Merging of arrays:

```c
#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();
}
```
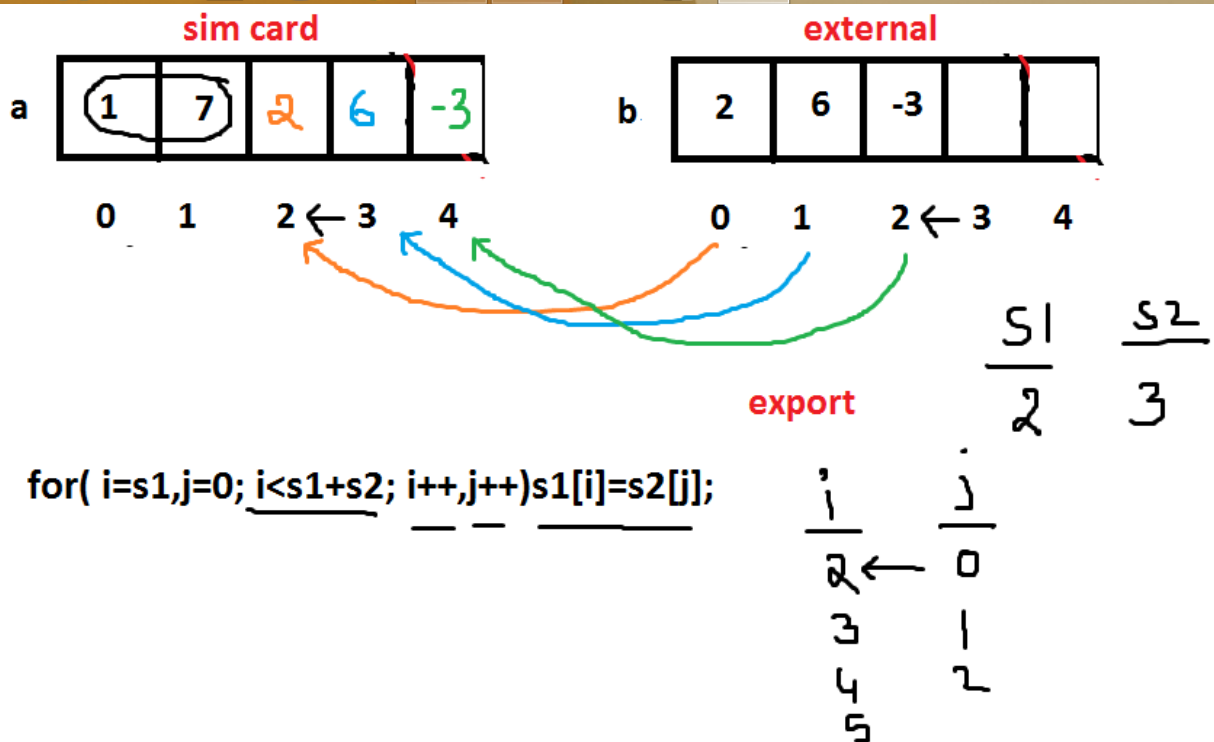
```
TC                                                    _ ☐ ✕
Enter 1st array, 2nd array size 1-100 5 7
Enter 5 elements for 1st array 3 0 5 -2 8
Enter 7 elements for 2nd array 4 9 1 6 -5 8 -1
Elements are   -5  -2  -1   0   1   3   4   5   6   8   8   9
```

sim card

a

1	7	2	6	-3

   0   1   2←3   4

external

b

2	6	-3		

   0   1   2←3   4

export

$$\frac{S1}{2} \qquad \frac{S2}{3}$$

for(i=s1,j=0; i<s1+s2; i++,j++)s1[i]=s2[j];

$$\frac{i}{2} ← \frac{j}{0}$$
$$3 \qquad 1$$
$$4 \qquad 2$$
$$5$$

Frequency of array elements:

```c
#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();
}
```
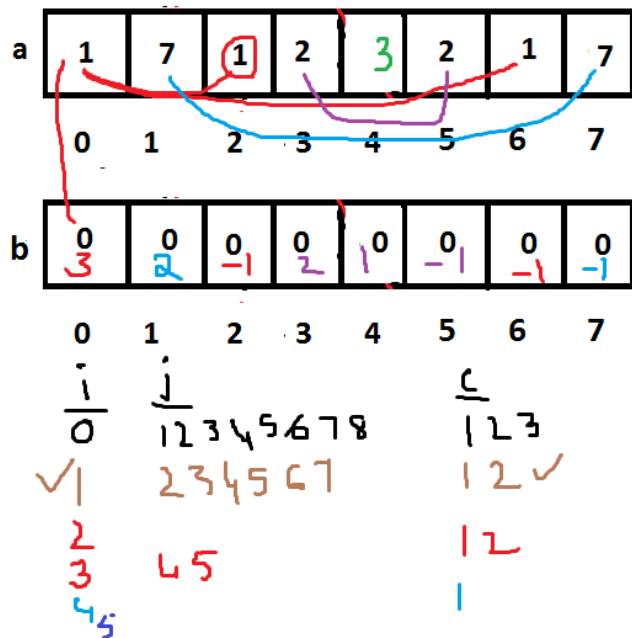
1894 × 763px   Size: 22.5KB   100% ⊖ ──────○────── ⊕

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```
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]);
```

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*n matrix.

Syntax:

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

Eg:

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

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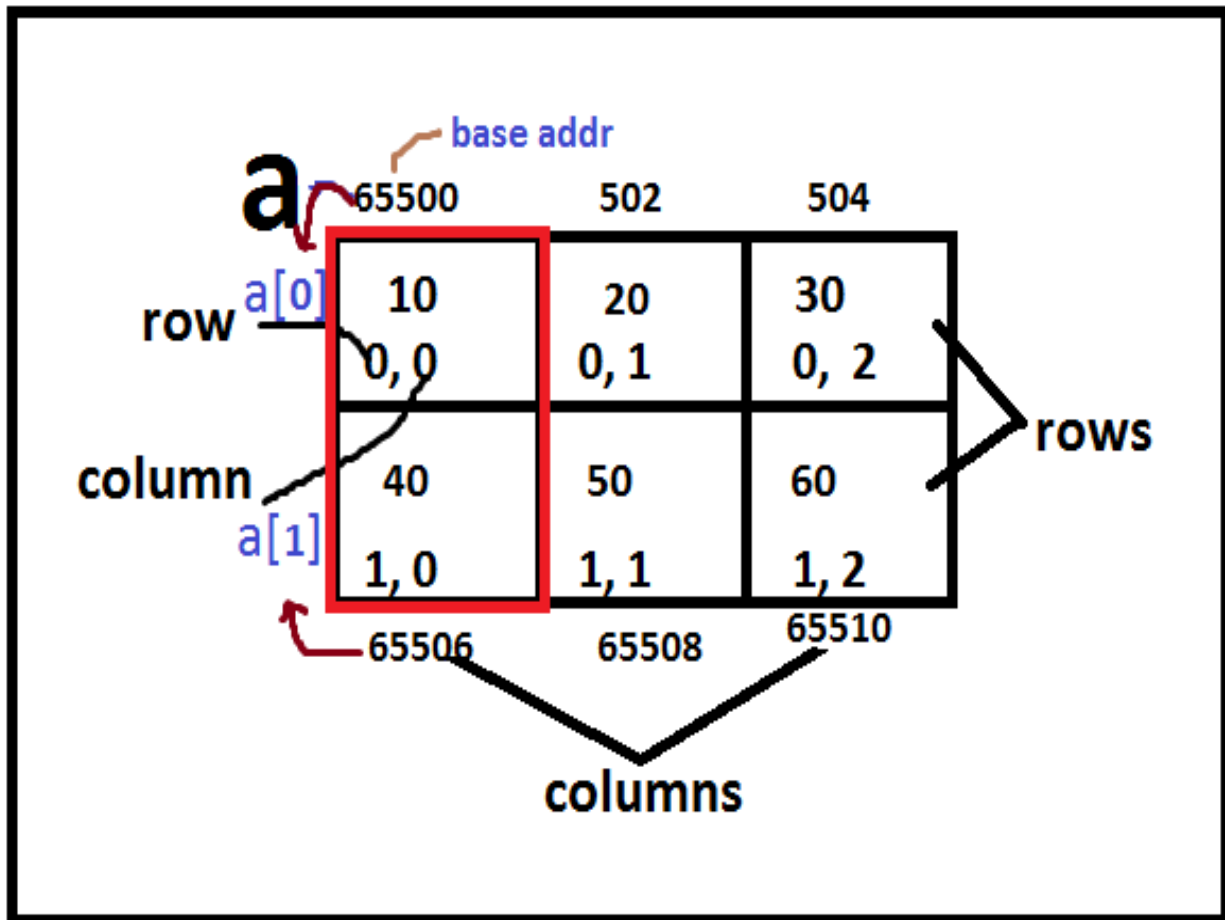
In two dimensional array the rows/first subscript is working as array of pointers and they stores first column address of each row. Hence it is an implicit/internal double pointer.

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

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

stack

a[1][2]	60	65500
a[1][1]	50	
		65498
a[1][0]	40	65496
a[0][2]	30	
		65494
a[0][1]	20	65492
a[0][0]	10	65490

a[1][1]	40	65496
a[1][0]	30	
		65494
a[0][1]	20	65492
a[0][0]	10	65490

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

p("%d", a[0][0]); ==> 1

65500 502 504

65500+0*2=65500==>value at 65500==>1

	[0]	[1]	[2]
a[0]	1 0,0	2 0,1	3 0,2
a[1]	4 1,0	5 1,1	6 1,2

rows
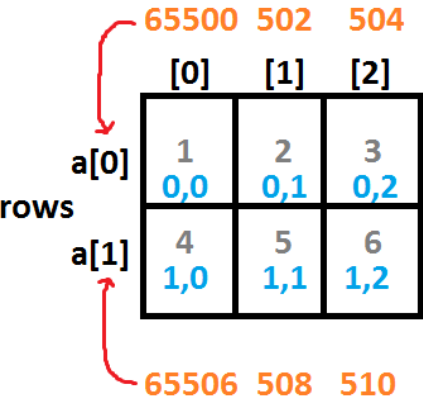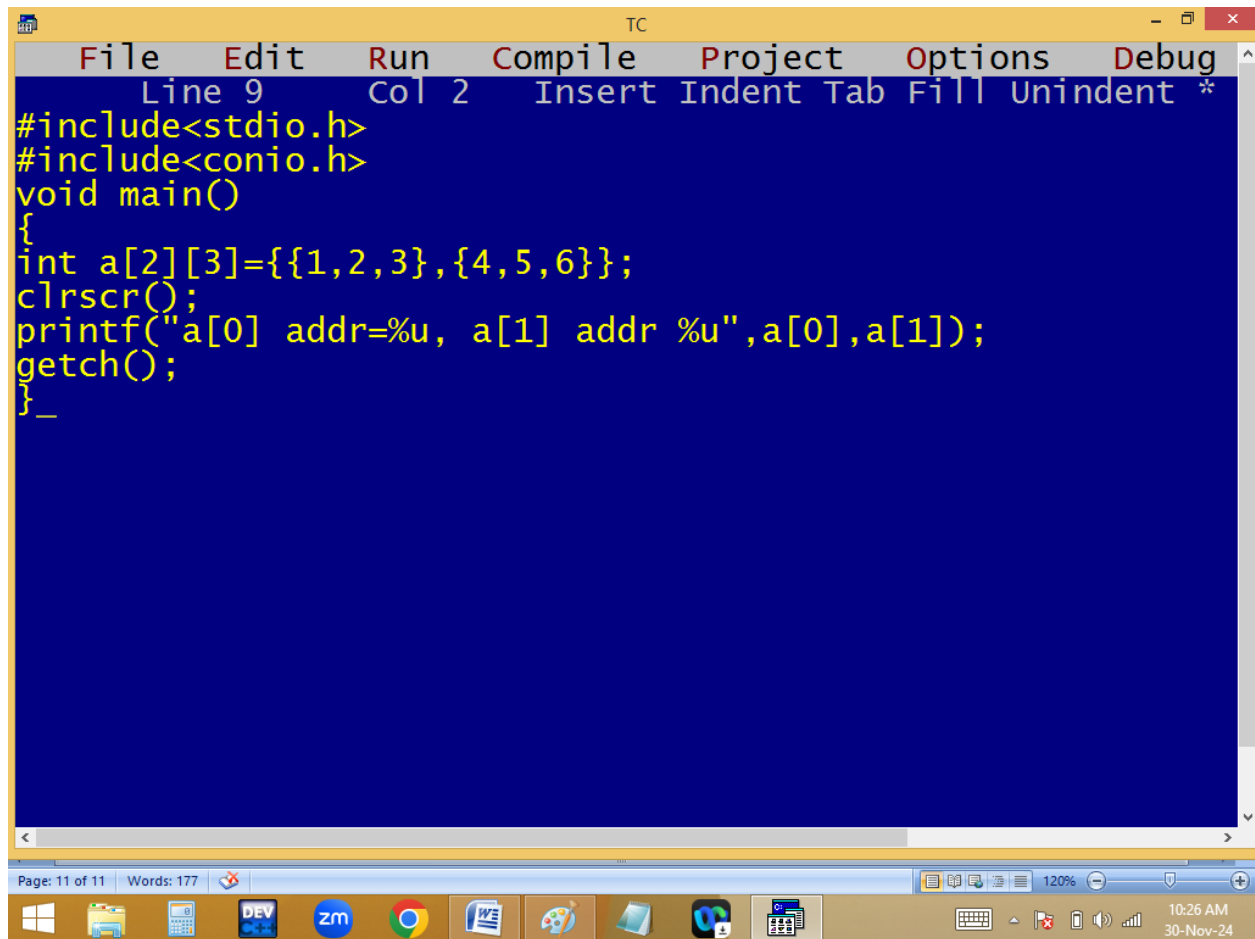
p("%d",a[1][2]);==>6

65506+2*2=65510==>value at 65510==>6

65506 508 510

stack

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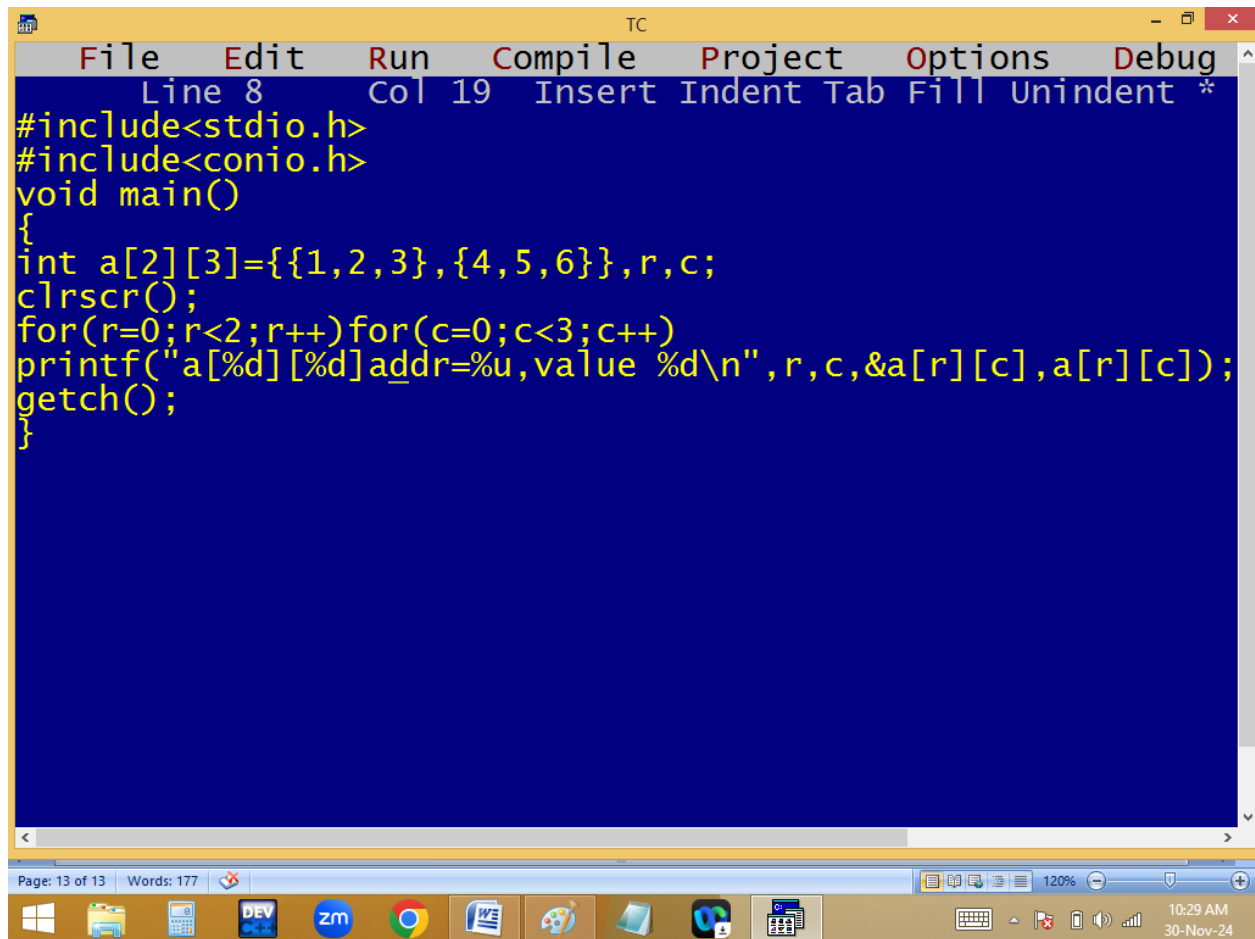
```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3},{4,5,6}};
clrscr();
printf("a[0] addr=%u, a[1] addr %u",a[0],a[1]);
getch();
}
```

```
a[0] addr=65492, a[1] addr 65498
```
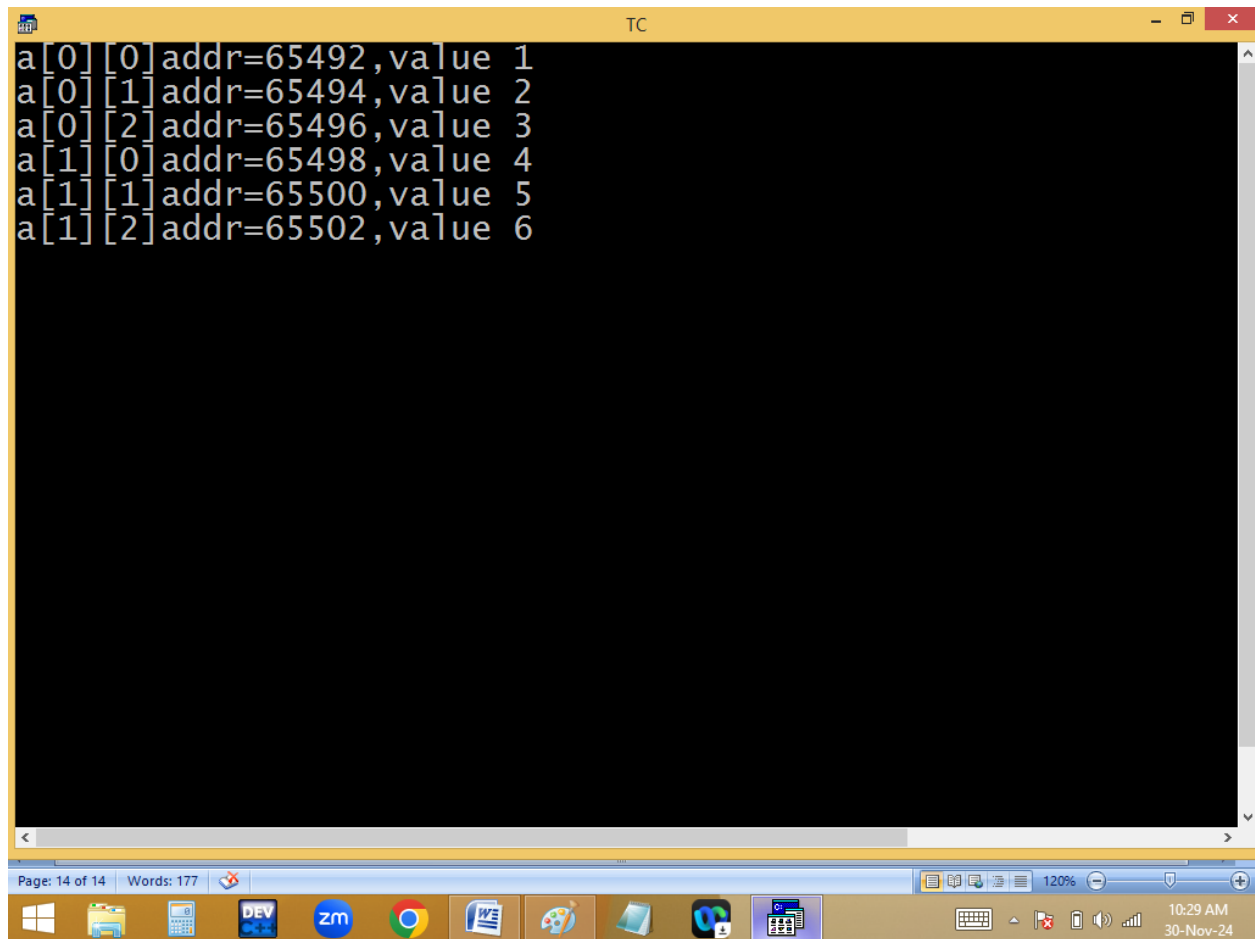
Finding array cell no, element and address:

```
      Line 8      Col 19   Insert  Indent Tab Fill Unindent *
#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();
}
```
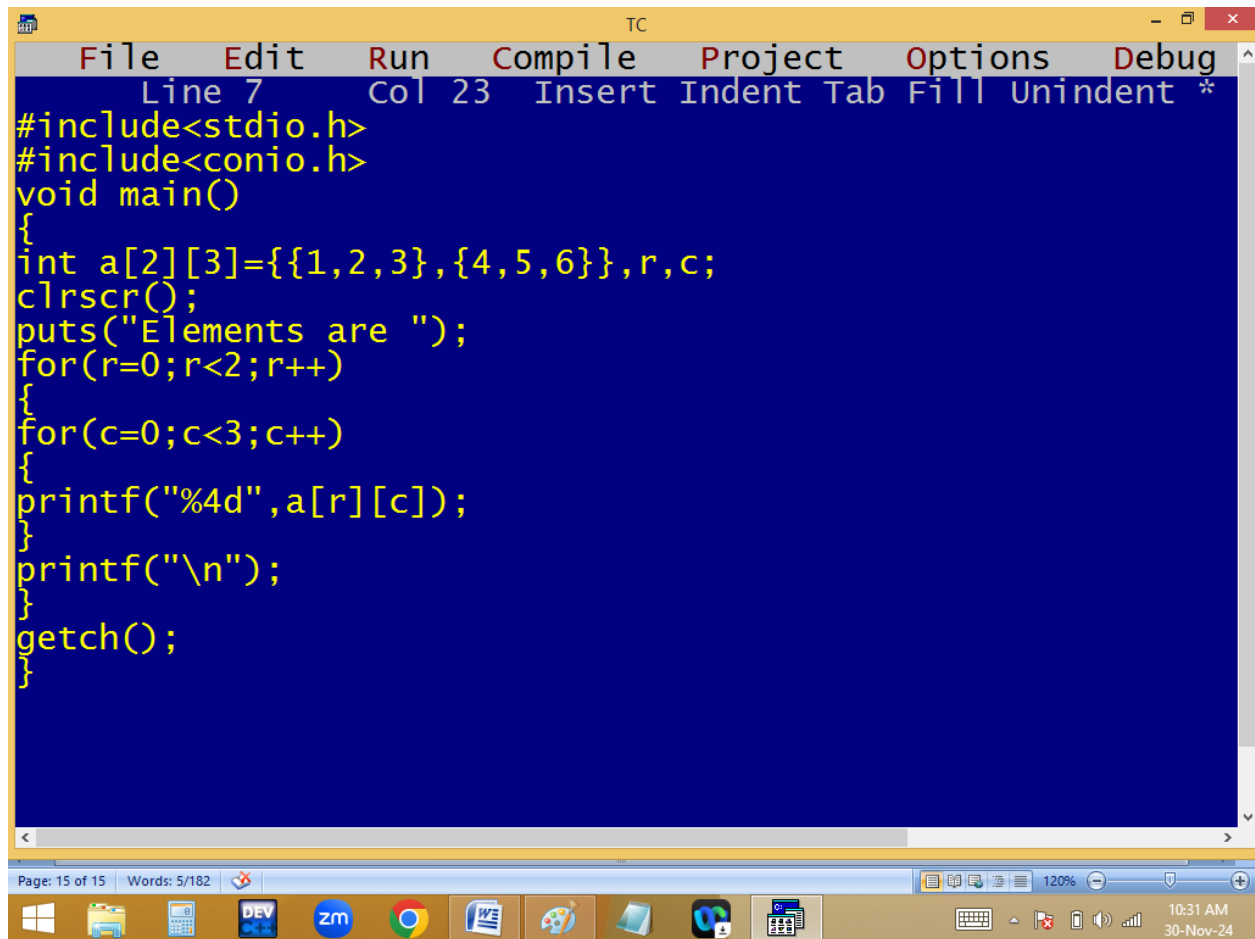
```
a[0][0]addr=65492,value 1
a[0][1]addr=65494,value 2
a[0][2]addr=65496,value 3
a[1][0]addr=65498,value 4
a[1][1]addr=65500,value 5
a[1][2]addr=65502,value 6
```
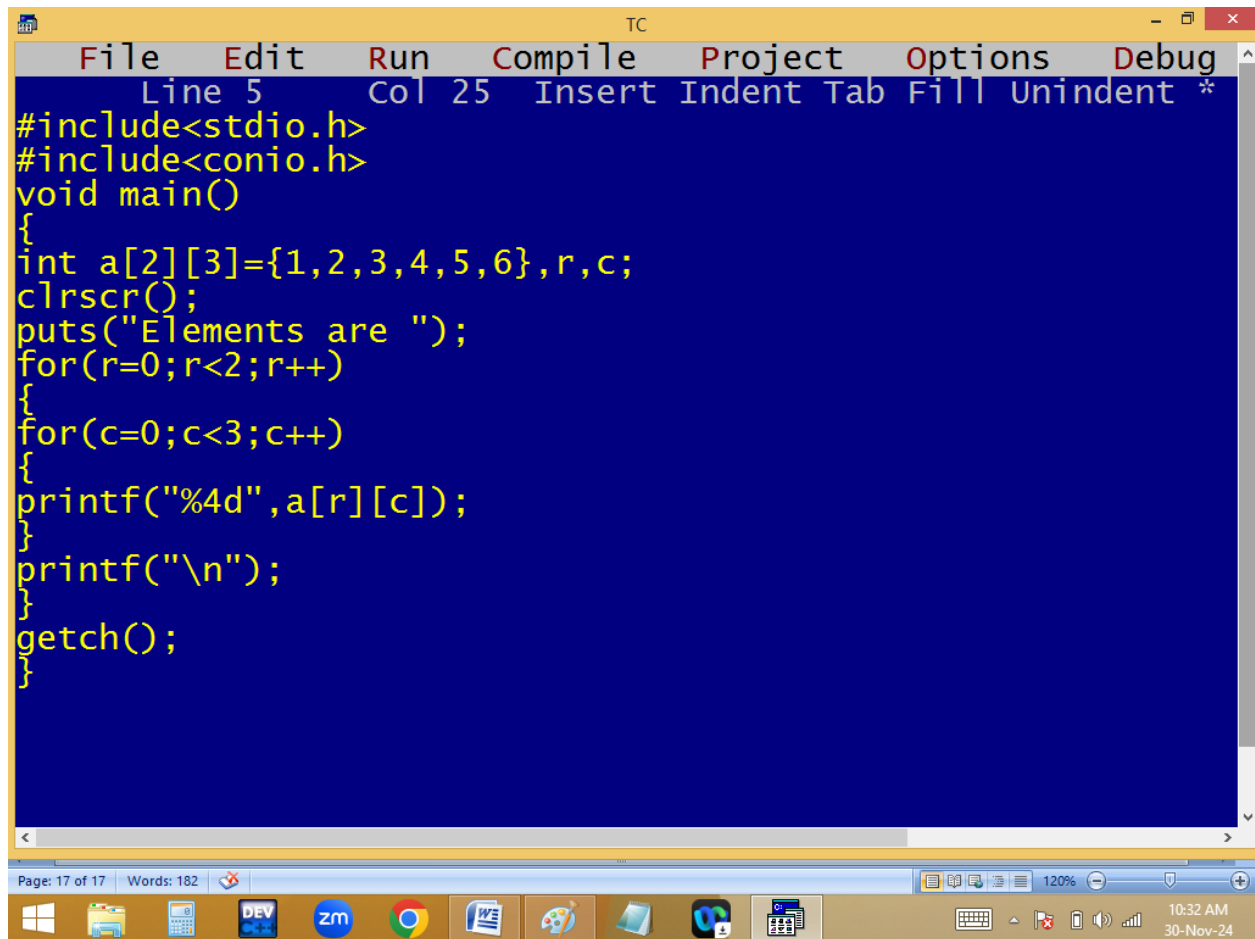
Direct initialization of 2*3 matrix:

```c
#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();
}
```
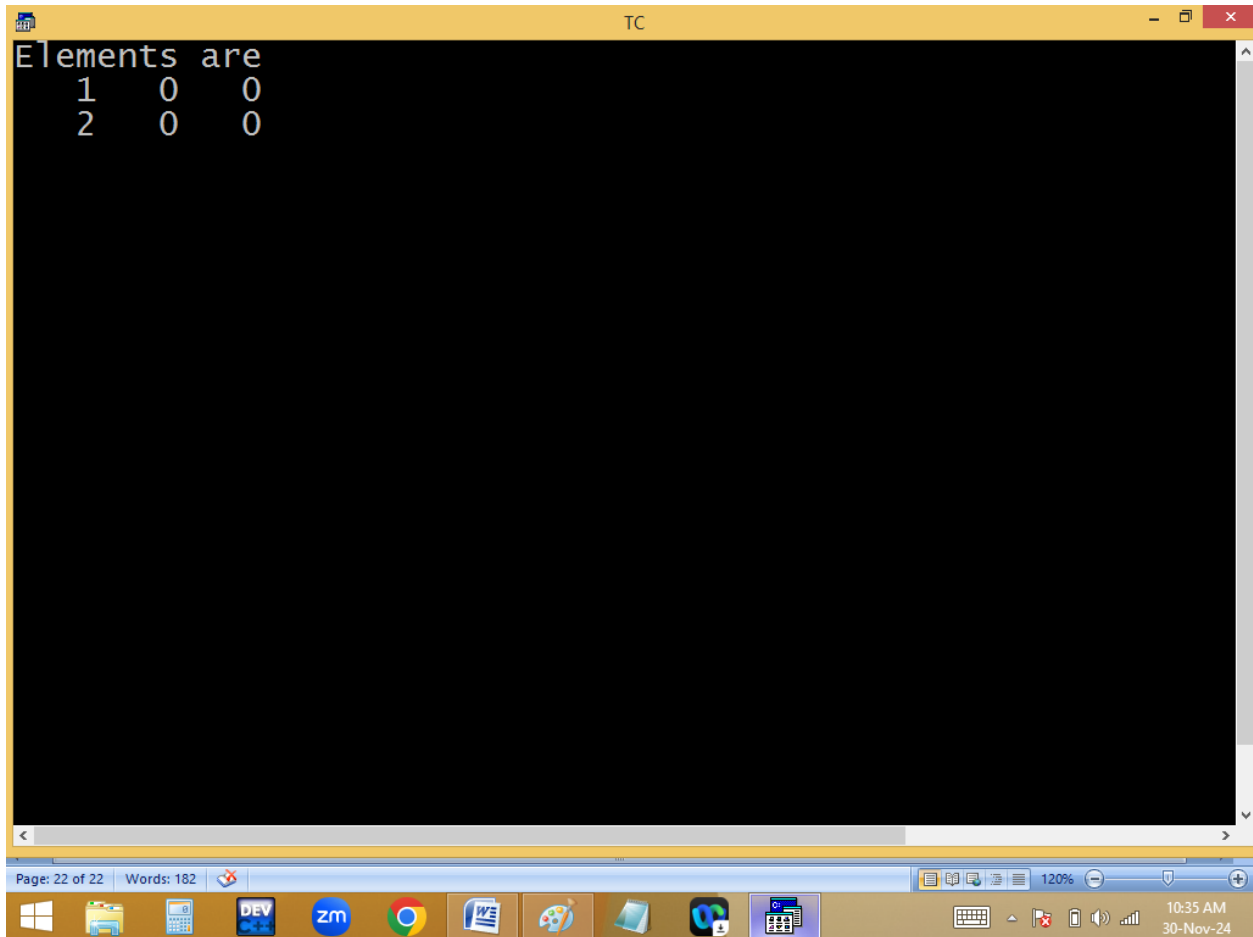
```
Elements are
    1    2    3
    4    5    6
```

```c
#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();
}
```

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

File   Edit   Run   Compile   Project   Options   Debug

Line 5   Col 17   Insert Indent Tab Fill Unindent *

```c
#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();
}
```

```
Elements are
    1    2    0
    0    0    0
_
```

File   Edit   Run   Compile   Project   Options   Debug

```c
#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();
}
```

```
Elements are
    1    0    0
    2    0    0
```
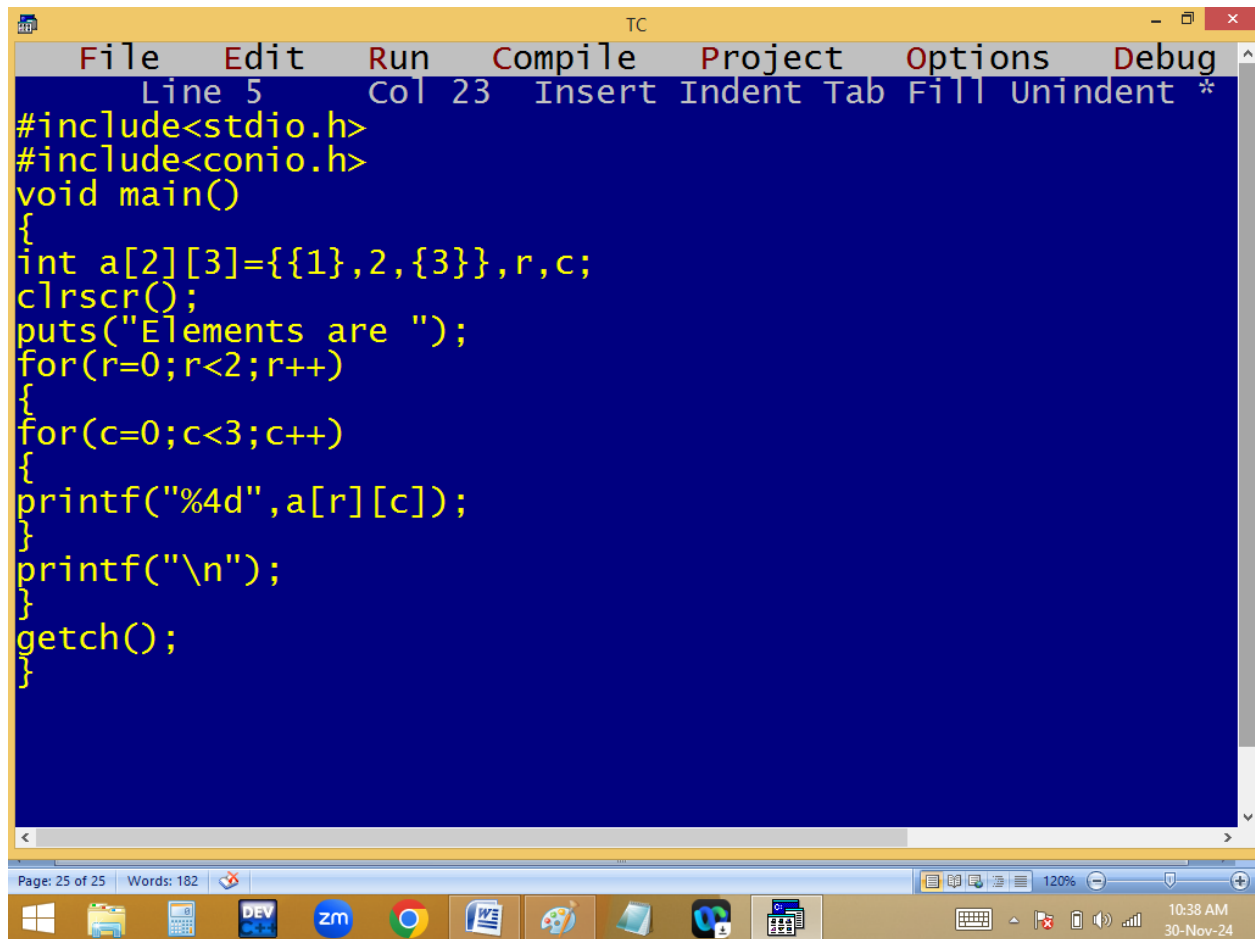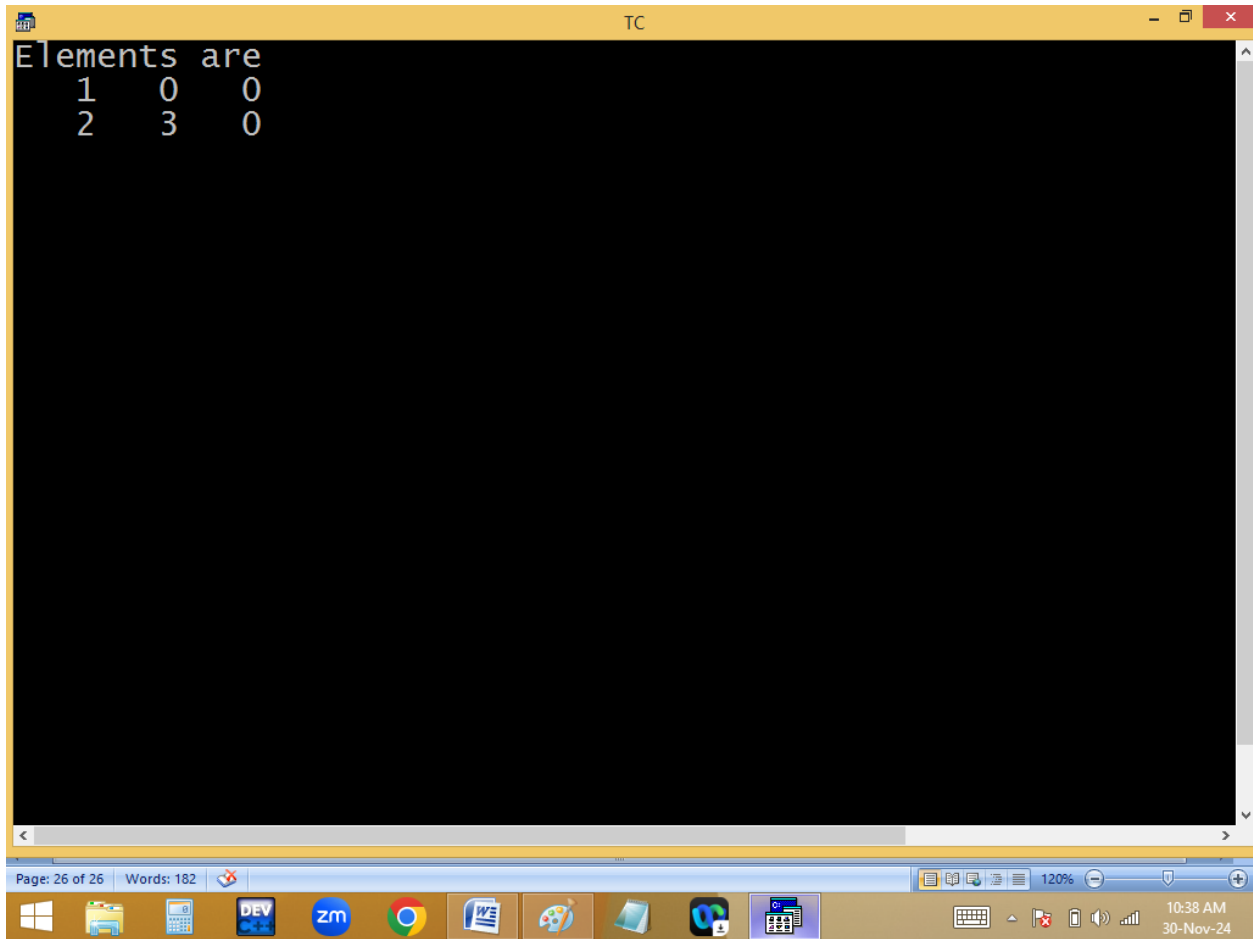
File   Edit   Run   Compile   Project   Options   Debug

Error: Too many initializers in function main

```c
#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();
}
```

File   Edit   Run   Compile   Project   Options   Debug

Error: Too many initializers in function main

```c
#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();
}
```
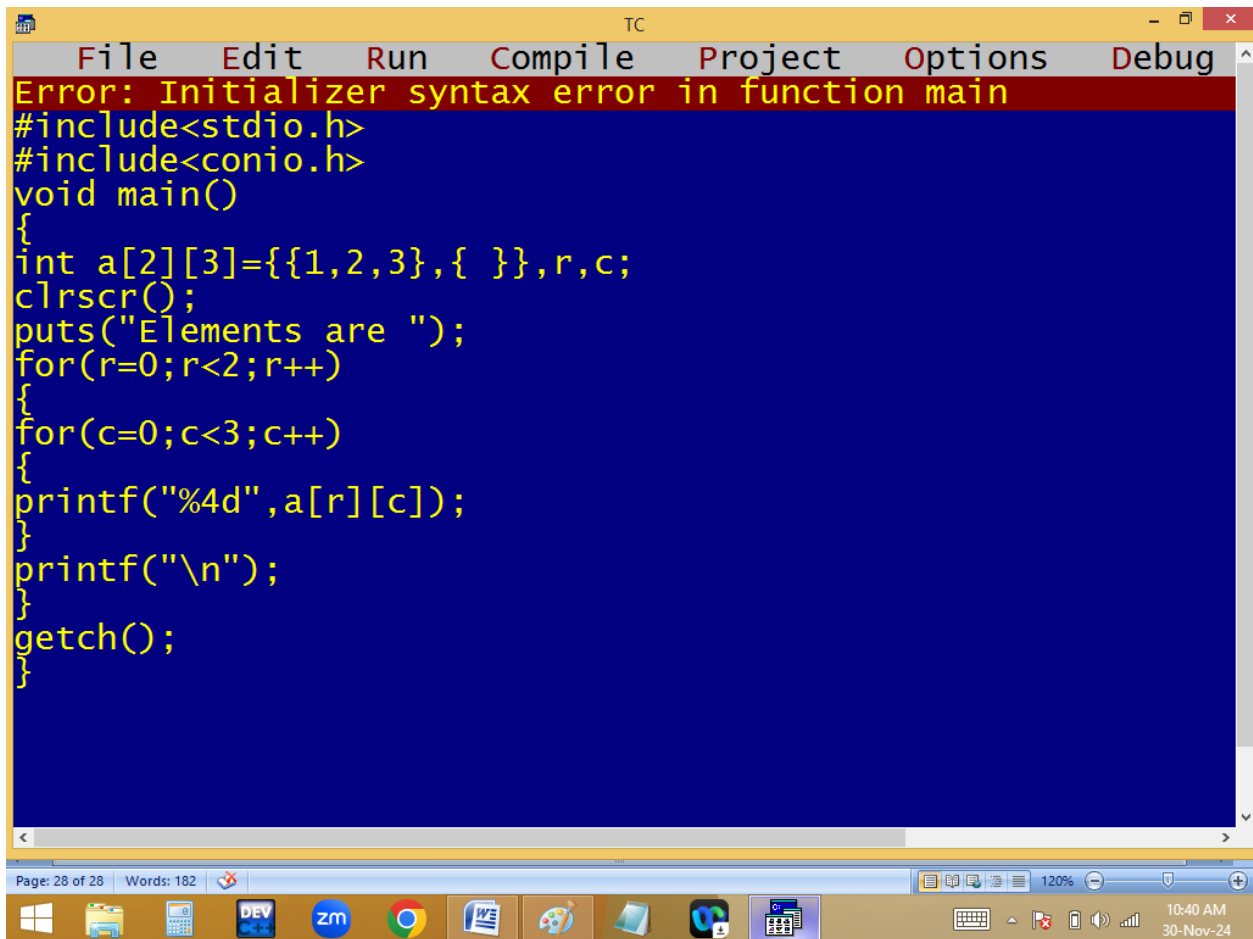
Page: 24 of 24   Words: 182   120%

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File   Edit   Run   Compile   Project   Options   Debug

Line 5   Col 23   Insert Indent Tab Fill Unindent *

```c
#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();
}
```
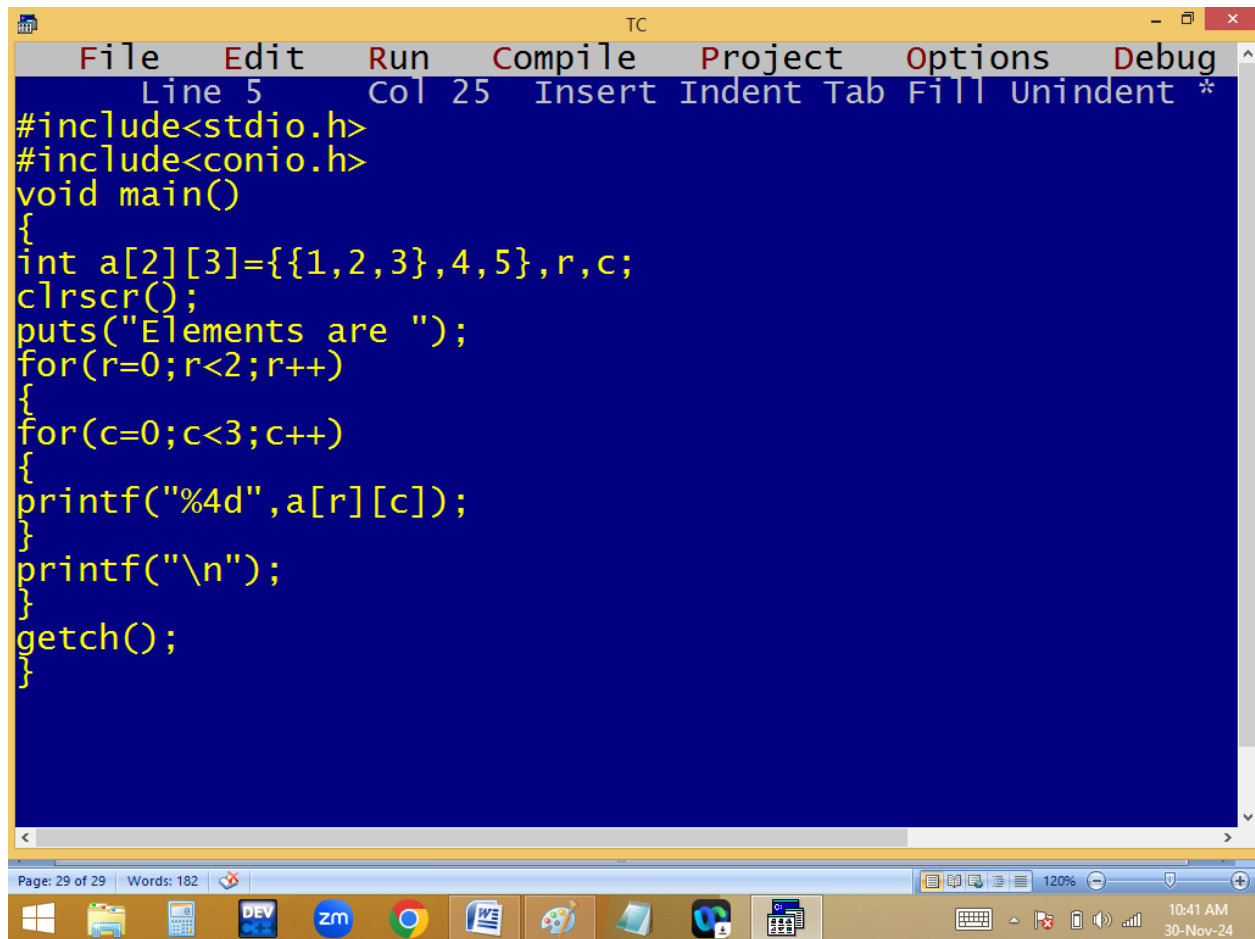
```
Elements are
    1    0    0
    2    3    0
```

File   Edit   Run   Compile   Project   Options   Debug

Error: Too many initializers in function main
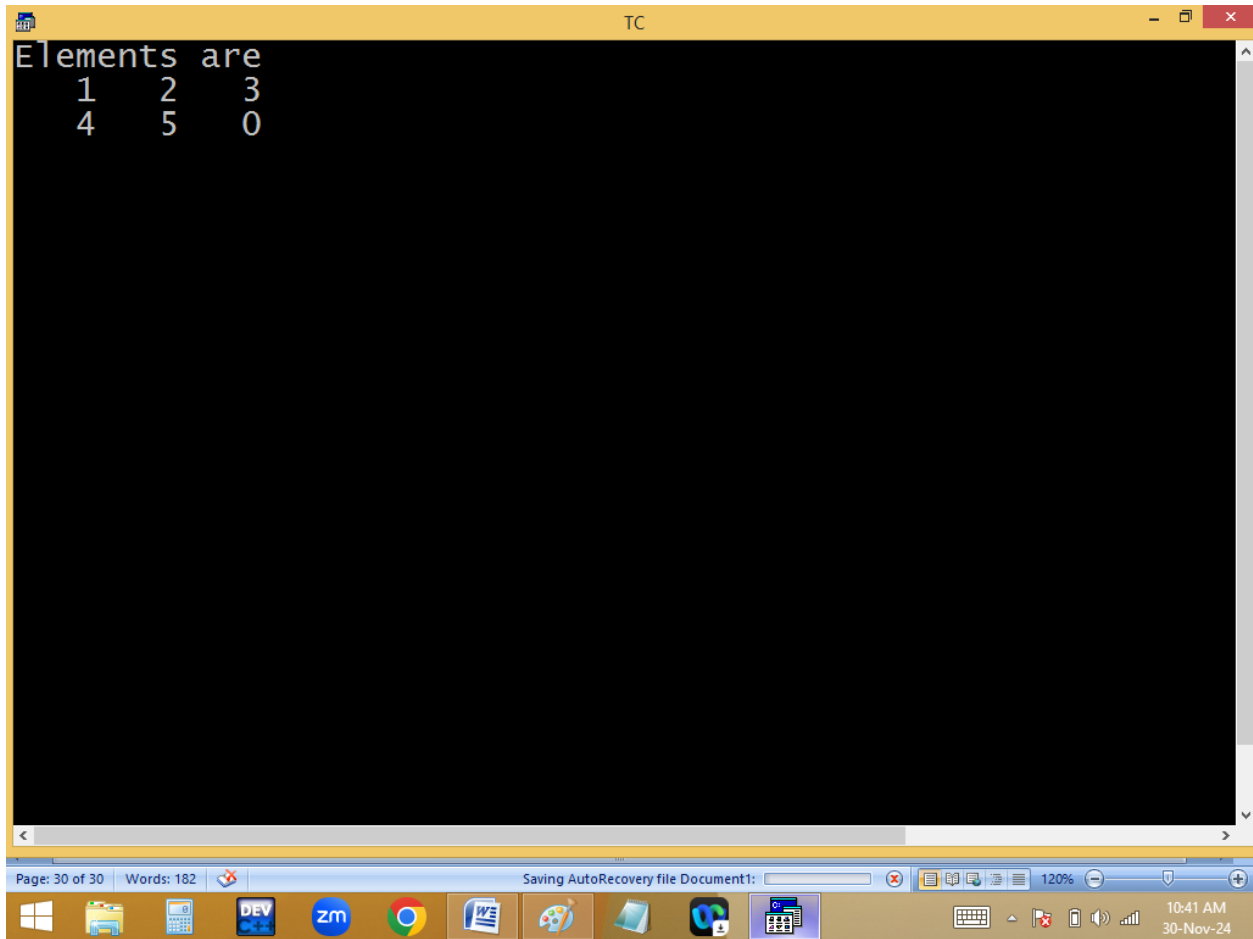
```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][3]={{1,2,3,4},5,6},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```
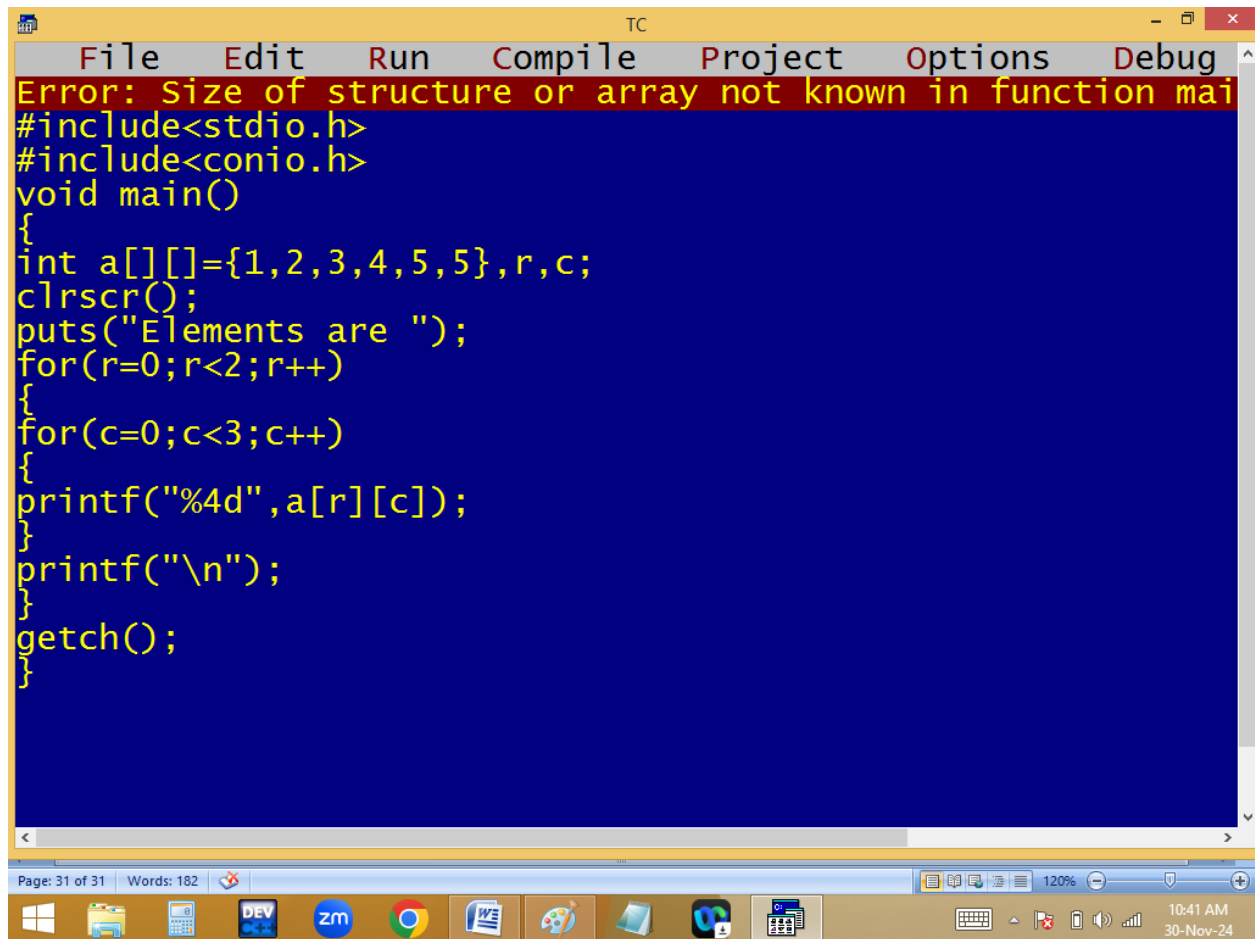
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File   Edit   Run   Compile   Project   Options   Debug

Error: Initializer syntax error in function main

```c
#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();
}
```

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File   Edit   Run   Compile   Project   Options   Debug

Line 5   Col 25   Insert Indent Tab Fill Unindent *

```c
#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();
}
```
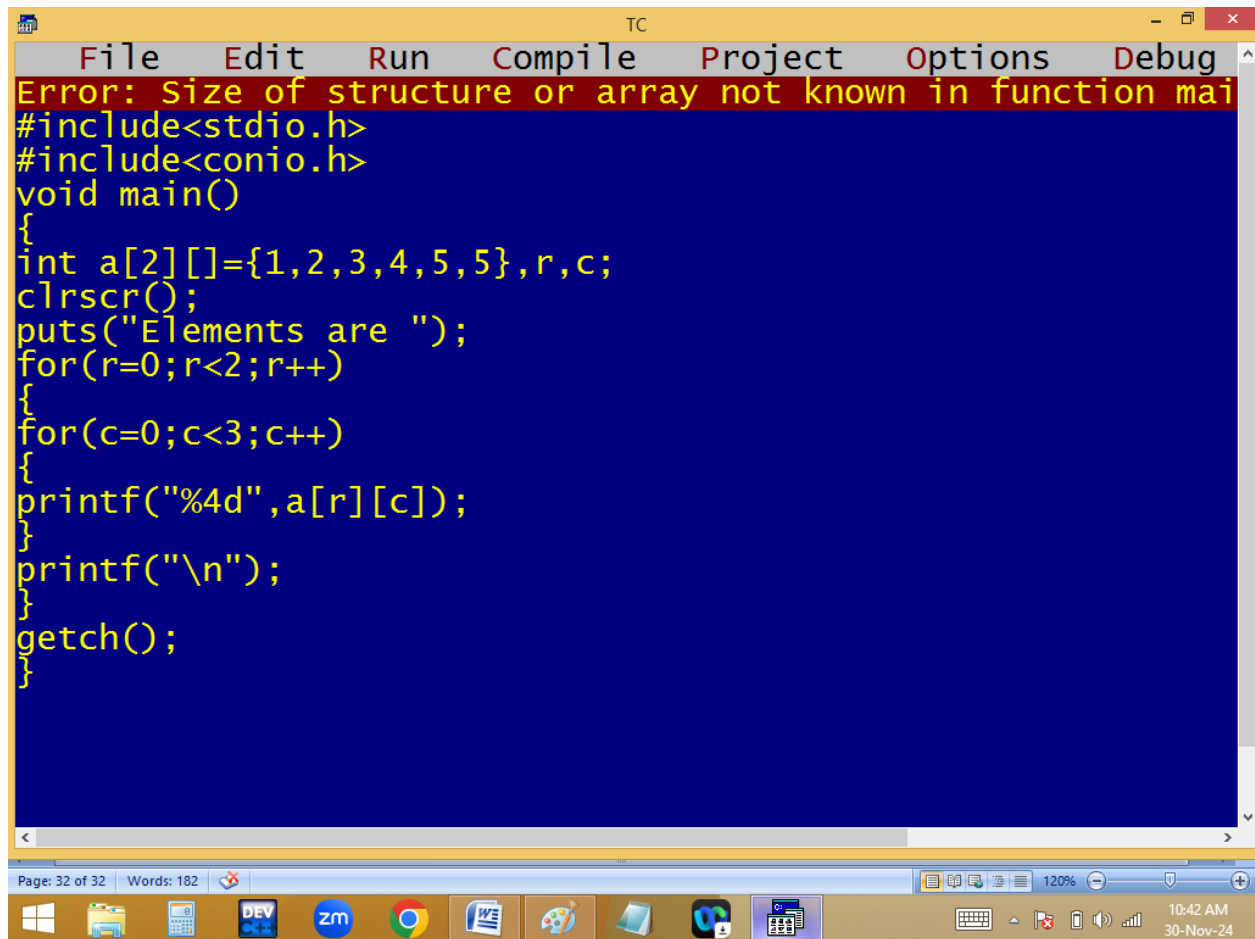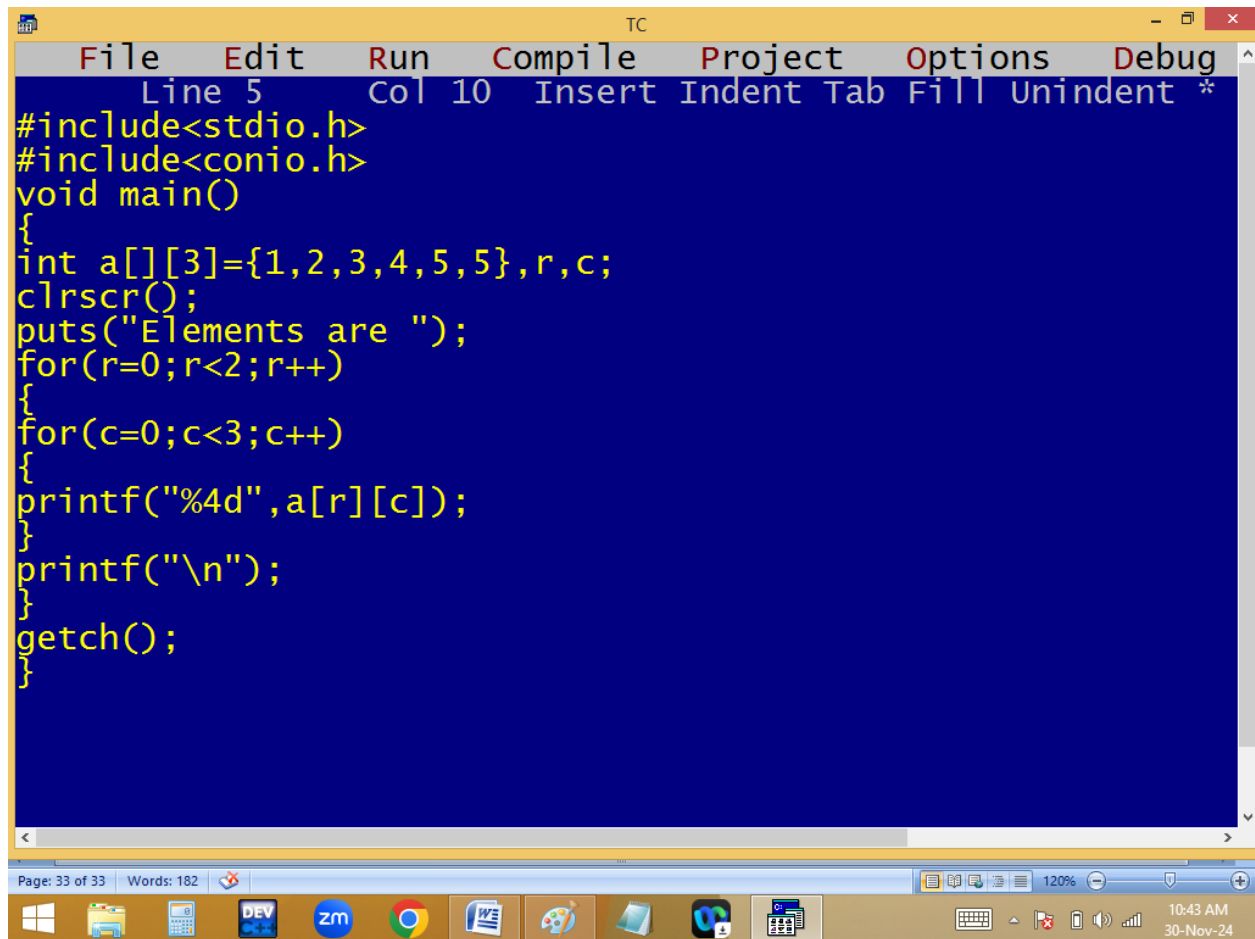
```
Elements are
    1    2    3
    4    5    0
```

File   Edit   Run   Compile   Project   Options   Debug

Error: Size of structure or array not known in function mai

```c
#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();
}
```
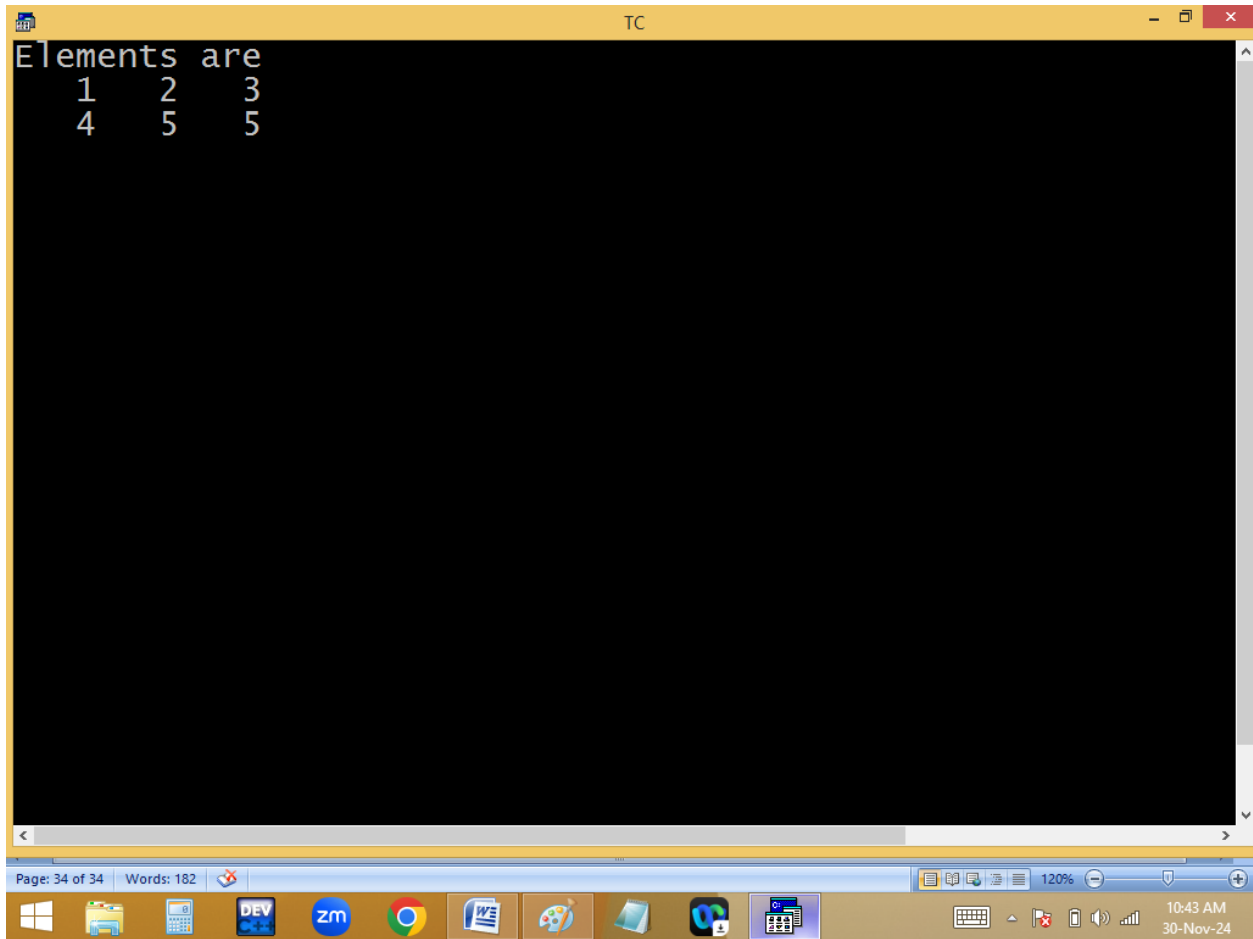
File   Edit   Run   Compile   Project   Options   Debug

Error: Size of structure or array not known in function mai

```c
#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();
}
```

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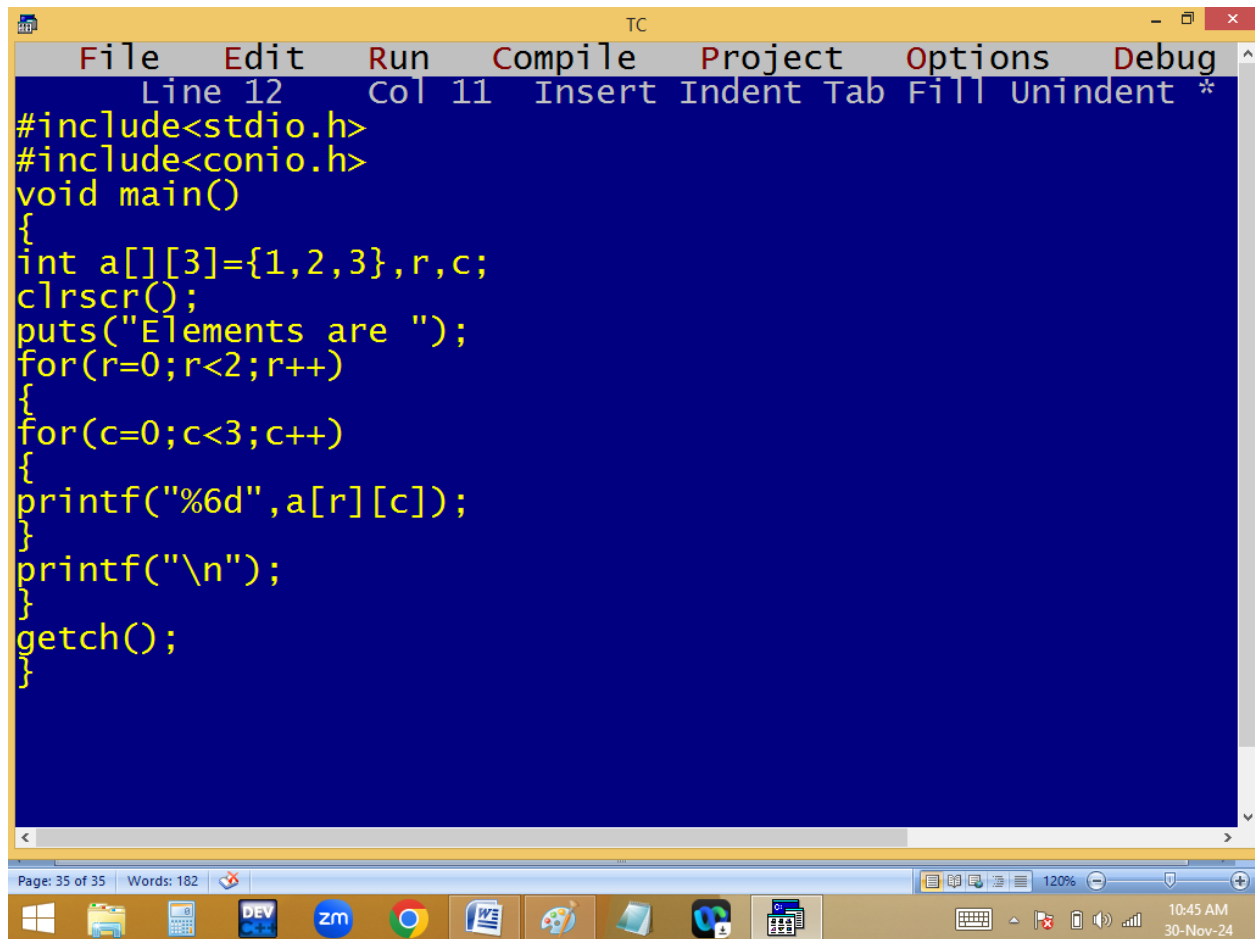
File   Edit   Run   Compile   Project   Options   Debug

```
#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();
}
```

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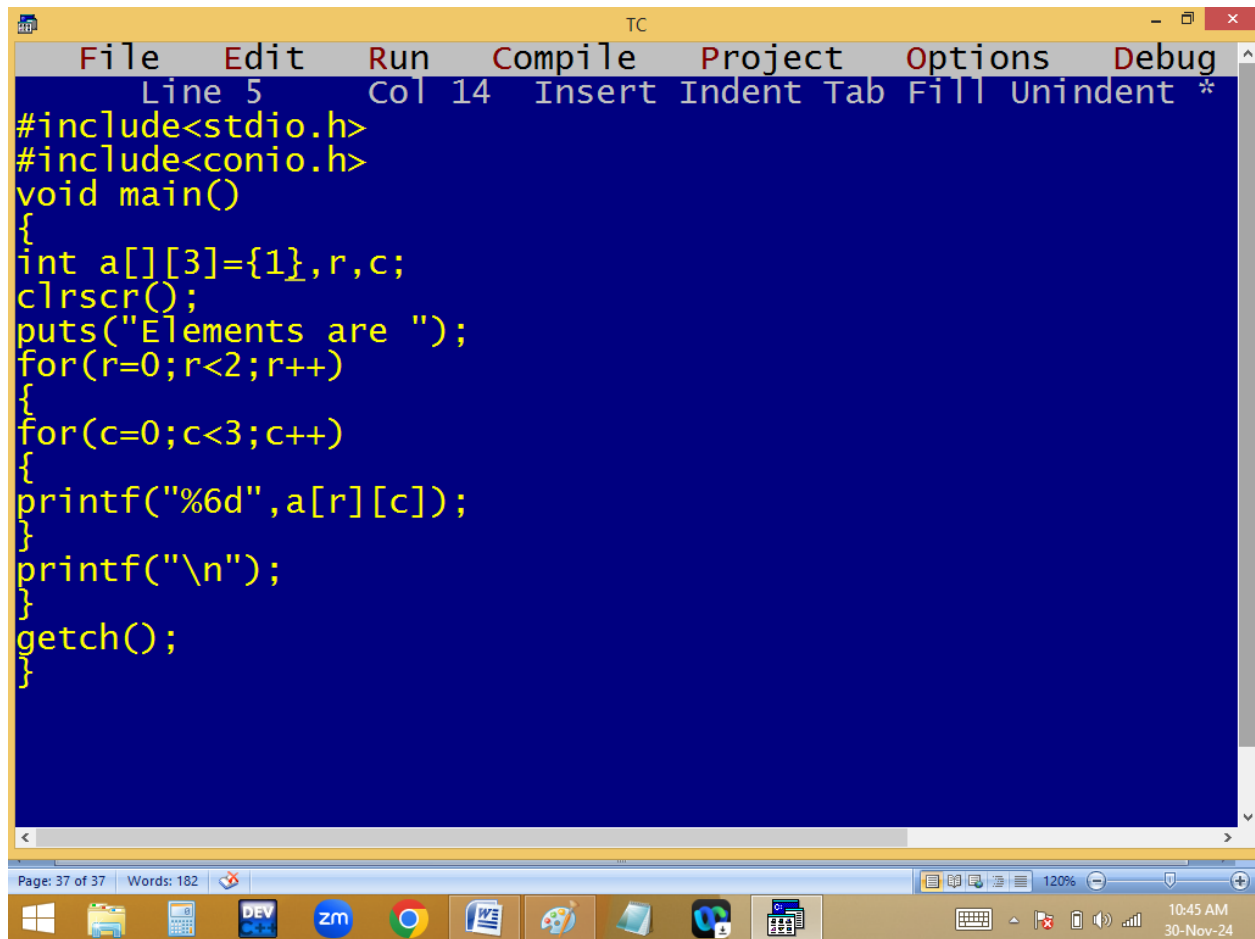
```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a[][3]={1,2,3},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%6d",a[r][c]);
}
printf("\n");
}
getch();
}
```

```
Elements are
        1       2       3
      -20      285       1
```
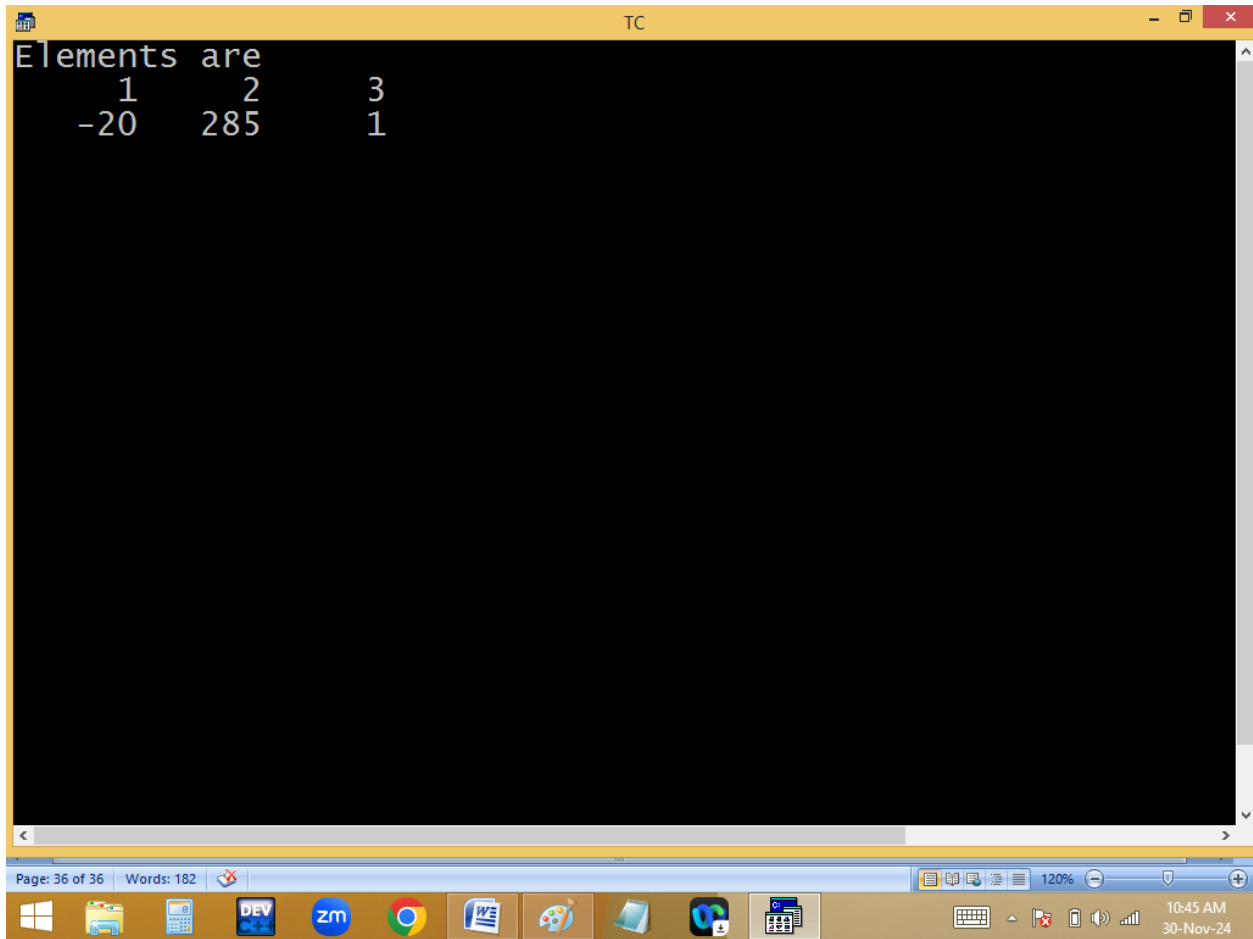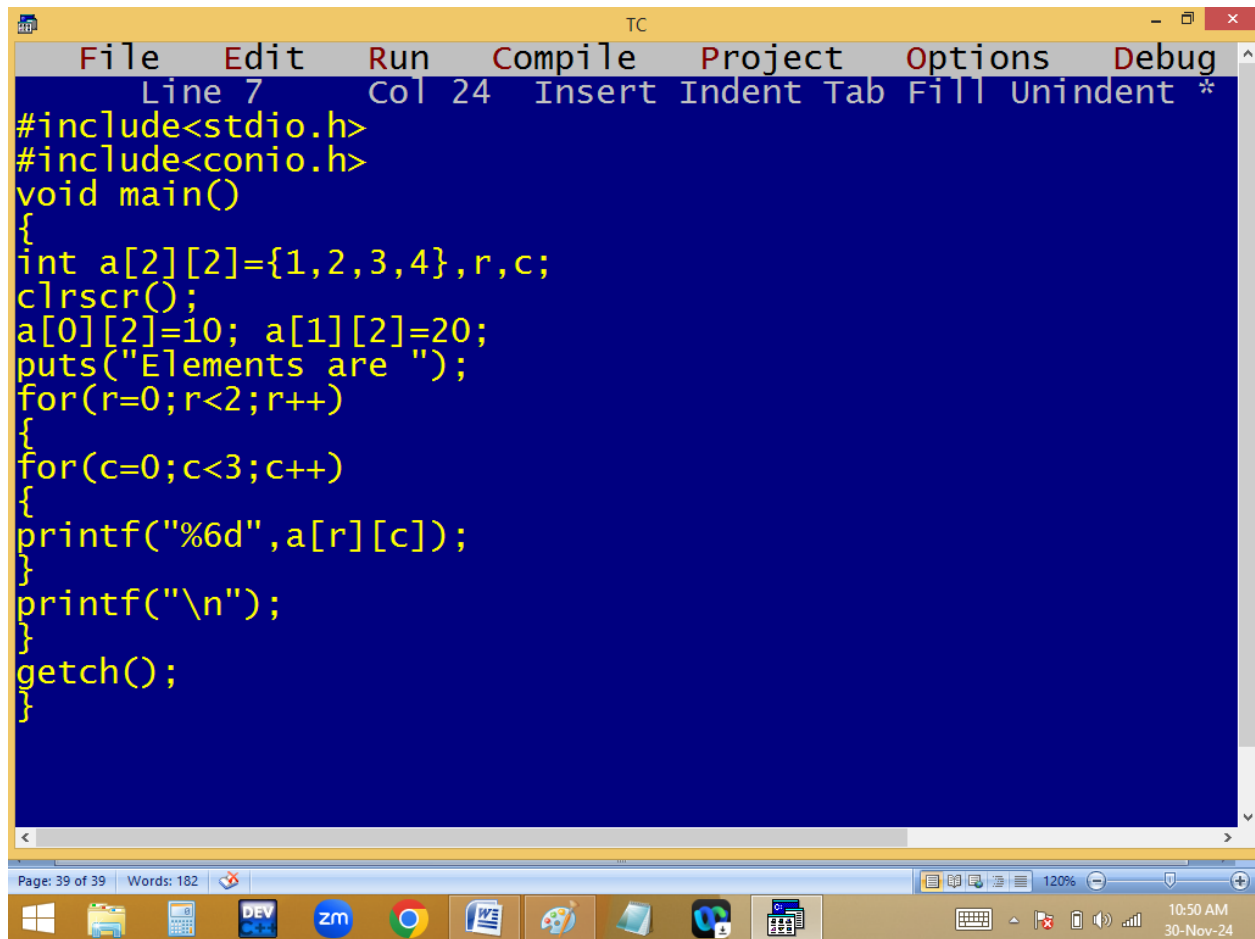
```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a[][3]={1},r,c;
clrscr();
puts("Elements are ");
for(r=0;r<2;r++)
{
for(c=0;c<3;c++)
{
printf("%6d",a[r][c]);
}
printf("\n");
}
getch();
}
```

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

File   Edit   Run   Compile   Project   Options   Debug

```c
#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();
}
```

```
Elements are
         1        2       10
        10        4       20
```