

## Practical exercises. One-dimensional array processing. Using looping and iterative algorithms

### FIND THE BIGGEST AND SMALLEST ELEMENT AND THERE POSITIONS IN THE GIVEN ONE-DIMENSIONAL ARRAY

This program deals with finding the largest and smallest element in an one-dimensional (1-D) array. The program asks the user to enter the size( the length -the number of elements) and the elements of the array, which we can enter soon after that.

**Description of algorithm:** The entered array is traced through the elements. Initially the program assumes the first element is the greatest and the smallest till now. For each **iteration** the stored **max** or **min** value is checked if the current element of array is larger than the max, or smaller than the min stored. If so, the current element is overwritten on the old value of max or min. Finally the highest and lowest element will be stored in max and min respectively and will be determined there indices (subscripts) and positions in the array.

We demonstrated the algorithm, by taking the real (float type) array. It is also possible to work with the array of other data types also.

```
#include<stdio.h>
#include<conio.h>
int main( )
{
    float A[50], max, min;
    int maxind, minind, n, i;
    clrscr( );
    printf("\n\n\t ENTER THE SIZE (LENGTH) OF THE ARRAY:  ");
    scanf("%d", &n);
    printf("\n\n\t ENTER THE ELEMENTS OF THE ARRAY: \n ");
    for(i=0; i<n; i++)
    {
        scanf("%f", &A[i]);
    }
    max = A[0];
    maxind = 0;
    for(i=0; i<n; i++)
    {
        if(A[i]>max)
        {
            max = A[i];
            maxind = i;
        }
    }
    min = A[0];
    minind = 0;
    for(i=0; i<n; i++)
    {
        if(A[i]<min)
        {
            min = A[i];
            minind = i;
        }
    }
}
```

```

printf("\n\n\tRESULTS:\n");
printf("\n\n\t THE LARGEST ELEMENT IS:   %.2f ", max);
printf("\n\n\t AND ITS POSSITION IS :   %d", maxind+1);
printf("\n\n\t THE SMALIEST ELEMENT IS:   %.2f ", min);
printf("\n\n\t AND ITS POSSITION IS:   %d\n", minind+1);
getch( );
return 0;
}

```

### **Class and Home tasks:**

1. Write a program for determining the sum and the number of negative elements of the given. one-D array of real type.
2. Write a program for determining the product and the number of positive elements of the given. one-D array of integer type.
3. Write a program for interchanging max and min elements of the given 1-D array of integer type.
4. Evaluate task 3 for the given 1-D array of character type

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