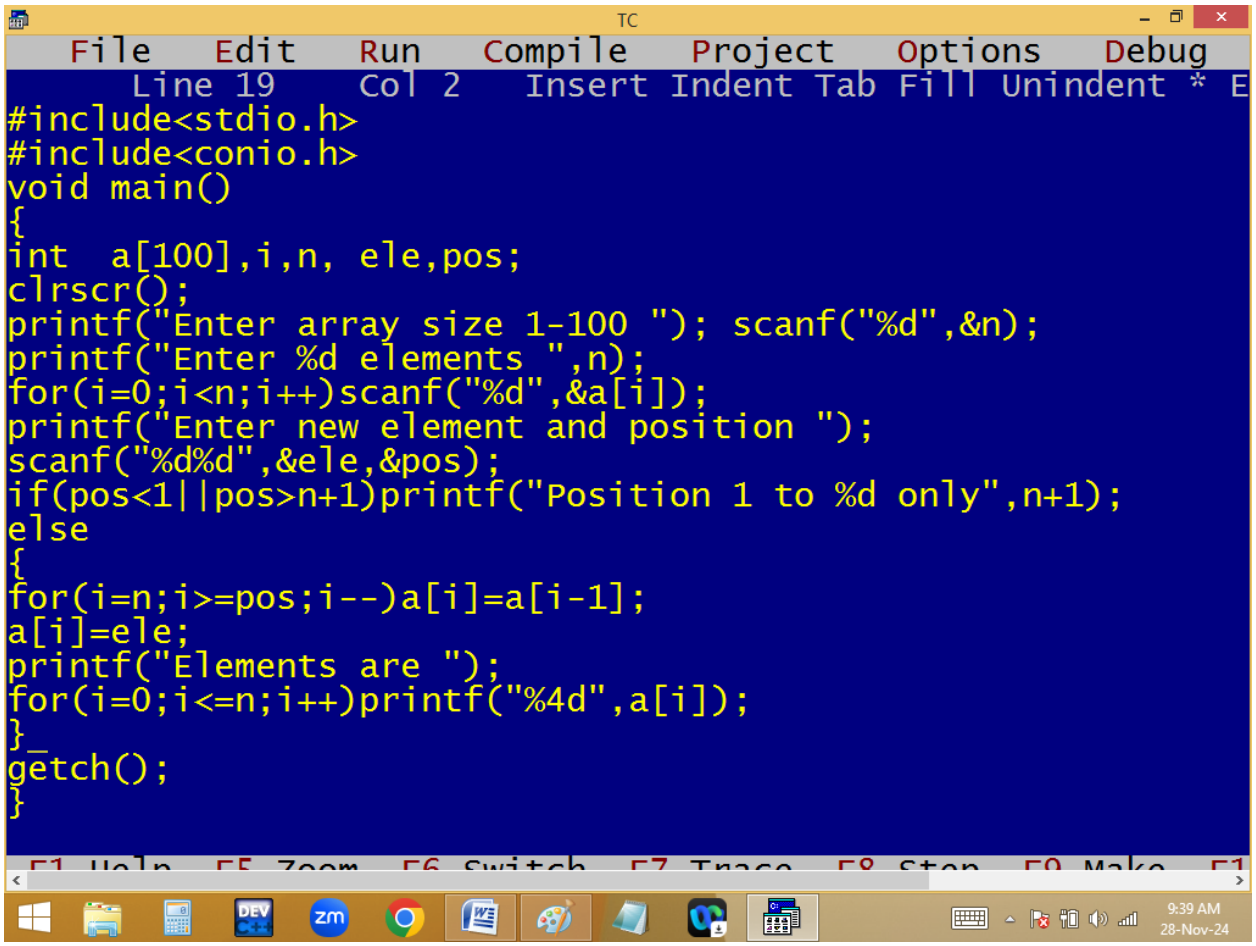
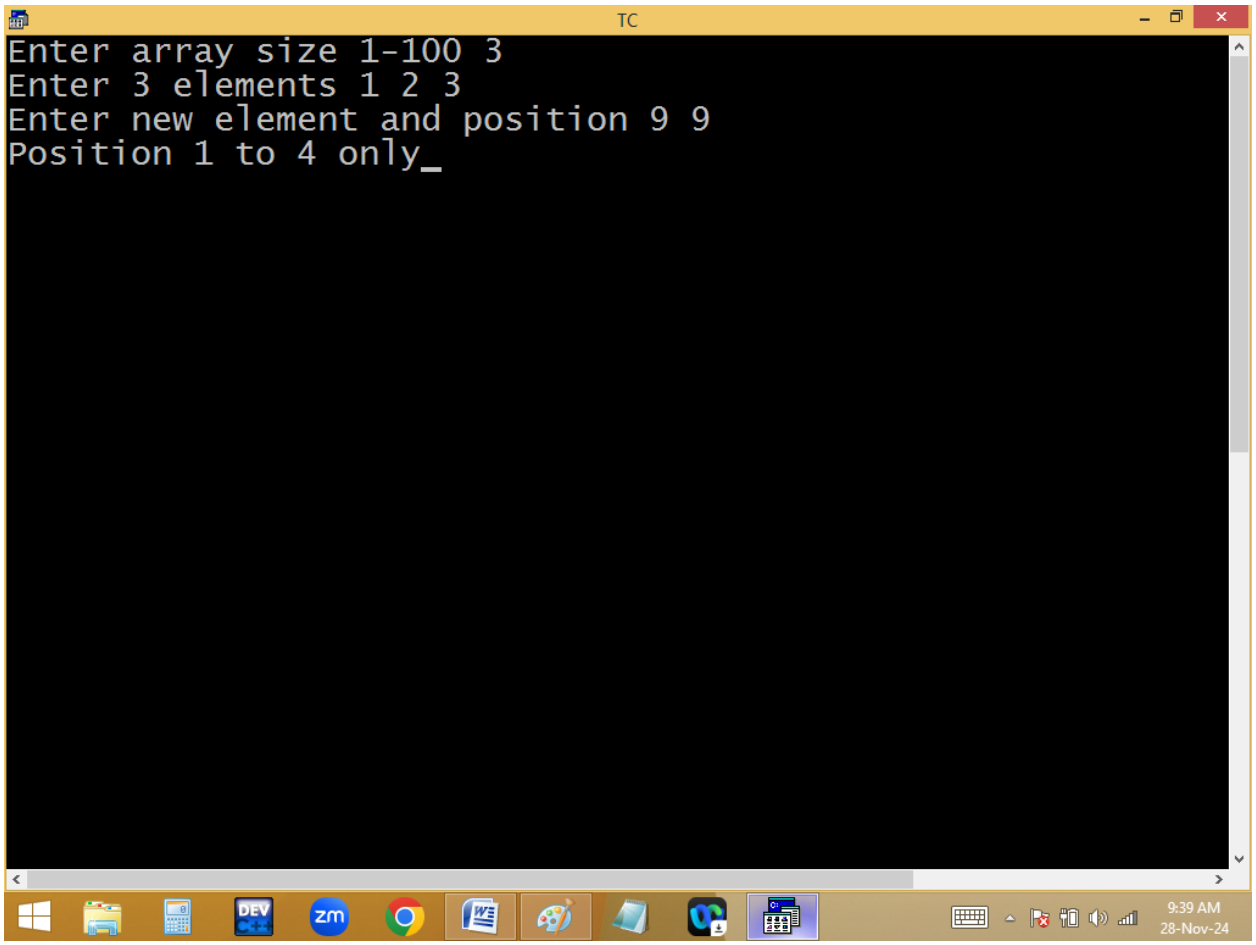
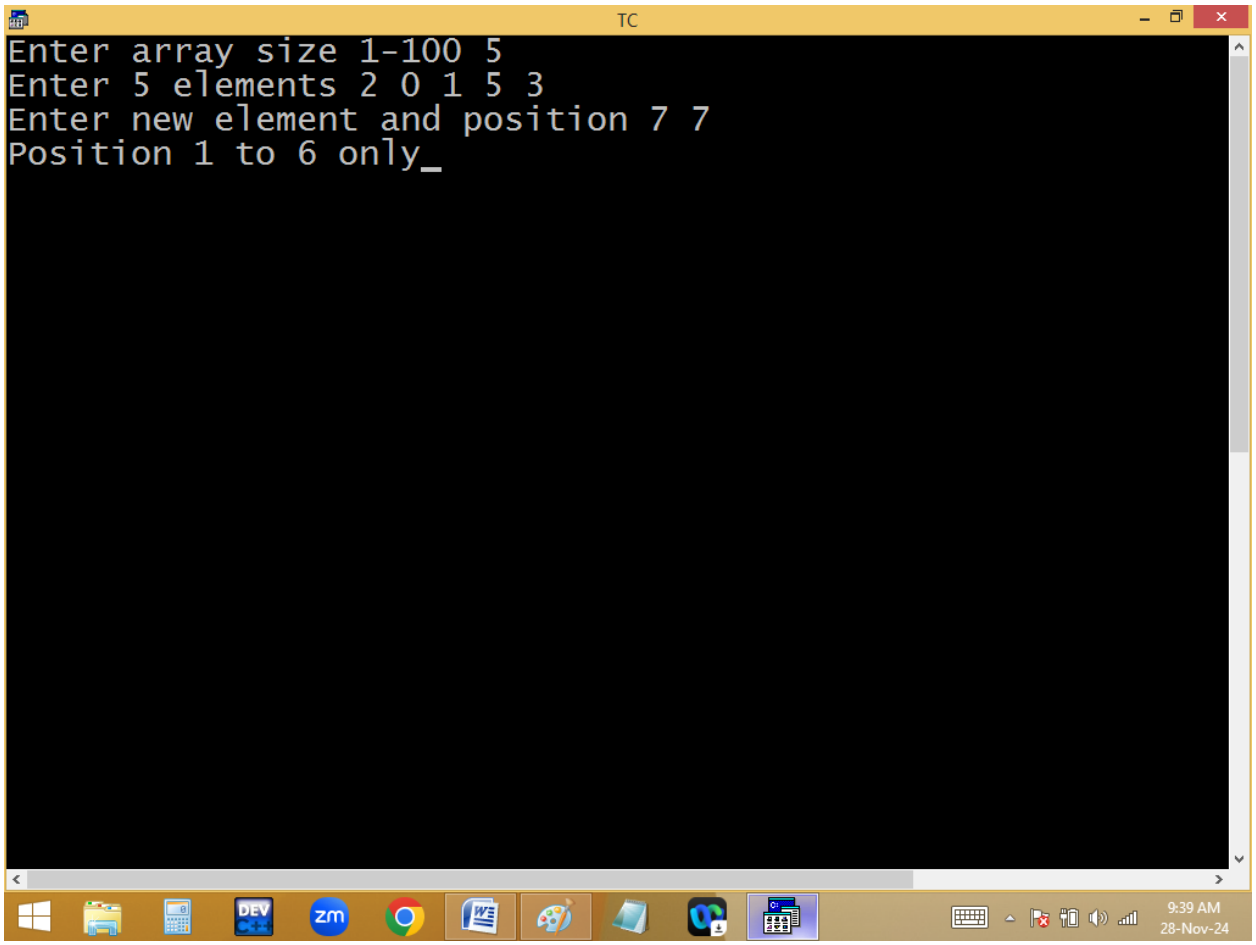
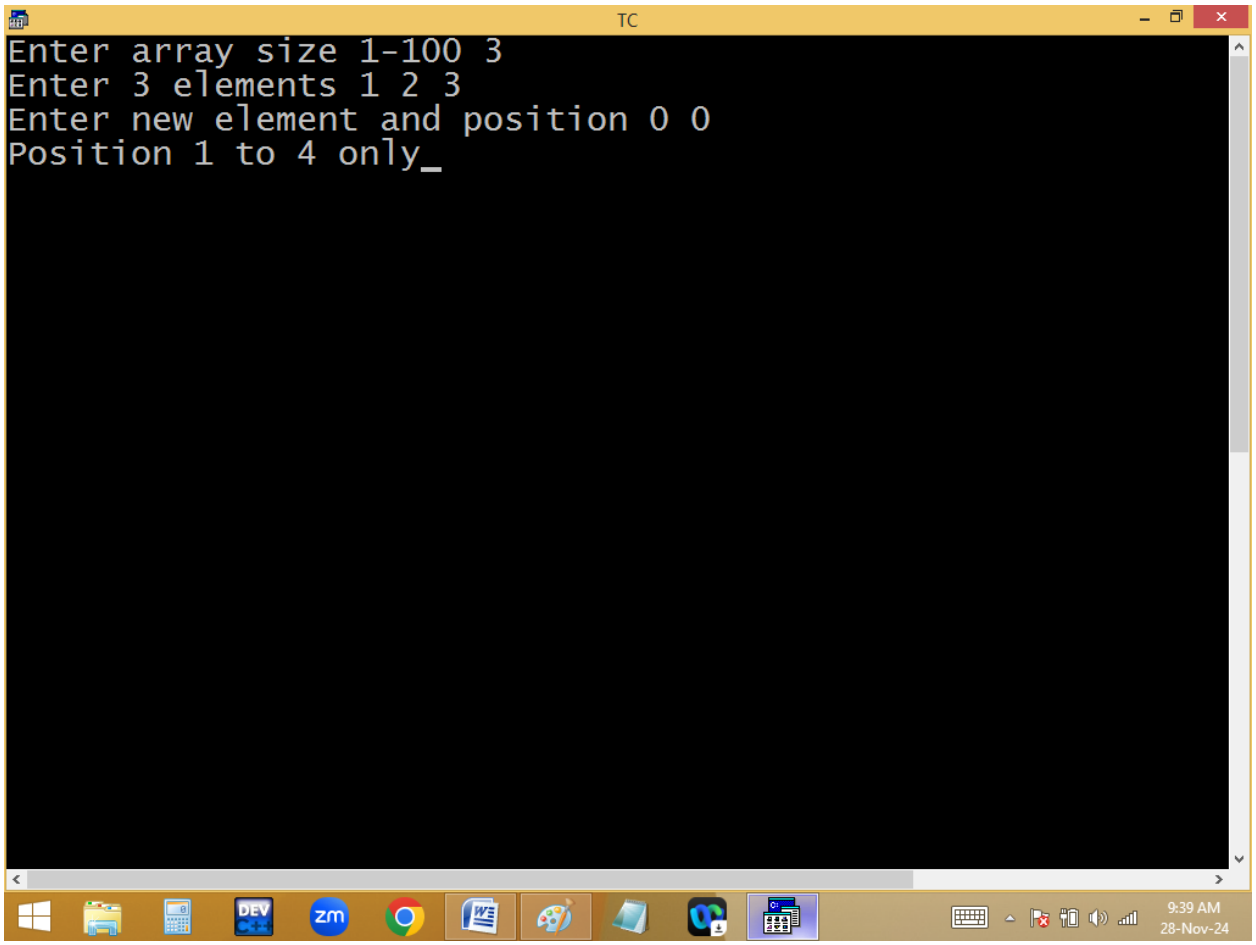
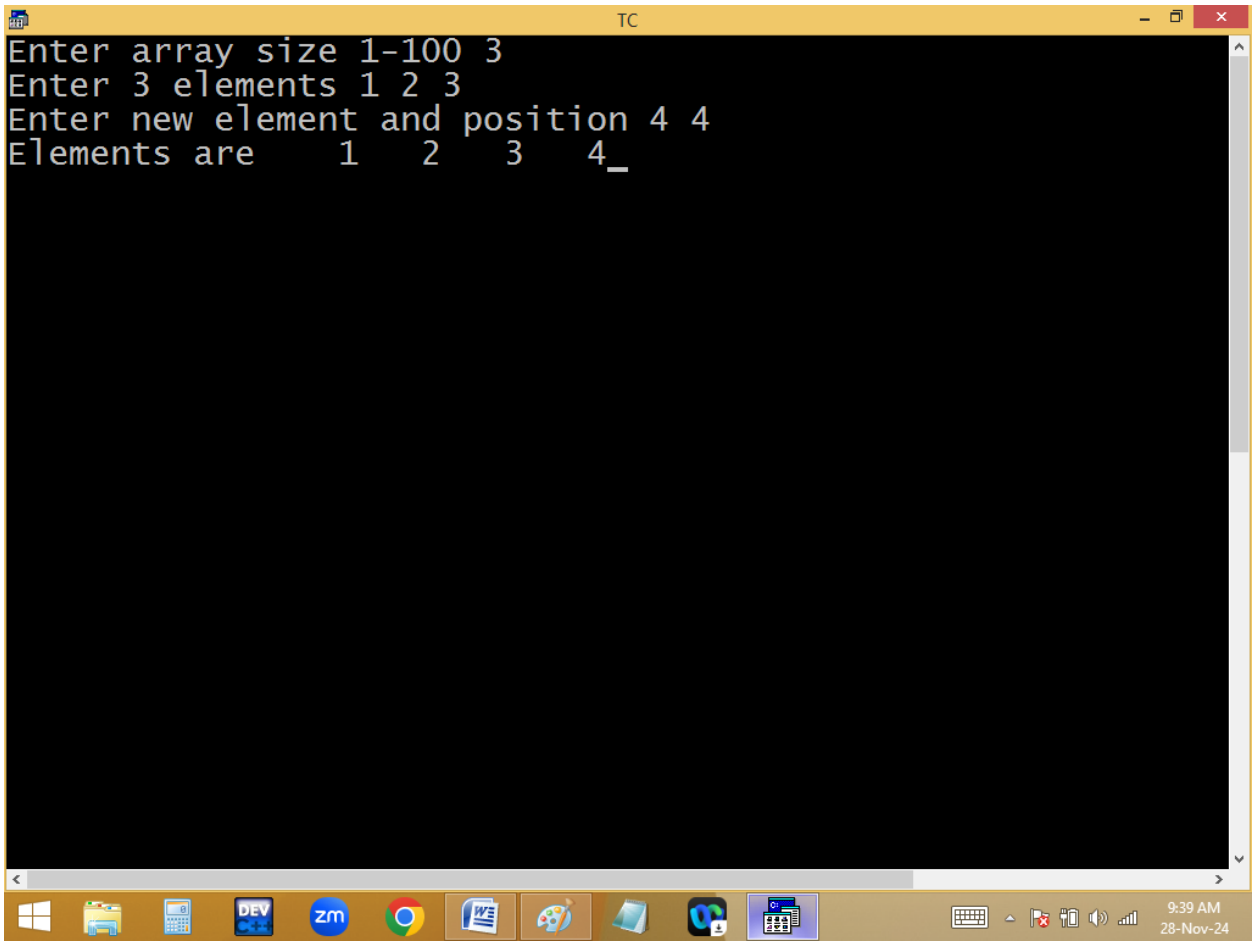
Inserting a new element in specified position of array [right shifting of array elements [push]]

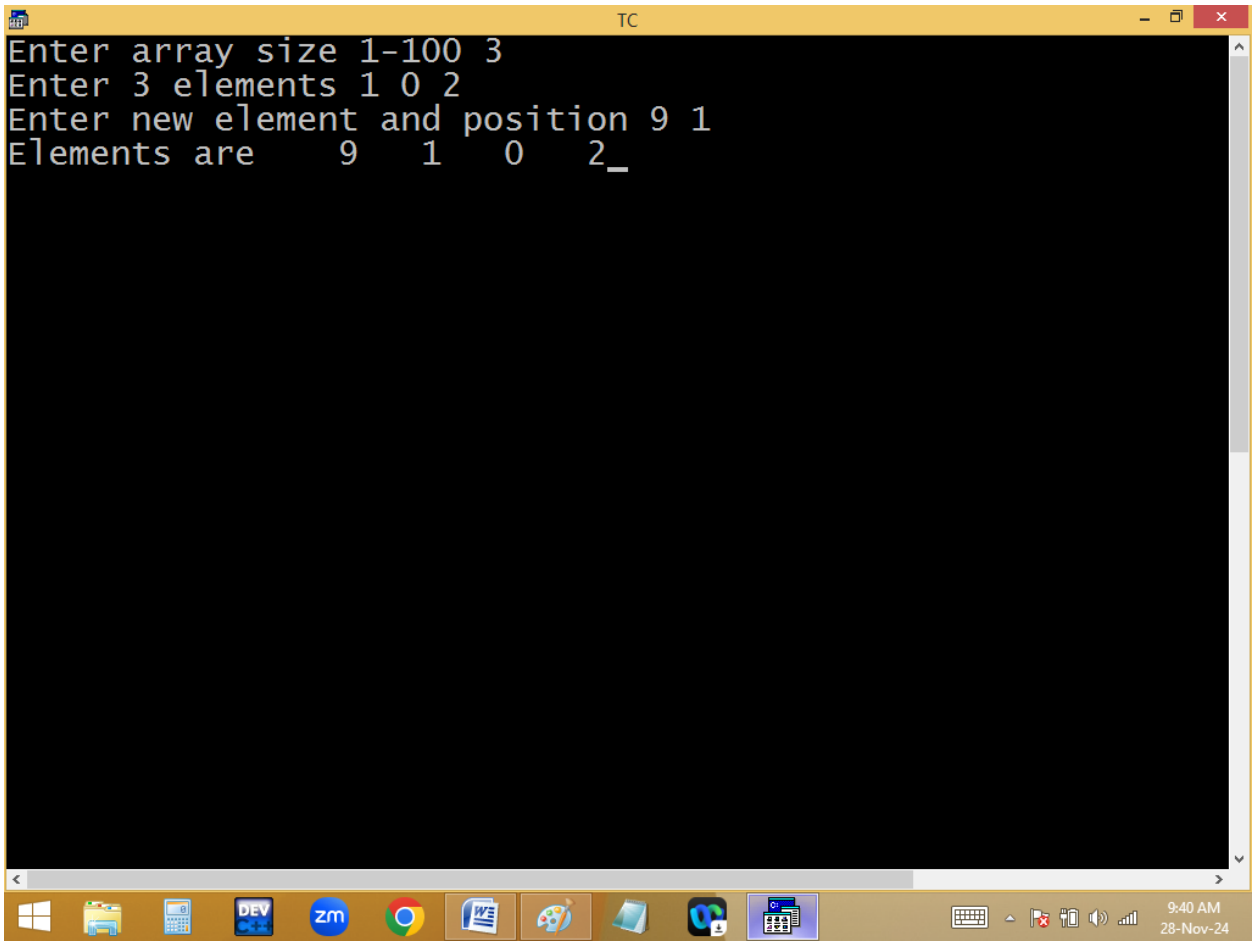


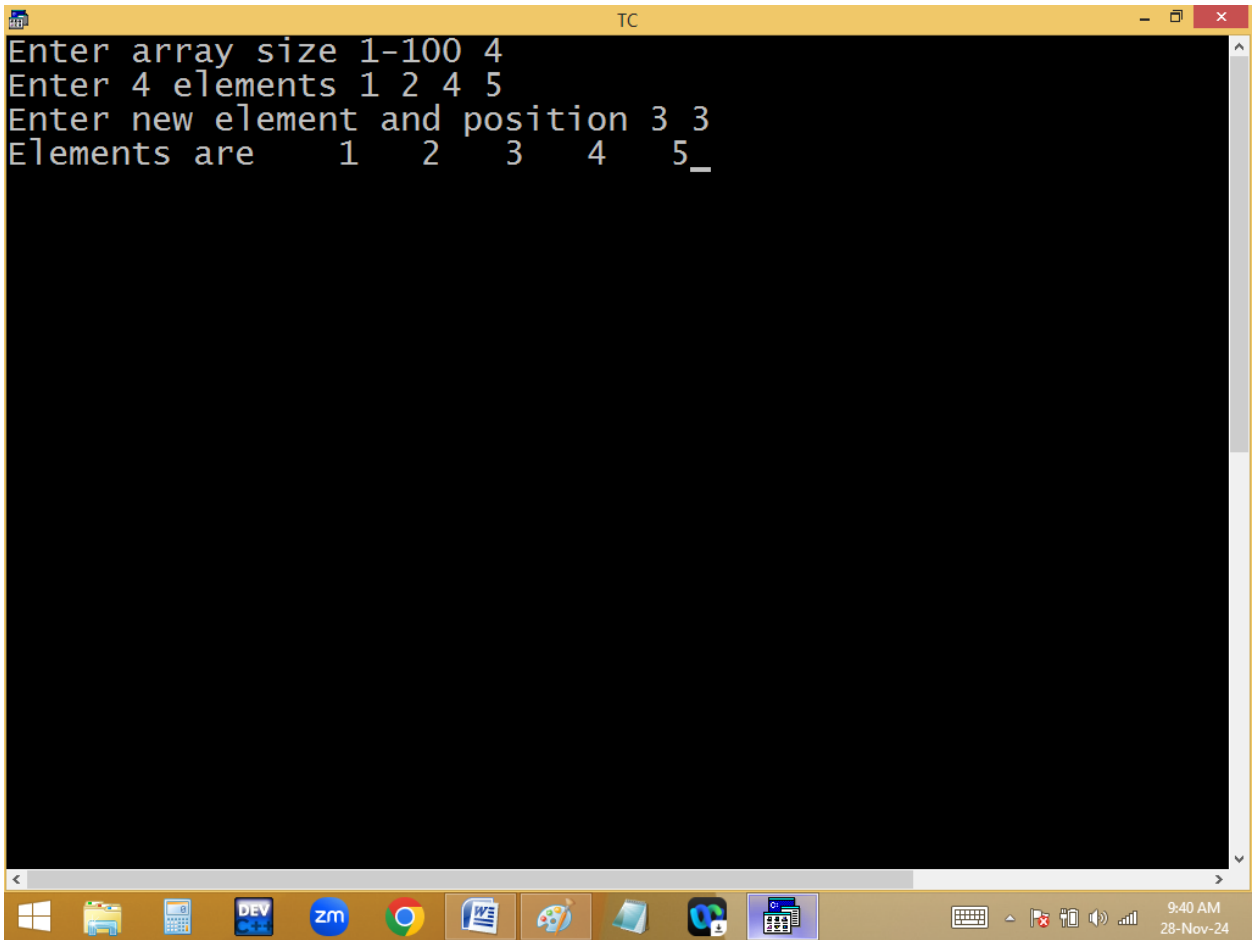

TC
Enter array size 1-100 3
Enter 3 elements 1 2 3
Enter new element and position 9 9
Position 1 to 4 only_
9:39 AM
28-Nov-24


TC
Enter array size 1-100 5
Enter 5 elements 2 0 1 5 3
Enter new element and position 7 7
Position 1 to 6 only_
9:39 AM
28-Nov-24


TC
Enter array size 1-100 3
Enter 3 elements 1 2 3
Enter new element and position 0 0
Position 1 to 4 only_
9:39 AM
28-Nov-24

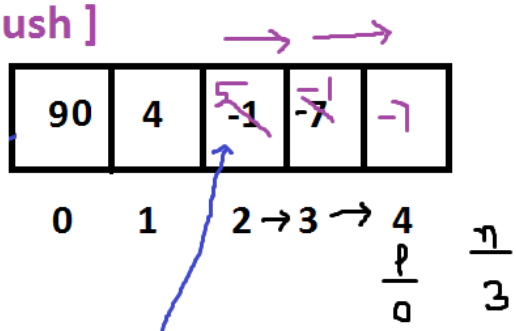

TC
Enter array size 1-100 3
Enter 3 elements 1 2 3
Enter new element and position 4 4
Elements are 1 2 3 4
9:39 AM
28-Nov-24


TC
Enter array size 1-100 3
Enter 3 elements 1 0 2
Enter new element and position 9 1
Elements are 9 1 0 2
9:40 AM
28-Nov-24



Right shifting of array elements [push]

```
for( i=n; i>=pos;i--)a[i]=a[i-1];
a[i]=newele;
```



newele = 5 pos=3 cell

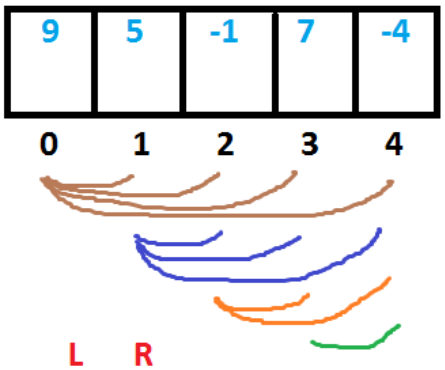
without damaging -1

Sorting: Arranging data in a order

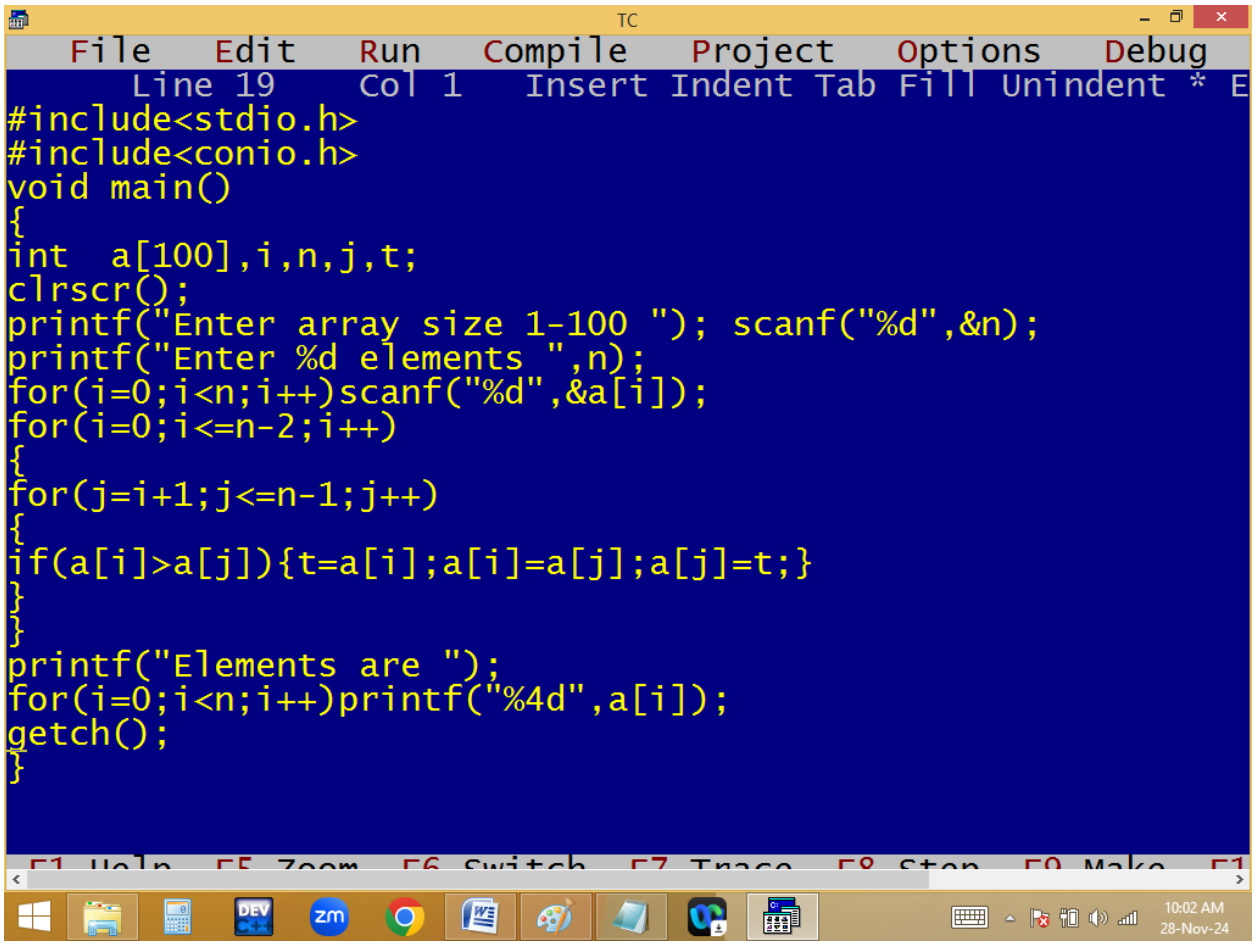
Selection sort:

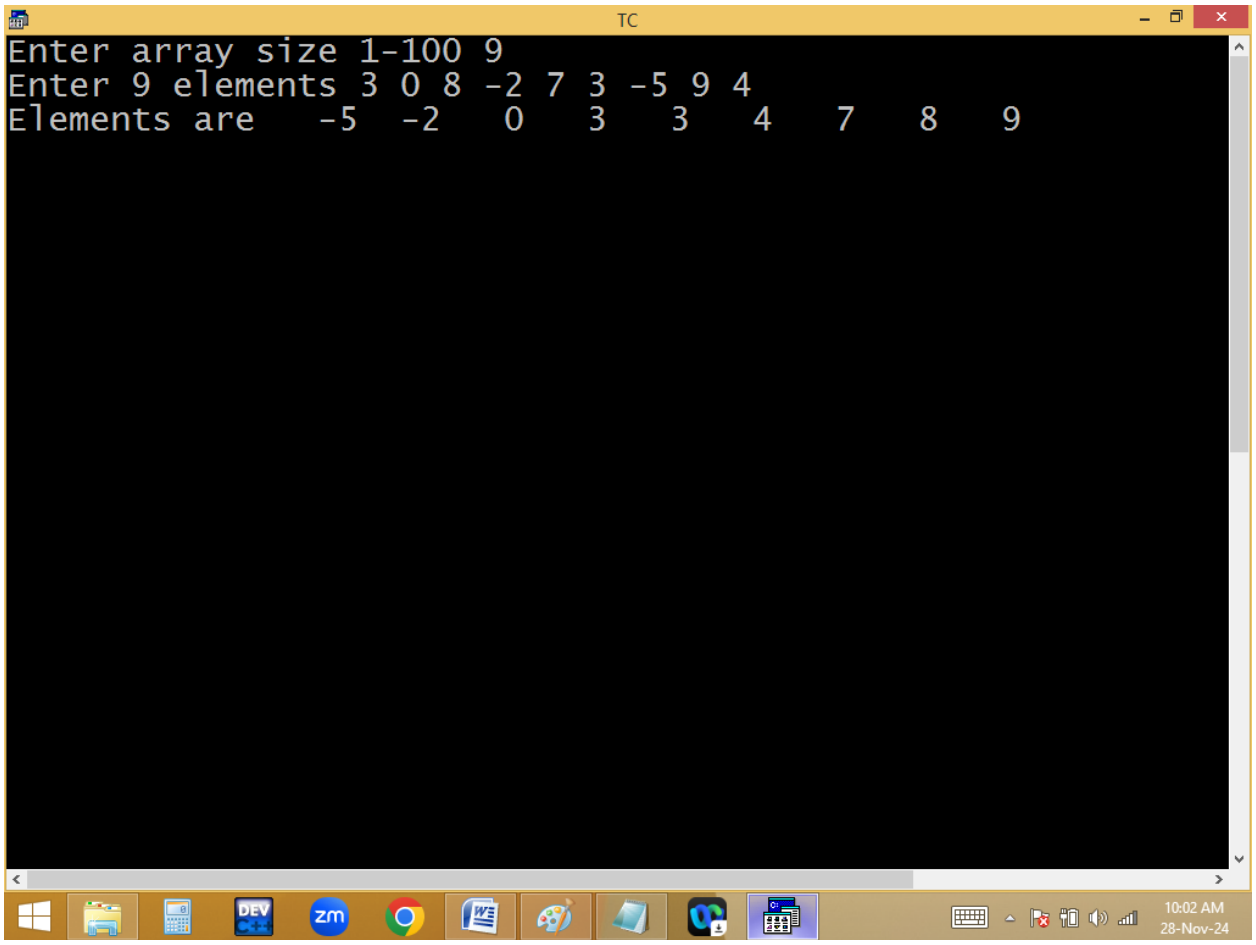
Selection sort in ascending order:

9	5	-1	7	-4
5	9	-1	7	-4
-1	9	5	7	-4
-4	9	5	7	-1
-4	5	9	7	-1
-4	-1	9	7	5
-4	-1	7	9	5
-4	-1	5	9	7
-4	-1	5	7	9



L	R
i	j
0	1,2,3,4
1	2,3,4
2	3,4
3	4


TC
File Edit Run Compile Project Options Debug
Line 19 Col 1 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,j,t;
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-2;i++)
{
for(j=i+1;j<=n-1;j++)
{
if(a[i]>a[j]){t=a[i];a[i]=a[j];a[j]=t;}
}
}
printf("Elements are ");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
10:02 AM
28-Nov-24

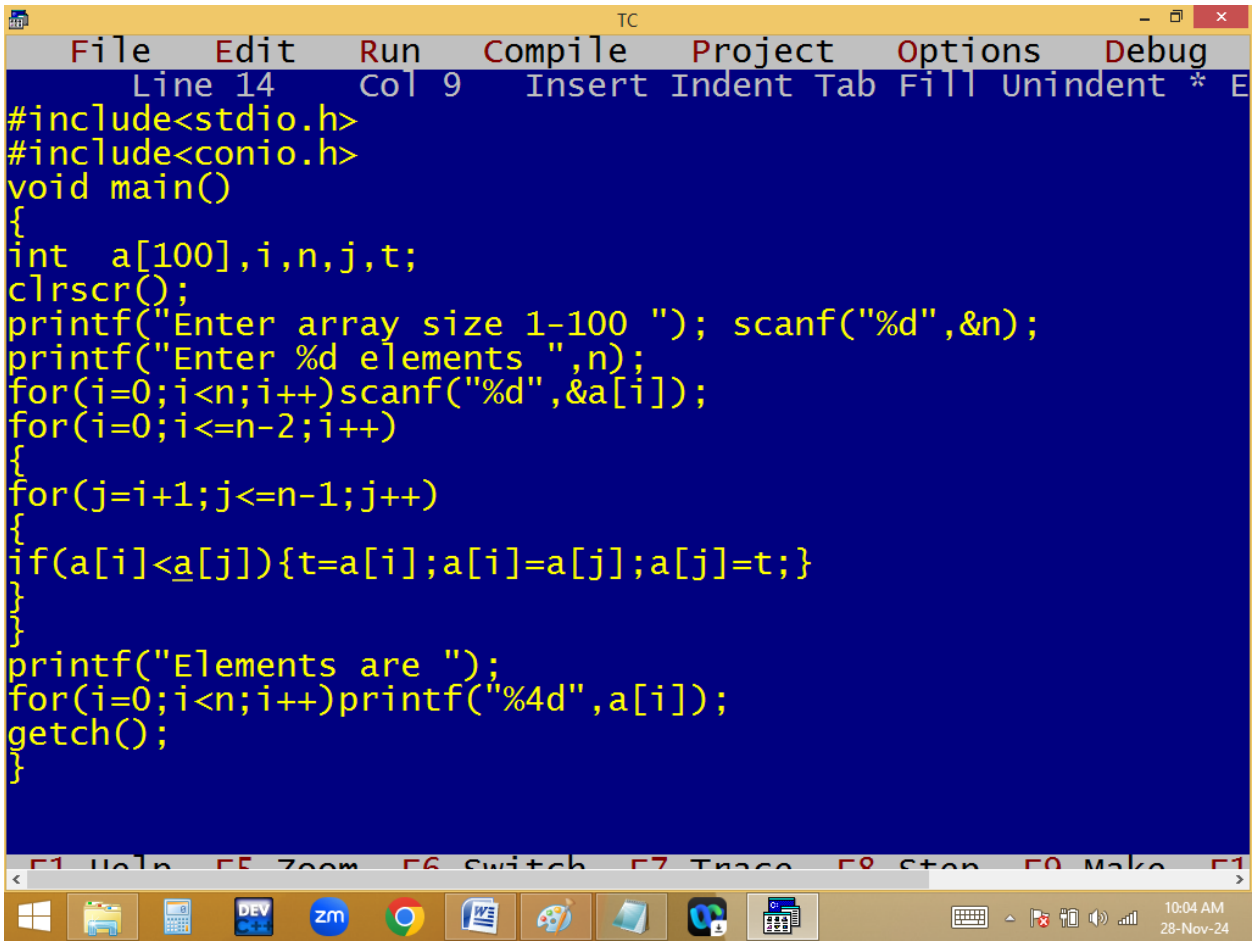


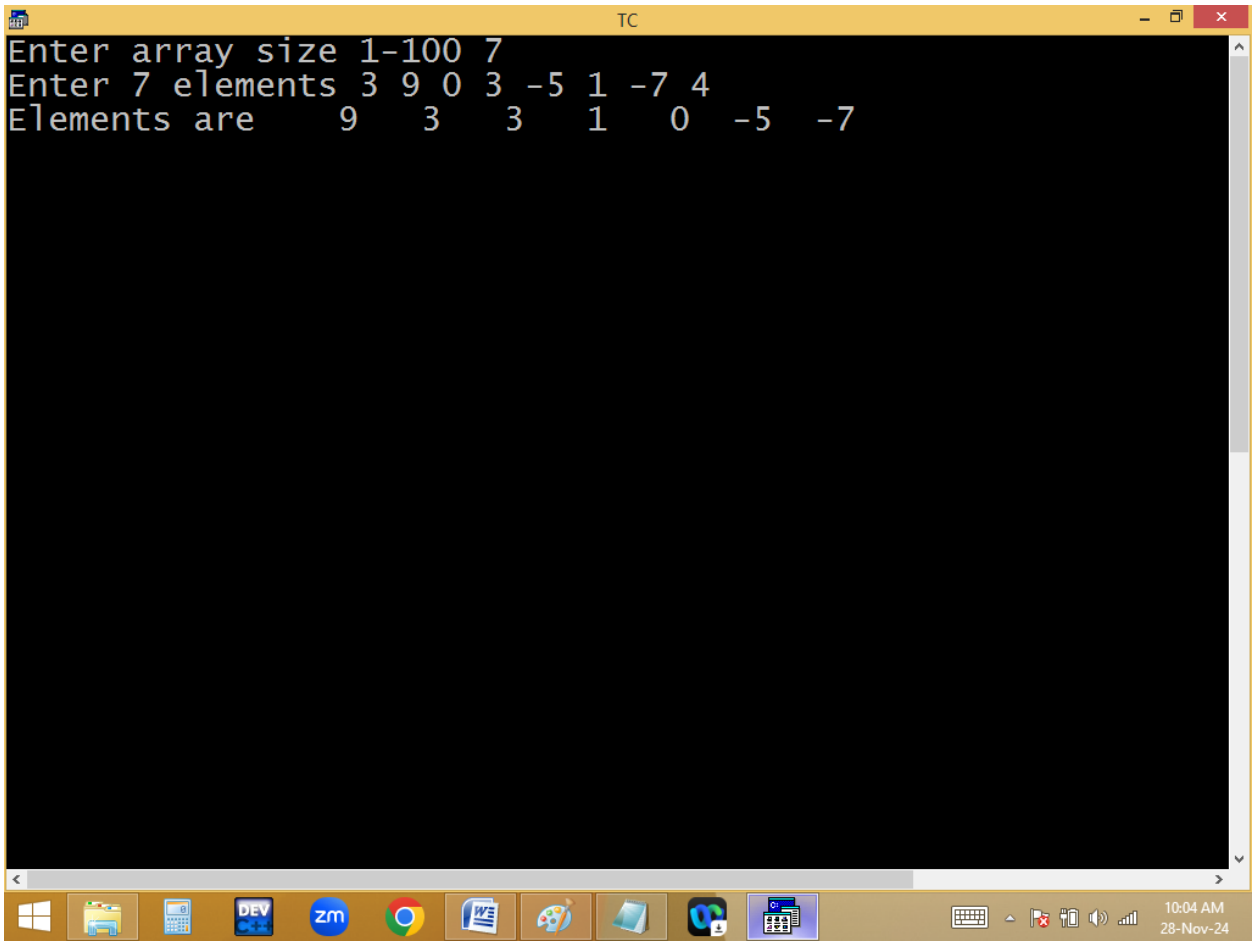

```
for( i=0; i<=n-2;i++)
{
for( j=i+1; j<=n-1;j++)
{    L     R
if(a[i]>a[ j])
{
t=a[i];
a[i]=a[j];
a[j]=t;
}
}
}
```

n
5

L	R
i	j
0	1,2,3,4
1	2,3,4
2	3,4
3	4

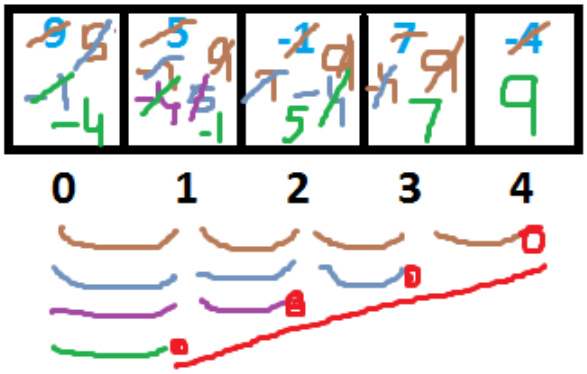
Descending order:


TC
File Edit Run Compile Project Options Debug
Line 14 Col 9 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,j,t;
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-2;i++)
{
for(j=i+1;j<=n-1;j++)
{
if(a[i]<a[j]){t=a[i];a[i]=a[j];a[j]=t;}
}
}
printf("Elements are ");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
10:04 AM
28-Nov-24

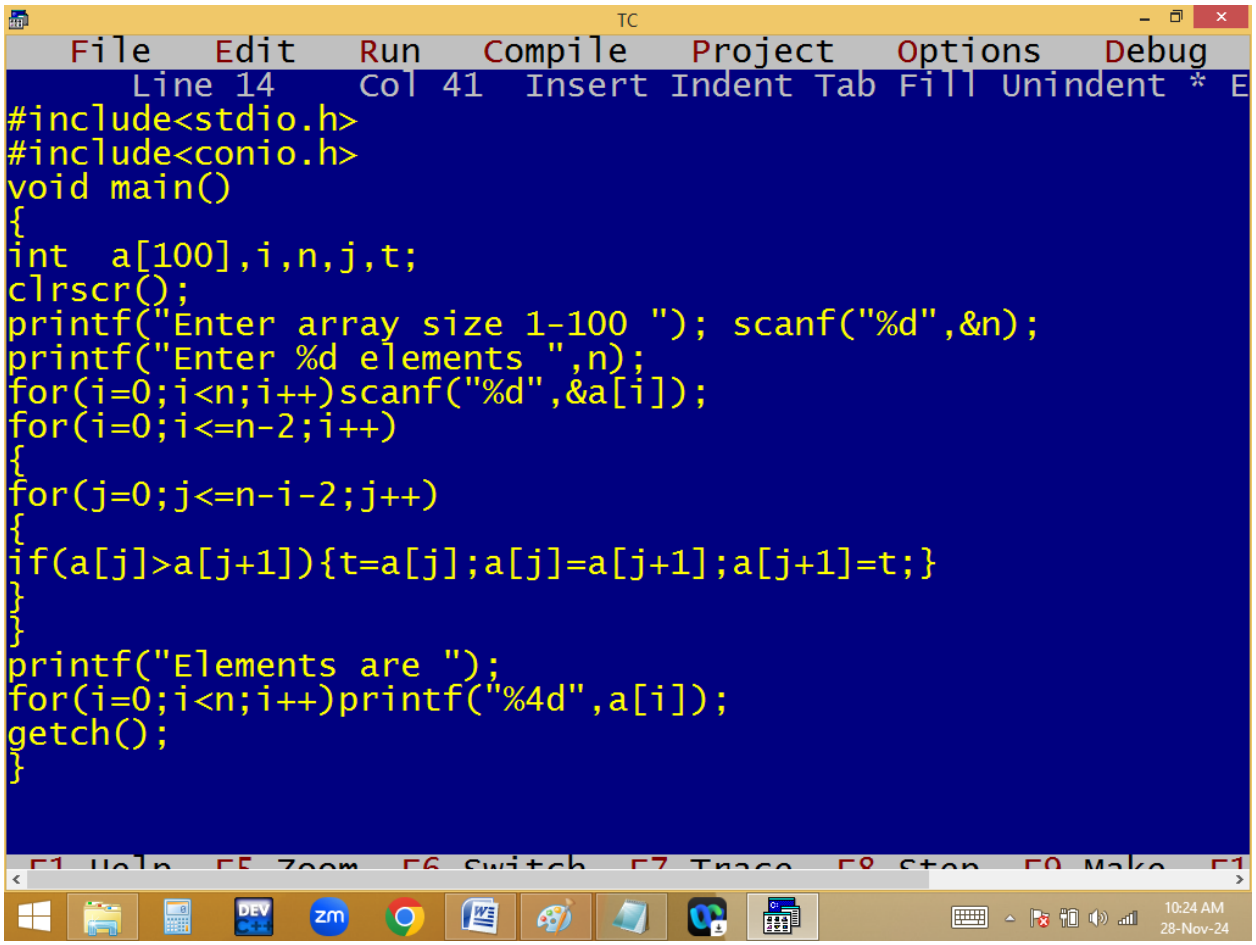


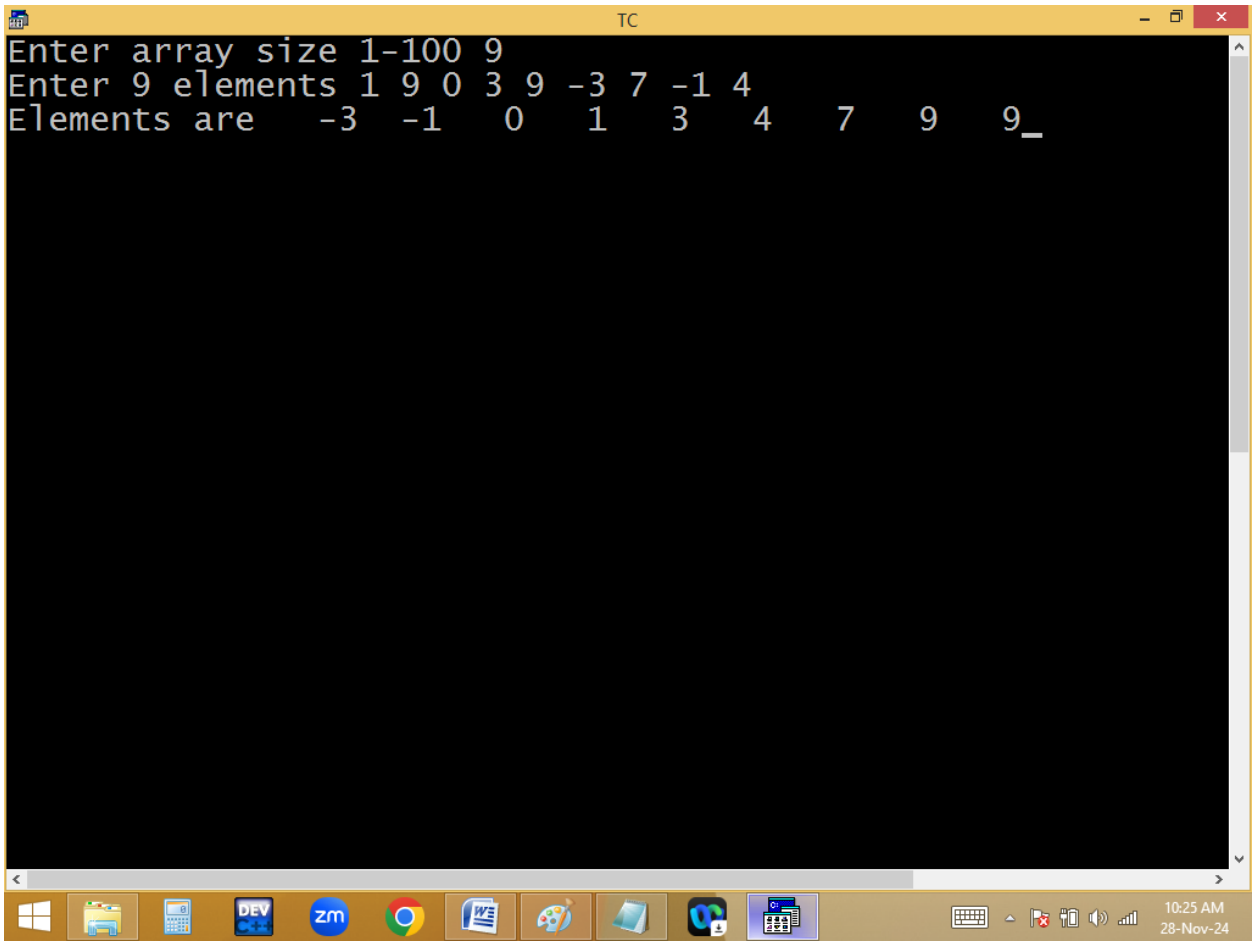
Bubble sort in ascending order:

9	5	-1	7	-4
5	9	-1	7	-4
5	-1	9	7	-4
5	-1	7	9	-4
5	-1	7	-4	9
-1	5	7	-4	9
-1	5	-4	7	9
-1	-4	5	7	9
-4	-1	5	7	9

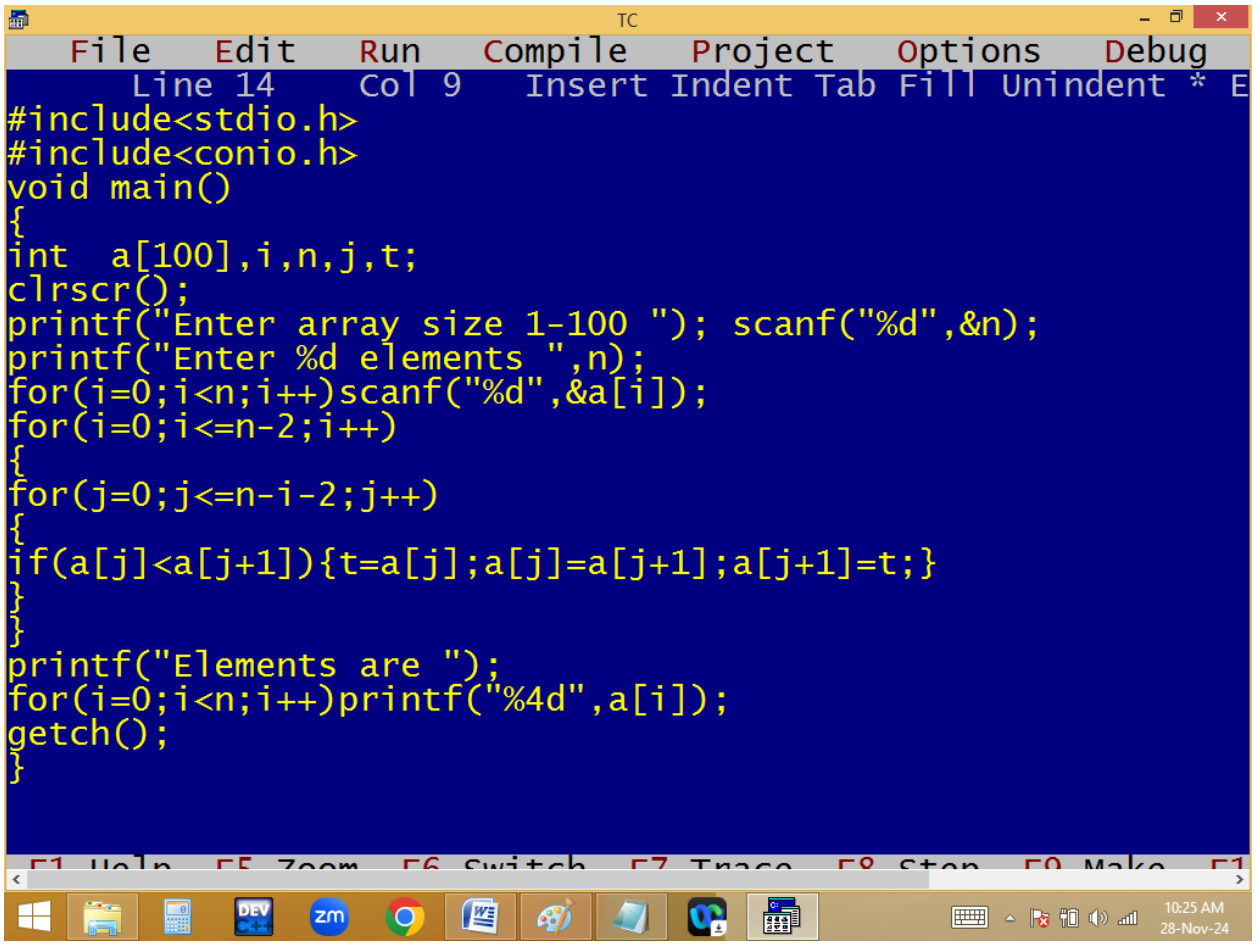


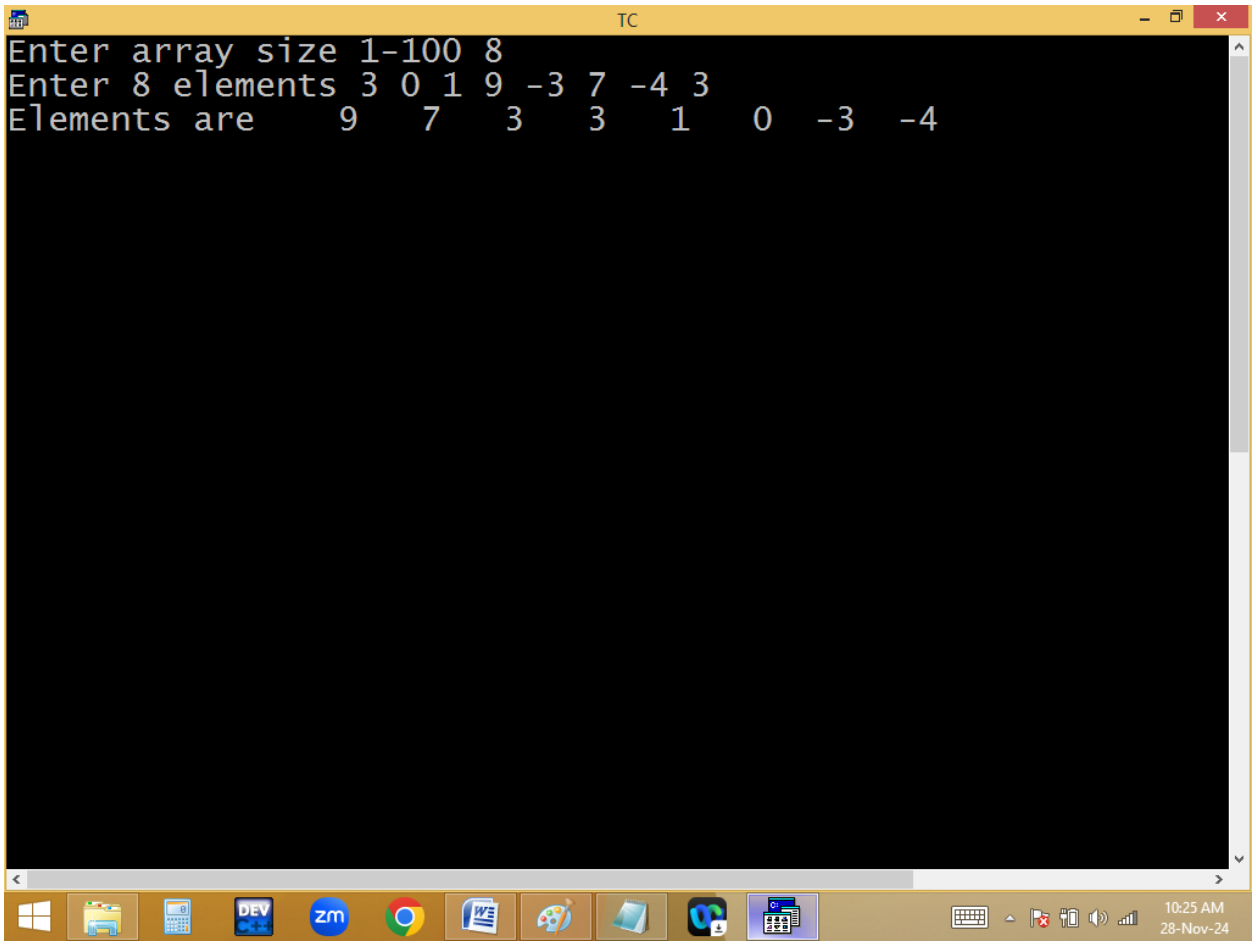
L	R
i	j j+1
0	0-1,1-2,2-3,3-4
1	0-1,1-2,2-3
2	0-1,1-2
3	0-1


TC
File Edit Run Compile Project Options Debug
Line 14 Col 41 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,j,t;
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-2;i++)
{
for(j=0;j<=n-i-2;j++)
{
if(a[j]>a[j+1]){t=a[j];a[j]=a[j+1];a[j+1]=t;}
}
}
printf("Elements are ");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
10:24 AM
28-Nov-24



Descending order:


TC
File Edit Run Compile Project Options Debug
Line 14 Col 9 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,j,t;
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-2;i++)
{
for(j=0;j<=n-i-2;j++)
{
if(a[j]<a[j+1]){t=a[j];a[j]=a[j+1];a[j+1]=t;}
}
}
printf("Elements are ");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
10:25 AM
28-Nov-24



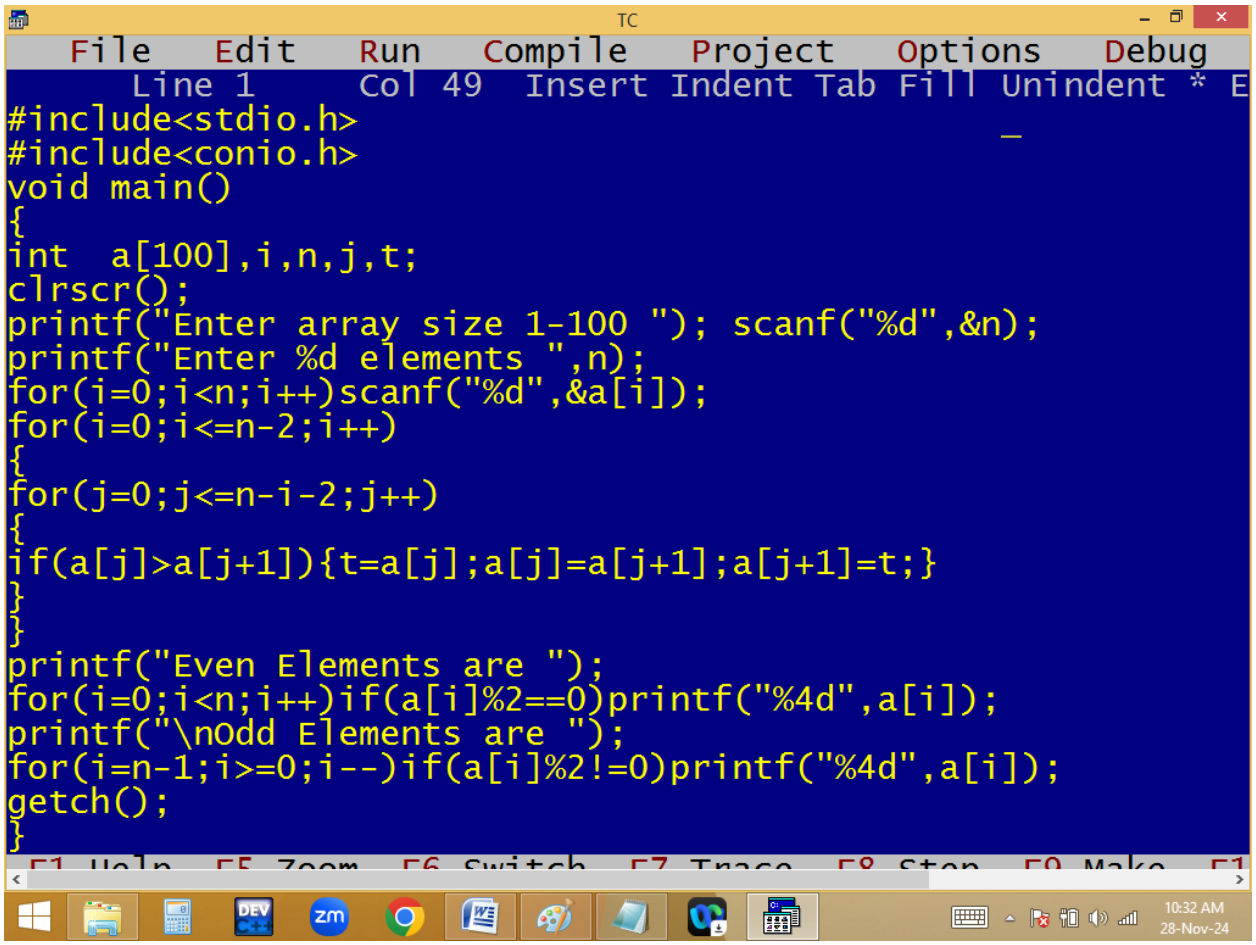

```
for( i=0; i<=n-2;i++)
{
 for( j=0;j<=n-i-2;j++)
{   L       R
if(a[j]>a[j+1])
{
t=a[j];a[j]=a[j+1];
a[j+1]=t;
}
}
}
```

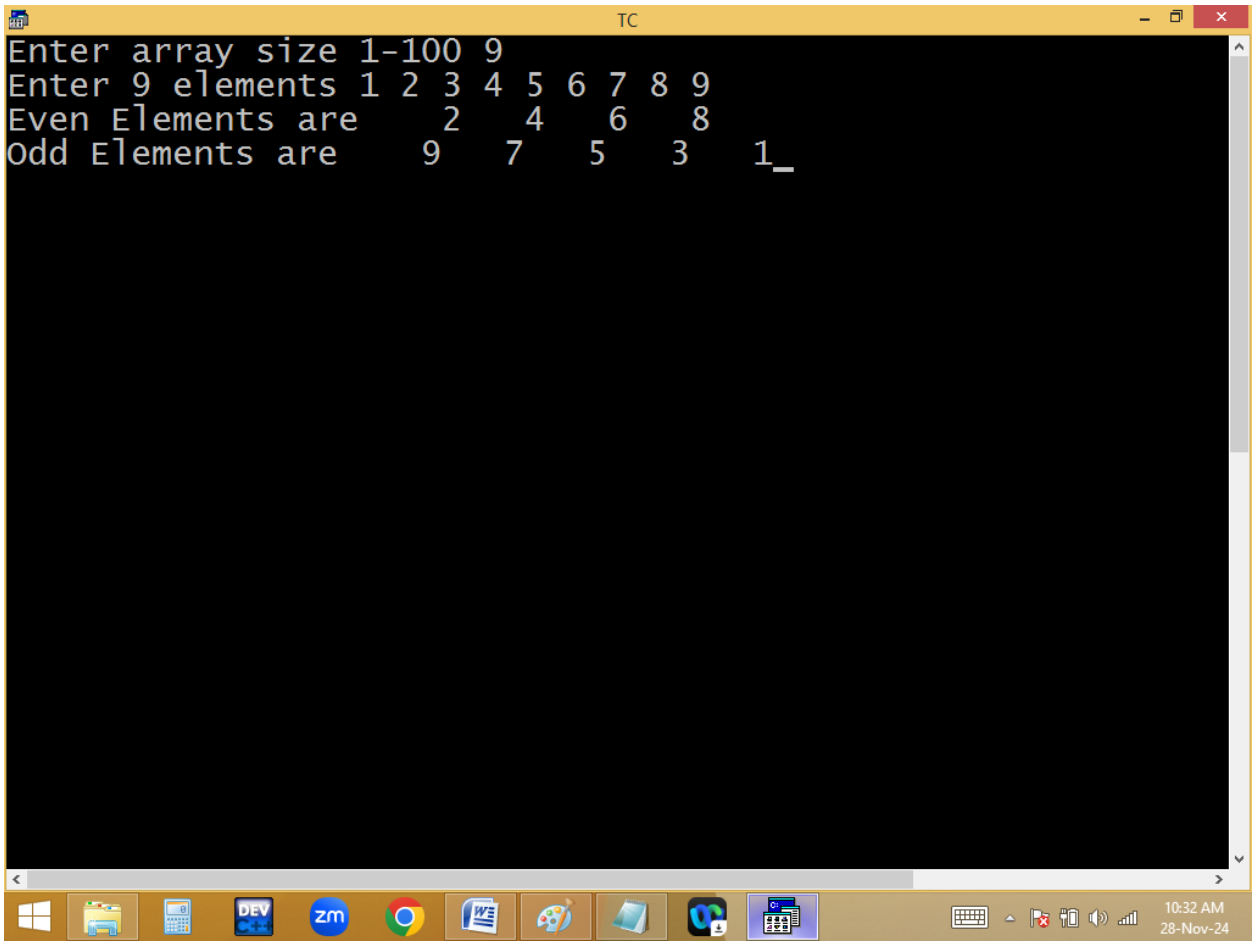
n-i-2

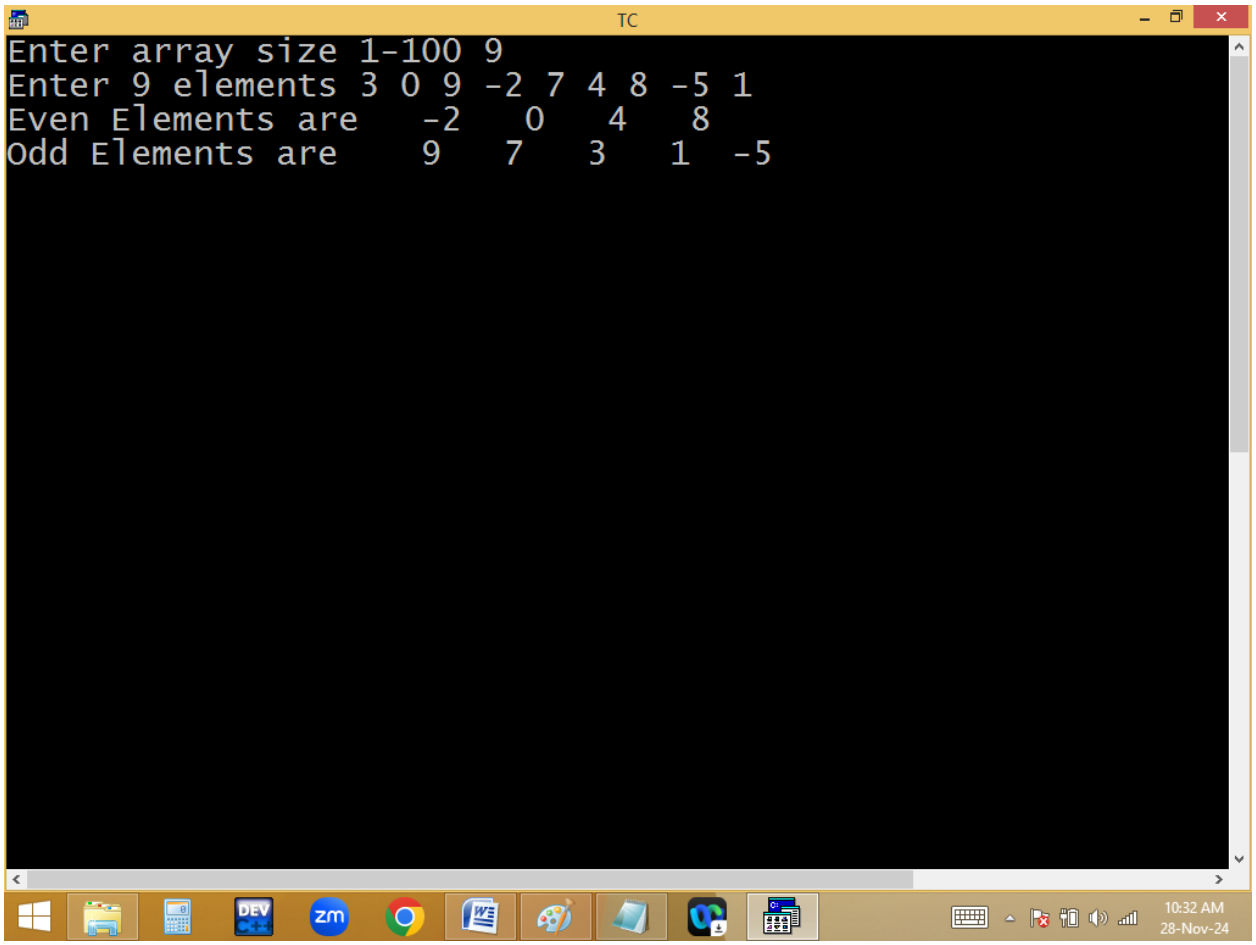
5-0-2=3
5-1-2=2
5-2-2=1
5-3-2=0

L	R
i	j j+1
0	0-1,1-2,2-3,3-4
1	0-1,1-2,2-3
2	0-1,1-2
3	0-1

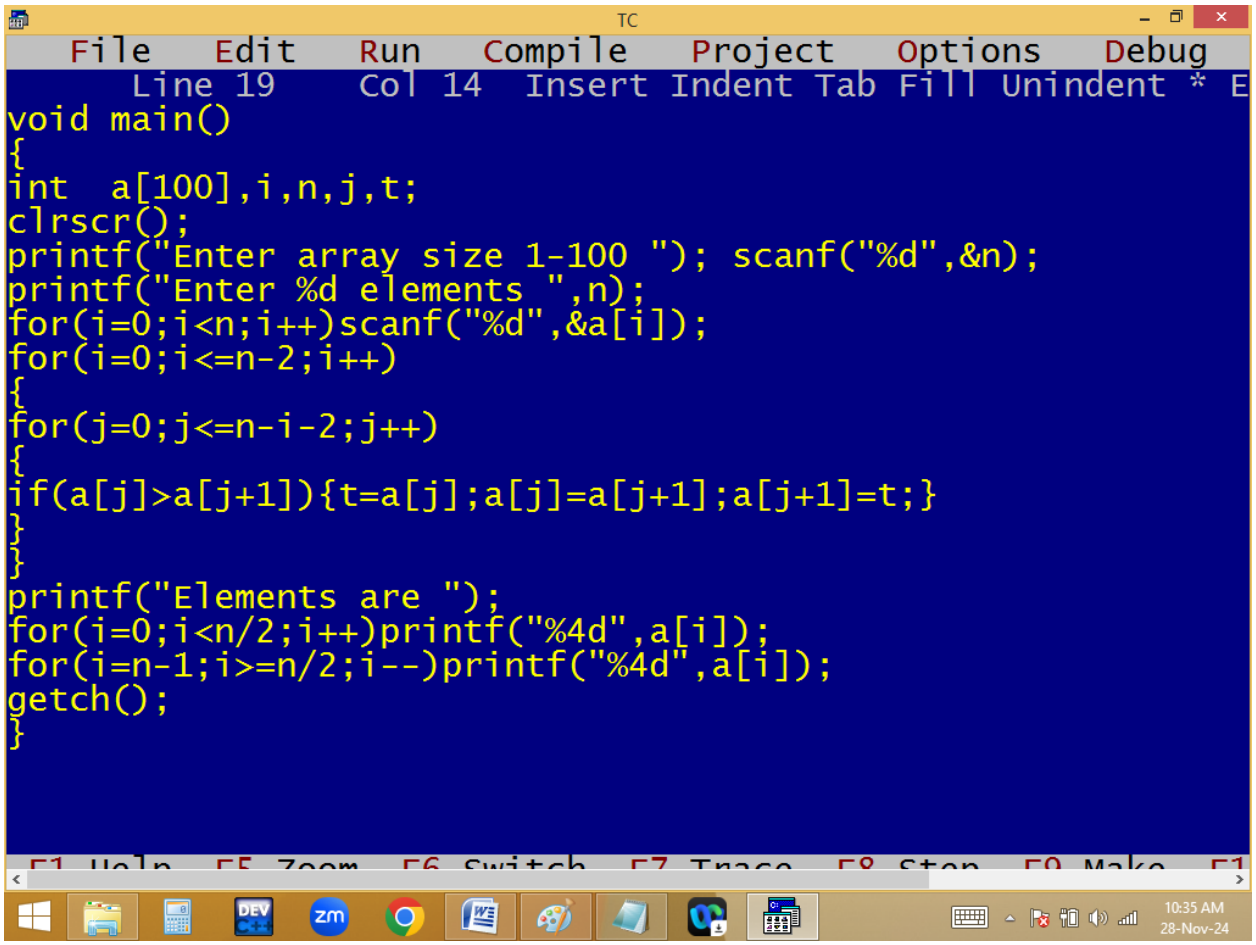
Sort even elements in ascending and odd elements in descending order:

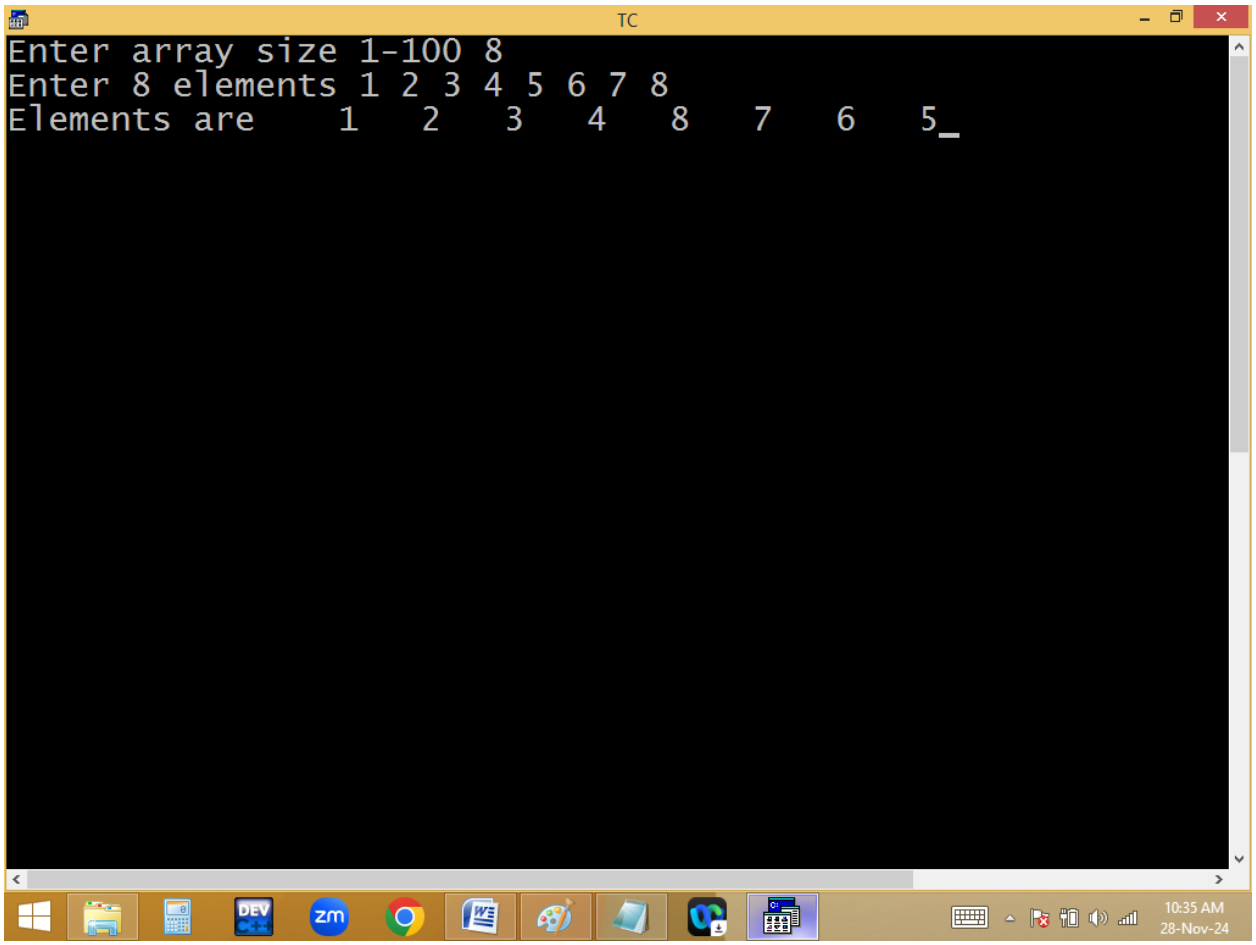

TC
File Edit Run Compile Project Options Debug
Line 1 Col 49 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,j,t;
clrscr();
printf("Enter array size 1-100 "); scanf("%d",&n);
printf("Enter %d elements ",n);
for(i=0;i<n;i++)scanf("%d",&a[i]);
for(i=0;i<=n-2;i++)
{
for(j=0;j<=n-i-2;j++)
{
if(a[j]>a[j+1]){t=a[j];a[j]=a[j+1];a[j+1]=t;}
}
}
printf("Even Elements are ");
for(i=0;i<n;i++)if(a[i]%2==0)printf("%4d",a[i]);
printf("\nOdd Elements are ");
for(i=n-1;i>=0;i--)if(a[i]%2!=0)printf("%4d",a[i]);
getch();
}
10:32 AM
28-Nov-24

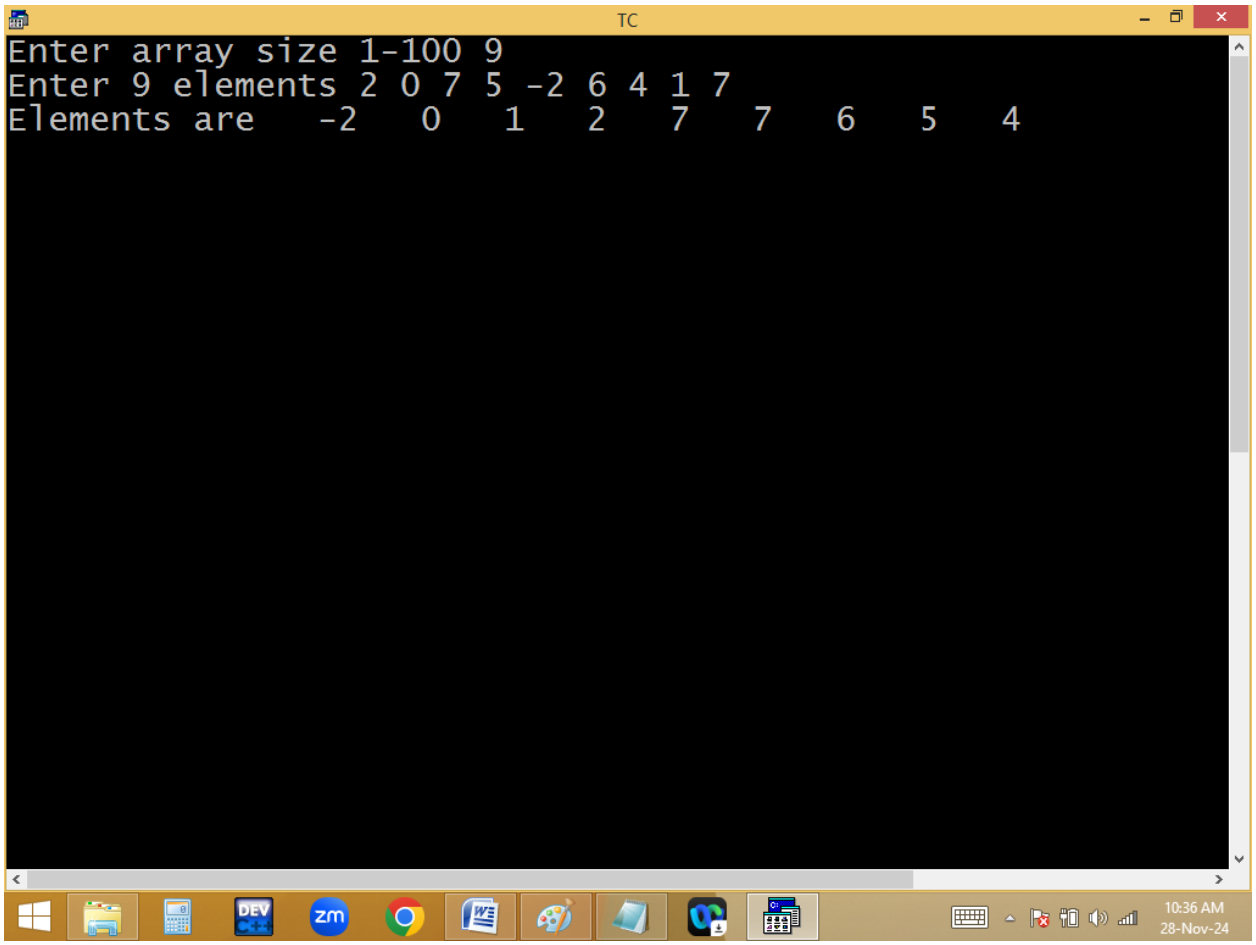

TC
Enter array size 1-100 9
Enter 9 elements 1 2 3 4 5 6 7 8 9
Even Elements are 2 4 6 8
Odd Elements are 9 7 5 3 1
10:32 AM
28-Nov-24



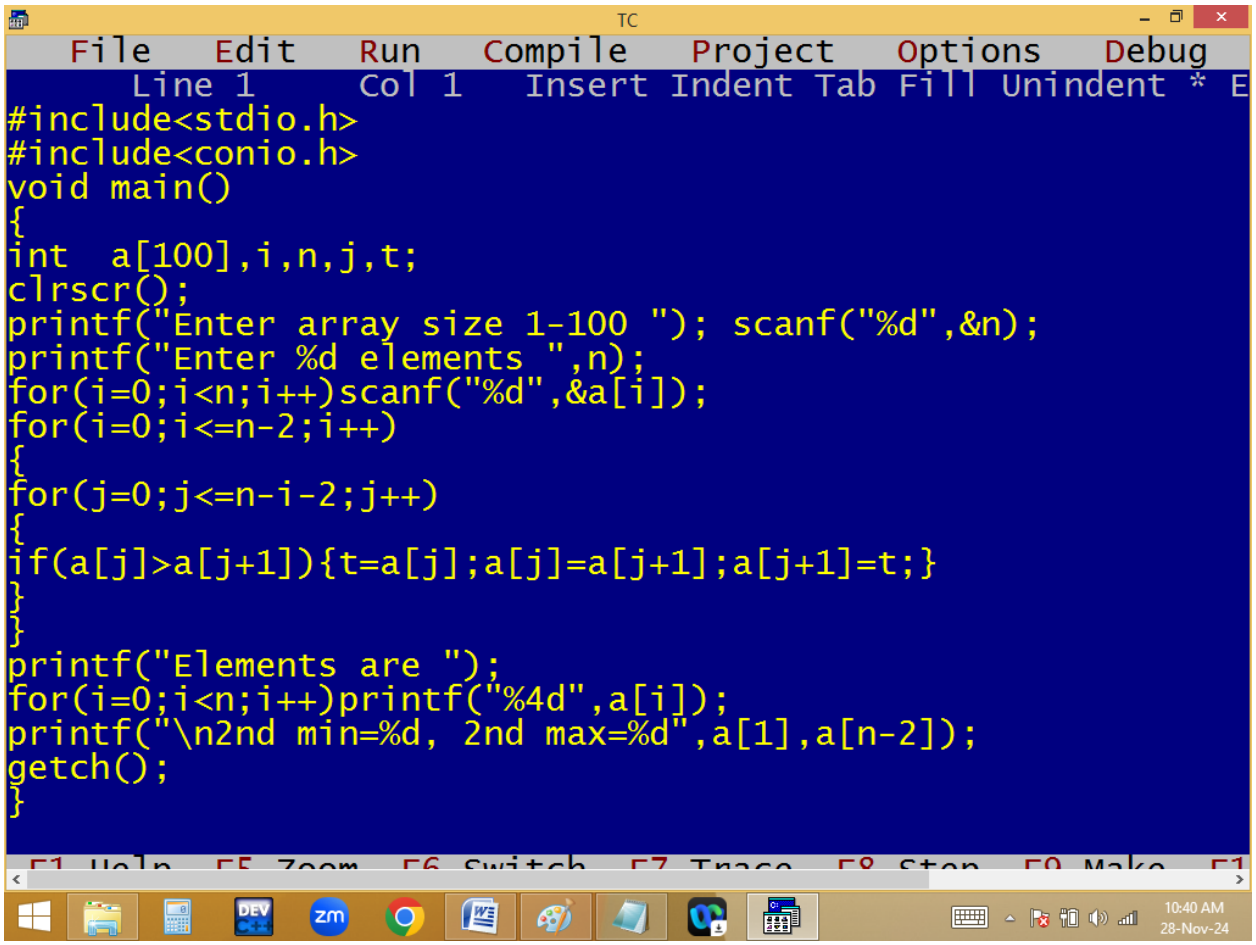
Arrange half array elements in ascending and remaining descending:

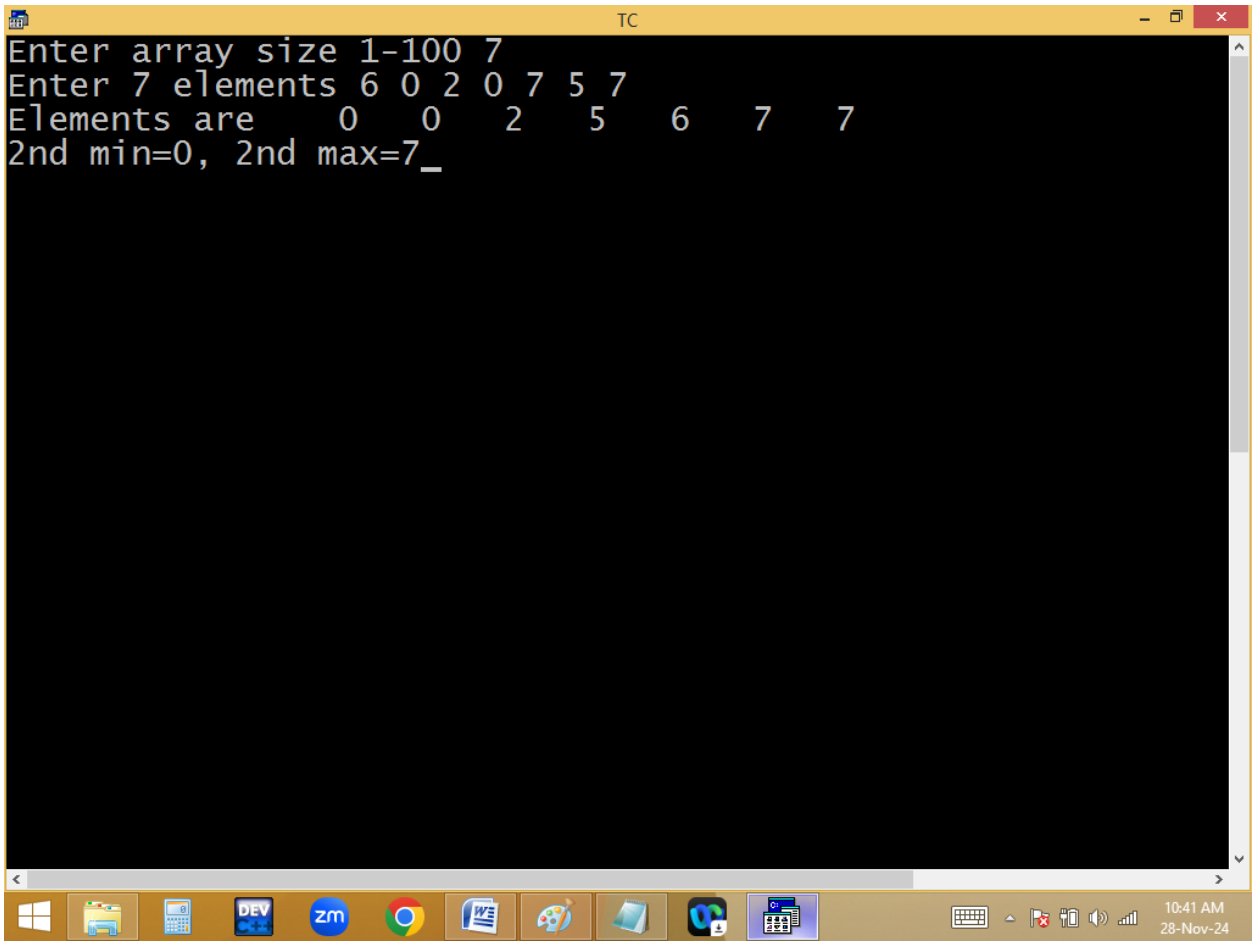

TC
File Edit Run Compile Project Options Debug
Line 19 Col 14 Insert Indent Tab Fill Unindent * E
void main()
{
int a[100],i,n,j,t;
clrscr();
printf("Enter array size 1-100 "); scanf("%d",&n);
printf("Enter %d elements ",n);
for(i=0;i<n;i++)scanf("%d",&a[i]);
for(i=0;i<=n-2;i++)
{
for(j=0;j<=n-i-2;j++)
{
if(a[j]>a[j+1]){t=a[j];a[j]=a[j+1];a[j+1]=t;}
}
}
printf("Elements are ");
for(i=0;i<n/2;i++)printf("%4d",a[i]);
for(i=n-1;i>=n/2;i--)printf("%4d",a[i]);
getch();
}
10:35 AM
28-Nov-24


TC
Enter array size 1-100 8
Enter 8 elements 1 2 3 4 5 6 7 8
Elements are 1 2 3 4 8 7 6 5
10:35 AM
28-Nov-24



Find the 2nd max and 2nd min array elements:


TC
File Edit Run Compile Project Options Debug
Line 1 Col 1 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,j,t;
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-2;i++)
{
for(j=0;j<=n-i-2;j++)
{
if(a[j]>a[j+1]){t=a[j];a[j]=a[j+1];a[j+1]=t;}
}
}
printf("Elements are ");
for(i=0;i<n;i++)printf("%4d",a[i]);
printf("\n2nd min=%d, 2nd max=%d",a[1],a[n-2]);
getch();
}
10:40 AM
28-Nov-24


TC
Enter array size 1-100 7
Enter 7 elements 6 0 2 0 7 5 7
Elements are 0 0 2 5 6 7 7
2nd min=0, 2nd max=7
10:41 AM
28-Nov-24