a[c][r]);
}
printf("\n");
}
getch();
}
```

Below the code, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM SC. The bottom status bar shows the window size "1359 x 792px", a zoom level of "100%", and the system clock "03:10 PM 06-Sep-25". The Windows taskbar is visible at the very bottom with various application icons.

```
TC
Enter no of rows and columns 2 3
Enter 6 elements
1 2 3
4 5 6
Transposed Elements are
1 4
2 5
3 6
```

```

for( r=0; r<3; r++ )
{
for( c=0; c<2; c++ )
{
p( a[c][r] );
}
p("\n");
}

```

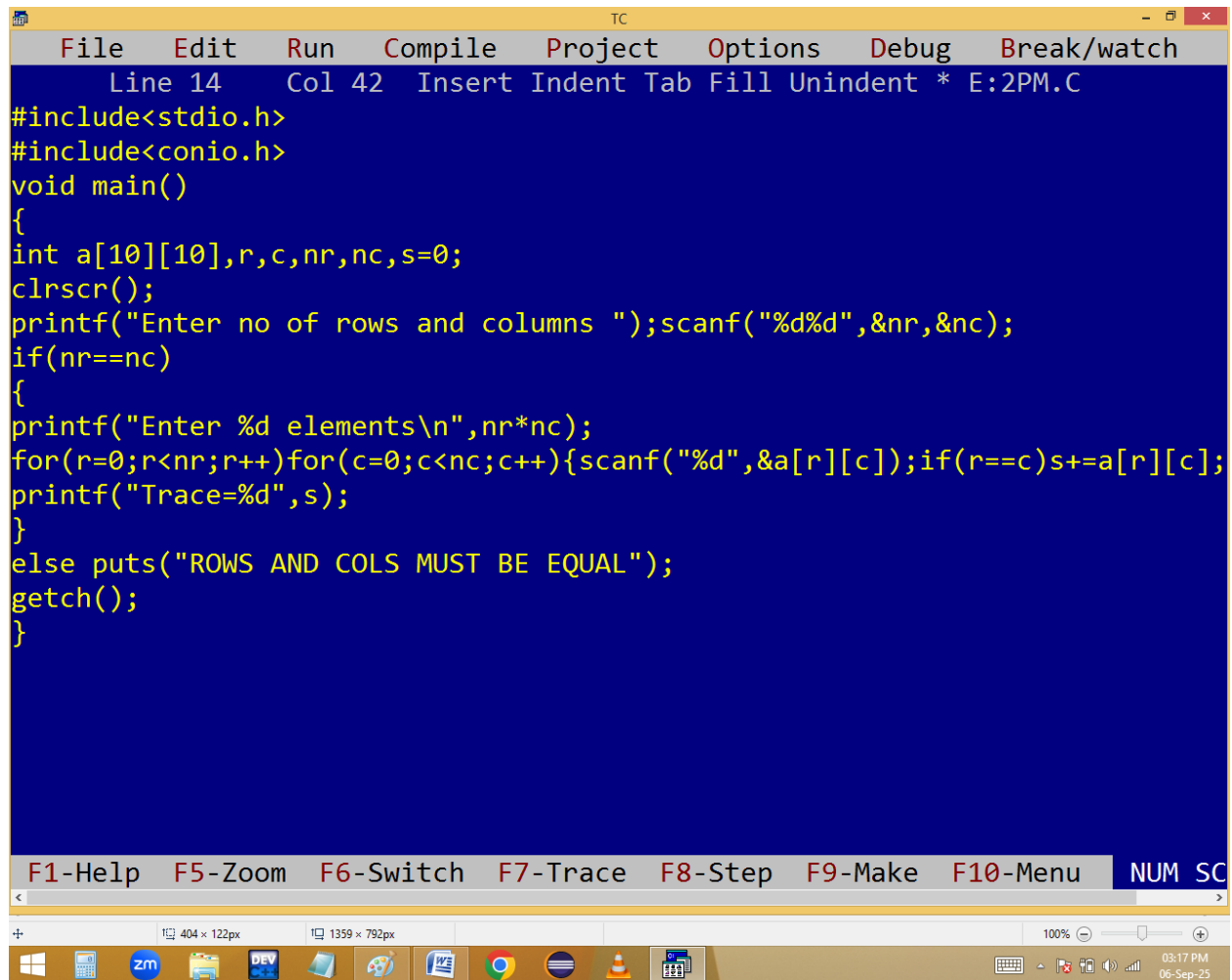
c	r
0	0
0	1
0	2
	3

1 0,0	2 0,1	3 0,2
4 1,0	5 1,1	6 1,2

1 ✓	4 ✓
2 ✓	5 ✓
✓ 3	✓ 6

Finding trace of m*n matrix:

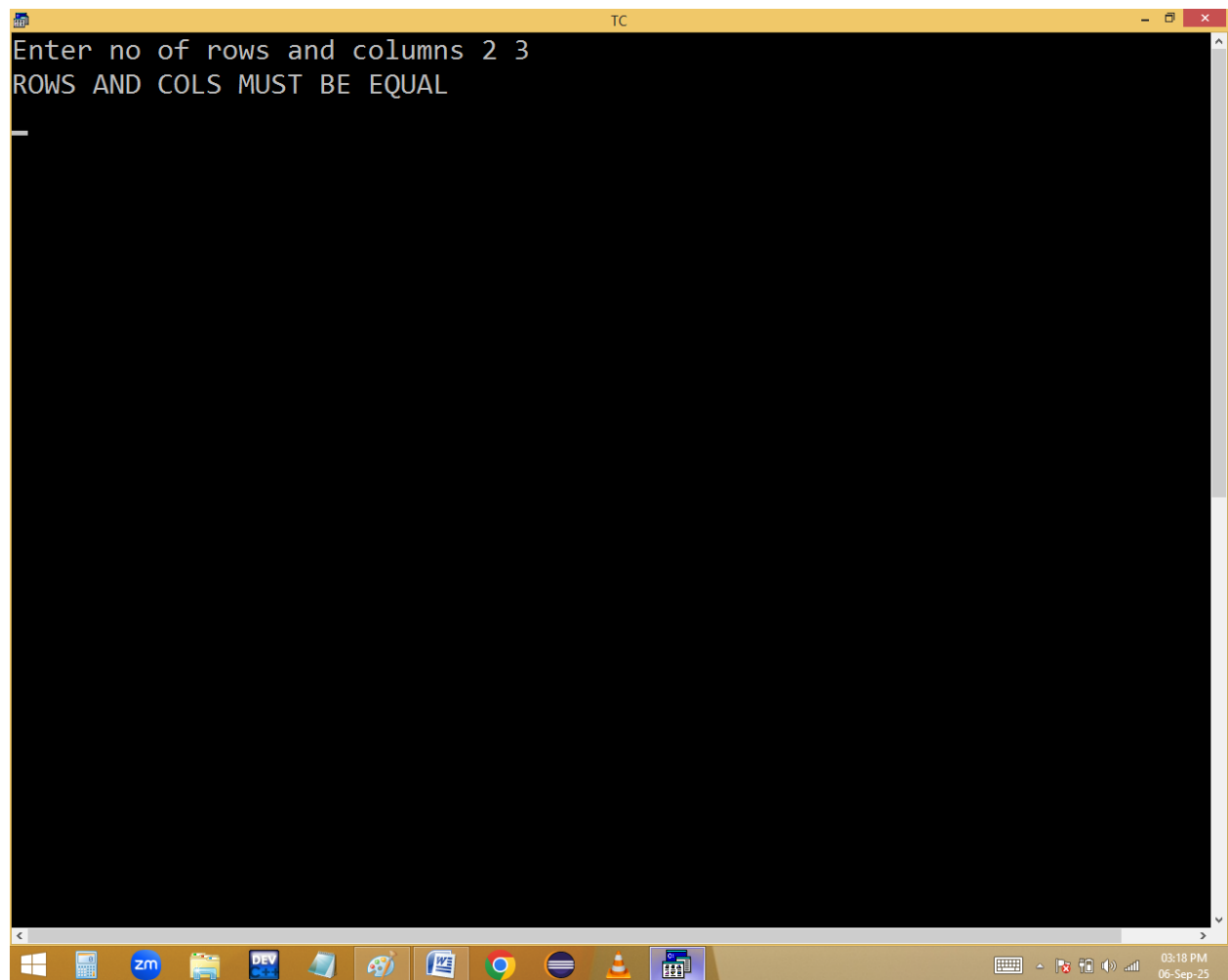
Trace means sum of principle diagonal elements.



The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 14 Col 42 Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc,s=0;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
if(nr==nc)
{
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++){scanf("%d",&a[r][c]);if(r==c)s+=a[r][c];}
printf("Trace=%d",s);
}
else puts("ROWS AND COLS MUST BE EQUAL");
getch();
}
```

Below the code editor, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM SC. The bottom status bar shows the window size as 404 x 122px, the main window size as 1359 x 792px, a zoom level of 100%, and the system clock as 03:17 PM on 06-Sep-25. The Windows taskbar is visible at the very bottom with various application icons.

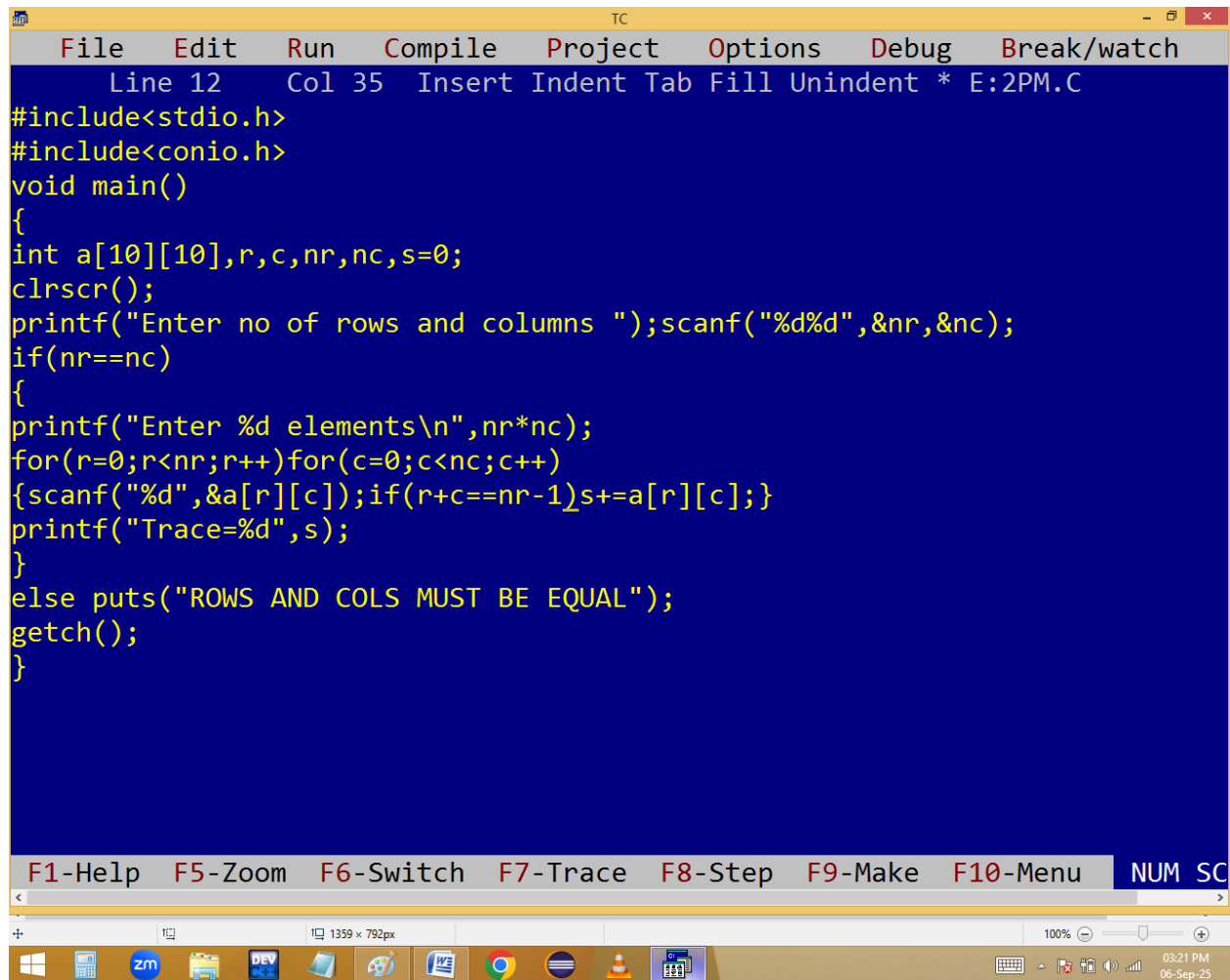


```
TC
Enter no of rows and columns 3 3
Enter 9 elements
1 0 2
3 1 4
9 2 3
Trace=5
```

`if(r==c) trace+=a[r][c];`

9 0,0	0 0,1	4 0,2
5 1,0	7 1,1	2 1,2
1 2,0	4 2,1	3 2,2

Trace=9+7+3=19



The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 12 Col 35 Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc,s=0;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
if(nr==nc)
{
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)
{scanf("%d",&a[r][c]);if(r+c==nr-1)s+=a[r][c];}
printf("Trace=%d",s);
}
else puts("ROWS AND COLS MUST BE EQUAL");
getch();
}
```

Below the code editor, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM SC. The Windows taskbar is visible at the bottom, showing various application icons and the system clock indicating 03:21 PM on 06-Sep-25.

```
TC
Enter no of rows and columns 3 3
Enter 9 elements
1 0 2
3 1 4
5 7 9
Trace=8_
```

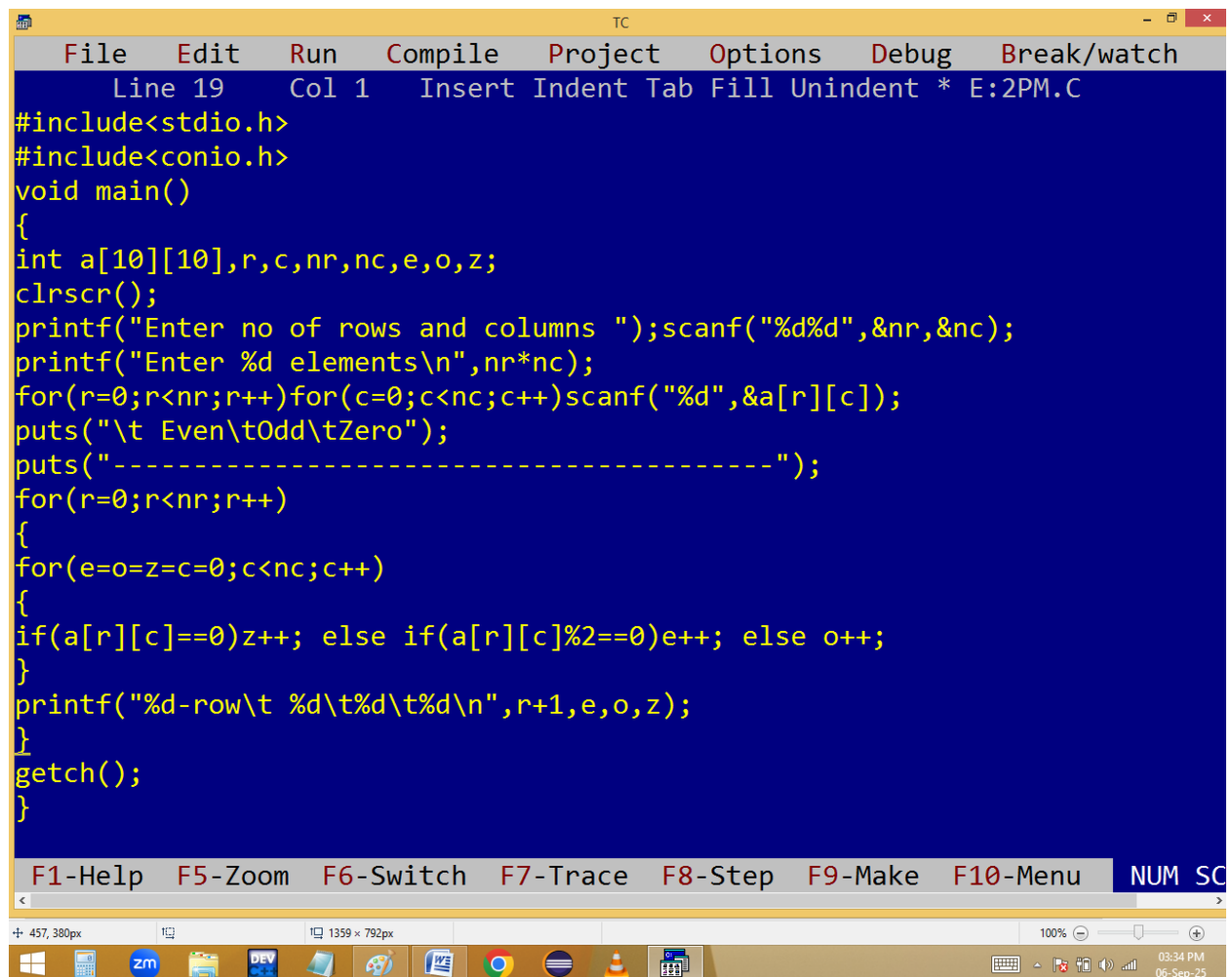
if(r+c ==nr-1) s+=a[r][c];

$$\frac{nr}{3}$$

9 0,0	0 0,1	4 0,2
5 1,0	7 1,1	2 1,2
1 2,0	4 2,1	3 2,2

sum=12

Read n elements into m*n matrix and find even/odd/zero elements row wise?



The image shows a screenshot of a Turbo C++ IDE window titled "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 19 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc,e,o,z;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
puts("\t Even\tOdd\tZero");
puts("-----");
for(r=0;r<nr;r++)
{
for(e=o=z=c=0;c<nc;c++)
{
if(a[r][c]==0)z++; else if(a[r][c]%2==0)e++; else o++;
}
printf("%d-row\t %d\t%d\t%d\n",r+1,e,o,z);
}
getch();
}
```

Below the code, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM SC. The bottom status bar shows the zoom level as 100%, the window size as 1359 x 792px, and the system clock as 03:34 PM on 06-Sep-25. The Windows taskbar at the very bottom contains icons for various applications including ZOOM, DEV, and a calendar.

```

Enter no of rows and columns 3 4
Enter 12 elements
4 9 1 0
9 0 3 2
5 8 6 0

Even    Odd    Zero
-----
1-row   1      2      1
2-row   1      2      1
3-row   2      1      1

```

```

puts("\t Even\tOdd\tZero");
puts("-----");

```

```

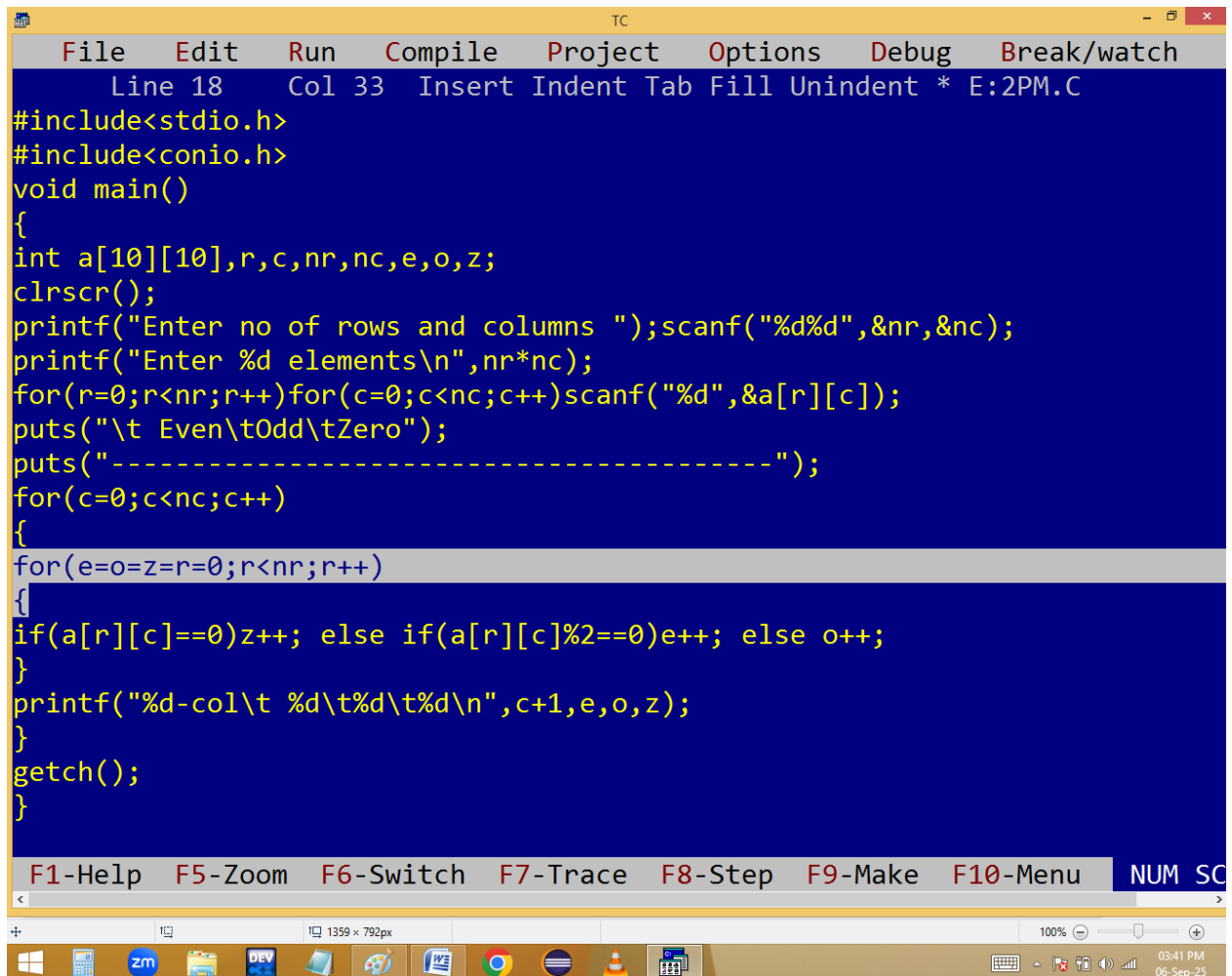
for( r=0; r<3; r++ )
{
for(e=o=z=c=0;c<4;c++)
{
if(a[r][c]==0)z++;
else if(a[r][c]%2==0)e++;
else o++;
}
printf("%d-row\t%d\t%d\t\n",r+1,e,o,z);
}

```

4	9	1	0
0,0	0,1	0,2	0,3
9	0	3	2
1,0	1,1	1,2	1,3
5	8	6	0
2,0	2,1	2,2	2,3

	Even	Odd	Zero
1-row	1	2	1
2-row	1	2	1
3-row	2	1	1

Col wise:



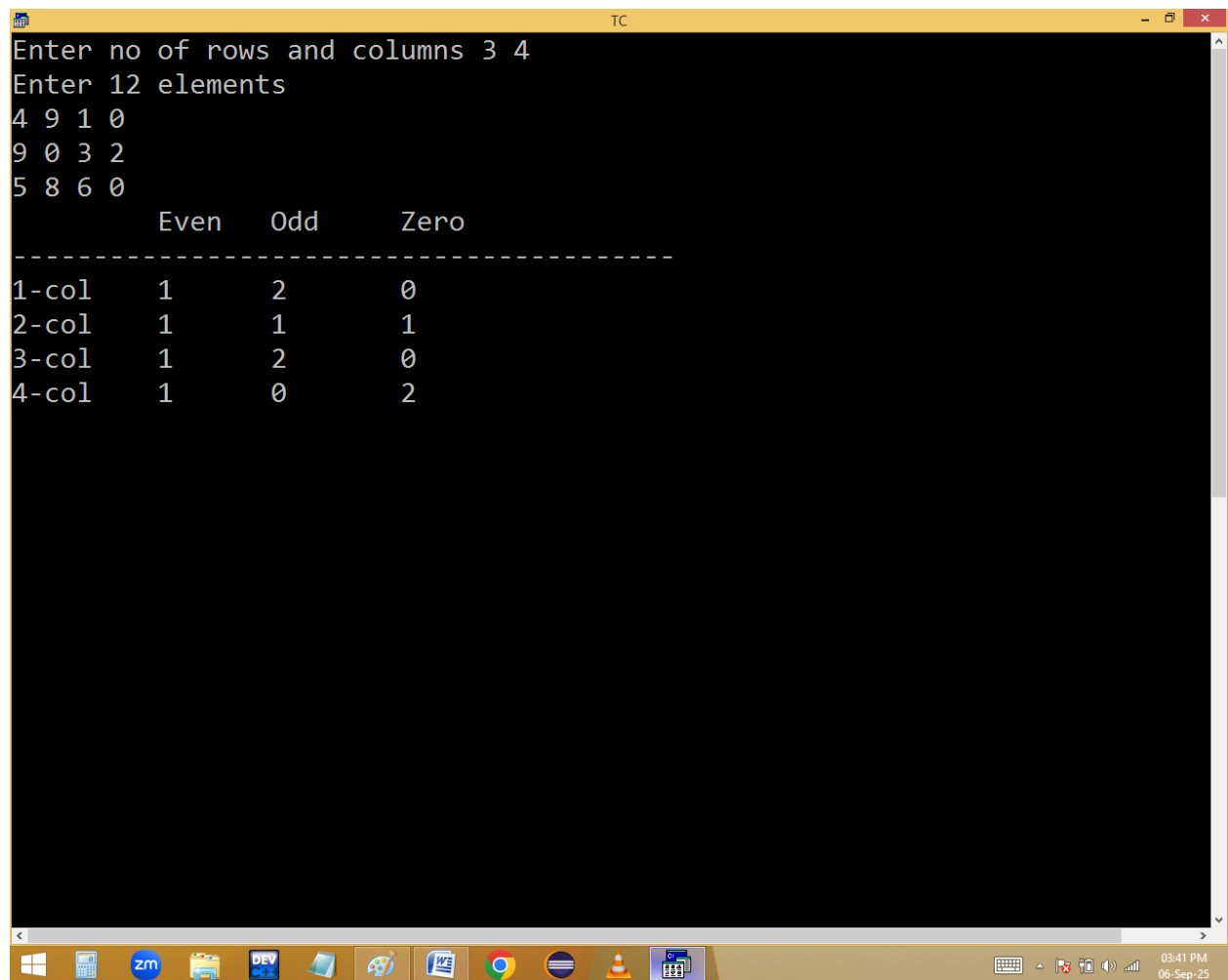
The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 18", "Col 33", and "Insert Indent Tab Fill Unindent * E:2PM.C". The main editing area has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],r,c,nr,nc,e,o,z;
clrscr();
printf("Enter no of rows and columns ");scanf("%d%d",&nr,&nc);
printf("Enter %d elements\n",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
puts("\t Even\tOdd\tZero");
puts("-----");
for(c=0;c<nc;c++)
{
for(e=o=z=r=0;r<nr;r++)
{
if(a[r][c]==0)z++; else if(a[r][c]%2==0)e++; else o++;
}
printf("%d-col\t %d\t%d\t%d\n",c+1,e,o,z);
}
getch();
}
```

Below the code, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", "F10-Menu", and "NUM SC". The bottom status bar shows the window size "1359 x 792px", a zoom level of "100%", and the system clock "03:41 PM 06-Sep-25". The Windows taskbar is visible at the very bottom with various application icons.

```
TC
Enter no of rows and columns 3 4
Enter 12 elements
4 9 1 0
9 0 3 2
5 8 6 0

Even    Odd    Zero
-----
1-col   1      2      0
2-col   1      1      1
3-col   1      2      0
4-col   1      0      2
```



The screenshot shows a Windows terminal window with a yellow title bar labeled 'TC'. The terminal displays the execution of a C program. It prompts the user to enter the number of rows and columns (3 and 4) and then 12 elements. The elements are entered as a 4x4 matrix. The program then prints a table with headers 'Even', 'Odd', and 'Zero', separated by a dashed line. The table shows the count of even, odd, and zero elements for each row (1-col to 4-col). The Windows taskbar is visible at the bottom, showing various application icons and the system clock indicating 03:41 PM on 06-Sep-25.