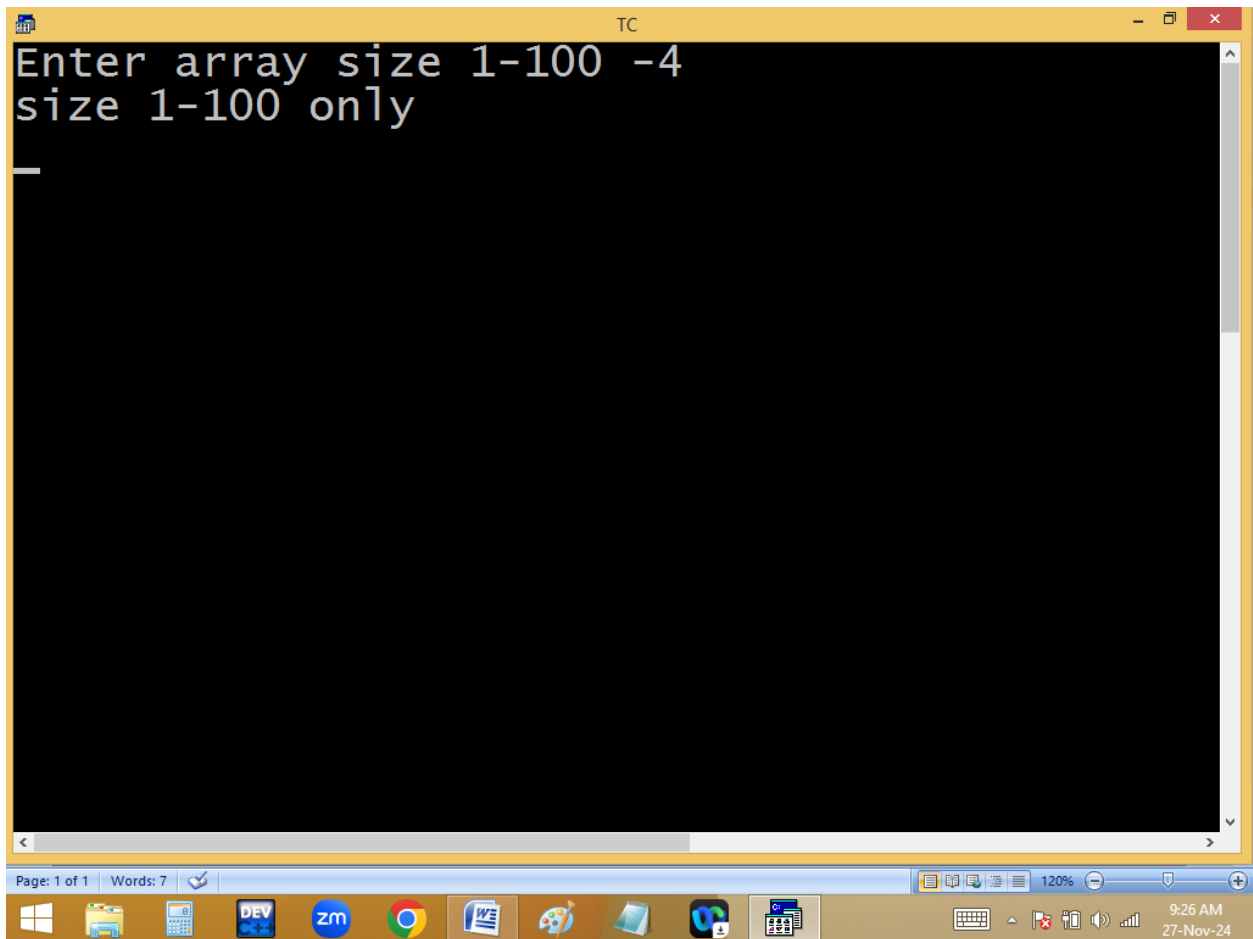
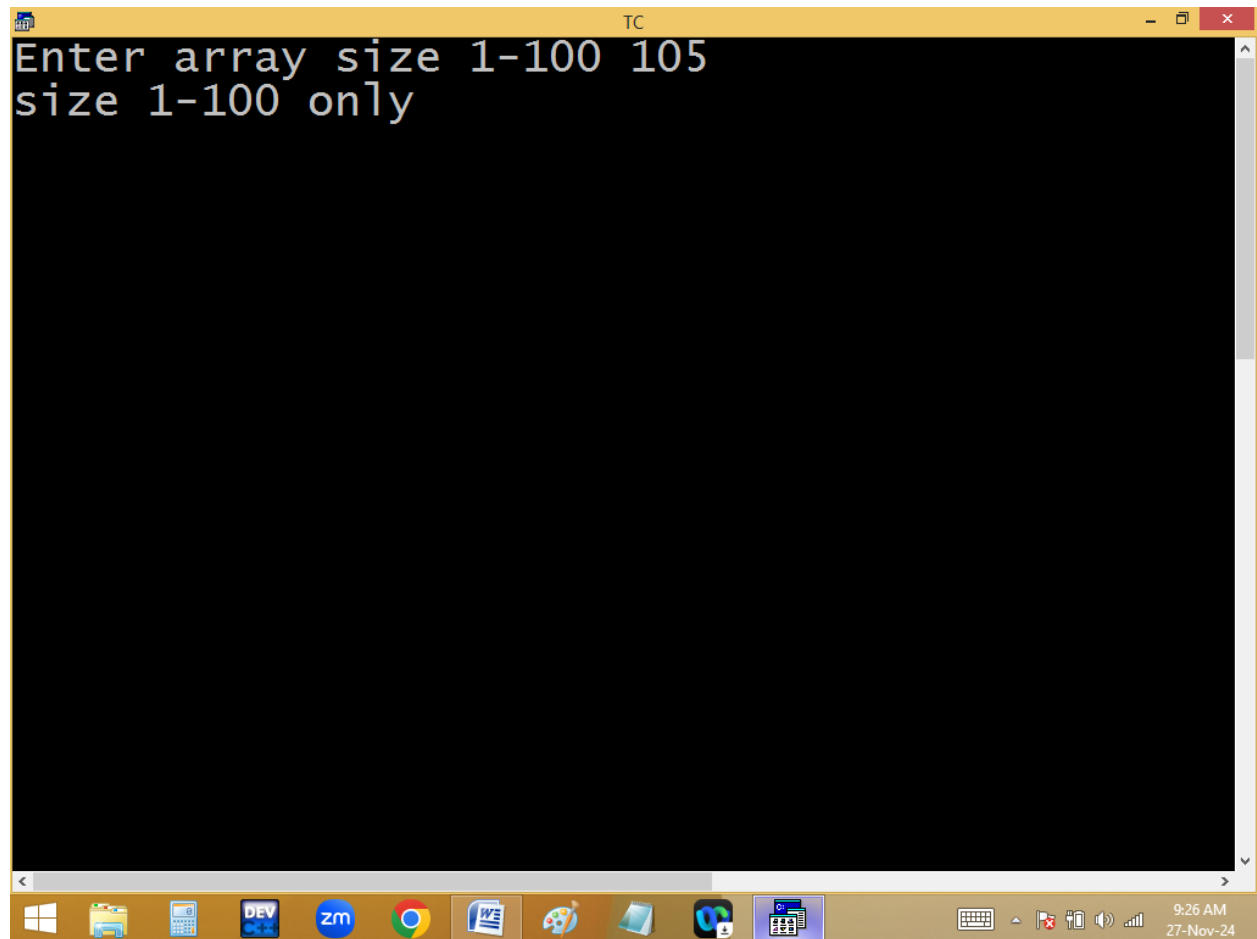


**Reading and printing n elements of array:**

```
TC
Line 18 Col 2 Insert Indent Tab Fil
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n;
clrscr();
printf("Enter array size 1-100 ");
scanf("%d",&n);
if(n<1||n>100)puts("size 1-100 only");
else
{
printf("Enter %d integers ",n);
for(i=0;i<n;i++)scanf("%d",&a[i]);
printf("Elements ");
for(i=0;i<n;i++)printf("%4d",a[i]);
}
getch();
}
```





```
TC
Enter array size 1-100 4
Enter 4 integers 4 0 1 -5
Elements      4      0      1      -5_
```

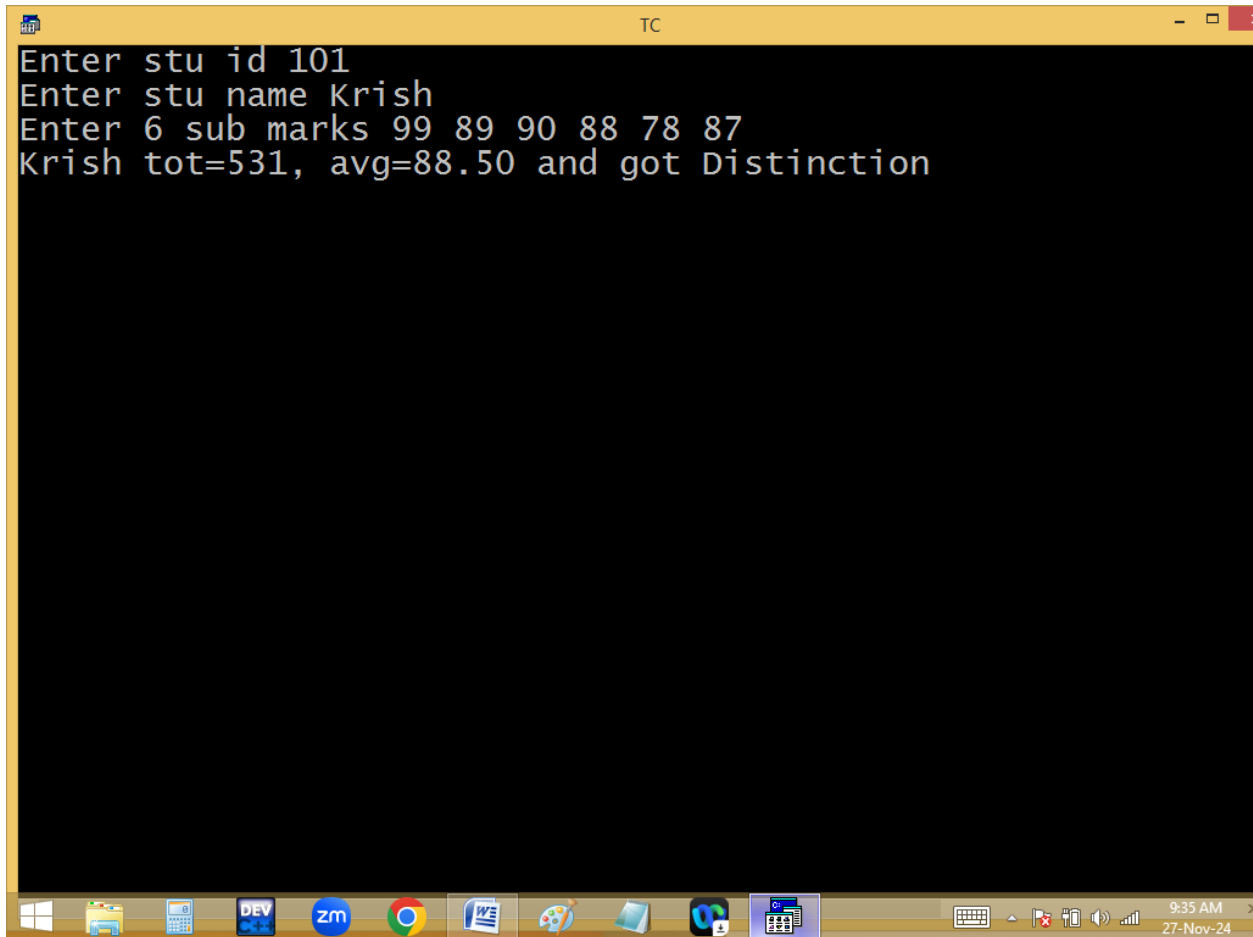
Finding stu result using array:

```
TC
File Edit Run Compile Project Options Debug
Line 20 Col 24 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int id,sub[6],tot=0,i,p=1;
char name[30];
float avg;
clrscr();
printf("Enter stu id "); scanf("%d",&id);flushall();
printf("Enter stu name "); gets(name);
printf("Enter 6 sub marks ");
for(i=0;i<6;i++)
{scanf("%d",&sub[i]);tot+=sub[i];if(sub[i]<35)p=0;}
avg=tot/6.0;
printf("%s tot=%d, avg=%.2f and got ",name,tot,avg);
if(p==0)puts("Failed");
else if(avg>=75)puts("Distinction");
else if(avg>=60)puts("1st class");
else if(avg>=50)puts("2nd class");
else puts("3rd class");_
getch();
}
```

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

9:34 AM  
27-Nov-24

```
TC
Enter stu id 101
Enter stu name Krish
Enter 6 sub marks 99 89 90 88 78 87
Krish tot=531, avg=88.50 and got Distinction
```



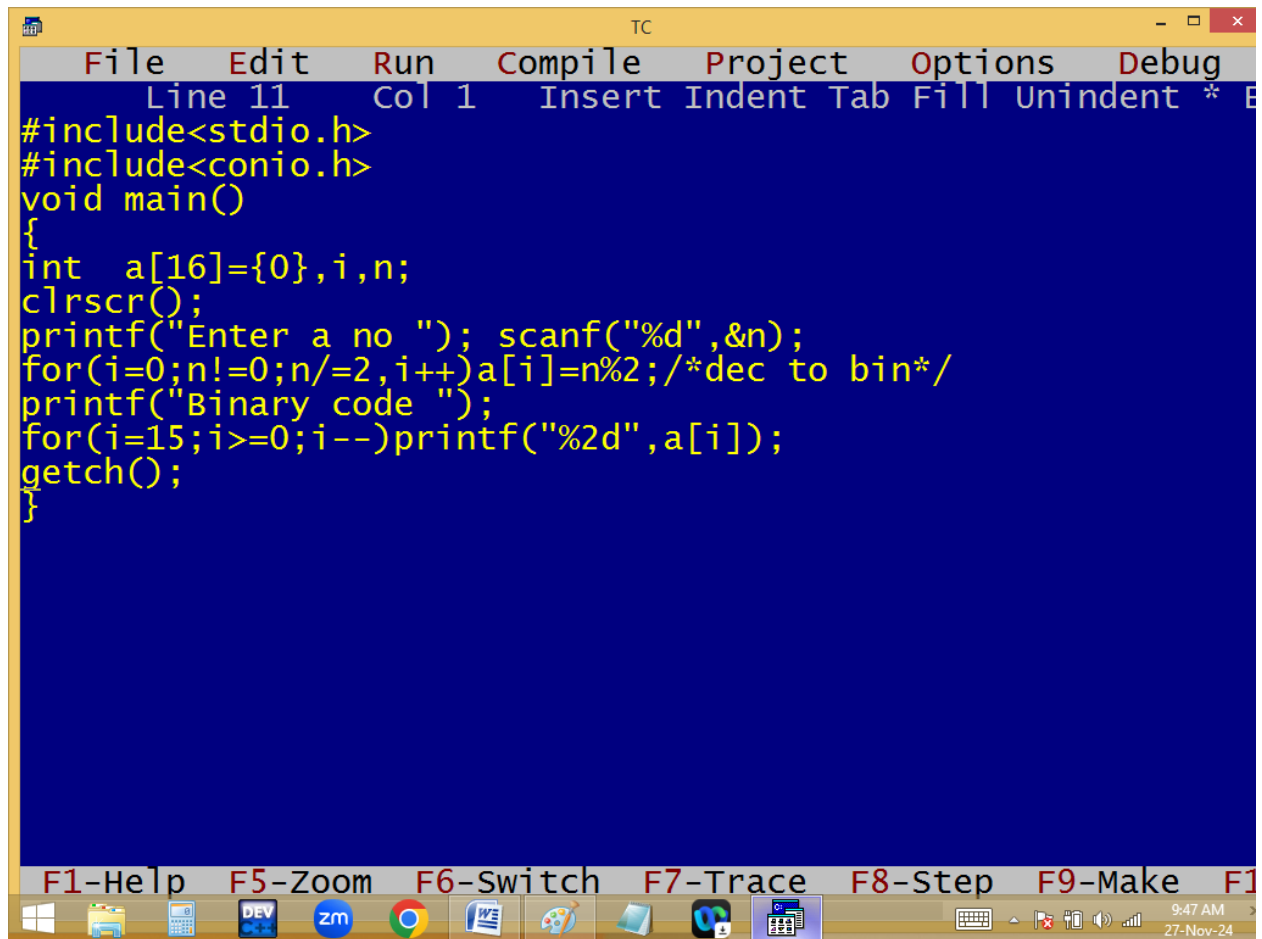
```
TC
Enter stu id 102
Enter stu name bablu
Enter 6 sub marks 54 45 40 37 43 39
bablu tot=258, avg=43.00 and got 3rd class
```



```
TC
Enter stu id 103
Enter stu name john
Enter 6 sub marks 45 33 40 30 50 45
john tot=243, avg=40.50 and got Failed
```

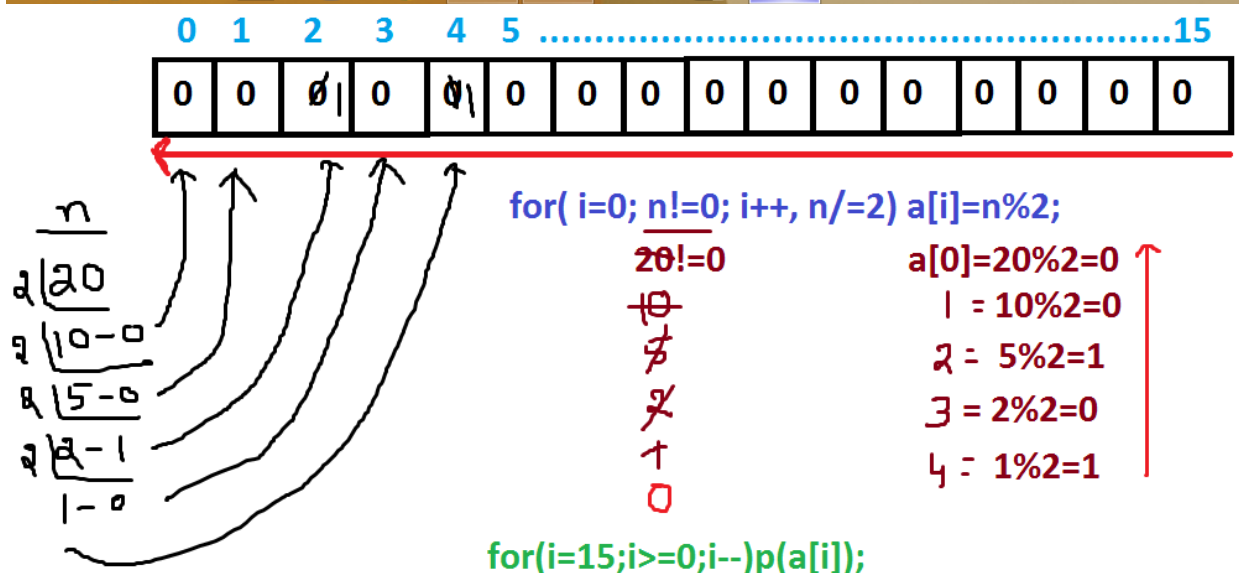
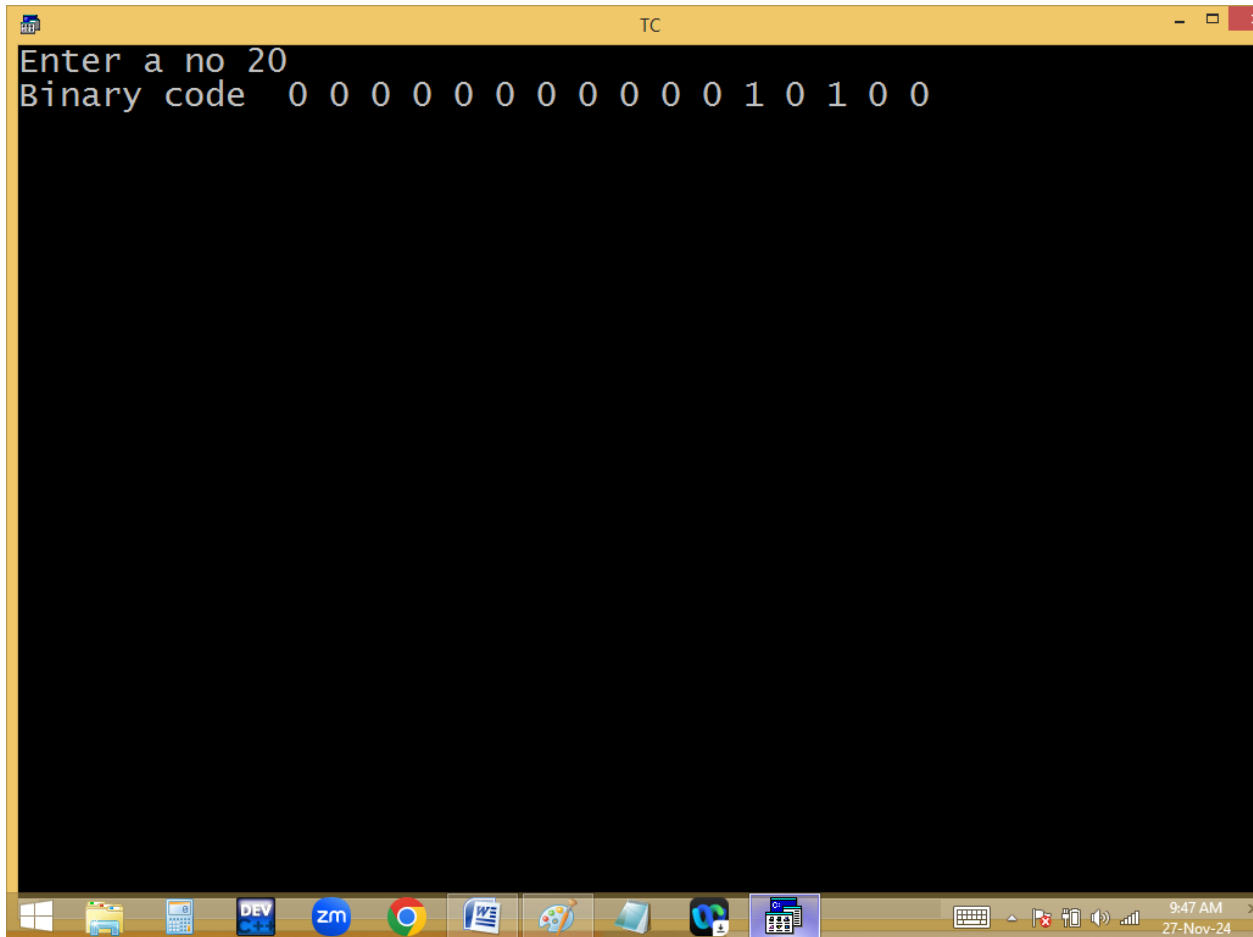
## Decimal to binary conversion:

$n=20 \rightarrow 0000\ 0000\ 0001\ 0100$



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 11", "Col 1", and "Insert Indent Tab Fill Unindent \*". The code is written in yellow text on a blue background. It includes headers for `stdio.h` and `conio.h`, and defines a `main` function. The program prompts the user to enter a number, then uses a loop to calculate the binary digits by repeatedly dividing the number by 2 and storing the remainder. Finally, it prints the binary code in reverse order. The bottom status bar shows function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Run". The Windows taskbar at the bottom displays various application icons and the system clock showing 9:47 AM on 27-Nov-24.

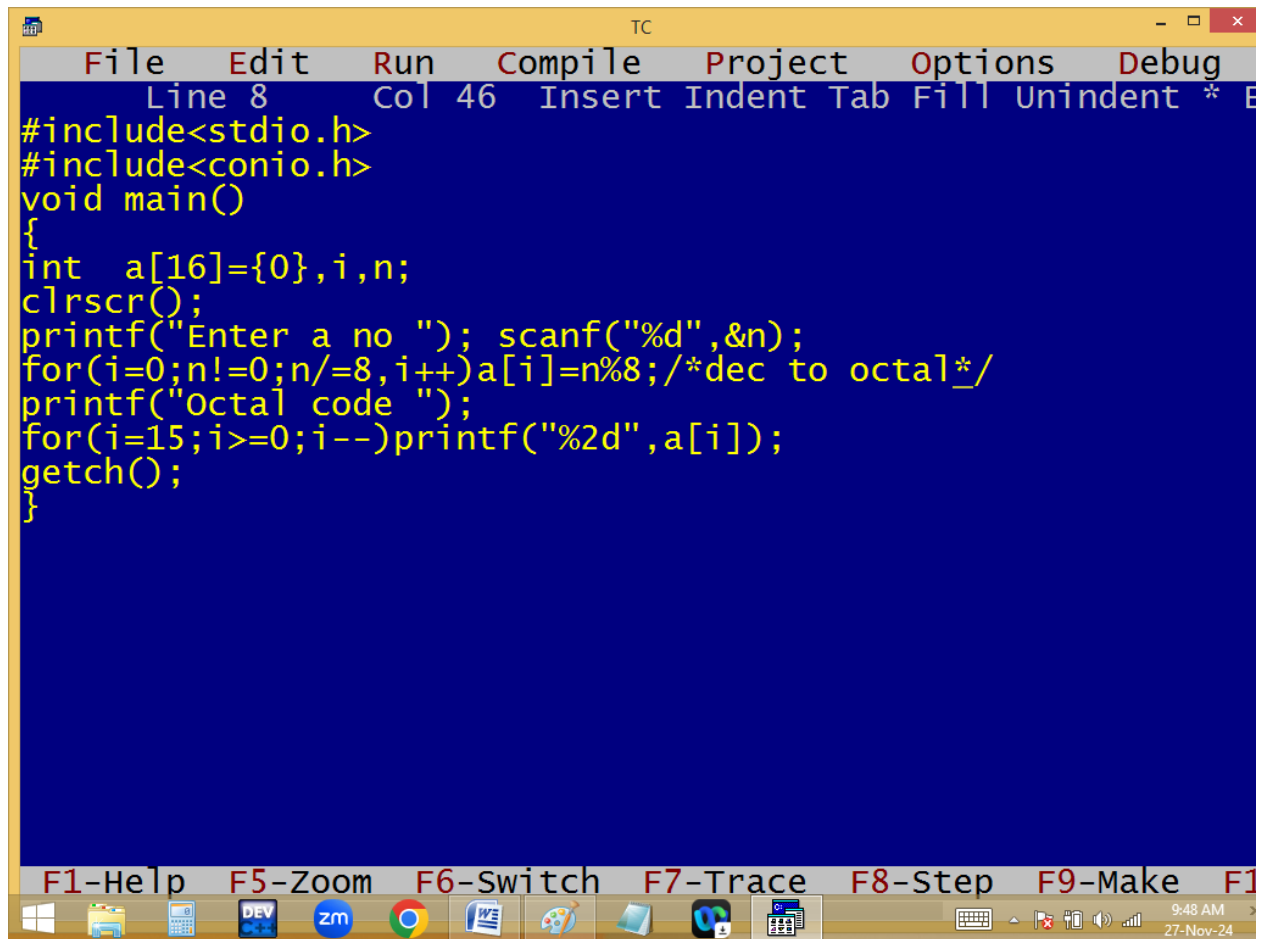
```
#include<stdio.h>
#include<conio.h>
void main()
{
int  a[16]={0},i,n;
clrscr();
printf("Enter a no "); scanf("%d",&n);
for(i=0;n!=0;n/=2,i++)a[i]=n%2; /*dec to bin*/
printf("Binary code ");
for(i=15;i>=0;i--)printf("%2d",a[i]);
getch();
}
```



Decimal to octal:

$$8 \overline{) 20}$$

$$2-4 \checkmark$$



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 46", and lists editing options: "Insert", "Indent", "Tab", "Fill", "Unindent", and "E". The code is written in yellow text on a blue background. It includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares an array `a` of 16 integers, clears the screen with `clrscr()`, prompts the user to enter a number, and then uses a loop to calculate the octal digits by repeatedly dividing the number by 8. Finally, it prints the octal code in reverse order and waits for a key press with `getch()`. The bottom status bar shows function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Run". The Windows taskbar at the bottom includes icons for the Start menu, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and a folder. The system clock shows "9:48 AM" on "27-Nov-24".

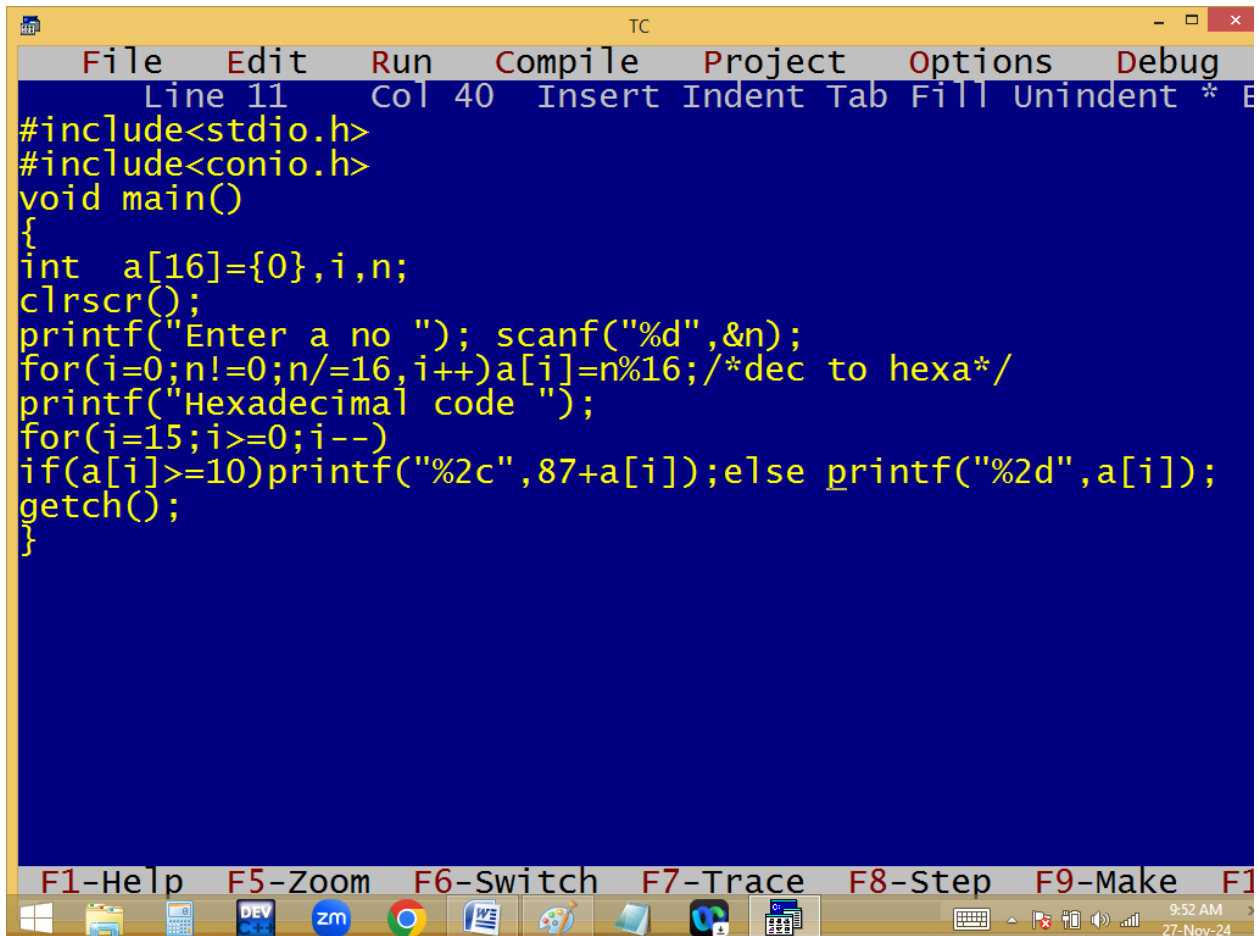
```
#include<stdio.h>
#include<conio.h>
void main()
{
int  a[16]={0},i,n;
clrscr();
printf("Enter a no "); scanf("%d",&n);
for(i=0;n!=0;n/=8,i++)a[i]=n%8;/*dec to octal*/
printf("Octal code ");
for(i=15;i>=0;i--)printf("%2d",a[i]);
getch();
}
```

```
TC
Enter a no 20
Octal code 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 4
```

Decimal to hexadecimal:

$$\begin{array}{r} 16 \overline{) 20} \\ 1 \text{ - } 4 \checkmark \end{array}$$

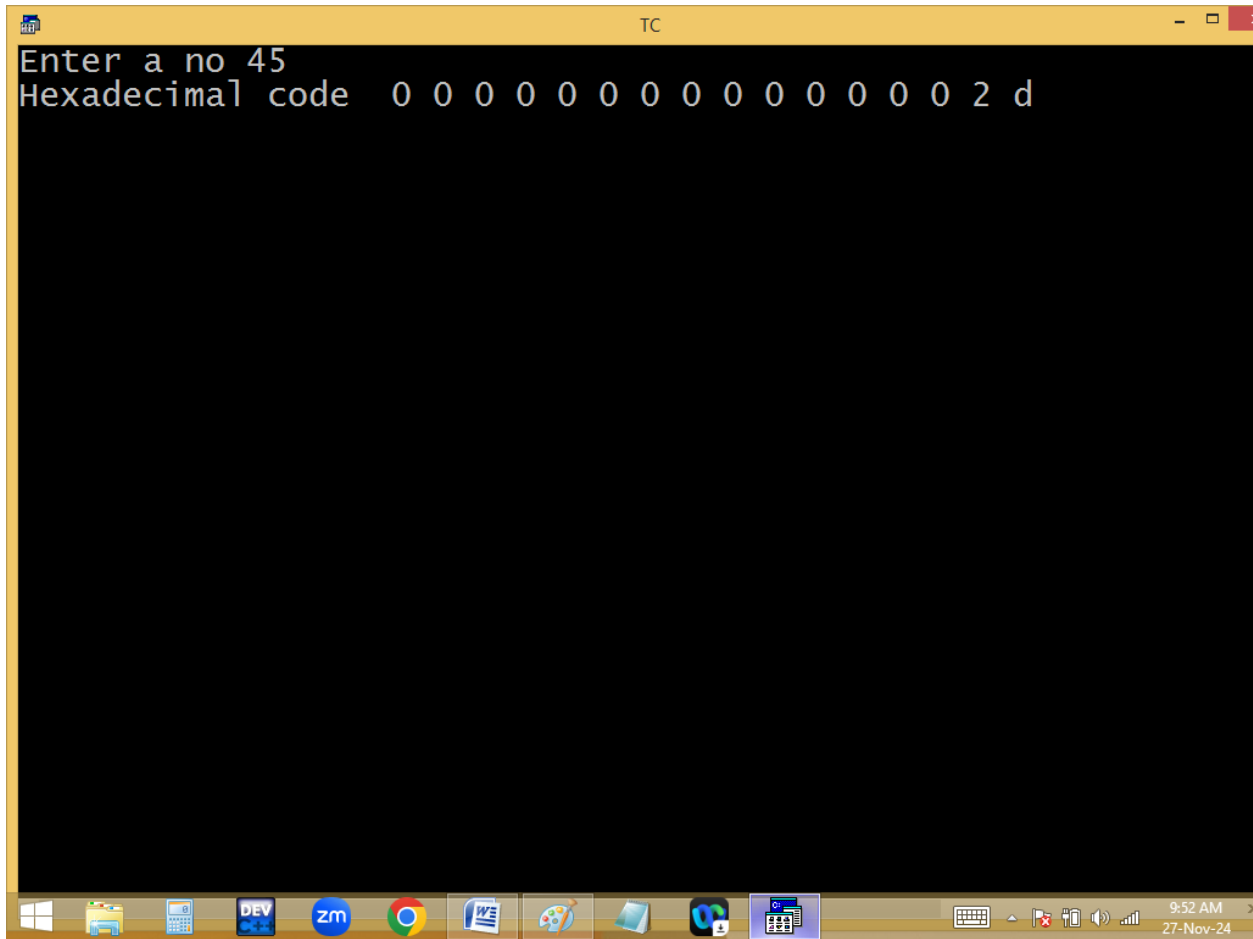
$$\begin{array}{r} 16 \overline{) 45} \\ \underline{2-13} \\ d \end{array}$$



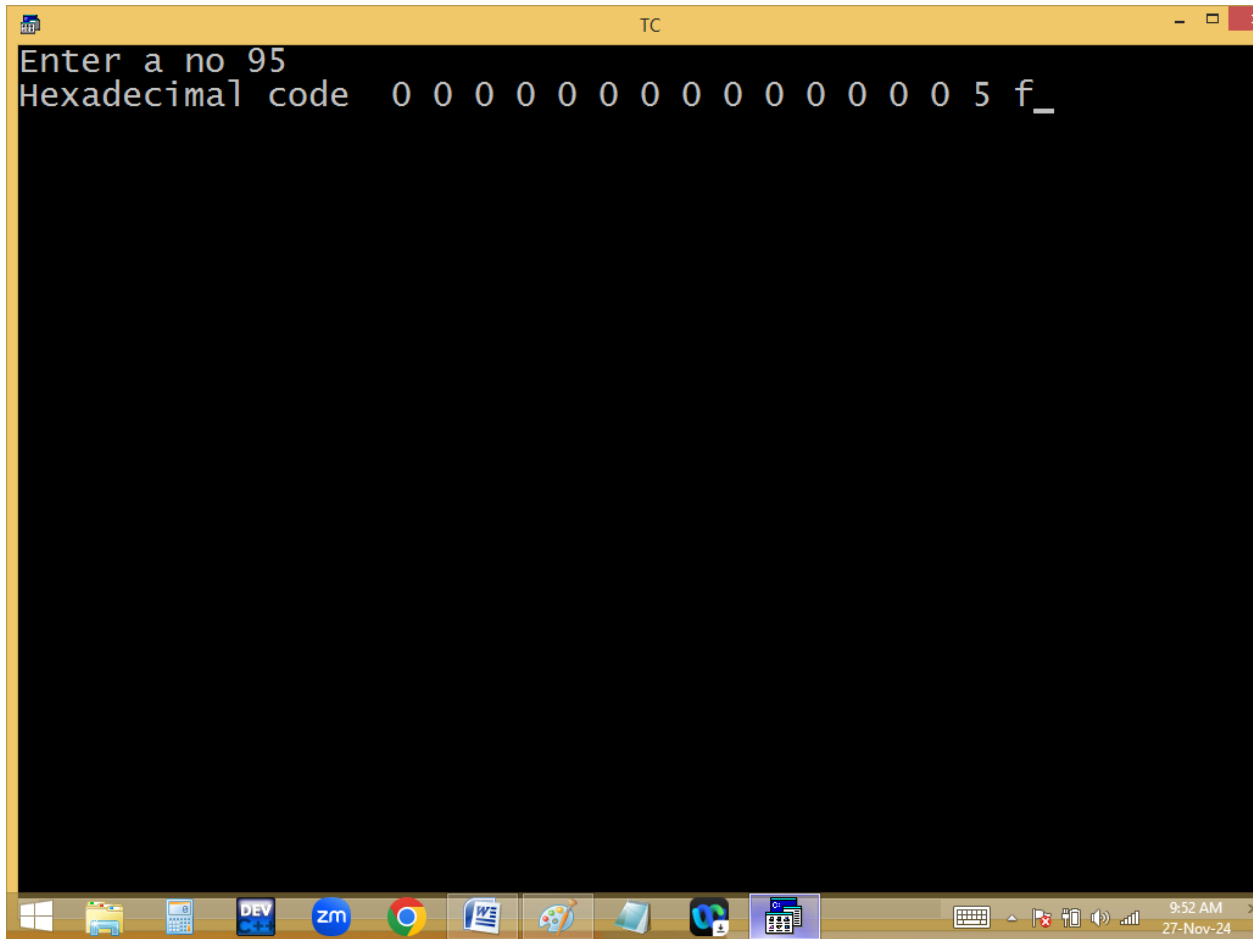
The screenshot shows a Turbo C++ (TC) IDE window. The menu bar includes File, Edit, Run, Compile, Project, Options, and Debug. The status bar at the top indicates Line 11, Col 40, and lists keyboard shortcuts: Insert, Indent, Tab, Fill, Unindent, and \*. The code in the editor is a C program that converts a decimal number to hexadecimal. It uses an array to store the remainders of the division by 16. The program prompts the user to enter a number and then prints the hexadecimal code. The Windows taskbar at the bottom shows the time as 9:52 AM on 27-Nov-24, along with various application icons.

```
File Edit Run Compile Project Options Debug
Line 11 Col 40 Insert Indent Tab Fill Unindent * B
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[16]={0},i,n;
    clrscr();
    printf("Enter a no "); scanf("%d",&n);
    for(i=0;n!=0;n/=16,i++)a[i]=n%16;/*dec to hexa*/
    printf("Hexadecimal code ");
    for(i=15;i>=0;i--)
    if(a[i]>=10)printf("%2c",87+a[i]);else printf("%2d",a[i]);
    getch();
}
```

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

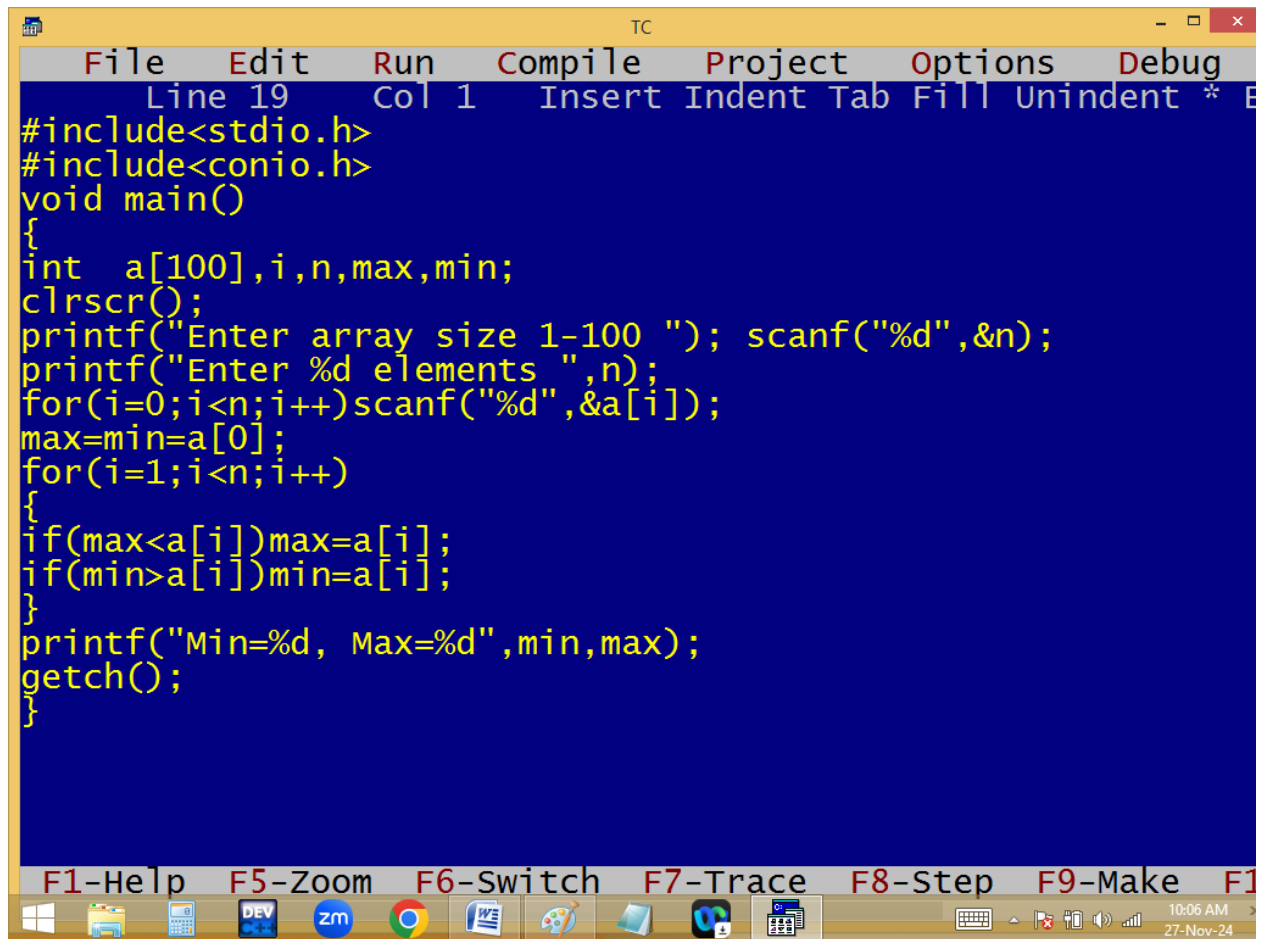






```
TC
Enter a no 34
Hexadecimal code 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 2
```

Read n elements into array and find the max, min elements.



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, a status bar indicates "Line 19", "Col 1", and lists keyboard shortcuts: "Insert", "Indent", "Tab", "Fill", "Unindent", and a wildcard "\*". The main editing area has a blue background with yellow text. It contains a C program that finds the minimum and maximum values in an array. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int  a[100],i,n,max,min;
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]);
max=min=a[0];
for(i=1;i<n;i++)
{
if(max<a[i])max=a[i];
if(min>a[i])min=a[i];
}
printf("Min=%d, Max=%d",min,max);
getch();
}
```

At the bottom of the IDE window, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Run". Below the toolbar is the Windows taskbar, which includes icons for the Start menu, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and a folder. The system clock in the bottom right corner shows "10:06 AM" and "27-Nov-24".

```

Enter array size 1-100 9
Enter 9 elements 1 0 5 9 -2 6 9 -5 7
Min=-5, Max=9_

```

max=min=a[0];

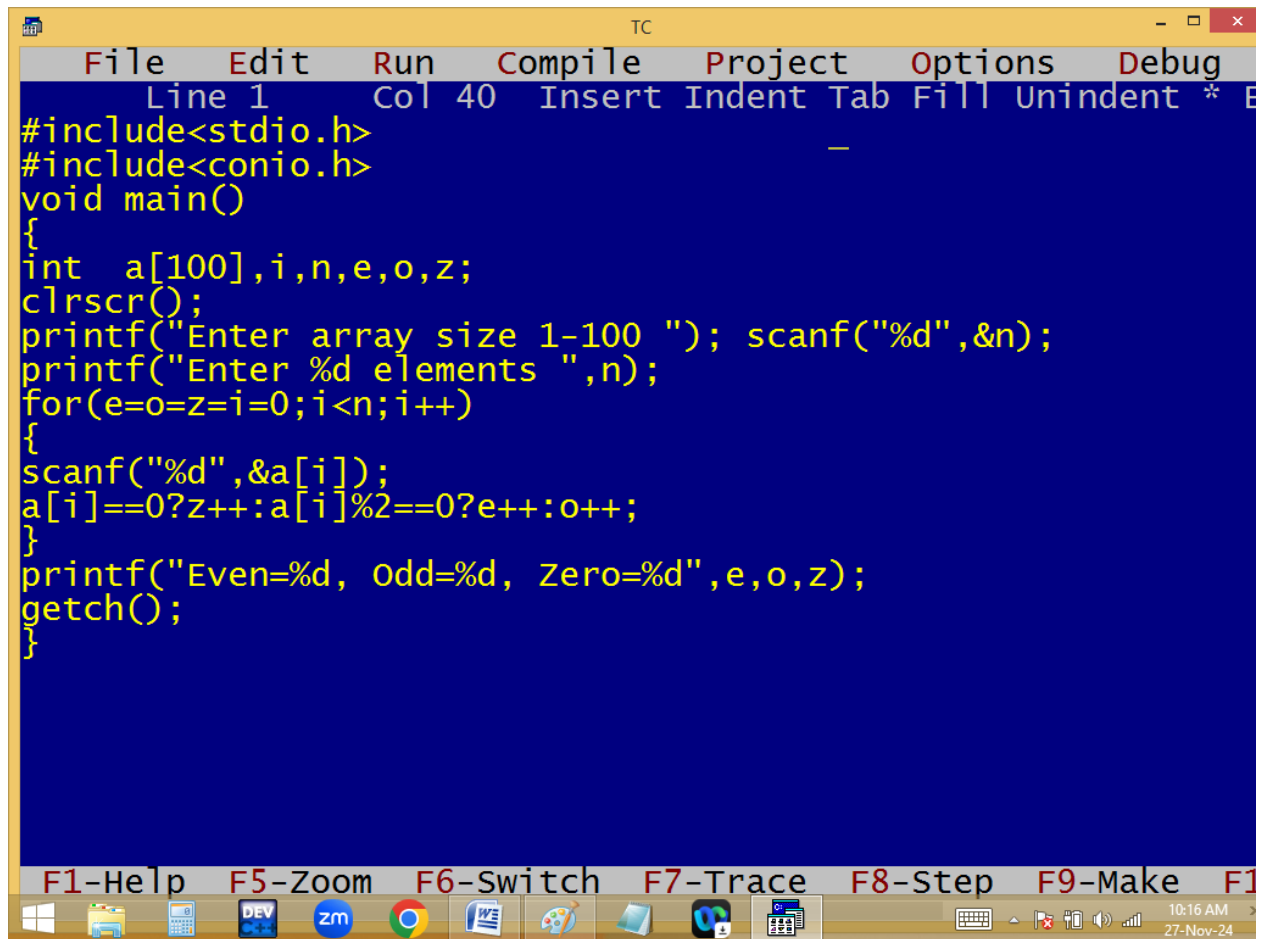
```

for(i=1;i<5;i++)
{
if(max<a[i])max=a[i];
if(min>a[i])min=a[i];
}
p(max, min);

```

	0	1	2	3	4
	9	4	-1	-7	20
n	i	max			min
5	1	9	4		9
	2	9	4		9
	3	9	4		9
	4	9	4		9

Finding no of even/odd/zero elements in given array:



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 1", "Col 40", and a list of editing actions: "Insert", "Indent", "Tab", "Fill", "Unindent", and a cursor icon. 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[100],i,n,e,o,z;
clrscr();
printf("Enter array size 1-100 "); scanf("%d",&n);
printf("Enter %d elements ",n);
for(e=o=z=i=0;i<n;i++)
{
scanf("%d",&a[i]);
a[i]==0?z++:a[i]%2==0?e++:o++;
}
printf("Even=%d, Odd=%d, Zero=%d",e,o,z);
getch();
}
```

At the bottom of the window, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Run". The Windows taskbar is visible at the very bottom, showing icons for the Start menu, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and a folder. The system clock in the bottom right corner displays "10:16 AM" and "27-Nov-24".

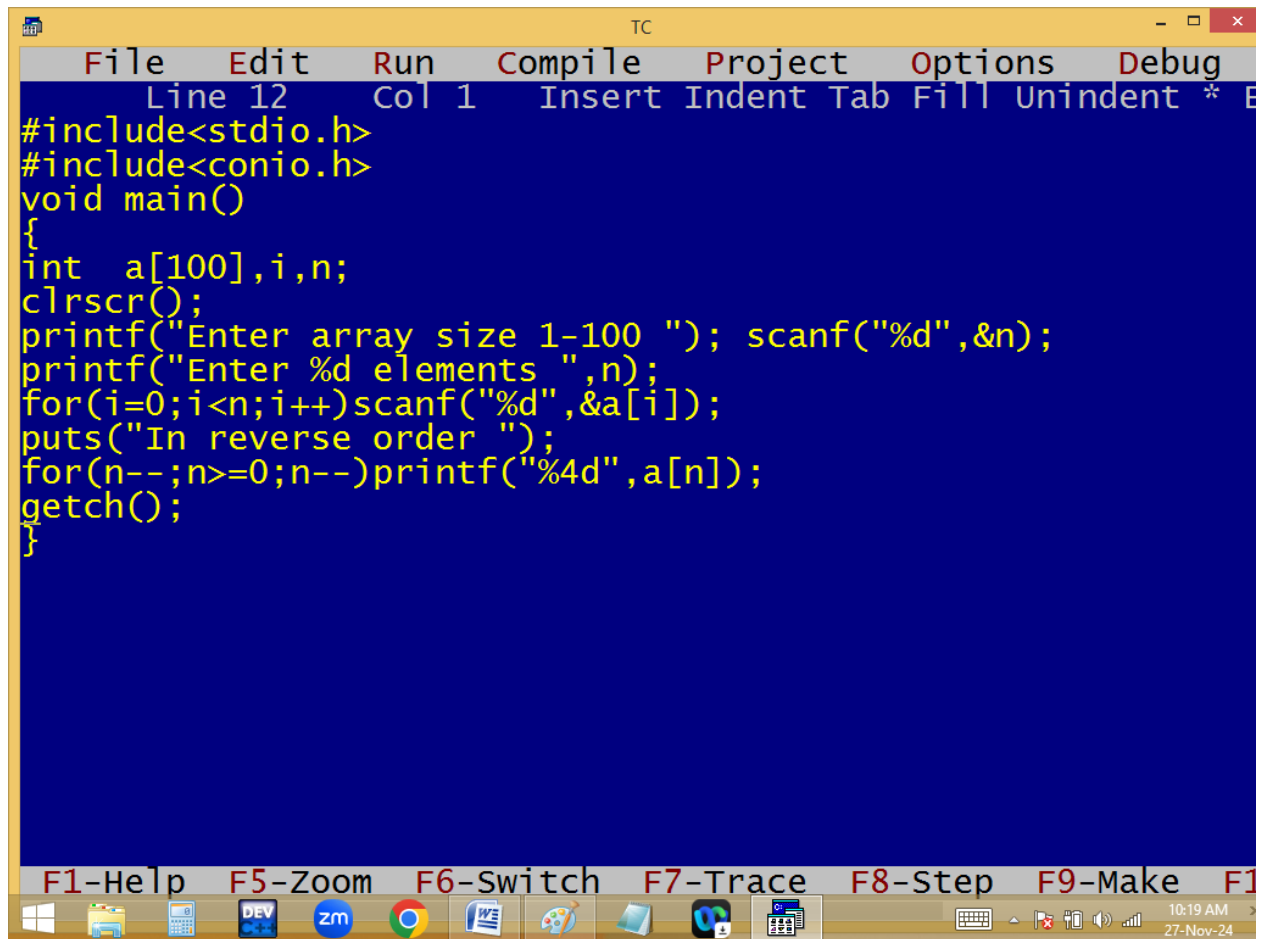
```
TC
Enter array size 1-100 9
Enter 9 elements 1 0 5 9 -4 7 50 4 0
Even=3, Odd=4, Zero=2_
```

```
for(i=0;i<5;i++)
{
scanf("%d",&a[i]);
if(a[i]==0)z++;
else if(a[i]%2==0)e++;
else o++;
}
p(e, o, z);
```

90	4	-1	-7	0
0	1	2	3	4
n	i	e	o	z
5	0	0	0	0
	1	2	1	
	2	2		
	3		2	
	4			1

Arranging array elements in reverse order:

Printing:



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 1" and lists editing options: Insert, Indent, Tab, Fill, Unindent, and \*. The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int  a[100],i,n;
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]);
puts("In reverse order ");
for(n--;n>=0;n--)printf("%4d",a[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, and F10-Run. The Windows taskbar is visible at the bottom, showing icons for File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and VS Code. The system clock in the bottom right corner shows "10:19 AM" and "27-Nov-24".



```
TC
Enter array size 1-100 5
Enter 5 elements 1 0 3 8 4
In reverse order
4 8 3 0 1_
```

✓  
`for(i=n-1;i>=0;i--)p(a[i]);`

✓ ✓ ✓ ✓ ✓

90	4	-1	-7	0
0	1	2	3	4

$\frac{n}{5}$

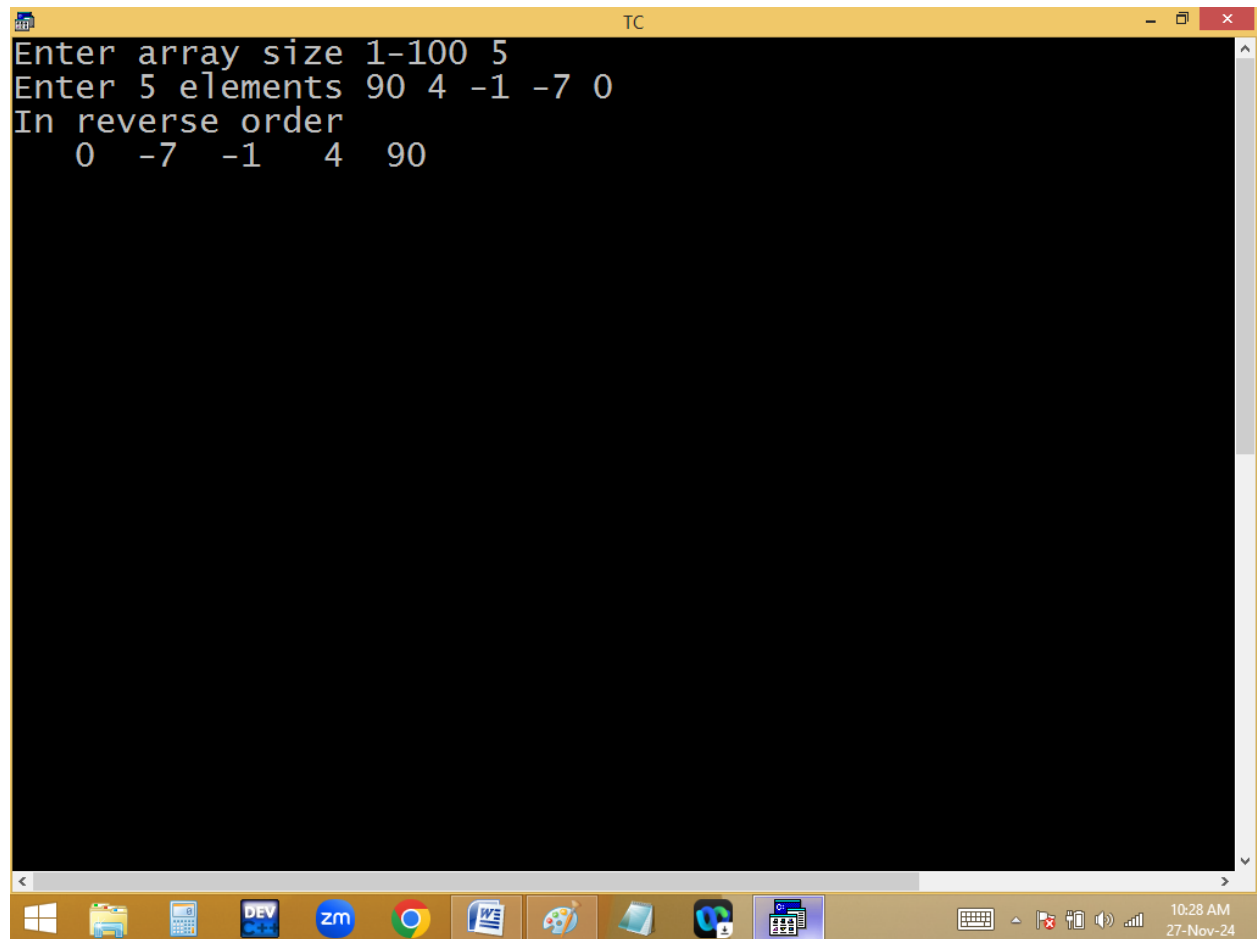
Permanent arrangement:

```
TC
File Edit Run Compile Project Options Debug
Line 15 Col 33 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n,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++)
{
t=a[i]; a[i]=a[n-i-1]; a[n-i-1]=t;
}
puts("In reverse order ");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
```

F1 Help F5 Zoom F6 Switch F7 Trace F8 Stop F9 Make F10

10:28 AM  
27-Nov-24

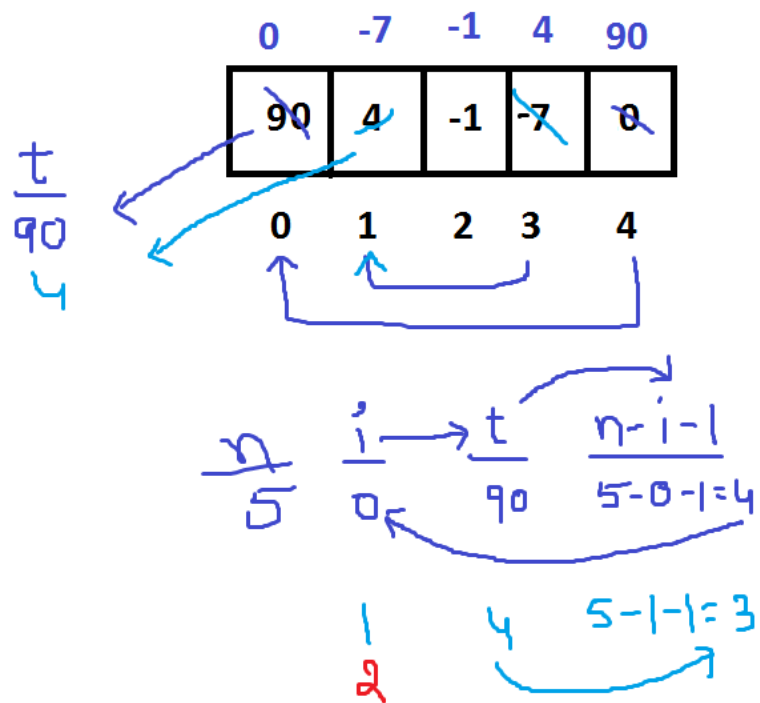
```
TC
Enter array size 1-100 5
Enter 5 elements 90 4 -1 -7 0
In reverse order
    0  -7  -1   4  90
```



The image shows a Windows 10 desktop environment. A Turbo C++ (TC) window is open, displaying the output of a program that reverses an array. The user has entered an array size of 5 and the elements 90, 4, -1, -7, and 0. The program has printed the elements in reverse order: 0, -7, -1, 4, and 90. The taskbar at the bottom contains icons for Windows, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, OneDrive, and a calendar. The system tray on the right shows the time as 10:28 AM on 27-Nov-24, along with icons for keyboard, network, and volume.

```
TC
Enter array size 1-100 4
Enter 4 elements 1 2 3 4
In reverse order
4 3 2 1
```

```
for(i=0; i<5/2; i++)
{
    int t=a[i];
    a[i]=a[n-i-1];
    a[n-i-1]=t;
}
```



**Without using 3<sup>rd</sup> variable:**

```
TC
File Edit Run Compile Project Options Debug
Line 12 Col 50 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n;
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++)
{
a[i]=a[i]+a[n-i-1];a[n-i-1]=a[i]-a[n-i-1];a[i]=a[i]-a[n-i-1]
}
puts("In reverse order ");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
```

F1 Help F5 Zoom F6 Switch F7 Trace F8 Stop F9 Make F10

10:31 AM  
27-Nov-24

```
TC
Enter array size 1-100 5
Enter 5 elements 1 2 3 4 5
In reverse order
5 4 3 2 1
```

$$a[0]=a[0]+a[4]==>90+0=90$$

$$a[4]=a[0]-a[4]==>90-0=90$$

$$a[0]=a[0]-a[4]==>90-90=0$$

$$a[1]=a[1]+a[3]==>4+-7=-3$$

$$a[3]=a[1]-a[3]==> -3--7=4$$

$$a[1]=a[1]-a[3]==>-3-4=-7$$

~~90~~ ~~73~~

<del>90</del> 0	<del>4</del> -7	-1	<del>7</del> 4	<del>0</del> 90
0	1	2	3	4

**Linear search:**



```
TC
File Edit Run Compile Project Options Debug
Line 15 Col 36 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n, ele,f=0;
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]);
printf("Enter element to search ");scanf("%d",&ele);
for(i=0;i<n;i++)
{
if(a[i]==ele)printf("%d in %d cell\n",ele,i+1,f=1);
}
if(f==0)printf("%d not found",ele);
getch();
}
```

F1 Help F5 Zoom F6 Switch F7 Trace F8 Stop F9 Make F10

10:41 AM 27-Nov-24

```
TC
Enter array size 1-100 9
Enter 9 elements 1 2 3 2 6 7 2 9 -1
Enter element to search 2
2 in 2 cell
2 in 4 cell
2 in 7 cell
```

```

Enter array size 1-100 5
Enter 5 elements 1 2 3 4 5
Enter element to search 9
9 not found_

```

```

for( i=0; i<5; i++) ✓
{
  if(a[i]==ele) ✓
  p("%d in %d cell\n",ele,i+1,f=1);
} -1 3

```

if(f==0)p(ele not found);  
 — x

90	4	-1	-7	0
0	1	2	3	4
$\frac{n}{5}$	$\frac{i}{0}$	$\frac{ele}{-1}$	$\frac{f}{0}$	
	1			
	2+			

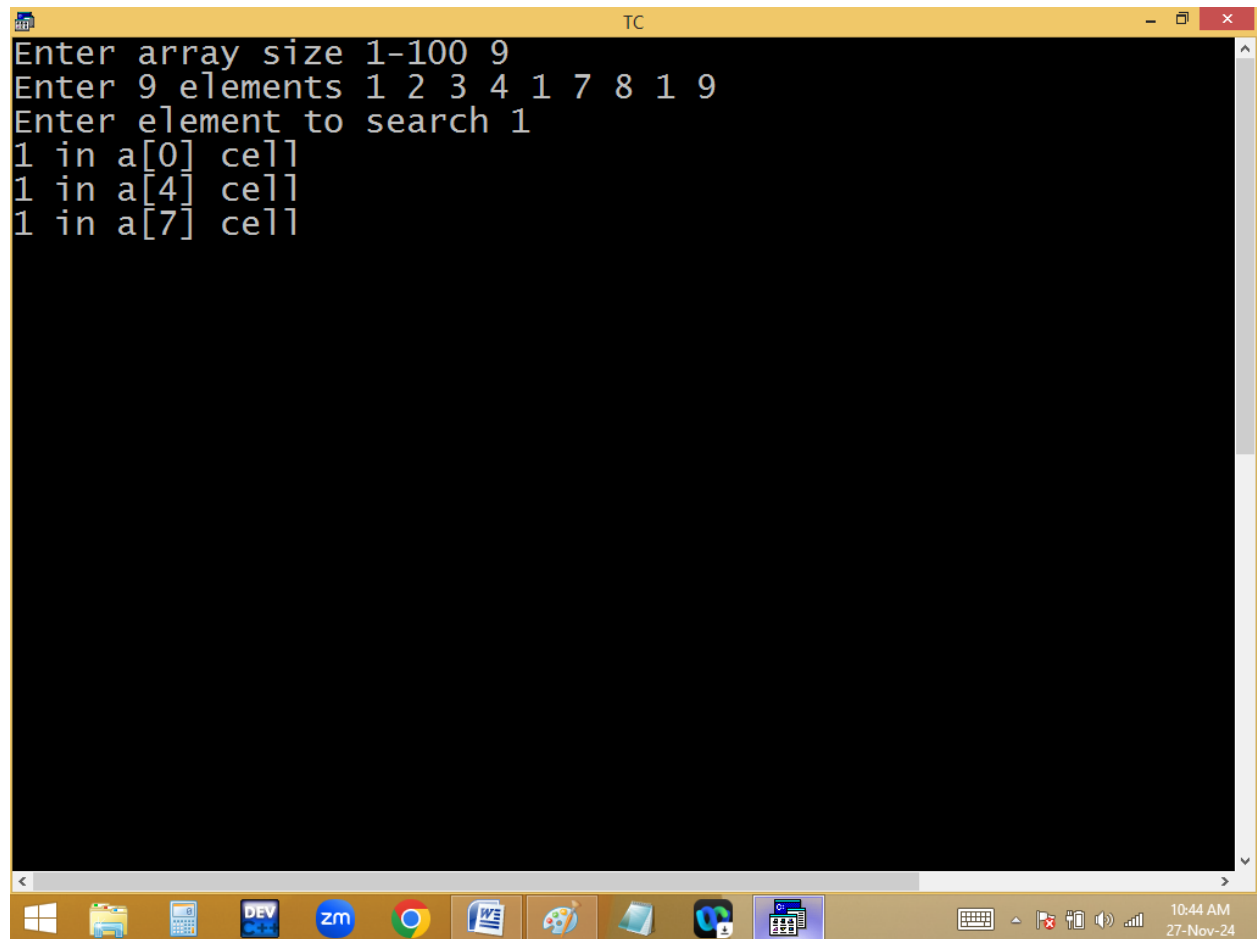
Printing Index no:

```
TC
File Edit Run Compile Project Options Debug
Line 13 Col 47 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],i,n, ele,f=0;
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]);
printf("Enter element to search ");scanf("%d",&ele);
for(i=0;i<n;i++)
{
if(a[i]==ele)printf("%d in a[%d] cell\n",ele,i,f=1);
}
if(f==0)printf("%d not found",ele);
getch();
}
```

F1 Help F5 Zoom F6 Switch F7 Trace F8 Stop F9 Make F10

10:44 AM  
27-Nov-24

```
TC
Enter array size 1-100 9
Enter 9 elements 1 2 3 4 1 7 8 1 9
Enter element to search 1
1 in a[0] cell
1 in a[4] cell
1 in a[7] cell
```



The screenshot shows a Windows 10 desktop environment. A Turbo C++ (TC) window is open, displaying the execution of a program that searches for the value '1' in an array. The array contains the elements 1, 2, 3, 4, 1, 7, 8, 1, 9. The program identifies the value '1' at indices 0, 4, and 7. The Windows taskbar at the bottom contains icons for the Start menu, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Microsoft Word, a game controller, a folder, a file, and a calendar. The system tray on the right shows the time as 10:44 AM on 27-Nov-24, along with icons for keyboard, network, and volume.