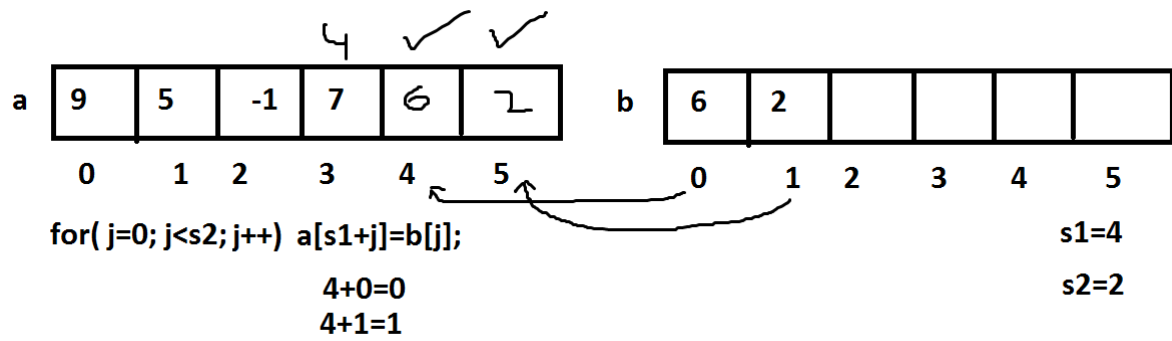


**Merging of array elements:**

```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],b[100],s1,s2,i,j; clrscr();
printf("Enter 1st ,2nd array sizes 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=0;i<s2;i++)a[s1+i]=b[i];
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;} } }
puts("Elements ");for(i=0;i<s1+s2;i++)printf("%4d",a[i]);
getch();
}
```

Enter 1st ,2nd array sizes 1-100 4 2  
Enter 4 elements for 1st array 4 0 -2 6  
Enter 2 elements for 2nd array 1 7  
Elements  
-2 0 1 4 6 7\_



**Eg. arrange the array even elements in ascending order and odd elements in descending order.**

The screenshot shows the Turbo C++ IDE with a C program that finds the 2nd maximum and 2nd minimum elements in an array. The program uses two nested loops to sort the array in descending order. The 2nd maximum element is at index 1, and the 2nd minimum element is at index n-2. The output shows the array [4, 0, 1, -5, 4, 8, 7, 3, 6] and the 2nd max element as 7 and the 2nd min element as -5.

```
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],n,i,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]){int t=a[i]; a[i]=a[j]; a[j]=t;} } }
for(i=0;i<n;i++)if(a[i]%2==0)printf("%4d",a[i]);
for(i=n-1;i>=0;i--)if(a[i]%2!=0)printf("%4d",a[i]);
getch();
}
```

Enter array size 1-100 9  
Enter 9 elements 4 0 1 -5 4 8 7 3 6  
0 4 4 6 8 7 3 1 -5\_

Finding 2<sup>nd</sup> max, 2<sup>nd</sup> min array elements:

The screenshot shows the Turbo C++ (TC) IDE with a C program to find the 2nd maximum and 2nd minimum elements in an array. The program uses two nested loops to swap adjacent elements in descending order, then prints the 2nd maximum and 2nd minimum elements.

```
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 36 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],n,i,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]){int t=a[i]; a[i]=a[j]; a[j]=t;} } }
for(i=0;i<n;i++)printf("%4d",a[i]);
for(i=1;i<n;i++) if(a[i]>a[0]){printf("\n2nd min=%d\n",a[i]);break;}
for(i=n-2;i>=0;i--)if(a[i]<a[n-1]){printf("2nd max=%d",a[i]);break;}
getch();
}
```

Enter array size 1-100 9  
Enter 9 elements 2 0 1 0 2 7 6 5 7  
0 0 1 2 2 5 6 7 7  
2nd min=1  
2nd max=6\_

Find the nth max, nth min elements:

#include<stdio.h>

#include<conio.h>

```
void main()

{

int a[100],n,i,j,t,min, max; 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]){int t=a[i]; a[i]=a[j]; a[j]=t;} } }

for(i=0;i<n;i++)printf("%4d",a[i]);

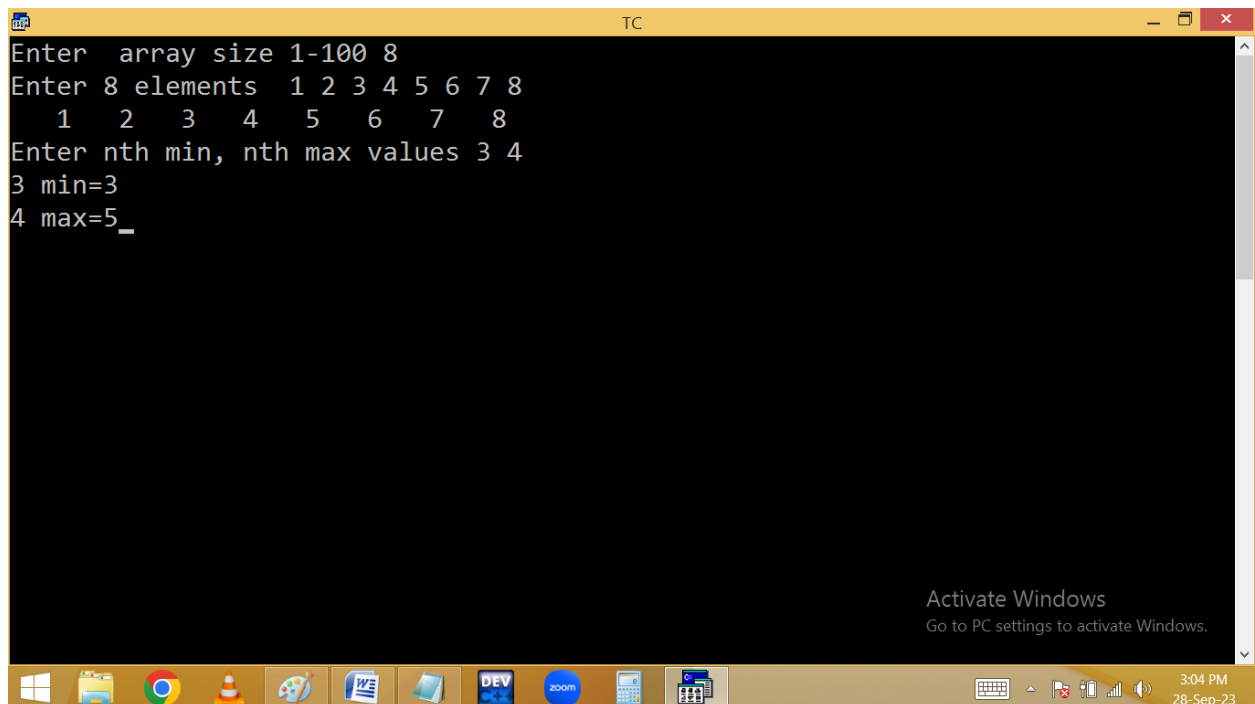
printf("\nEnter nth min, nth max values
");scanf("%d%d",&min,&max);


printf("%d min=",min);

for(i=1;i<n;i++) {if(a[i]>a[i-1])min--;

if(min==1){printf("%d\n",a[i]);break;}}
```

```
}  
  
printf("%d max=",max);  
  
for(i=n-2;i>=0;i--)  
{  
  
if(a[i]<a[i+1])max--;if(max==1){printf("%d",a[i]);break;}  
  
}  
  
getch();  
  
}
```



The screenshot shows a Turbo C++ (TC) window with a black background and white text. The program has executed the following steps:

- Enter array size 1-100 8
- Enter 8 elements 1 2 3 4 5 6 7 8
- Enter nth min, nth max values 3 4
- 3 min=3
- 4 max=5\_

The window title bar says "TC". The Windows taskbar is visible at the bottom, showing icons for Windows, File Explorer, Chrome, VLC, Paint, Word, Notepad, DEV, Zoom, and a calculator. The system tray shows the time as 3:04 PM on 28-Sep-23. An "Activate Windows" watermark is visible in the bottom right corner of the TC window.

**Decimal to binary conversion:**

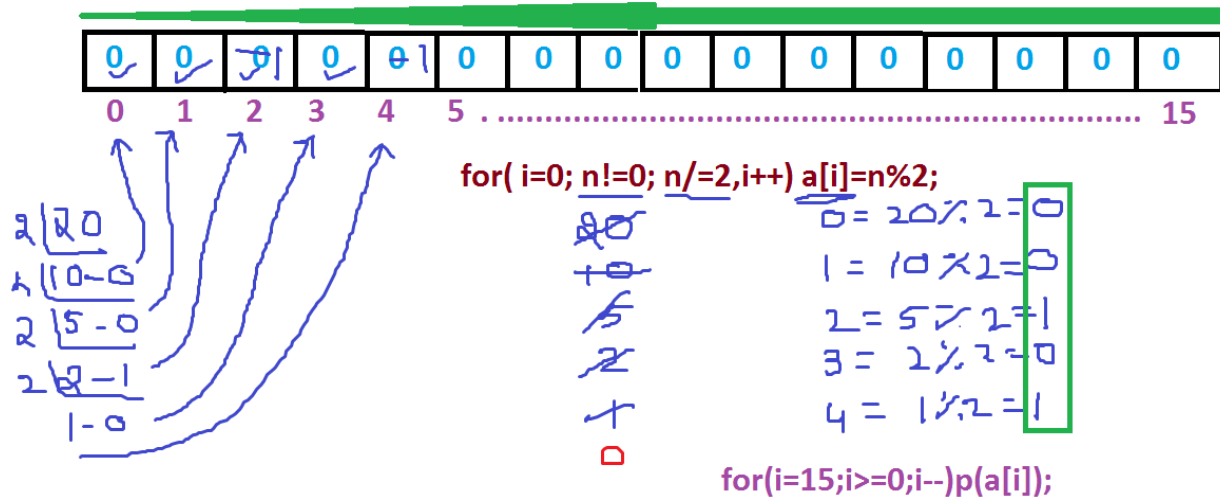
The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code of a C program in a blue editor window. The code includes headers for `stdio.h` and `conio.h`, and implements a `main` function that takes an integer `n`, clears the screen, prompts the user to enter a number, and then prints its binary representation by repeatedly dividing by 2 and storing the remainders in an array. The bottom screenshot shows the same IDE with the program executed. The output shows the user entered '20', and the program printed '20 binary code' followed by the binary digits '00000000000010100\_'. Both windows have a yellow title bar and a menu bar with options like File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The Windows taskbar at the bottom shows the time as 3:16 PM on 28-Sep-23.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 2 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[16]={0},n,i; clrscr();
printf("Enter a no "); scanf("%d",&n);
printf("%d binary code ",n);
for(i=0;n!=0;i++,n/=2)a[i]=n%2; /* dec to bin */
for(i=15;i>=0;i--)printf("%2d",a[i]); /* rev */
getch();
}

TC
Enter a no 20
20 binary code  0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 0_

Activate Windows
Go to PC settings to activate Windows.
```





## Decimal to Octal conversion:

$8 \overline{) 20}$   
 $2 - 4 \checkmark$

The image shows two windows from the Turbo C++ (TC) IDE. The top window displays the source code for a program that converts a decimal number to its octal representation. The code includes `<stdio.h>` and `<conio.h>`, uses `clrscr()` to clear the screen, prompts the user for a number, and then uses a loop to calculate the octal digits by repeatedly dividing by 8. The bottom window shows the program's execution: the user entered '20', and the output displayed is '20 octal code 0 0 0 0 0 0 0 0 0 0 0 0 0 2 4'. Both windows have a taskbar at the bottom with various application icons and a system tray showing the time as 3:18 PM on 28-Sep-23.

```
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 46 Insert Indent Tab Fill Unindent * E:2PM.C

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

Enter a no 20  
20 octal code 0 0 0 0 0 0 0 0 0 0 0 0 0 2 4

Decimal to hexadecimal:

$$16 \overline{) 20}$$

$$1 - 4 \checkmark$$

```

TC
Enter a no 20
20 hexadecimal code  0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 4
  
```

Activate Windows  
Go to PC settings to activate Windows.

$$16 \overline{) 45}$$

$$2 - \frac{13}{d}$$

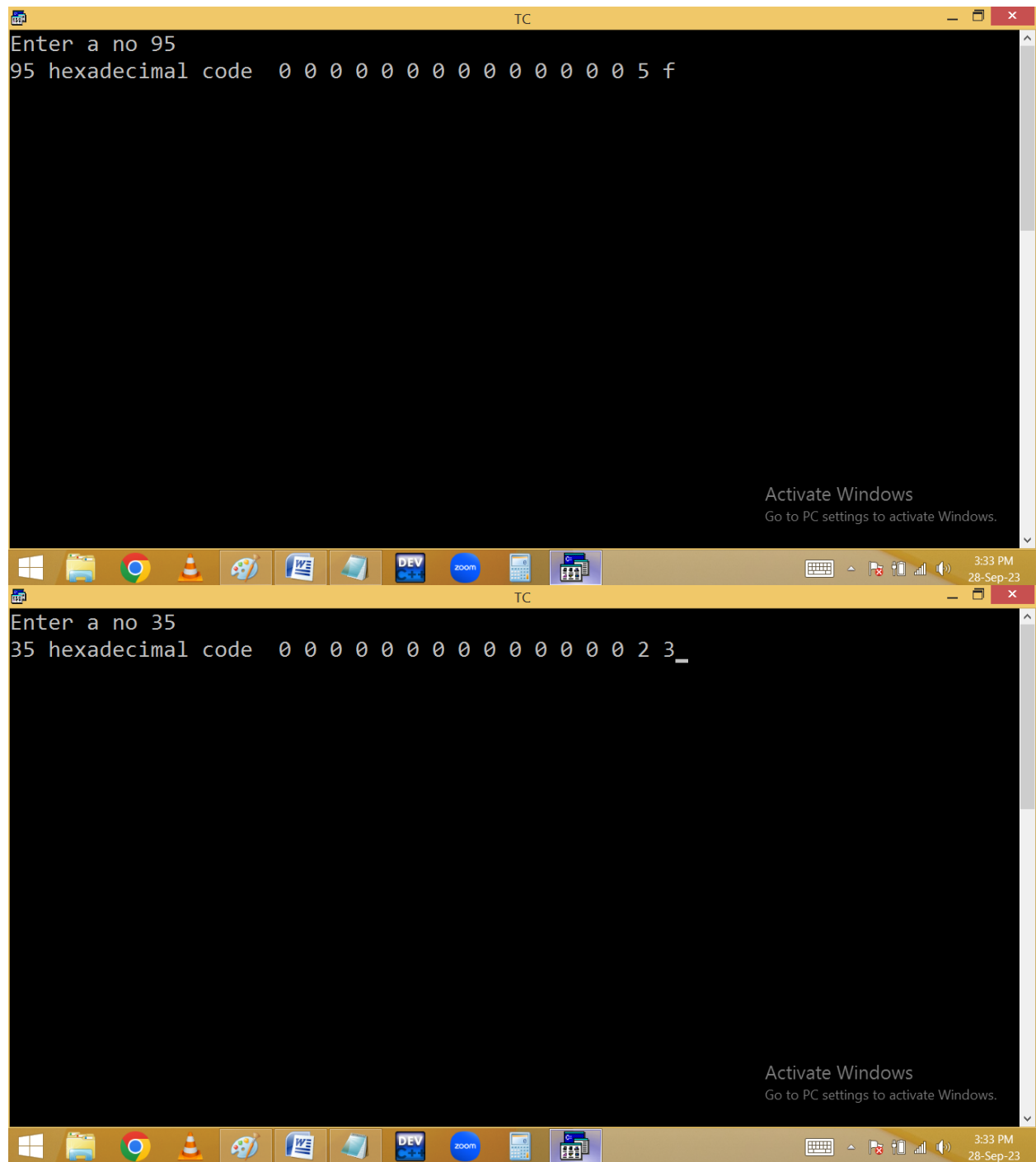
$$16 \overline{) 95}$$

$$5 - \frac{15}{f}$$

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 76 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a[16]={0},n,i; clrscr();
printf("Enter a no "); scanf("%d",&n);
printf("%d hexadecimal code ",n);
for(i=0;n!=0;i++,n/=16)a[i]=n%16; /* dec to hex */
for(i=15;i>=0;i--)if(a[i]<10)printf("%2d",a[i]);else printf("%2c",87+a[i]);_
getch();
}

Enter a no 45
45 hexadecimal code  0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 d_

TC
Activate Windows
Go to PC settings to activate Windows.
3:32 PM
28-Sep-23
```



**Flip / twisting of array elements:**

The image shows two windows of the Turbo C++ (TC) IDE. The top window is the source code editor for a file named E:2PM.C. It contains a C program that takes an array size and elements as input, swaps adjacent elements, and prints the result. The bottom window shows the program's execution output.

**TC**

File Edit Run Compile Project Options Debug Break/watch

Line 8 Col 14 Insert Indent Tab Fill Unindent \* E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[100],n,i,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-1;i+=2){t=a[i];a[i]=a[i+1];a[i+1]=t;}
printf("Flipped elements");
for(i=0;i<n;i++)printf("%4d",a[i]);
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.

**TC**

Enter array size 1-100 5  
Enter 5 elements 1 2 3 4 5  
Flipped elements 2 1 4 3 5

Activate Windows  
Go to PC settings to activate Windows.

