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**SY IT A**

**Assignment 4**

**Aim**: To implement a program using Divide and Conquer approach to find the minimum and maximum element from the given array.

**Code Implementation:**

#include<iostream>

#include<vector>

#include<climits>

using namespace std;

void findMinMax(vector<int>&arr,int low,int high,int &min,int &max)

{

    if(low==high)

    {

        min=max=arr[low];

        return;

    }

    if(high==low+1)

    {

        min=std::min(arr[low],arr[high]);

        max=std::max(arr[low],arr[high]);

        return;

    }

    int mid=(low+high)/2;

    int min1,max1,min2,max2;

    findMinMax(arr,low,mid,min1,max1);

    findMinMax(arr,mid+1,high,min2,max2);

    min=std::min(min1,min2);

    max=std::max(max1,max2);

}

int main()

{

    int n;

    cout<<"Enter the number of elements: ";

    cin>>n;

    vector<int>arr(n);

    cout<<"Enter the elements: ";

    for(int &x:arr)

    cin>>x;

    int max=INT\_MIN,min=INT\_MAX;

    findMinMax(arr,0,n-1,min,max);

    cout<<"Maximum element: "<<min<<endl;

    cout<<"Minimum element: "<<max<<endl;

}

