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/*
To implement a c++ program to perform a selection sort. Include following
functionality to user.
1. User will specify which type of data he want to enter and how many bytes he
want to store.
2.A parameterised constructor which initilize member variable .
*/
#include<iostream>              //include header file
using namespace std;            //define scope of program
template <class T>              //template class T
class sel_sort                  //class with name sel_sort
{
        T a[10];                //declaration of variable
        T size;
        public:
        sel_sort(T q[], T w)    //constructor
        {
                size=w;
                for(int i=0;i<size;i++)
                        a[i]=q[i];
        }

        sel_sort()              //constructor
        {
                size=0;
                for(int i=0;i<10;i++)
                        a[i]=0;
        }
        void get();             //defining function inside the class
        void put();
        void sort();
};


        template <class T> void sel_sort<T>::get()      //function defination
outside the class
        {
                cout<<"\nEnter number of elements: ";                   //function
accept the elements to be sorted
                cin>>size;

                cout<<"\nEnter elements: ";
                for(int i=0;i<size; i++)
                        cin>>a[i];
        }

        template <class T> void sel_sort<T>::sort()             //function to
sort the elements
        {
                int i,j,min;
                T temp;
                for(i=0;i<size-1;i++)
                {
                        min=i;
                        for(j=i;j<size;j++)
                        {
                                if(a[j]<a[min])
                                        min=j;
                        }
                        temp=a[i];
                        a[i]=a[min];
                        a[min]=temp;
                }
        }

        template <class T> void sel_sort<T>::put()              //function to
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display the sorted elements
        {
                cout<<"\nSorted elements are: \n";
                for(int i=0;i<size; i++)
                        cout<<a[i]<<endl;
        }
int main()
{
        int a[]={1,56,0,-89,478};               //intilisation of array of a and b
        float b[]={1.00,5.6,0.00,-8.9,47.8};

        int y=1;

        while(y==1)
        {       char t;
                cout<<"Enter i for integer operation & f for float operation";
                cin>>t;
                 switch(t)
                 {
                   case 'i':    //for integer operation
                        {
                        sel_sort<int> s(a,5);
                        s.get();
                        s.sort();
                        s.put();
                        }break;

                  case 'f':     //for float operation
                        {
                        sel_sort<float> p(b,5);
                        p.get();
                        p.sort();
                        p.put();
                        }break;

                default:cout<<"Wrong data type selected";
                }
                cout<<"Enter 1 to continue else press 0";
                cin>>y;
                }
        return 0;
}  //end of program
/*
OUTPUT
dell@ghe1de-saurabh16-12-99:~/Desktop/oops_assignment$ g++ ass6oops.cpp
dell@ghe1de-saurabh16-12-99:~/Desktop/oops_assignment$ ./a.out
Enter i for integer operation & f for float operationi

Enter number of elements: 10

Enter elements: 1 2 3 -4 5 9 -7 12 900 -1

Sorted elements are:
-7
-4
-1
1
2
3
5
9
12
900
Enter 1 to continue else press 01
Enter i for integer operation & f for float operationf
```

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Enter number of elements: 10

Enter elements: 0 0.3 0.4 -0.5 -0.8 -0.10 0.0001 0.12 0.9 -0.001 0.21

Sorted elements are:
 -0.8
-0.5
-0.1
-0.001
0
0.0001
0.12
0.3
0.4
0.9
Enter 1 to continue else press 0
*/
```