**#menu driven program for bubble sort ,Insertion sort and selection sort**

**CODE :**

**#include <iostream>**

**using namespace std;**

**const int MAX=20;**

**template <class t>**

**void input(t a[MAX], int n)**

**{**

**cout<<"ENTER THE ELEMENTS IN THE ARRAY"<<endl;**

**for(int i=0;i<n;i++)**

**cin>>a[i];**

**}**

**template <class t>**

**void insertionSort(t a[MAX], int n)**

**{**

**t key;**

**t temp;**

**int i,j;**

**key=a[0];**

**for(j=1;j<n;j++)**

**{**

**key=a[j];**

**i=j-1;**

**while(i>=0&&a[i]>key)**

**{**

**temp=a[i+1];**

**a[i+1]=a[i];**

**a[i]=temp;**

**i=i-1;**

**}**

**a[i+1]=key;**

**}**

**}**

**template <class t>**

**void bubbleSort(t a[MAX], int n)**

**{**

**t temp;**

**int i,j;**

**char switched='T';**

**for(i=0;i<n;i++)**

**{**

**switched='F';**

**for(j=0;j<n-1-i;j++)**

**{**

**if(a[j]>a[j+1])**

**{**

**switched='T';**

**temp=a[j];**

**a[j]=a[j+1];**

**a[j+1]=temp;**

**}**

**}**

**}**

**}**

**template <class t>**

**void selectionSort(t a[MAX], int n)**

**{**

**t small, temp;**

**int pos,i,j;**

**for(i=0;i<n-1;i++)**

**{**

**small=a[i];**

**pos=i;**

**for(j=i+1;j<n;j++)**

**{**

**if(a[j]<small)**

**{**

**small=a[j];**

**pos=j;**

**}**

**}**

**temp=a[i];**

**a[i]=a[pos];**

**a[pos]=temp;**

**}**

**}**

**template <class t>**

**void display(t a[MAX],int n)**

**{**

**cout<<"SORTED ARRAY IS : ";**

**for(int i=0;i<n;i++)**

**cout<<a[i]<<"\t";**

**cout<<endl;**

**}**

**int main()**

**{**

**int n,choice;**

**int a[MAX];**

**char ch='y';**

**if(n>20)**

**{**

**cout<<"SIZE IS TOO BIG. ERROR!!!!!"<<endl;**

**exit(0);**

**}**

**while(ch=='y'||ch=='Y')**

**{**

**cout<<"1.INPUT"<<endl;**

**cout<<"2.SORT USING INSERTION SORT"<<endl;**

**cout<<"3.SORT USING BUBBLE SORT"<<endl;**

**cout<<"4.SORT USING SELECTION SORT"<<endl;**

**cout<<"5.DISPLAY"<<endl;**

**cout<<"ENTER YOUR CHOICE"<<endl;**

**cin>>choice;**

**switch(choice)**

**{**

**case 1:**

**cout<<"ENTER THE NUMNBER OF ELEMENTS(MAX=20)"<<endl;**

**cin>>n;**

**input(a,n);**

**break;**

**case 2:**

**insertionSort(a,n);**

**break;**

**case 3:**

**bubbleSort(a,n);**

**break;**

**case 4:**

**selectionSort(a,n);**

**break;**

**case 5:**

**display(a,n);**

**break;**

**default:**

**cout<<"ERROR IN INPUT !!!!!!!"<<endl;**

**}**

**cout<<"DO YOU WANT TO CONTINUE?(Y/N)"<<endl;**

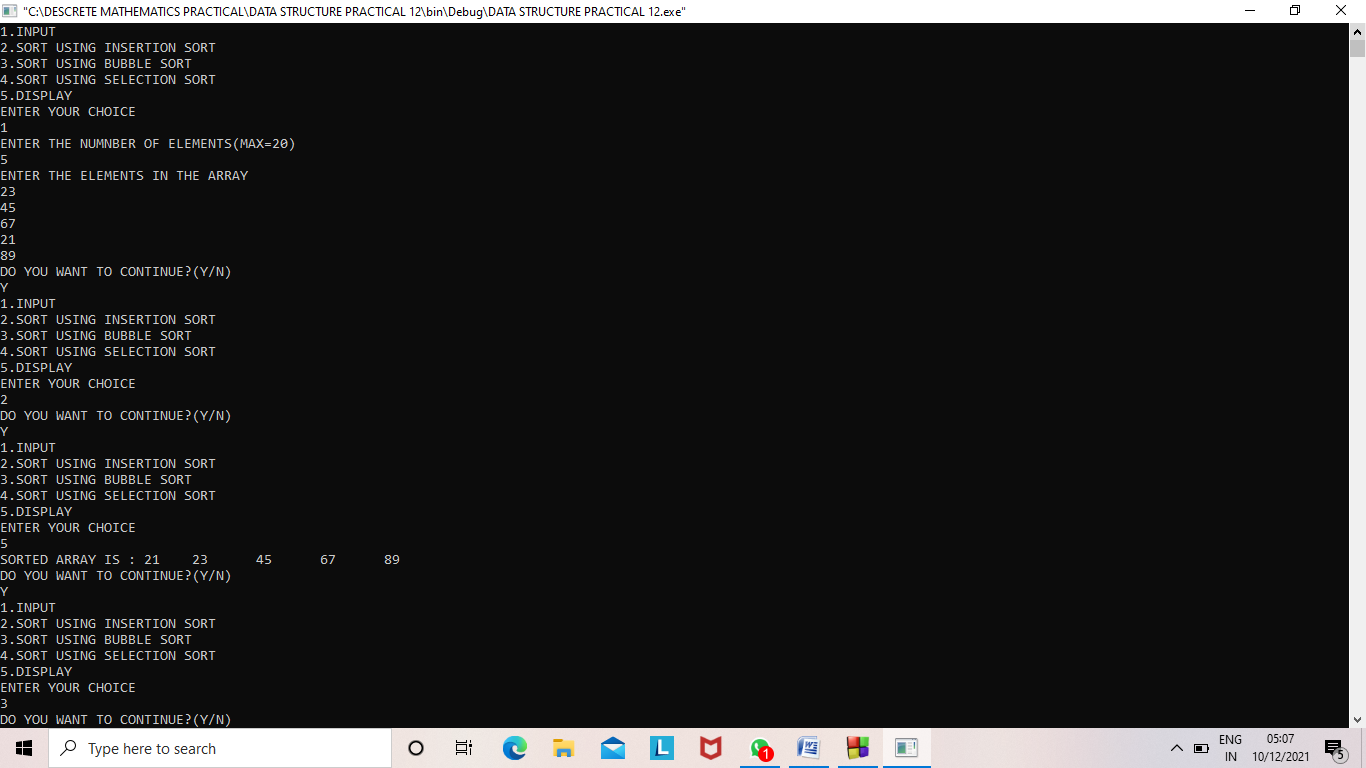
**cin>>ch;**

**}**

**return 0;**

**}**

**OUTPUT:**

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