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//OOP Lab 06 STL Vectors




#include<iostream>
#include<vector>
#include<string>
#include<algorithm>
#include<bits/stdc++.h>
using namespace std;


class item{
public:
    int itemId;
    float cost;
    string name;
    int quantity;
    vector<int> code;
    vector<float> icost;
    vector<string> iname;
    vector<int> iquantity;

    //vector<pair<int,float,string,int>> vect;

    template<typename T>
    void display(vector<T> v, T byMean){
        for(int i=0; i<v.size(); i++){
            cout<<v[i];
        }
    }
    void input(){
    cout<<"Enter item code: ";
    cin>>itemId;
    code.push_back(itemId);
    cout<<"Enter item name: ";
    cin>>name;
    iname.push_back(name);
    cout<<"Enter item cost: ";
    cin>>cost;
    icost.push_back(cost);
    cout<<"Enter item quantity: ";
    cin>>quantity;
    iquantity.push_back(quantity);

    //vect.push_back(make_pair(itemId,name,cost,quantity));

    }

    template<typename T>
    void sortVector(vector<T> v){
        int id;
        cout<<"Your sorted item are: "<<endl;
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    vector<T> v1;
    v1.insert(v1.begin(), v.begin(), v.end());
    sort(v1.begin(), v1.end());
    for(int i=0; i<v1.size(); i++){
    //cout << v1[i] << ' ';
    id = searchVectorSort(v,v1[i]);
    cout<<"\n"<<i+1<<". ";
    cout<<"Name: "<<iname[id]<<endl;
    cout<<"Cost: "<<icost[id]<<endl;
    cout<<"Quantity: "<<iquantity[id]<<endl;

    }
}

template<typename T>
int searchVectorSort(vector<T> v, T searchTerm){
    int index = 0;
    while(index<v.size()){
        if(v[index] == searchTerm){
            return index;
        }
        index++;
    }
}

template<typename T>
void searchVector(vector<T> v, T searchTerm){
    int index= 0;
    T term = searchTerm;
    int flag = 1;
    vector<T> vecOfNums = v;
    if (binary_search(v.begin().v.end(),term)){
    cout << "Element Found";
    int index = searchVectorSort(vecOfNums, term);
    cout<<"\nItem found!"<<endl;
        cout<<"The item is/are: "<<endl;
        cout<<"Name: "<<iname[index]<<endl;
        cout<<"Cost: "<<icost[index]<<endl;
        cout<<"Quantity: "<<iquantity[index]<<endl;
    }else{
    cout<<"\nItem is not in our shop!"<<endl;
    }
    /*if(it != v.end()){
        cout<<"\nItem found!"<<endl;
        cout<<"The item is/are: "<<endl;
        cout<<"Name: "<<iname[index]<<endl;
        cout<<"Cost: "<<icost[index]<<endl;
        cout<<"Quantity: "<<iquantity[index]<<endl;

    }else{
    cout<<"\nItem is not in our shop!"<<endl;
    }
    /*while(index<v.size()){
        if(v[index] == searchTerm){
            cout<<"\nItem found!"<<endl;
            cout<<"The item is/are: "<<endl;
            cout<<"Name: "<<iname[index]<<endl;
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                cout<<"Cost: "<<icost[index]<<endl;
                cout<<"Quantity: "<<iquantity[index]<<endl;
                flag = 0;
                break;
            }
            index++;
        }
        if(flag){
        cout<<"\nItem is not in our shop!"<<endl;
        }*/
    }

};
int main(){
    int option = 1;
    int option1 = 1;
    item obj;
    string searcht;
    while(option>=1 && option<=3){
    cout<<"\n\n<---- Menu ---->"<<endl;
    cout<<"1. Add item \n2. Sort list \n3. Search Element"<<endl;
    cout<<"Enter option to perform action(0 to exit): ";
    cin>>option;
    switch(option){
case 1: obj.input();
        break;
case 2: while(option1>0 && option1 <4){
    cout<<"\nHow you want to sort: ";
    cout<<"\n1. By name \n2. By cost \n3. By Quantity "<<endl;
    cout<<"Enter option(0 to exit): ";
    cin>>option1;
    switch(option1){
    case 1: obj.sortVector<string>(obj.iname);
            break;
    case 2: obj.sortVector<float>(obj.icost);
            break;
    case 3: obj.sortVector<int>(obj.iquantity);
            break;
    default: cout<<"Program ended successfully!"<<endl;
            break;
    }
}
    obj.sortVector<string>(obj.iname);
    break;
case 3:
    cout<<"Enter name of item to be searched: ";
    cin>>searcht;
    obj.searchVector<string>(obj.iname,searcht);
default:cout<<"Program ended successfully!"<<endl;
        break;
        }
    }
return 0;
}
```