

Merging of arrays:

```
TC
File Edit Run Compile Project Options Debug
Line 2 Col 1 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],b[100],i,s1,s2,j; clrscr();
printf("Enter 1st array, 2nd array size 1-100 ");
scanf("%d%d",&s1,&s2);
printf("Enter %d elements for 1st array ",s1);
for(i=0;i<s1;i++)scanf("%d",&a[i]);
printf("Enter %d elements for 2nd array ",s2);
for(i=0;i<s2;i++)scanf("%d",&b[i]);
for(i=s1,j=0;i<s1+s2;i++,j++)a[i]=b[j];
for(i=0;i<=s1+s2-2;i++)
{
for(j=i+1;j<=s1+s2-1;j++)
{
if(a[i]>a[j]){int t=a[i];a[i]=a[j];a[j]=t;}}
printf("Elements are ");
for(i=0;i<s1+s2;i++)printf("%4d",a[i]);
getch();
}
```

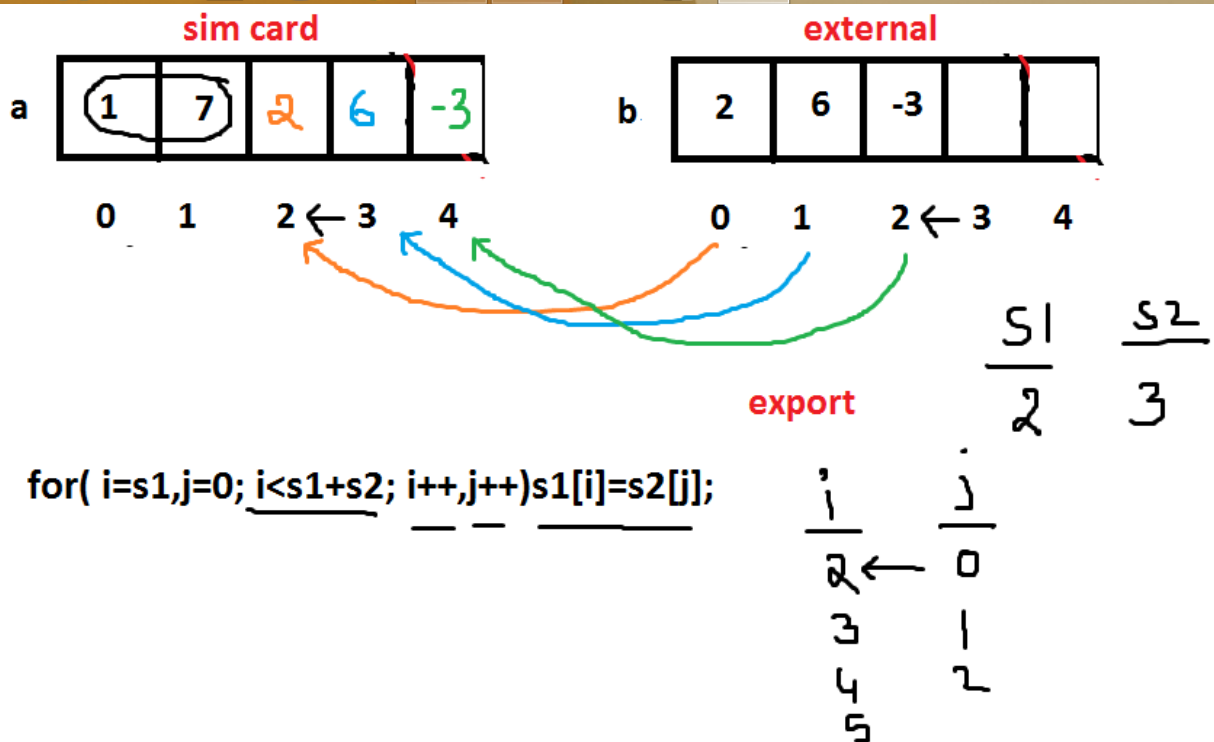
F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Run

9:30 AM 30-Nov-24

```

TC
Enter 1st array, 2nd array size 1-100 5 7
Enter 5 elements for 1st array 3 0 5 -2 8
Enter 7 elements for 2nd array 4 9 1 6 -5 8 -1
Elements are -5 -2 -1 0 1 3 4 5 6 8 8 9

```



Frequency of array elements:

```
TC
File Edit Run Compile Project Options Debug
Line 6 Col 1 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],b[100]={0},n,i,j,c;
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++)
{if(b[i]!=-1)
{for(c=1,j=i+1;j<n;j++)
{if(a[i]==a[j]){c++; b[j]=-1;}}
b[i]=c;
}
}
for(i=0;i<n;i++)if(b[i]!=-1)
printf("%d found %d times\n",a[i],b[i]);
getch();
}
```

```

Enter array size 1-100 8
Enter 8 elements 1 7 1 2 3 2 1 7
1 found 3 times
7 found 2 times
2 found 2 times
3 found 1 times

```

```

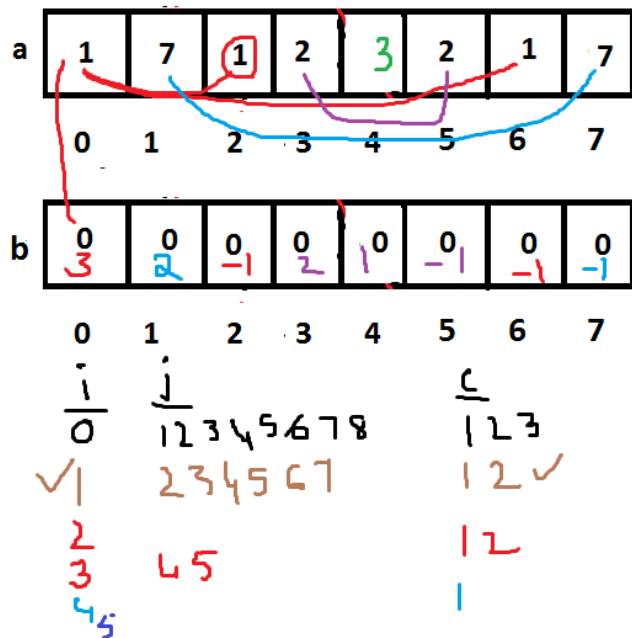
for( i=0; i<n; i++)
{
    if(b[i] != -1)
    for( c=1, j=i+1; j<n; j++)
    {
        if(a[i] == a[j]) { c++; b[j] = -1; }
    }
    b[i] = c;
}

for( i=0; i<n; i++) if(b[i] != -1)
p("%d found %d times\n", a[i], b[i]);

```

Handwritten notes on the code:

- Vertical text on the right: 1, 0, 1, 2, 3, 4
- Checkmarks (✓) next to the first and last elements of the array in the output loop.
- Handwritten counts for each element:
 - 1: 3
 - 7: 2
 - 1: 2
 - 2: 2
 - 3: 1
 - 2: 2
 - 1: 1



Two dimensional arrays:

Array with several rows and columns.

Array with two subscripting operators **[][]**.

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

It is implicit double pointer.

It is a $n \times n$ matrix.

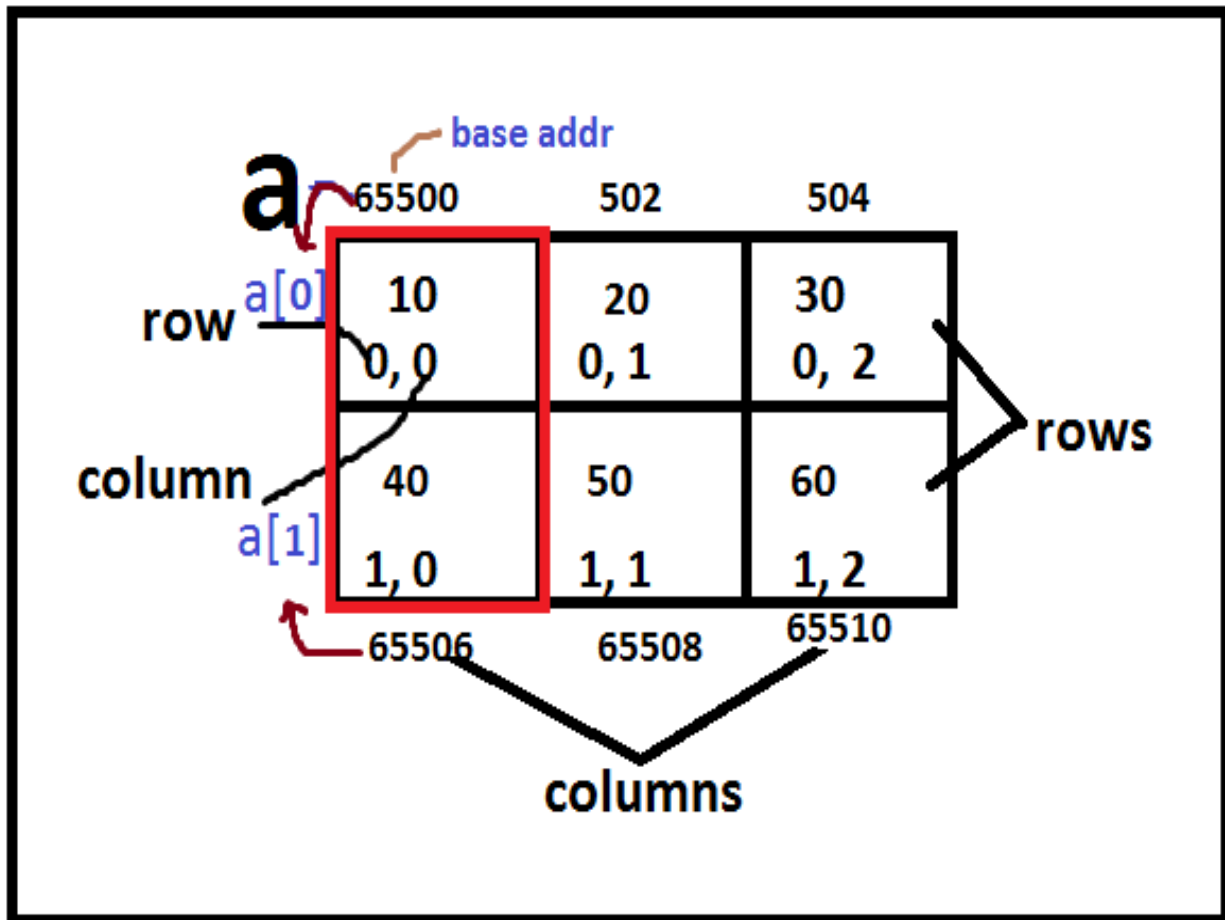
Syntax:

datatype variable [rows] [columns] = {elements} ;

Eg:

```
int a[ 2 ][ 3 ] = { { 10, 20 , 30 } , { 40 ,50, 60 } };
```

stack



In two dimensional array the rows/first subscript is working as array of pointers and they stores first column address of each row. Hence it is an implicit/internal double pointer.

In the above example, To print the first row, first column value, we have to use

`printf("%d", a[0][0]);` → 10

Internally how this statement is working ?

`a[0]` means value at `a[0]` i.e. 65500.

`65500 + [0] col` → `65500 + 0 * 2` → `65500` →
value at 65500 is 10.

Index no

Int size

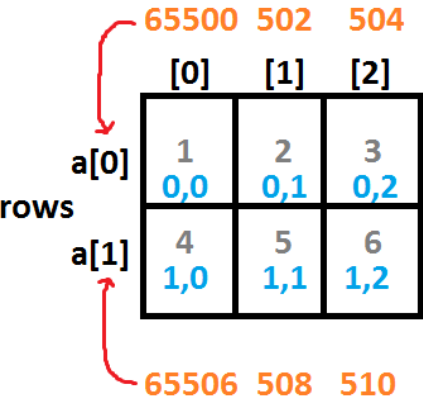
stack

<code>a[1][2]</code>	<u>60</u>	65500
<code>a[1][1]</code>	<u>50</u>	65498
<code>a[1][0]</code>	40	65496
<code>a[0][2]</code>	<u>30</u>	65494
<code>a[0][1]</code>	<u>20</u>	65492
<code>a[0][0]</code>	<u>10</u>	65490

`int a[2][2]={10,20,30,40};`

<code>a[1][1]</code>	40	65496
<code>a[1][0]</code>	<u>30</u>	65494
<code>a[0][1]</code>	<u>20</u>	65492
<code>a[0][0]</code>	<u>10</u>	65490

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



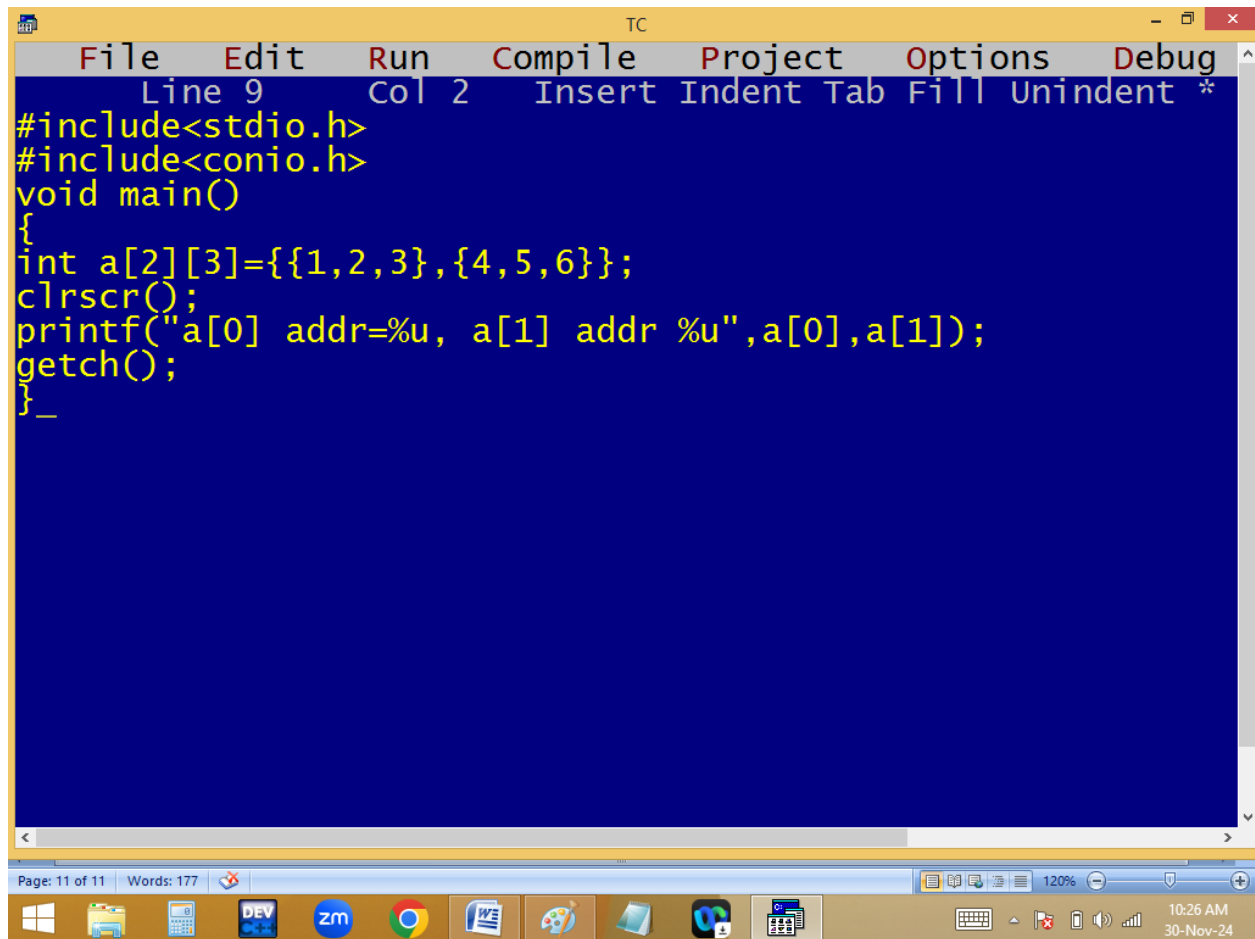
```
p("%d", a[0][0] ); ==> 1
65500+0*2=65500==>value at 65500==>1

p("%d",a[1][2]);==>6
65506+2*2=65510==>value at 65510==>6
```

stack

a[1][2]	6	65510
a[1][1]	5	65508
	4	65506
a[1][0]		
a[0][2]	3	65504
a[0][1]	2	65502
a[0][0]	1	65500

Finding address of 2d array:



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", and "Debug". Below the menu bar, the status bar shows "Line 9", "Col 2", and a list of editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". The main editing area has a dark blue background with yellow text. The code is as follows:

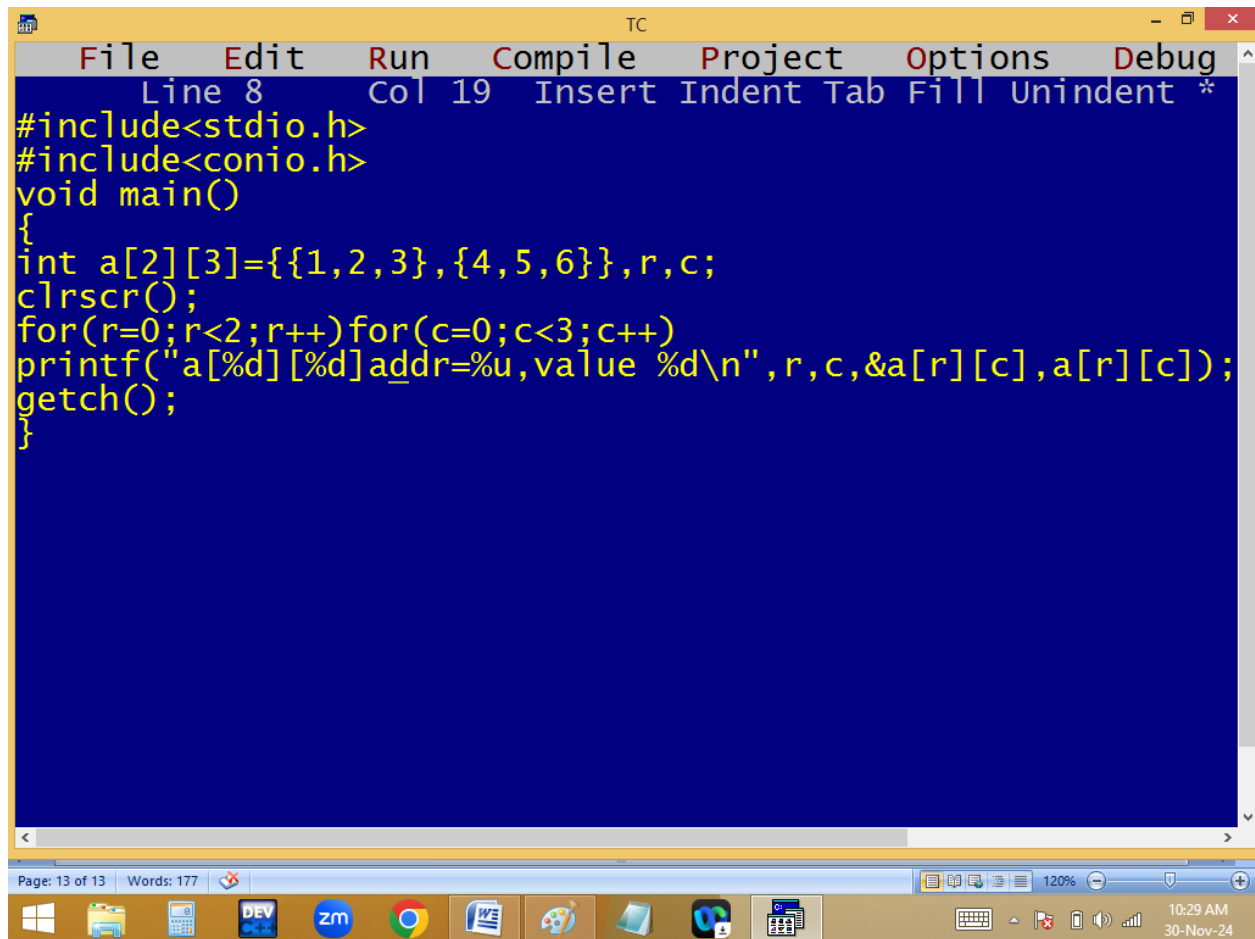
```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3},{4,5,6}};
clrscr();
printf("a[0] addr=%u, a[1] addr %u",a[0],a[1]);
getch();
}_
```

At the bottom of the window, there is a status bar showing "Page: 11 of 11" and "Words: 177". Below the status bar is a Windows taskbar with various icons including Windows Start, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and a folder icon. The system clock in the bottom right corner shows "10:26 AM" and "30-Nov-24".

```
TC
a[0] addr=65492, a[1] addr 65498
```

Page: 11 of 11 Words: 177 120% 10:26 AM 30-Nov-24

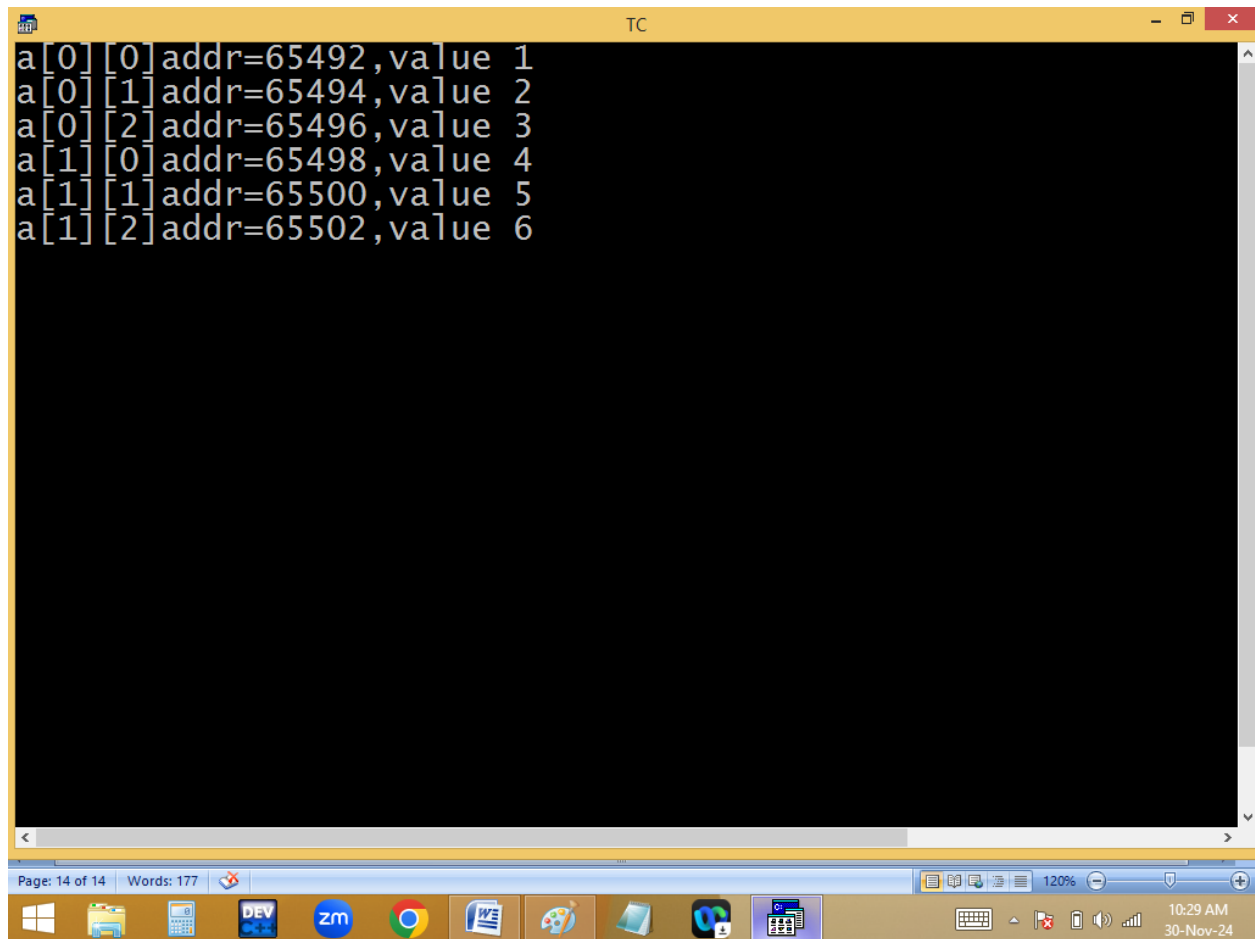
Finding array cell no, element and address:



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", and "Debug". The status bar at the top indicates "Line 8", "Col 19", and lists editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". The code editor 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]={{1,2,3},{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();
}
```

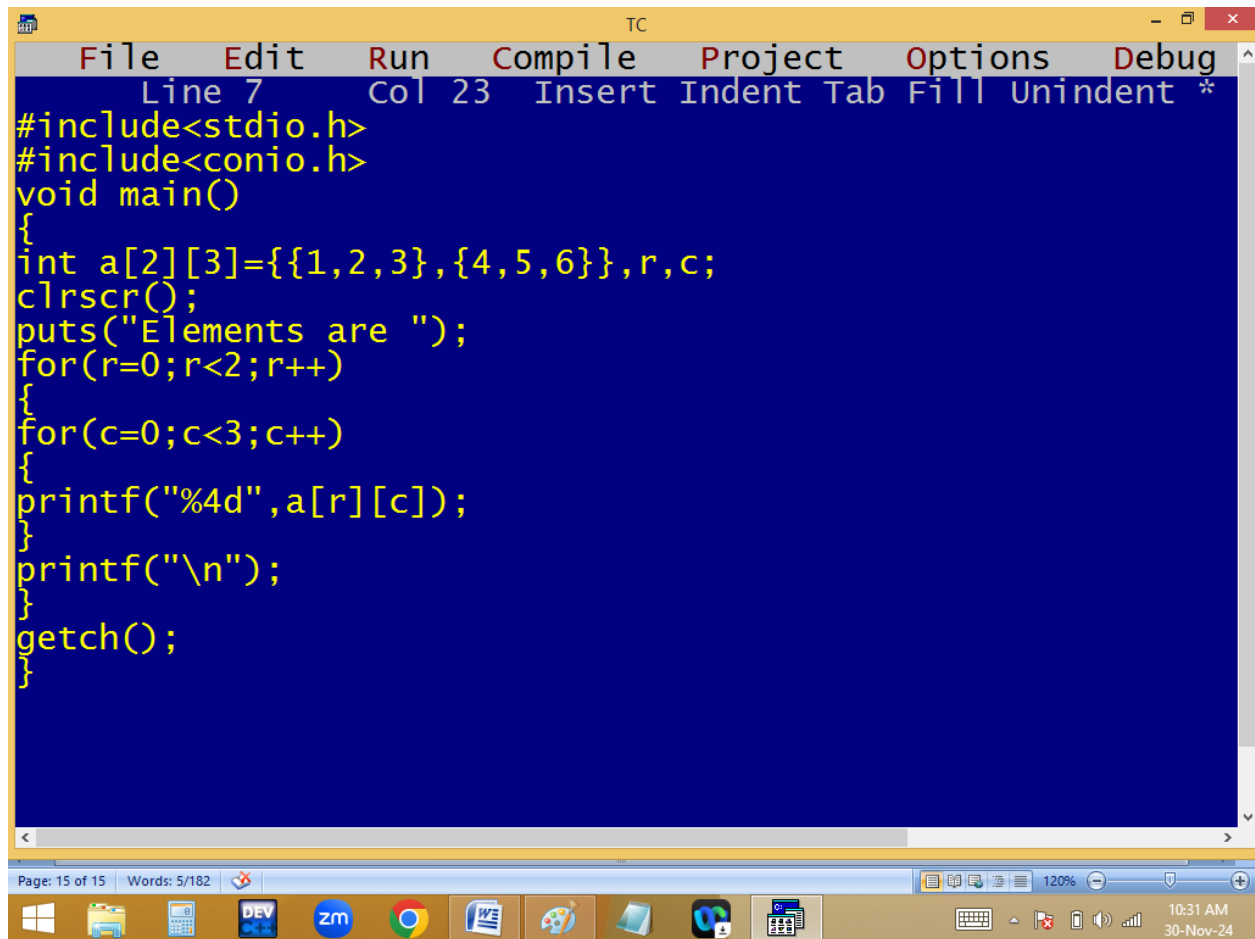
The status bar at the bottom of the IDE shows "Page: 13 of 13" and "Words: 177". The Windows taskbar is visible at the bottom, showing icons for Windows, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and other applications. The system clock in the bottom right corner shows "10:29 AM" and "30-Nov-24".



```
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
```

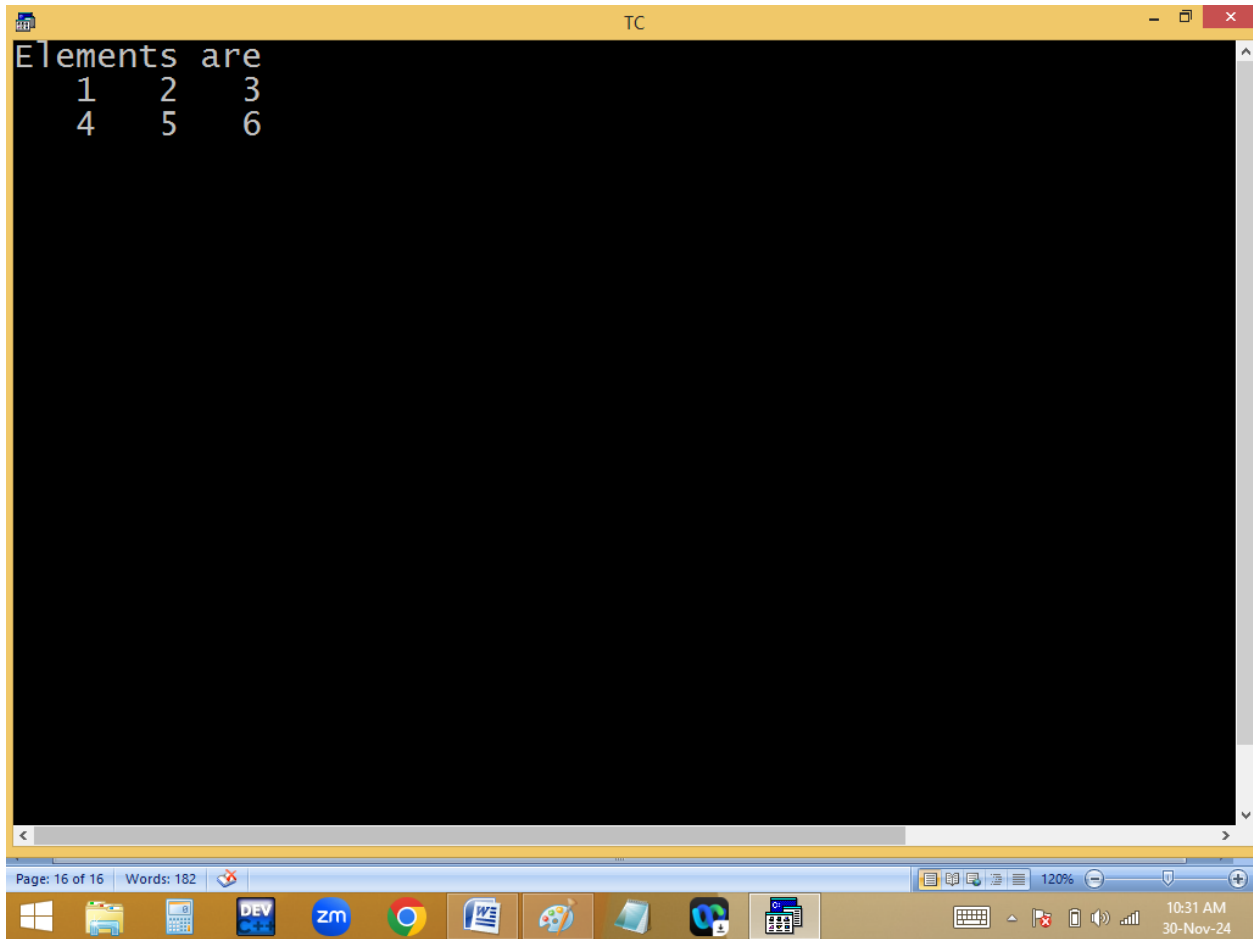
The screenshot shows a Turbo C++ IDE window with a black background and white text. The code defines a 2x3 matrix 'a' and initializes each element with a specific memory address and value. The window title is 'TC'. The status bar at the bottom indicates 'Page: 14 of 14' and 'Words: 177'. The taskbar at the very bottom shows various application icons and the system clock displaying '10:29 AM 30-Nov-24'.

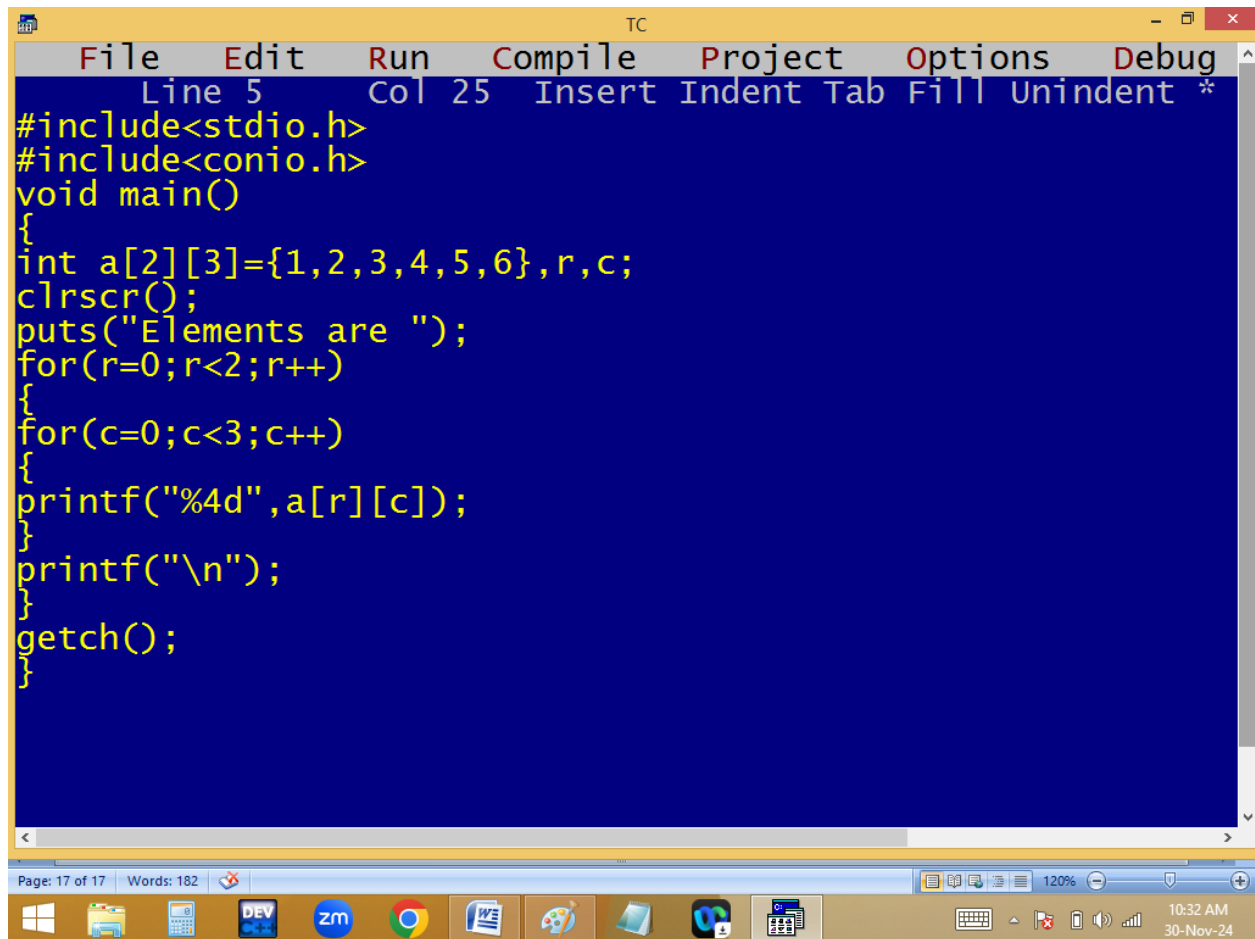
Direct initialization of 2*3 matrix:



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", and "Debug". The status bar at the top indicates "Line 7", "Col 23", and lists editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". The code is written in yellow text on a dark blue background. It includes headers for `stdio.h` and `conio.h`, defines a `main` function, and declares a 2x3 integer array `a` with values `{1, 2, 3}` and `{4, 5, 6}`. The program uses `clrscr()` to clear the screen, prints the header "Elements are ", and uses nested `for` loops to iterate through the array elements, printing each with a width of 4 characters. It ends with `printf("\n")` and `getch()`. The bottom status bar shows "Page: 15 of 15" and "Words: 5/182". The Windows taskbar at the bottom contains icons for various applications and the system clock shows "10:31 AM 30-Nov-24".

```
#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("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

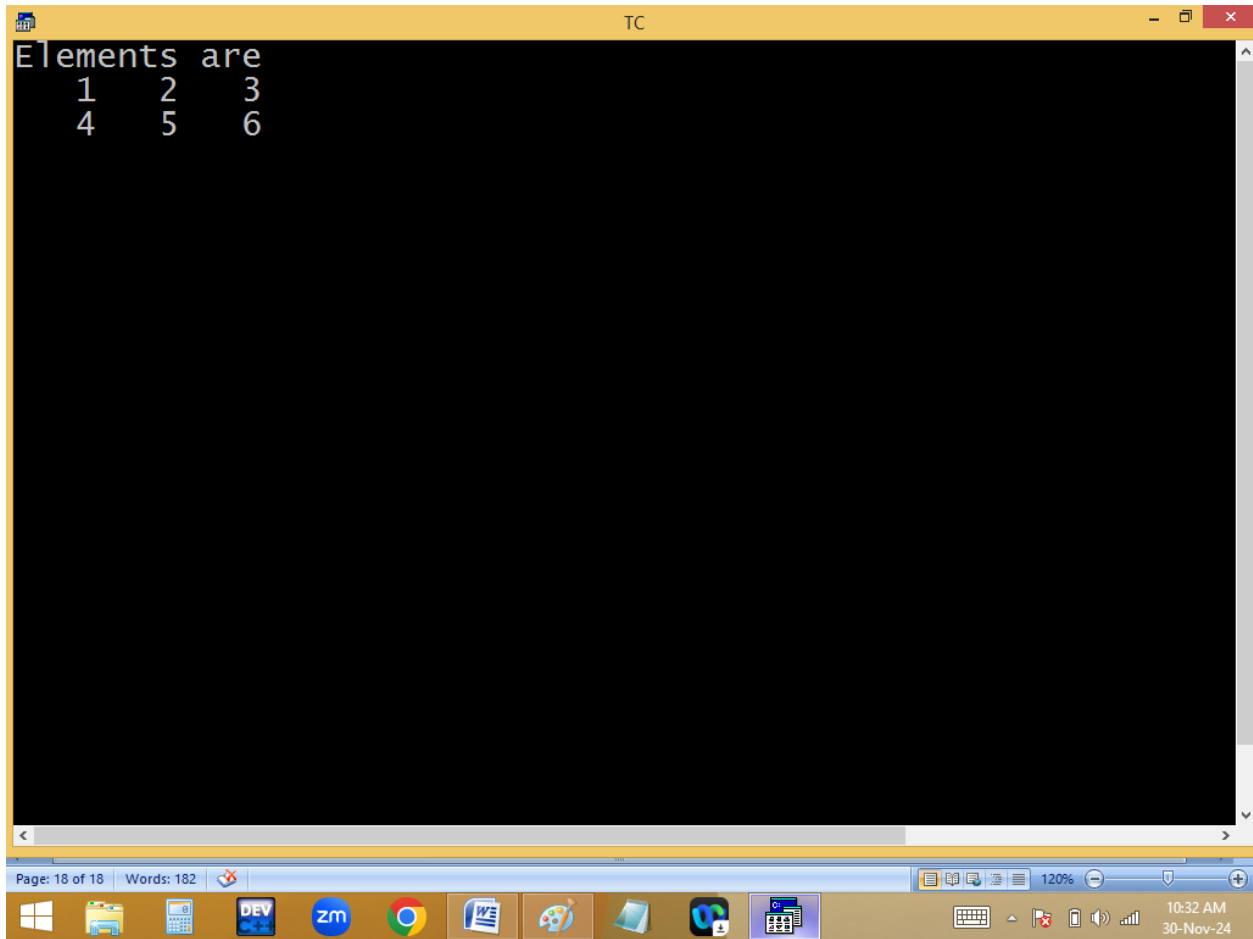



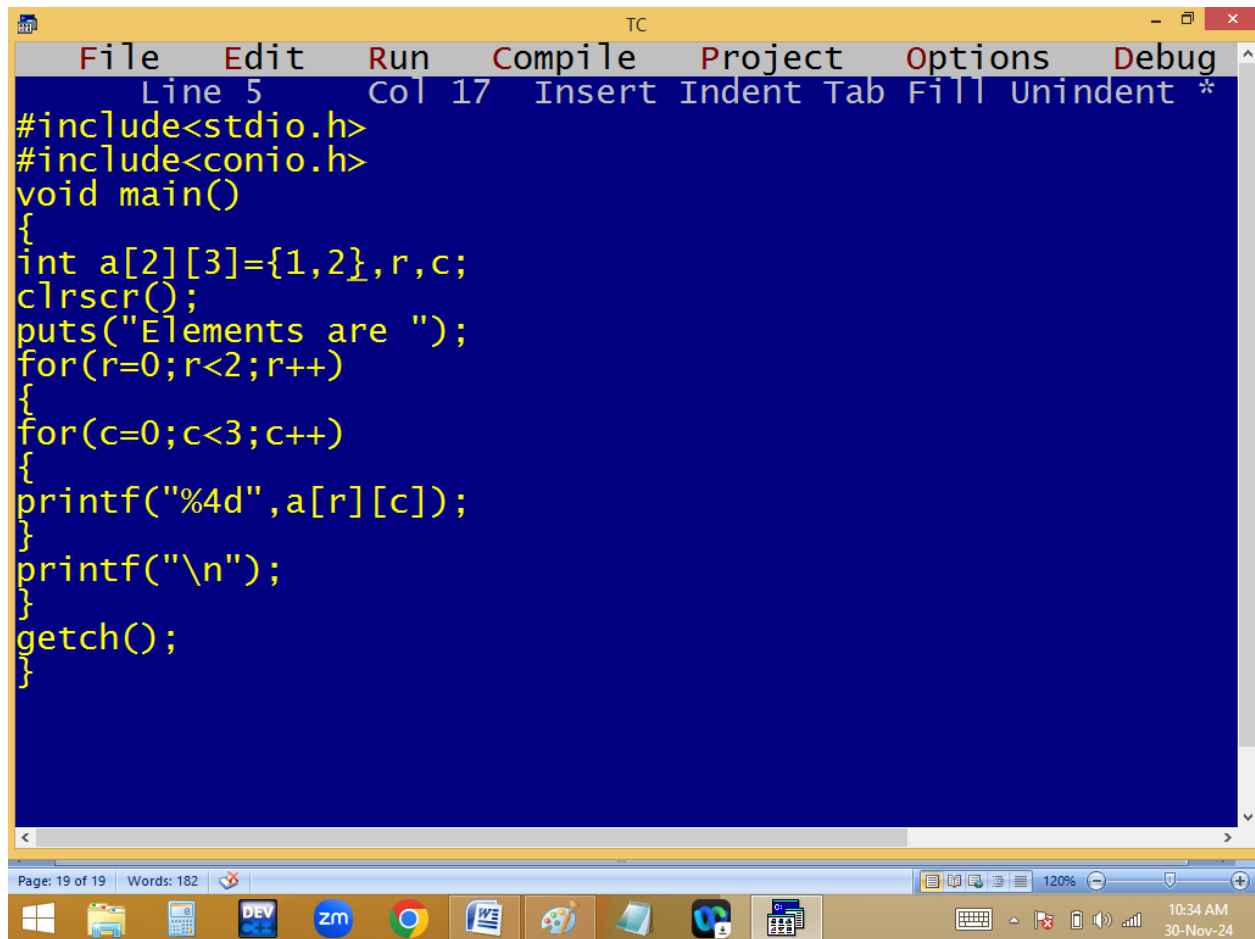


The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. The menu bar at the top includes File, Edit, Run, Compile, Project, Options, and Debug. Below the menu bar, the status bar shows 'Line 5' and 'Col 25'. The code being edited is a C program that prints the elements of a 2x3 array. The code 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("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

At the bottom of the window, there is a status bar showing 'Page: 17 of 17' and 'Words: 182'. The Windows taskbar is visible at the very bottom, showing various application icons and the system clock indicating 10:32 AM on 30-Nov-24.

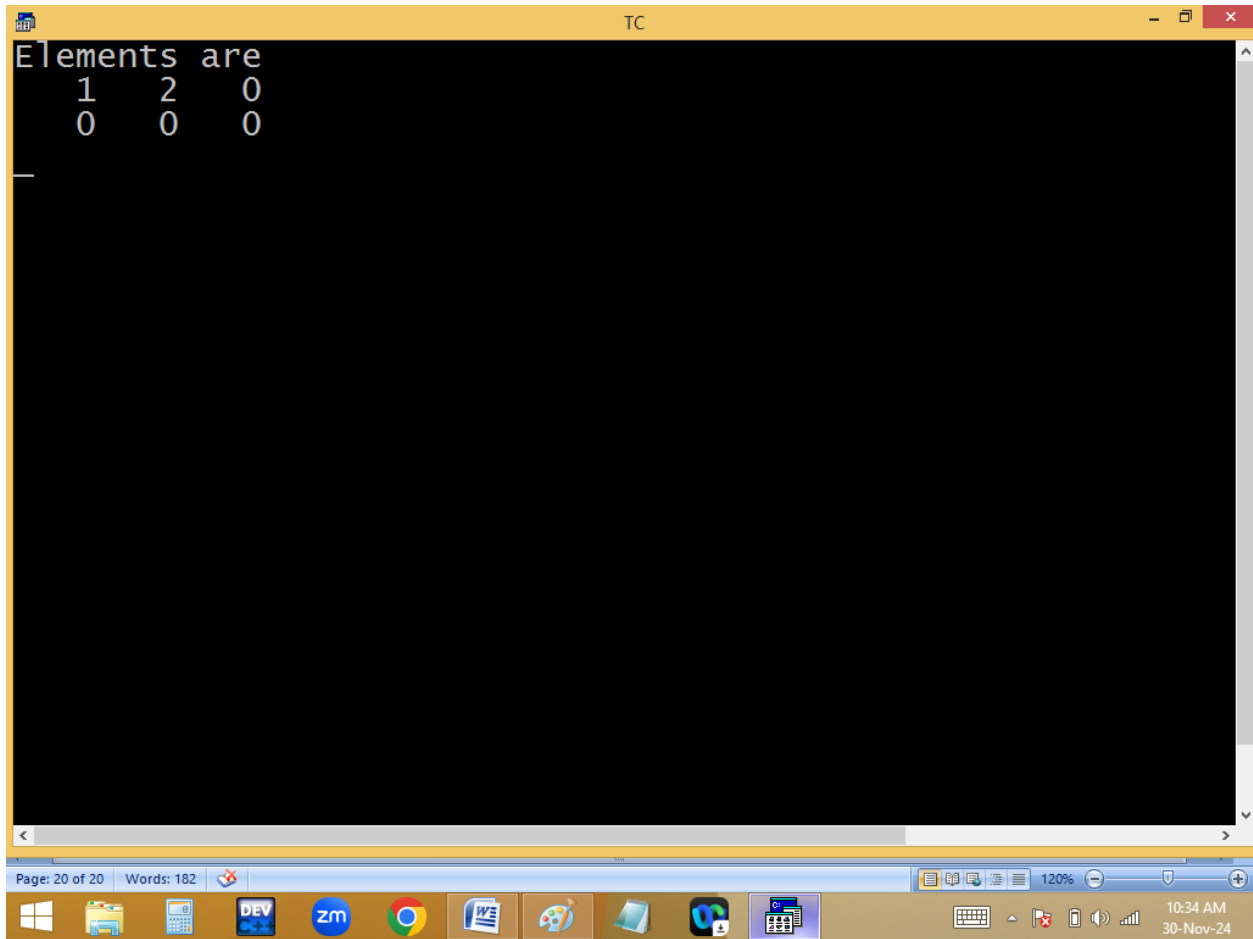


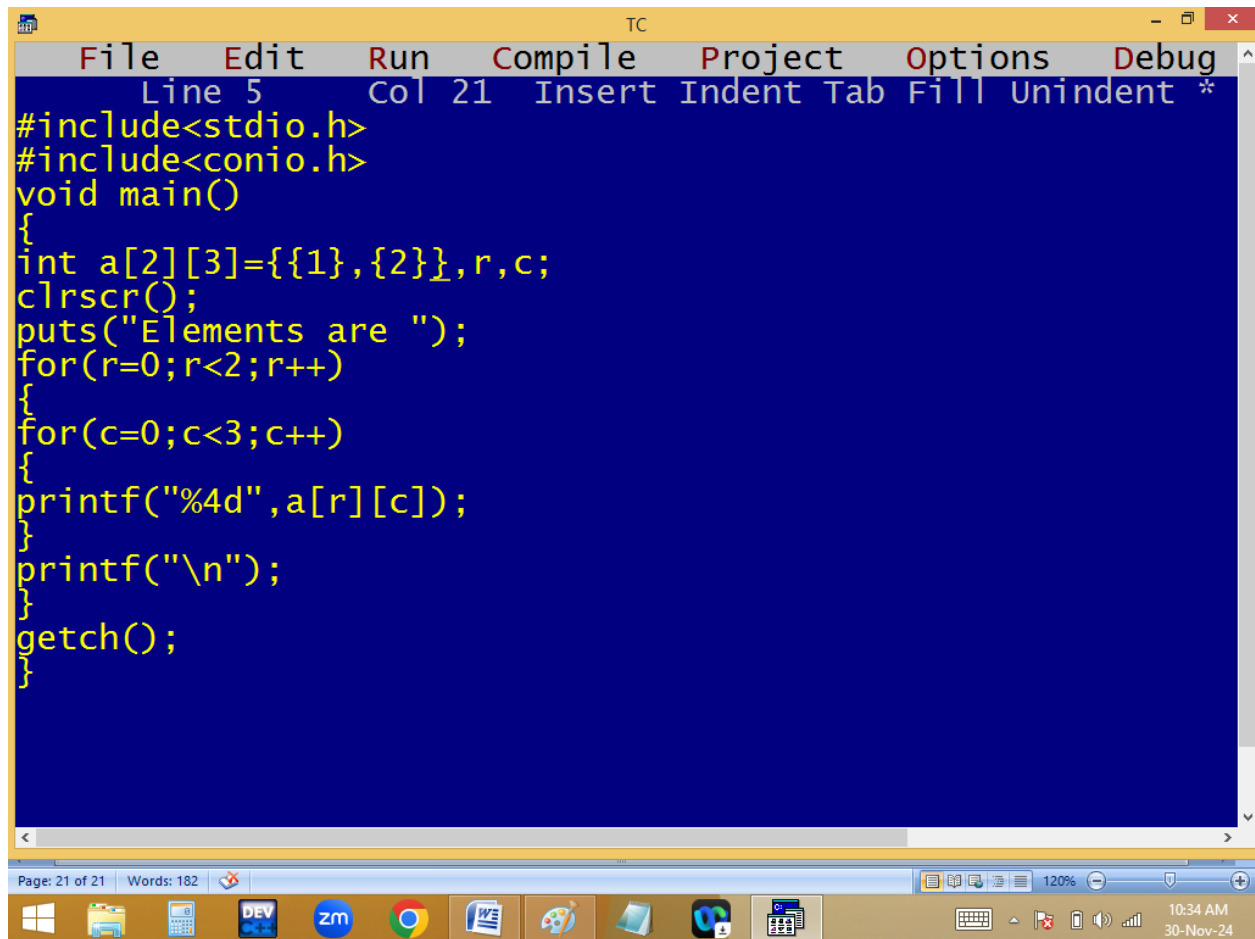


The image shows a screenshot of a Turbo C++ (TC) IDE window. The window has a yellow title bar with the text "TC" and standard window controls. The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". Below the menu bar, a status bar shows "Line 5", "Col 17", and a list of editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". 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("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

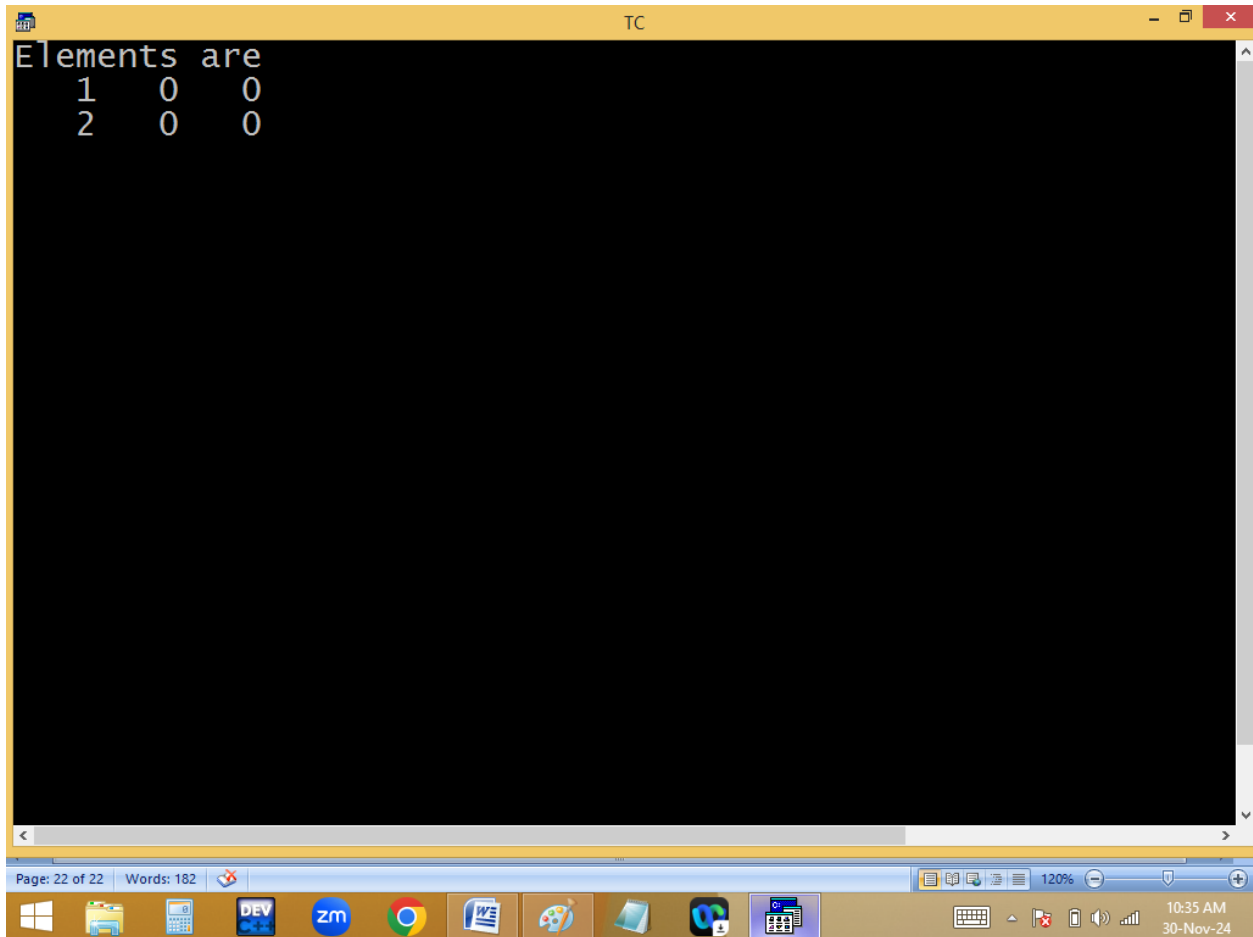
At the bottom of the window, there is a status bar showing "Page: 19 of 19" and "Words: 182". Below the IDE window is the Windows taskbar, which includes icons for the Start button, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, a folder, OneDrive, and a calendar. The system tray on the right shows the time as "10:34 AM" and the date as "30-Nov-24".

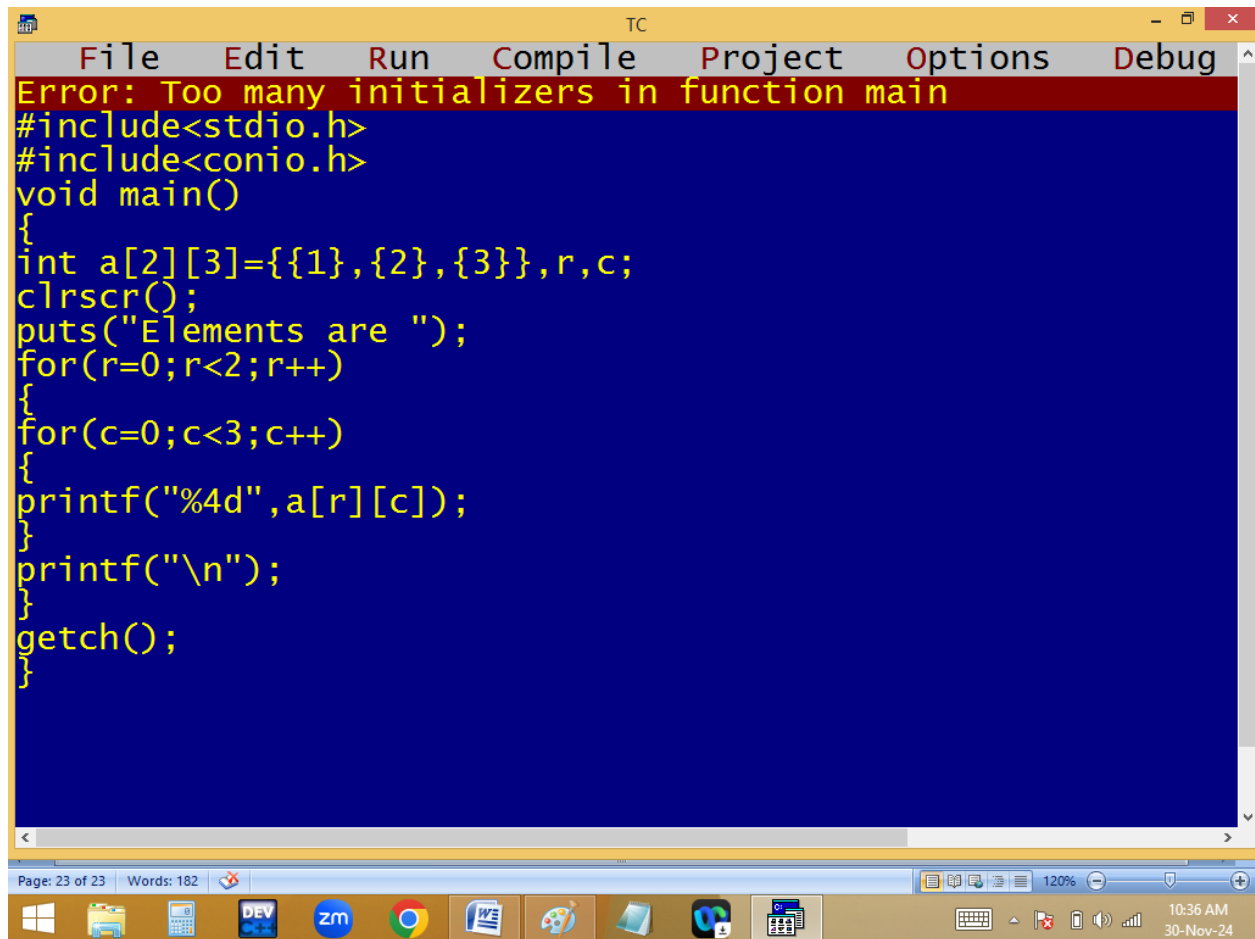




The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". The status bar at the top indicates "Line 5", "Col 21", and lists keyboard shortcuts: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". The code is written in yellow text on a dark blue background. It includes headers for `stdio.h` and `conio.h`, defines a `main` function, declares a 2x3 integer array `a` with values `{{1},{2}}`, clears the screen with `clrscr()`, prints the label "Elements are ", and uses nested `for` loops to iterate through the array elements, printing each with `printf("%4d", a[r][c]);` followed by a newline. The program ends with `getch()`. The bottom status bar shows "Page: 21 of 21" and "Words: 182". The Windows taskbar at the bottom contains icons for various applications including a file explorer, calculator, DEV C++, Zoom, Google Chrome, Word, a game controller, a folder, and a calendar. The system clock in the bottom right corner shows "10:34 AM" and "30-Nov-24".

```
#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("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```





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", and "Debug". A red error message banner at the top states: "Error: Too many initializers in function main". The code editor 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]={1,2,3},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

At the bottom of the window, a status bar shows "Page: 23 of 23" and "Words: 182". The Windows taskbar is visible at the very bottom, displaying icons for Windows, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and other applications. The system clock in the bottom right corner shows "10:36 AM" and "30-Nov-24".

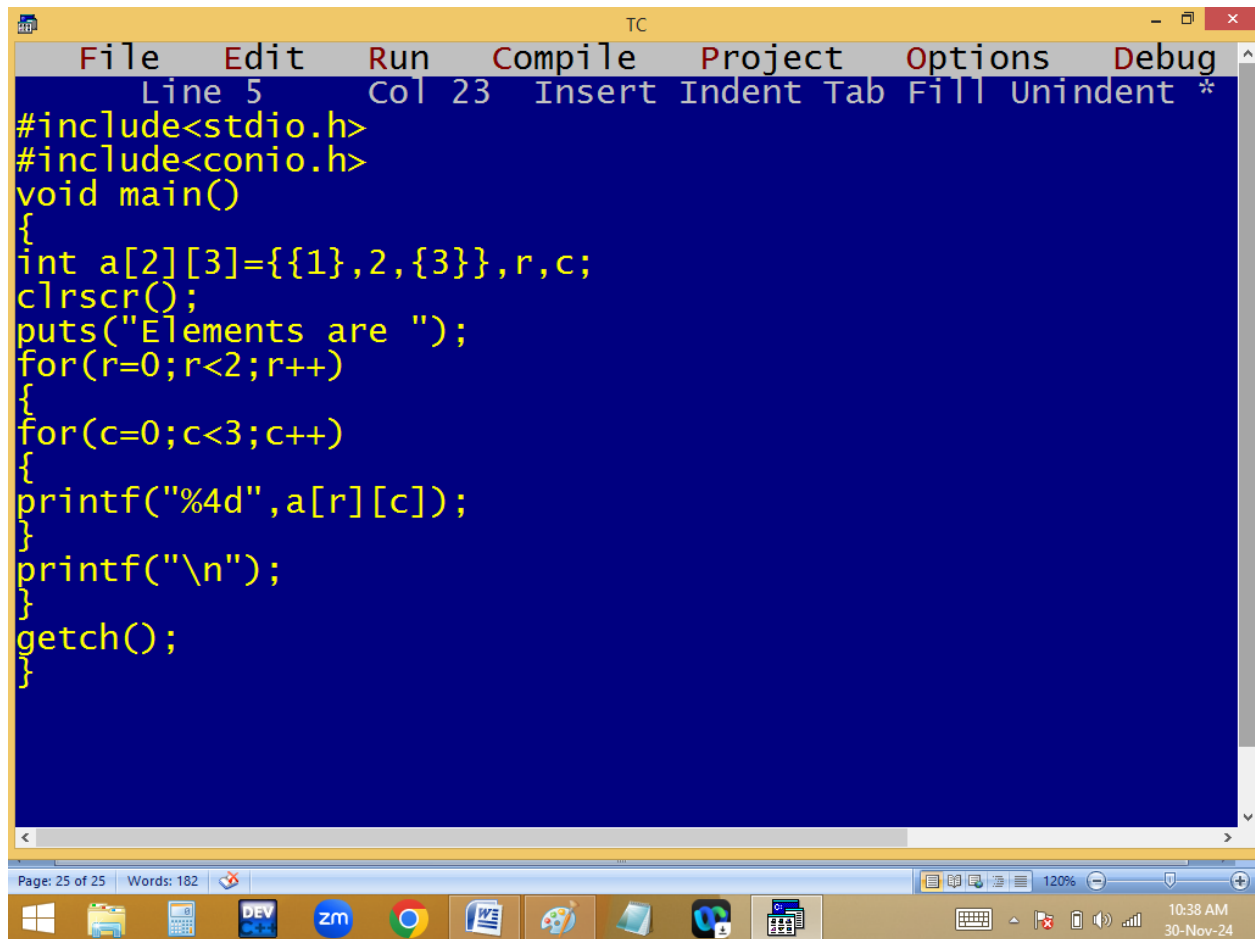
TC

File Edit Run Compile Project Options Debug

Error: Too many initializers in function main

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

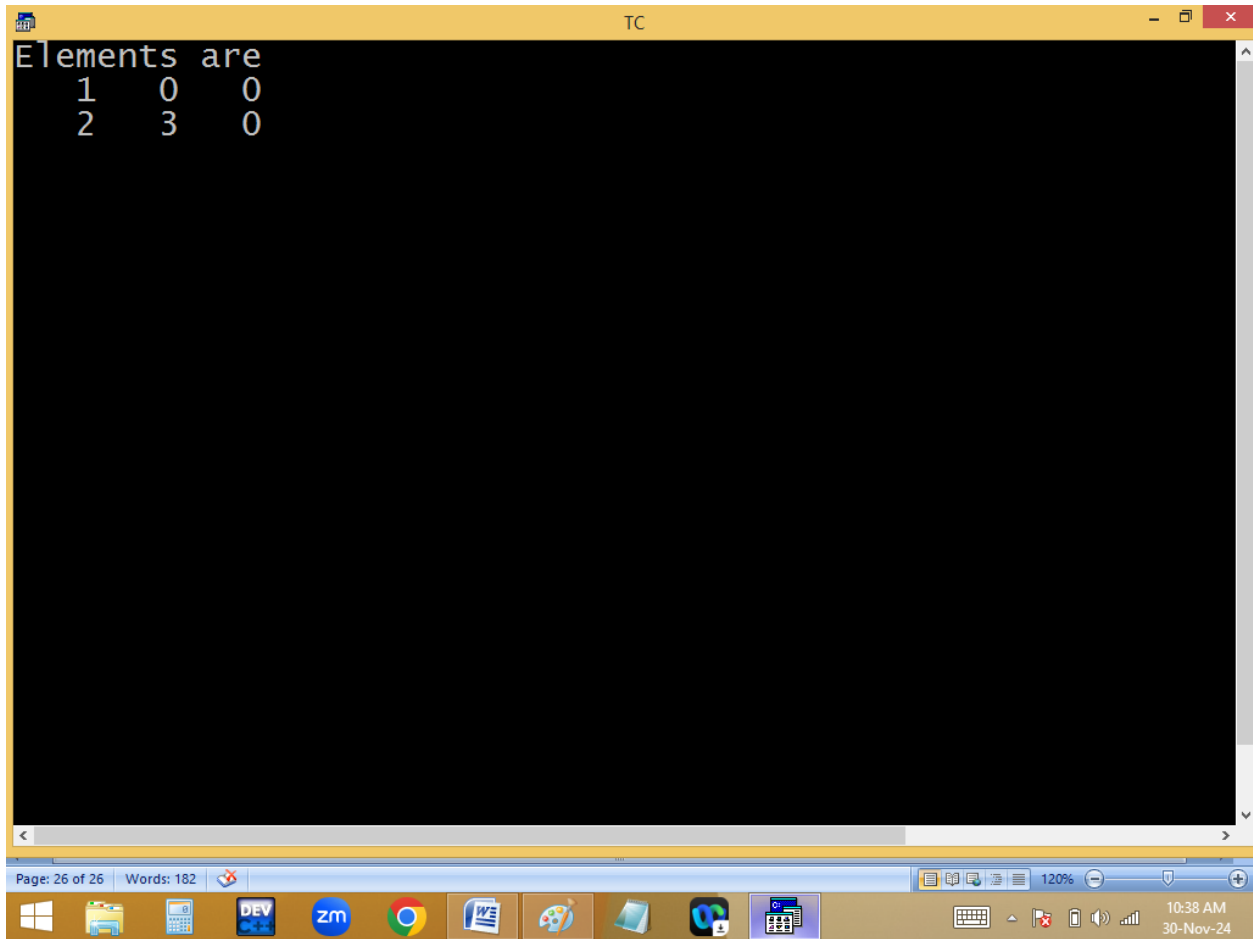
Page: 24 of 24 Words: 182 120% 30-Nov-24 10:37 AM

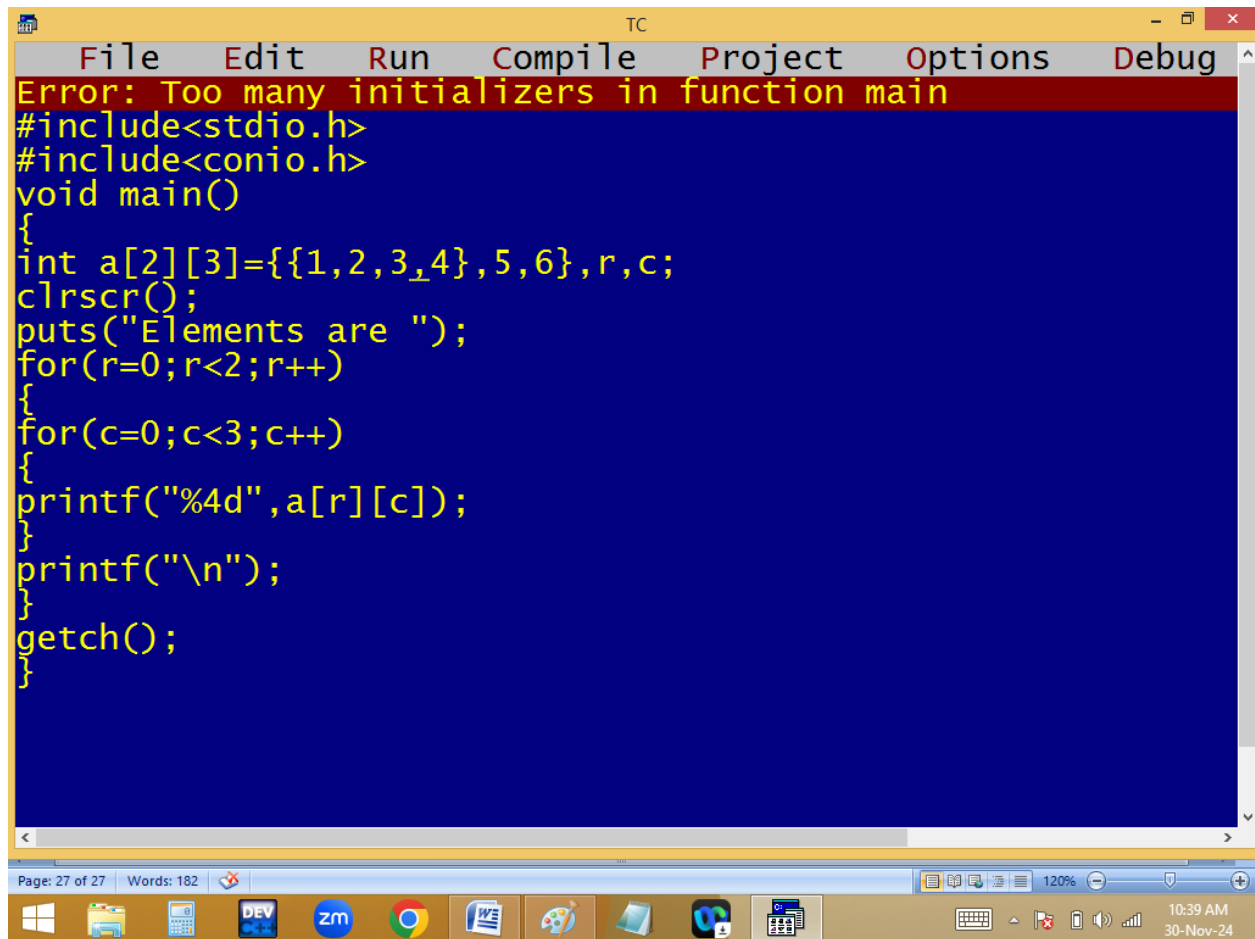


The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". The status bar at the top indicates "Line 5", "Col 23", and lists editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". The code is written in yellow text on a dark blue background. It includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, a 2D array `a` of type `int` is declared and initialized with values `{{1}, 2, {3}}`. The array is then printed using nested `for` loops and `printf` statements. The code ends with `getch()`. The bottom status bar shows "Page: 25 of 25" and "Words: 182". The Windows taskbar at the bottom contains icons for various applications, including a file explorer, calculator, DEV C++, Zoom, Google Chrome, Word, a game controller, and a folder. The system clock in the bottom right corner shows "10:38 AM" and "30-Nov-24".

```
File Edit Run Compile Project Options Debug
Line 5 Col 23 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1},2,{3}},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

Page: 25 of 25 Words: 182 120% 10:38 AM 30-Nov-24

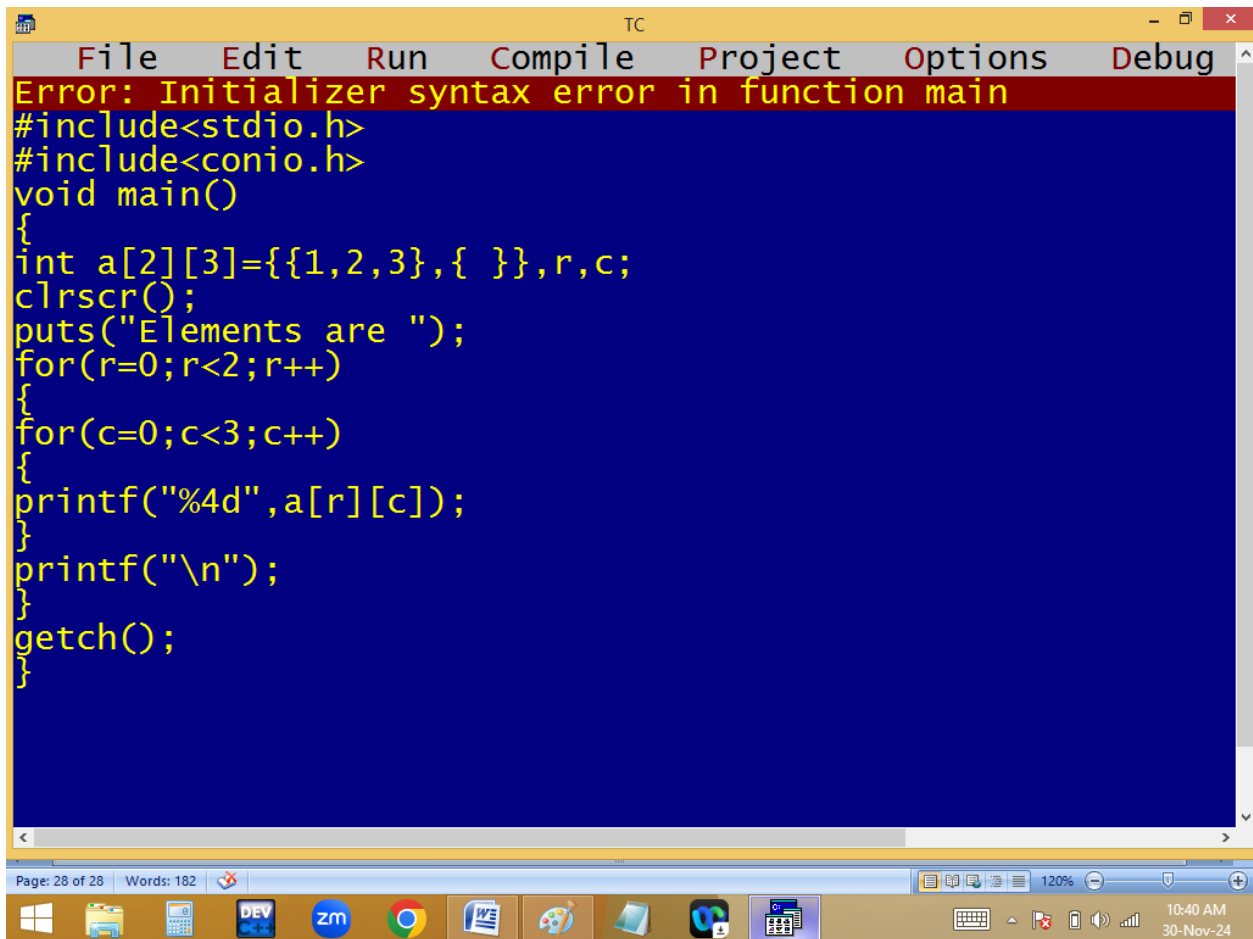




The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". A red error message banner at the top reads "Error: Too many initializers in function main". The code editor has a dark blue background with yellow text. The code is as follows:

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

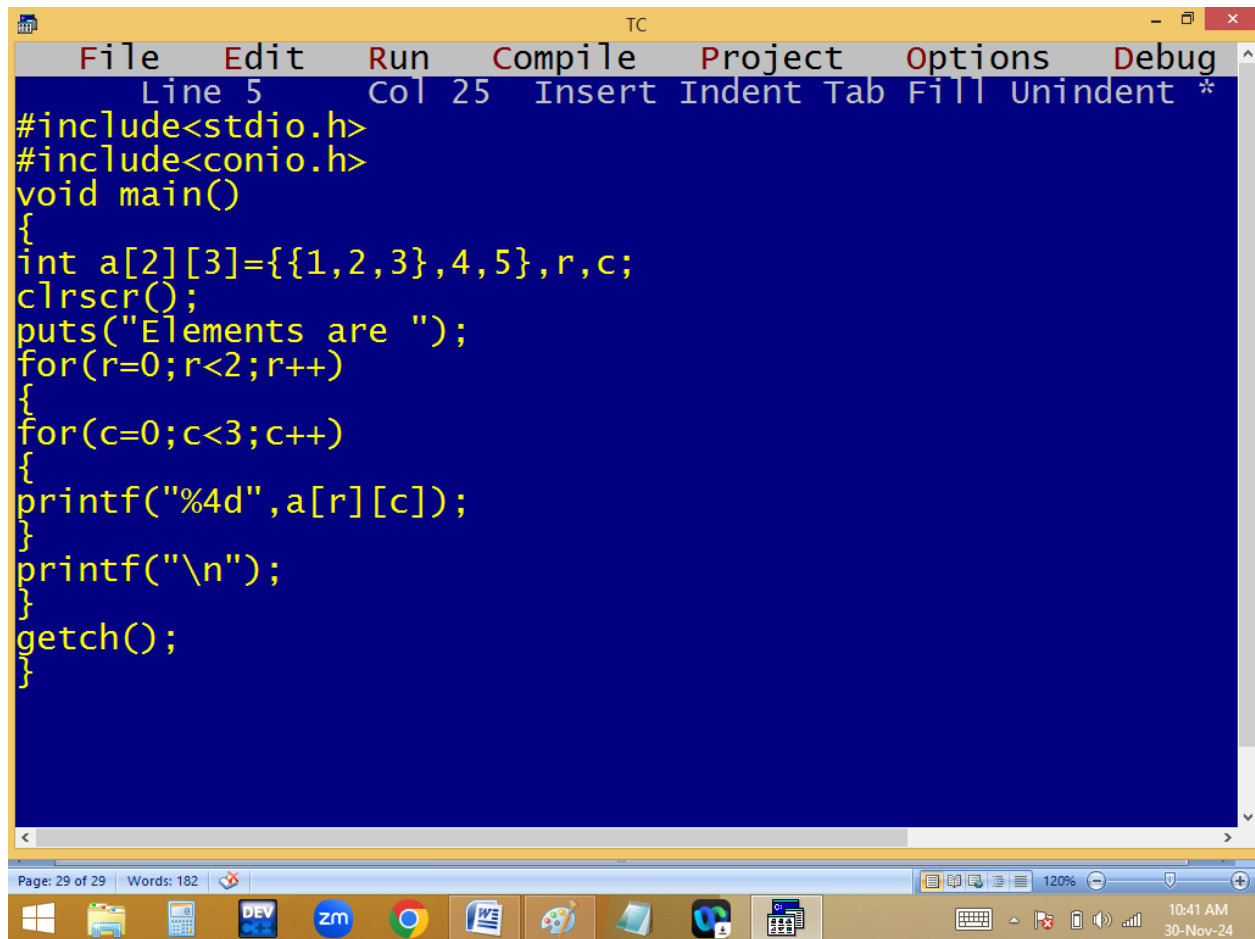
At the bottom, the status bar shows "Page: 27 of 27" and "Words: 182". The Windows taskbar is visible at the bottom with various application icons and a system clock showing 10:39 AM on 30-Nov-24.



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", and "Debug". A red error banner at the top states "Error: Initializer syntax error in function main". The code editor has a blue background and contains the following C code:

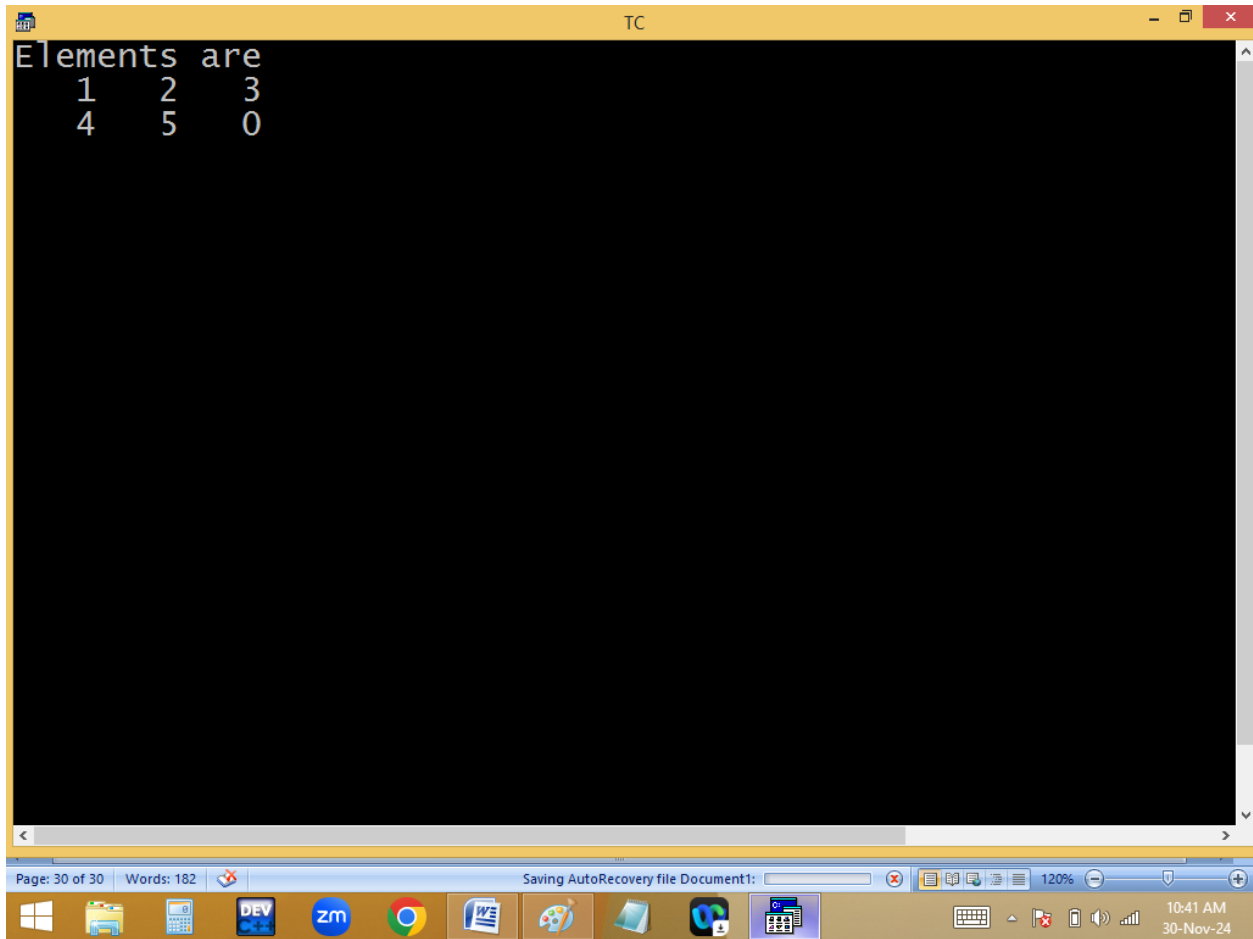
```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={1,2,3},{ },r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

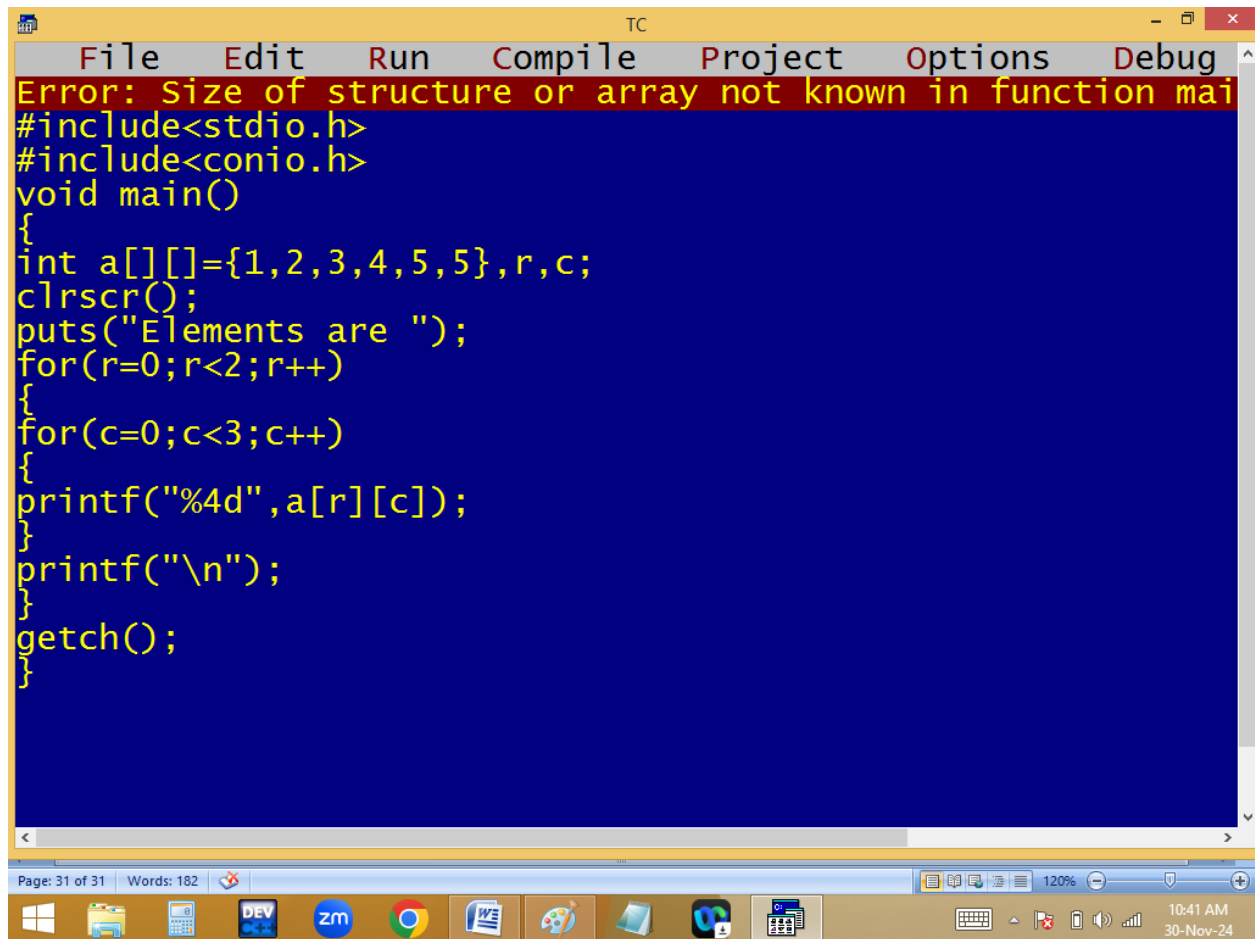
Below the code editor, a status bar shows "Page: 28 of 28" and "Words: 182". The Windows taskbar at the bottom displays various application icons, including File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and the Start menu. The system clock in the bottom right corner shows "10:40 AM" and "30-Nov-24".



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", and "Debug". The status bar at the top indicates "Line 5", "Col 25", and lists editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". The code is written in yellow text on a dark blue background. It includes headers for `stdio.h` and `conio.h`, defines a `main` function, declares a 2D array `a` with values `{1,2,3}`, `4,5`, and row/column indices `r, c`, clears the screen with `clrscr()`, prints the header "Elements are ", and uses nested loops to iterate through the array elements, printing them with a width of 4 characters. The program ends with `getch()`. The bottom status bar shows "Page: 29 of 29" and "Words: 182". The Windows taskbar at the bottom contains icons for various applications and the system clock showing "10:41 AM 30-Nov-24".

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

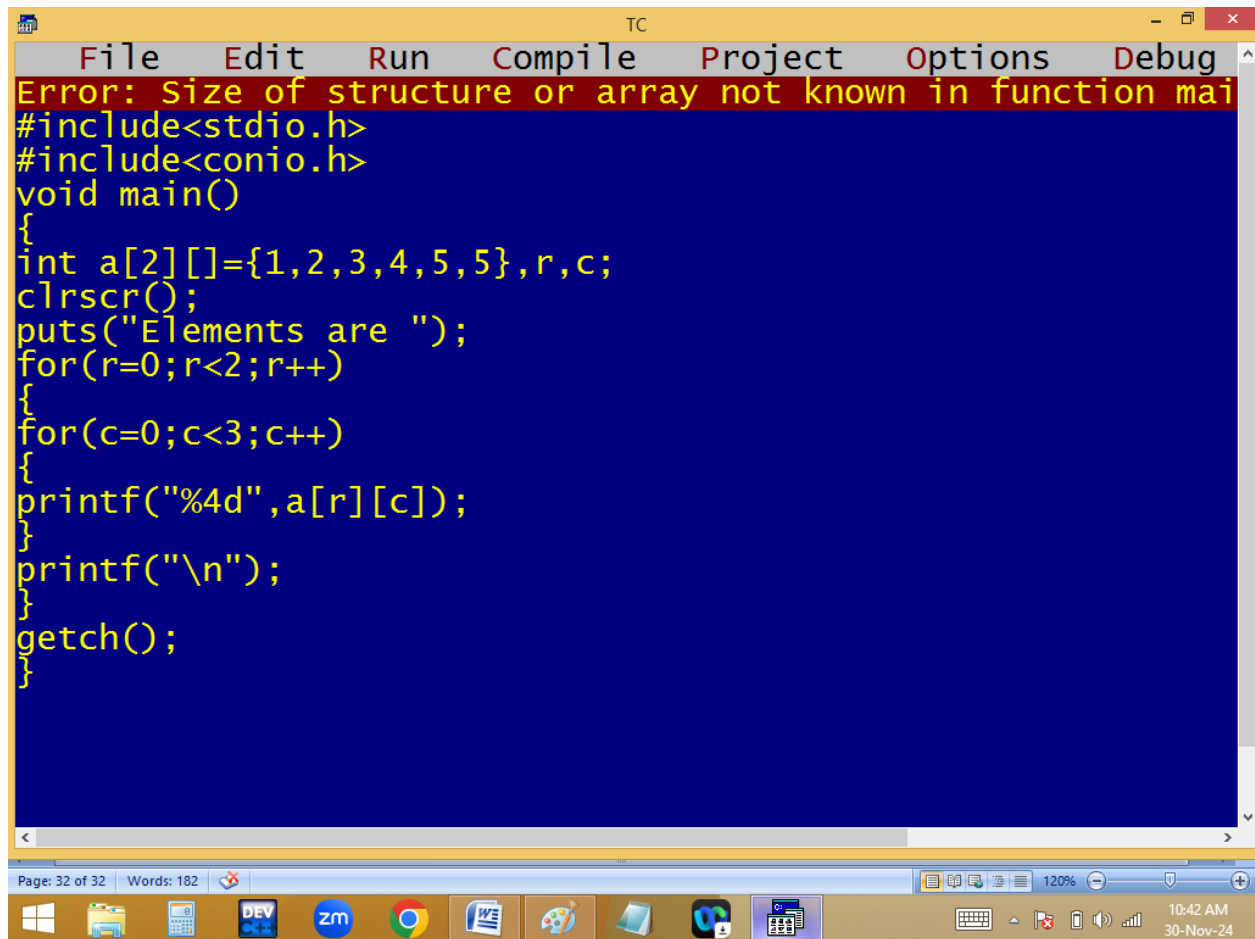




The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". A red error message is displayed at the top: "Error: Size of structure or array not known in function mai". The main editing area has a blue background and contains the following C code:

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

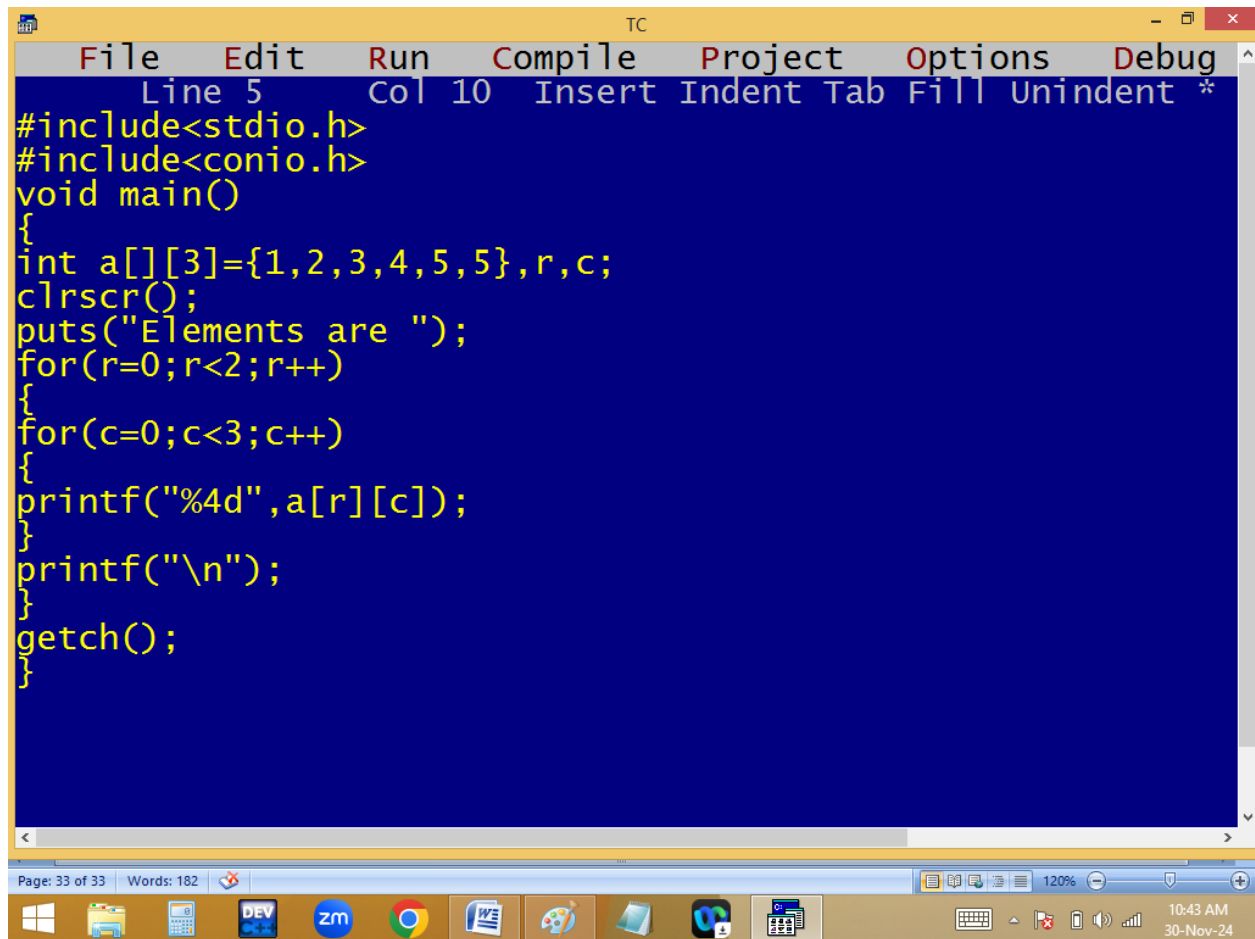
At the bottom, the status bar shows "Page: 31 of 31" and "Words: 182". The Windows taskbar is visible at the very bottom, showing various application icons and the system clock indicating 10:41 AM on 30-Nov-24.



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", and "Debug". A red error message is displayed at the top: "Error: Size of structure or array not known in function mai". The main text area contains the following C code:

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

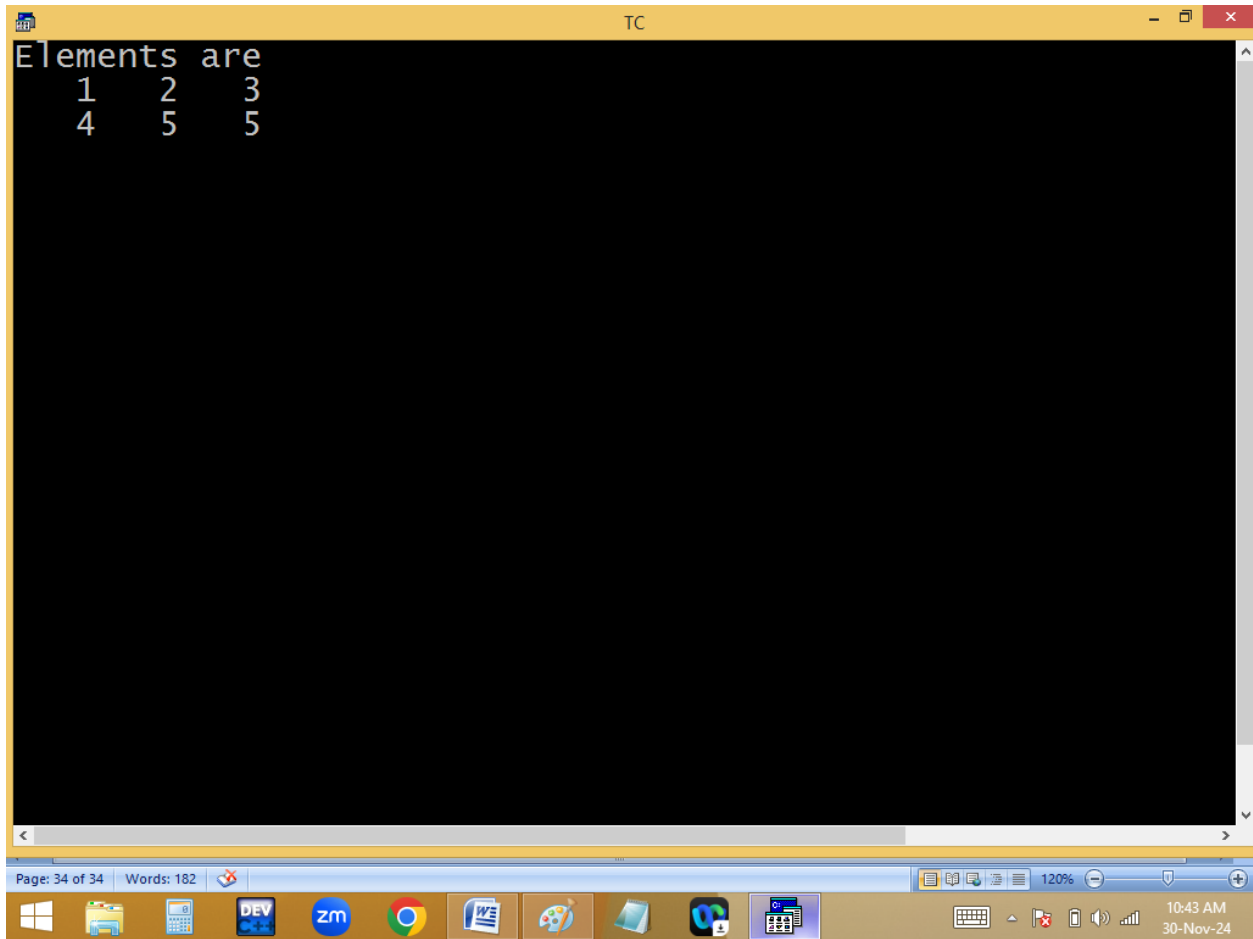
At the bottom, the status bar shows "Page: 32 of 32" and "Words: 182". The Windows taskbar is visible at the very bottom, showing various application icons and the system clock indicating 10:42 AM on 30-Nov-24.

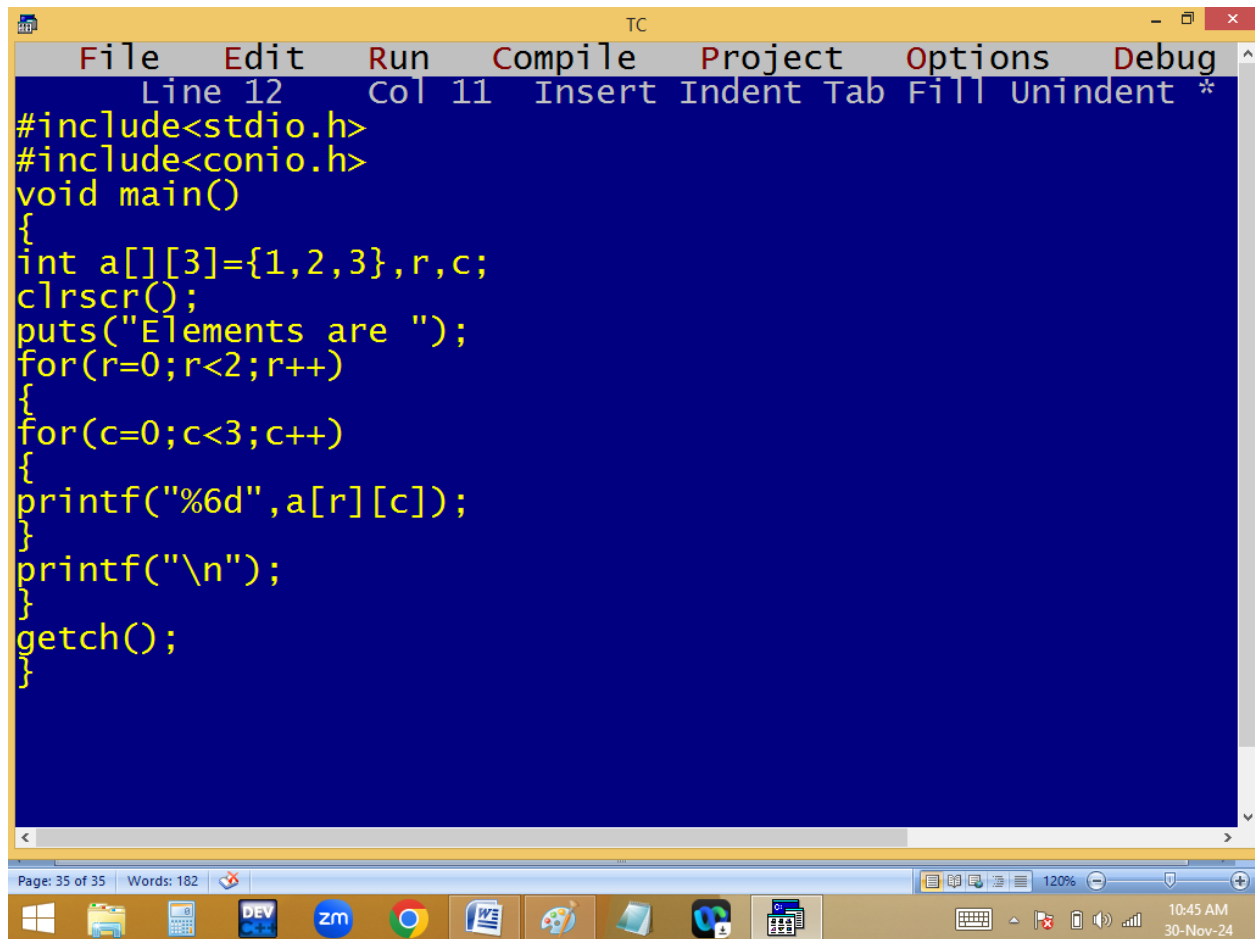


The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. The menu bar at the top includes File, Edit, Run, Compile, Project, Options, and Debug. Below the menu bar, a status bar shows 'Line 5' and 'Col 10'. The code being edited is a C program that prints the elements of a 2D array. The code is as follows:

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

At the bottom of the window, there is a status bar showing 'Page: 33 of 33' and 'Words: 182'. The Windows taskbar is visible at the very bottom, showing various application icons and the system clock indicating 10:43 AM on 30-Nov-24.

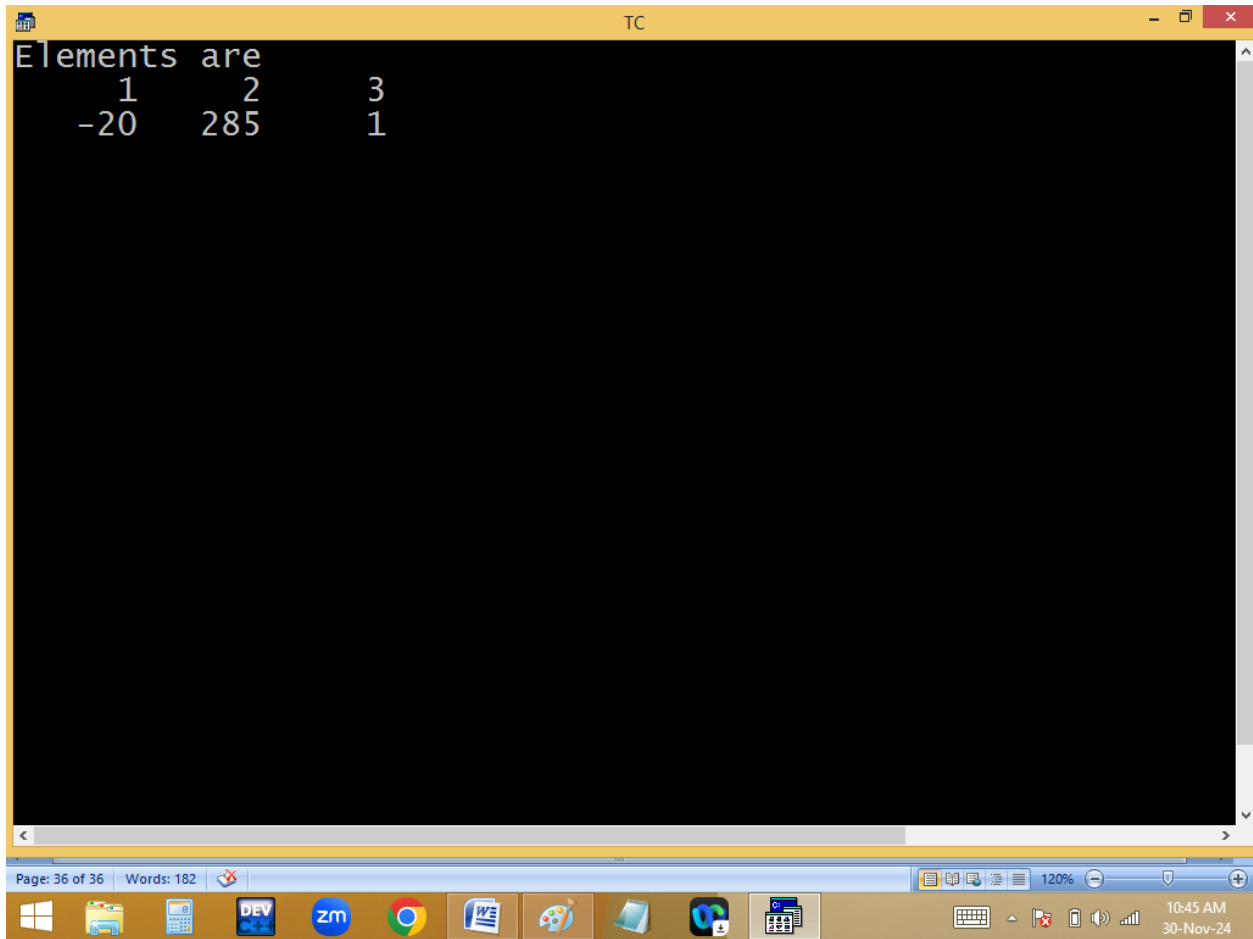


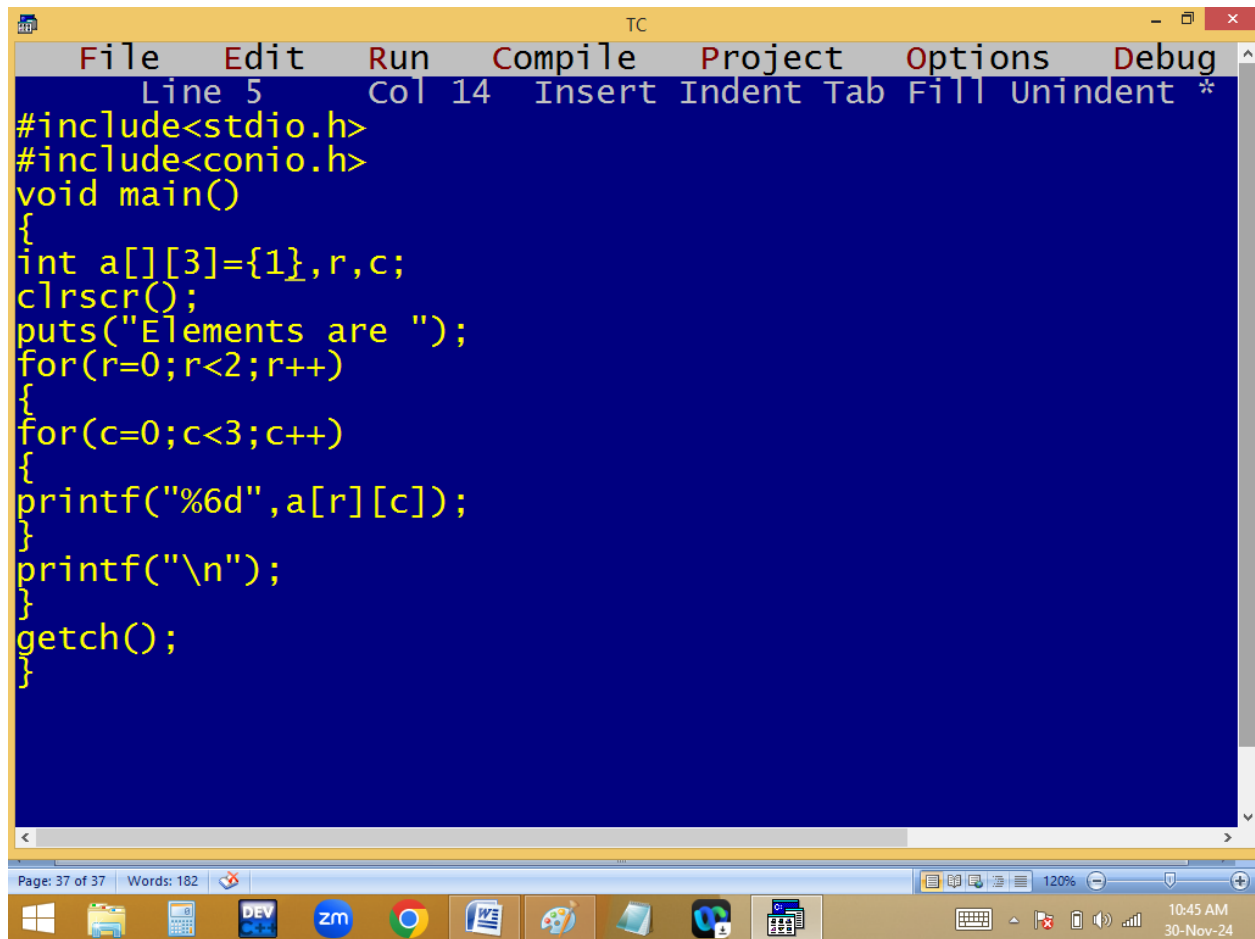


The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". The status bar at the top indicates "Line 12", "Col 11", and lists editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". 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[][3]={1,2,3},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%6d",a[r][c]);
}
printf("\n");
}
getch();
}
```

The status bar at the bottom shows "Page: 35 of 35" and "Words: 182". The Windows taskbar is visible at the bottom with icons for Windows, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and other applications. The system clock shows "10:45 AM" and "30-Nov-24".





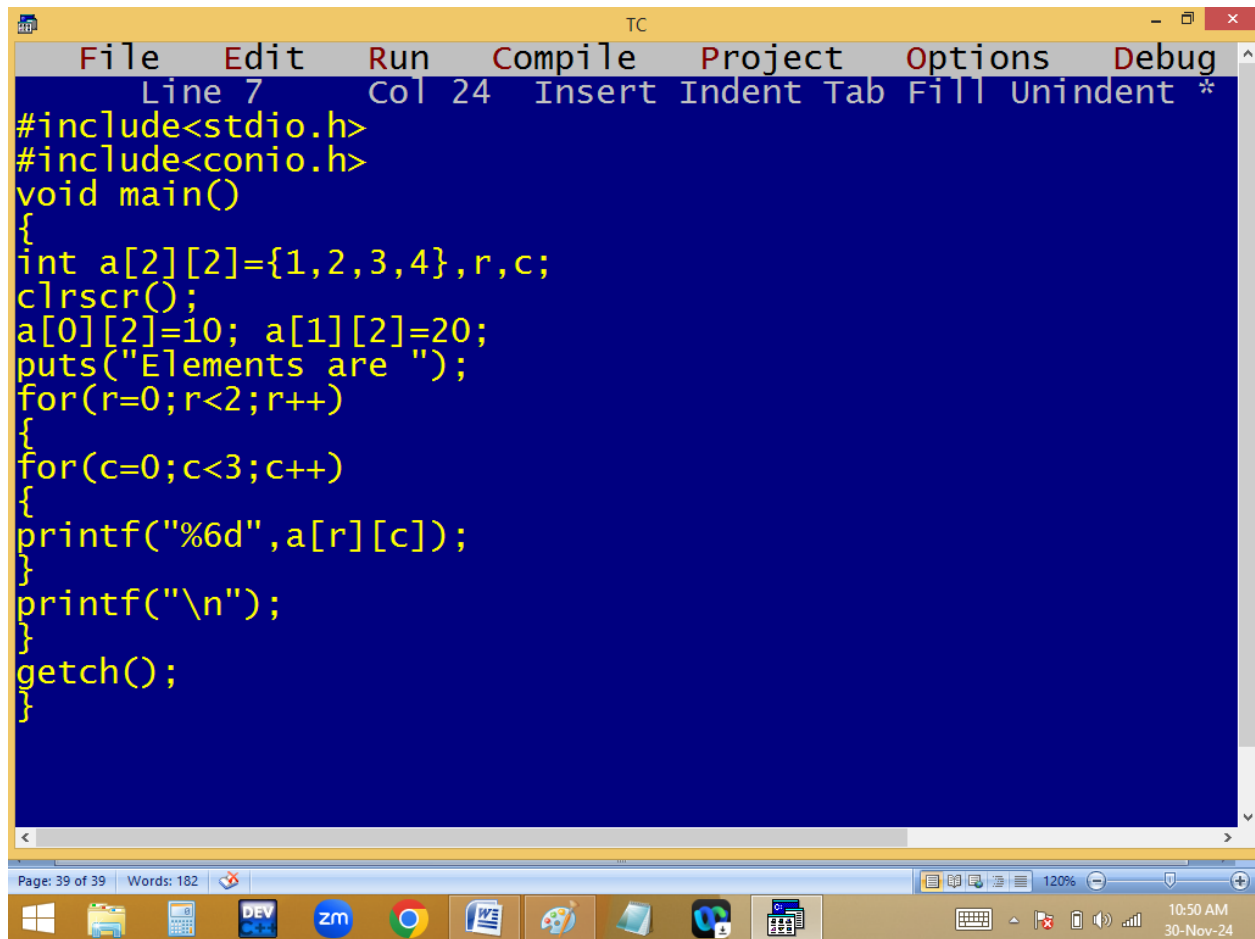
The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. The menu bar at the top includes File, Edit, Run, Compile, Project, Options, and Debug. Below the menu bar, the status bar shows "Line 5" and "Col 14". The code being edited is a C program that prints the elements of a 2x3 array. The code is as follows:

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

At the bottom of the window, there is a status bar showing "Page: 37 of 37" and "Words: 182". The Windows taskbar is visible at the very bottom, showing various application icons and the system clock indicating 10:45 AM on 30-Nov-24.

```
TC
Elements are
    1    0    0
   -20  285  1
```

Page: 38 of 38 Words: 182 120% 10:45 AM 30-Nov-24



The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar at the top reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". Below the menu bar, the status bar indicates "Line 7", "Col 24", and lists editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and "*". 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][2]={1,2,3,4},r,c;
clrscr();
a[0][2]=10; a[1][2]=20;
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%6d",a[r][c]);
}
printf("\n");
}
getch();
}
```

At the bottom of the window, there is a status bar showing "Page: 39 of 39" and "Words: 182". Below the IDE window is the Windows taskbar, which includes icons for the Start button, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Microsoft Word, a game controller, a folder, a shopping cart, and a calendar. The system tray on the right shows the time as "10:50 AM" and the date as "30-Nov-24".

