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Course : CSL4403

# Design and analysis of algorithms lab

## (LAB 1) Program 01

## Implementation of finding Max and Min using divide and conquer technique?

```c
#include <stdio.h>
#include <stdlib.h>

struct pair{
int max;
int min;
};

struct pair  findMaxMin(int s,int e,int a[]){
struct pair get;
if(s==e){
   get.max=a[s]; get.min=a[s];
}
else if(e-s==1){
   if(a[e]<a[s]){
   get.min= a[e];
   get.max= a[s];

}
else{
   get.min= a[s];
   get.max= a[e];

}
}
else{
   int mid= (s+e)/2;
   struct pair first = findMaxMin(s,mid,a);
   struct pair second =findMaxMin(mid+1,e,a);

   if(first.min>second.min) get.min =second.min;
   else get.min = first.min;
```

```
if(second.max>first.max) get.max = second.max;
else get.max = first.max;
}

return get;
}
int main()
{   int s,e,size;
    printf("Input the size of array\n");
    scanf("%d",&size);
    int a[size];
    printf("Input the array no.s :\n");
    for(int i=0;i<size;i++){
        scanf("%d",&a[i]);
    }
    printf("Enter the i and j values to find min and max between these indexes.\nAlso i<=j :\n");
    scanf("%d",&s);
    scanf("%d",&e);
    struct pair set=findMaxMin(s,e,a);
 printf("Min is : %d \nMax is : %d",set.min,set.max);
    return 0;
}
```
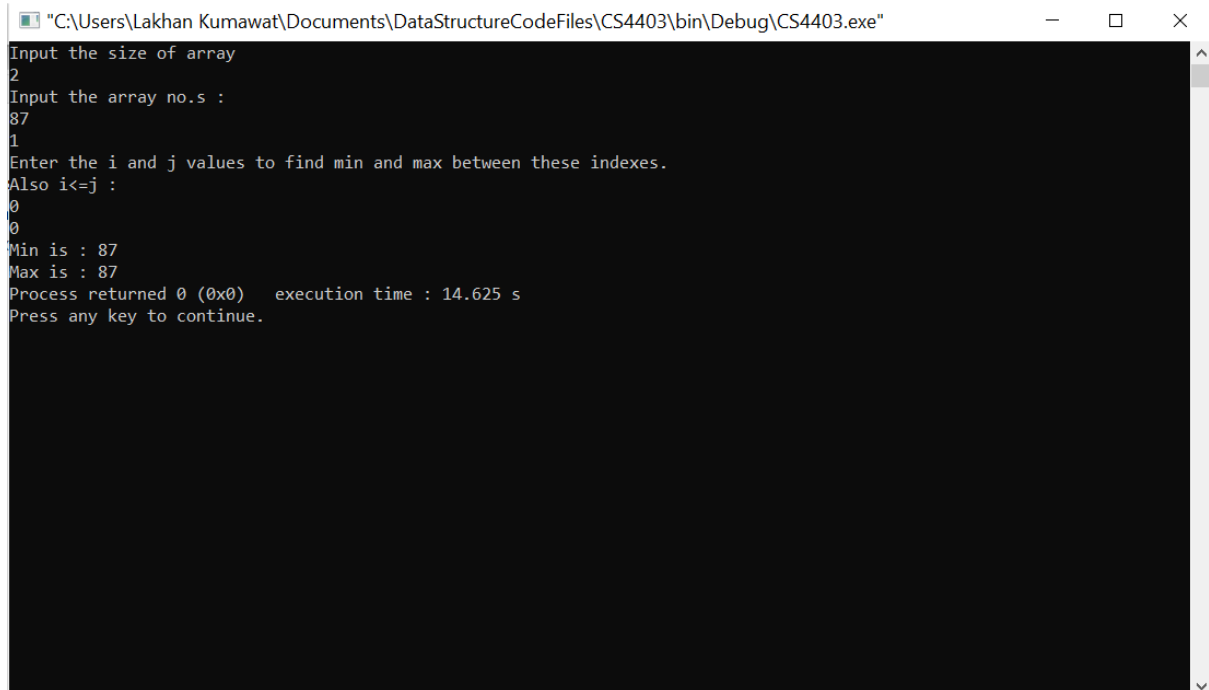
## Console Outputs :

Console output to find minimum and maximum number / Indexes are different.

Console output to find minimum and maximum number / Indexes are same.



```
"C:\Users\Lakhan Kumawat\Documents\DataStructureCodeFiles\CS4403\bin\Debug\CS4403.exe"                                          —      □      ×
Input the size of array
2
Input the array no.s :
87
1
Enter the i and j values to find min and max between these indexes.
Also i<=j :
0
0
Min is : 87
Max is : 87
Process returned 0 (0x0)    execution time : 14.625 s
Press any key to continue.
```