

S.No: 9

Exp. Name: **Maximun and minimum element using divide and conquer**

Date:

**Aim:**

Program to compute Maximum and Minimum element using divide and conquer

**Source Code:**

divideAndConquer.c

```
#include<stdio.h>
int max,min;
int a[100];
void maxmin(int i,int j)
{
    int max1,min1,mid;
    if(i==j)
    {
        max=min=a[i];
    }
    else
    {
        if(i==j-1)
        {
            if(a[i]<a[j])
            {
                max=a[j];
                min=a[i];
            }
            else{
                max=a[i];
                min=a[j];
            }
        }
        else
        {
            mid=(i+j)/2;
            maxmin(i,mid);
            max1=max;
            min1=min;
            maxmin(mid+1, j);
            if(max<max1)
                max=max1;
            if(min>min1)
                min=min1;
        }
    }
}

int main()
{
    int i,num;
    printf("Enter the total number of Elements : ");
    scanf("%d",&num);
    printf("Enter the numbers : ");
    for(i=1;i<=num;i++)
        scanf("%d",&a[i]);
    max=a[0];
    min=a[0];
    maxmin(1,num);
    printf("Minimum element in an array : %d\n",min);
    printf("Maximum element in an array : %d\n",max);
    return 0;
}
```

**Execution Results** - All test cases have succeeded!

Test Case - 1
User Output
Enter the total number of Elements : 6
Enter the numbers : 6 7 23 1 89 45
Minimum element in an array : 1
Maximum element in an array : 89

Test Case - 2
User Output
Enter the total number of Elements : 10
Enter the numbers : 10 12 65 87 98 56 32 54 43 21
Minimum element in an array : 10
Maximum element in an array : 98