Practical 10

Aim : Write and execute two simple programs each using 1D and 2D arrays.

Theory :

1D array :

A list of items that can be given one variable name using only one subscript and such a variable is called one one dimensional array. Syntax : type variable-name [size] ;

2D array :

2-D arrays can be defined as an array of arrays. The 2D arrays are organized as matrices which can be represented as rows and columns. Syntax : type variable-name [size][size] ;

Code :

1) 1D array :

```
#include <stdio.h>
#include <conio.h>
int main(){
  int i,temp;
  int arr[10];
  printf("Enter marks of students \n");
  for(i=0;i<10;i++){
    printf("Enter marks of Roll no. %d",i+1);
    scanf("%d",&arr[i]);
  }
 int min, max;
 min = arr[0];
 max = arr[0];
```

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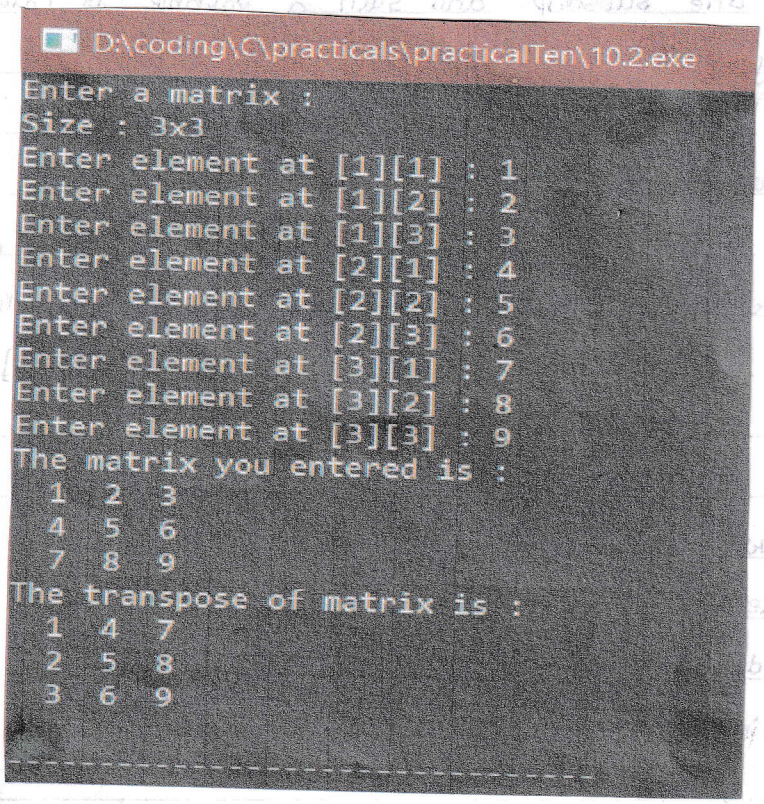
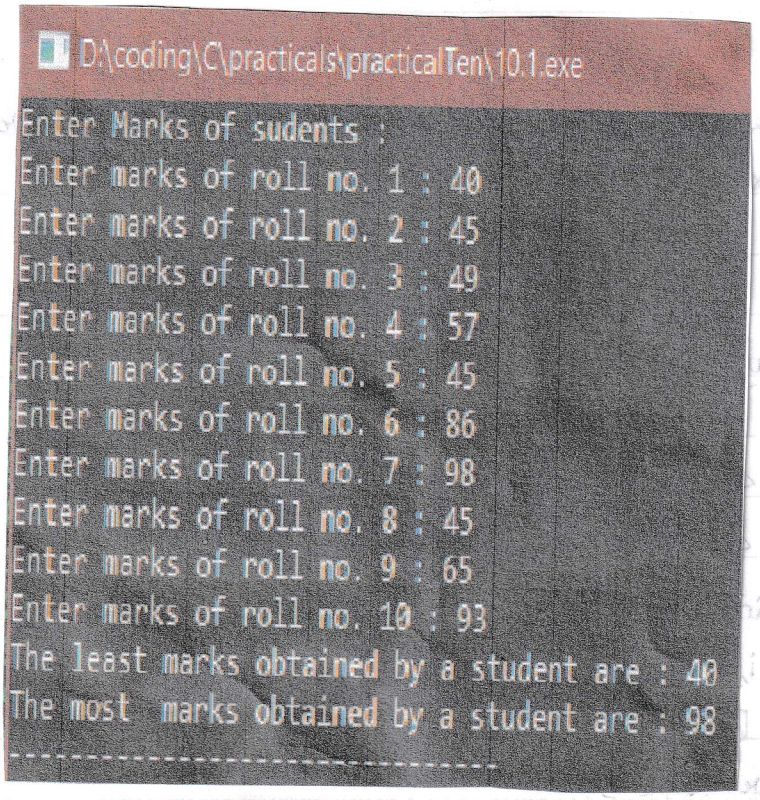

D:\coding\C\practicals\practicalTen\10.2.exe
Enter a matrix :
Size : 3x3
Enter element at [1][1] : 1
Enter element at [1][2] : 2
Enter element at [1][3] : 3
Enter element at [2][1] : 4
Enter element at [2][2] : 5
Enter element at [2][3] : 6
Enter element at [3][1] : 7
Enter element at [3][2] : 8
Enter element at [3][3] : 9
The matrix you entered is :
1 2 3
4 5 6
7 8 9
The transpose of matrix is :
1 4 7
2 5 8
3 6 9

```
for (i=0 ; i<=10 ;i++){
    if (arr[i] > max){
        max = arr[i]
    }
    if ( arr[i] < min){
        min = arr[i];
    }
}
printf("The least marks obtained by ~~me~~ ~~are~~ a student are : %d \n", min)
printf("The most marks obtained by a student are : %d ", max);
}
```

Code 2: 2D array

```
#include <stdio.h>
#include <conio.h>
int main ( ){
    int i,j ;
int arr [3][3];
 int arr1 [3][3];
printf (" Enter a matrix");
printf (" \n  Size : 3x3 \n");
for (i=0; i<3; i++ ){
  for (j =0 ; j<3 ;j++){
      printf("Enter element at position [%d] [%d]", i, j );
      scanf(" %d ", &arr[i][j] );
}}
```


D:\coding\C\practicals\practicalTen\10.1.exe
Enter Marks of sudents :
Enter marks of roll no. 1 : 40
Enter marks of roll no. 2 : 45
Enter marks of roll no. 3 : 49
Enter marks of roll no. 4 : 57
Enter marks of roll no. 5 : 45
Enter marks of roll no. 6 : 86
Enter marks of roll no. 7 : 98
Enter marks of roll no. 8 : 45
Enter marks of roll no. 9 : 65
Enter marks of roll no. 10 : 93
The least marks obtained by a student are : 40
The most marks obtained by a student are : 98

```
printf("The matrix you entered is :\n"){
    for(i=0; i<3; i++){
        for(j=0; j<3; j++){
            printf("%d ", arr[i][j]);
        }
        printf("\n");
    }

printf("The transpose of matrix is : ");
for(i=0; i<3; i++){
    for(j=0; j<3; j++){
        arr1[i][j] = arr[j][i];
    }
}
for(i=0; i<3; i++){
    for(j=0; j<3; j++){
        printf("%d ", arr1[i][j]);
    }
    printf("\n");
}
return 0;
}
```

Conclusion:

Hence, i wrote and executed two codes using 1D and 2D arrays.