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/*
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 *Program 1, CSC 2100 - SPRING 2011
 *Februrary 14, 2011
 *
 *Create a program that will allow the user to calculate the final balance
 *of their energy consumption bill.  The program will calculate the
     required
 *user input of electric consumption and water consumption for one of three
 *categories:Residential, Commecial, and Industrial. The program will only
     exit
 *until the user wishes to do so.
 */

#include <iostream>
#include <iomanip>
#include <cmath>
#include <cctype>
using namespace std;

int main()
{
    //declaration of variables
    char response;
    bool anotherCustomer = true;
    char accountName[26];
    char ch;
    int i;
    int customerCount = 0;
    int accountNumber;
    double kwh;
    double water;

    while (anotherCustomer == true)
    {
        //Step 1
        bool validAccountNumber = false;

        //error checking the account number
            while (validAccountNumber == false) {
        cout << "Enter Account number: ";
        cin >> accountNumber;

            if (accountNumber >= 1000 && accountNumber <= 9999) {
                validAccountNumber = true;
            }else {
                cout << "Please enter in a valid account number." <<endl;
                }


            }

        //Step 2
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/*bool validAccountName = false;
while (validAccountName == false) {
    cout << "Enter Account name: ";
    cin >> accountName;
    if (accountName.length() < 0 || accountName.length() > 25) {
        cout << "Please enter in a valid account name";
    }else {
        validAccountName = true;
    }

}*/


cin.ignore(80, '\n'); // clear input buffer from previous input
ch = '\0';  // initialize ch to a value (null) that cannot be typed
    in
cout << "Enter account name: ";
i = 0;

while (ch != '\n')// scan characters to the next newline character
{
    cin.get(ch);
    if (i < 25 && ch != '\n')  // store next character of account
        name
    {
        accountName[i] = ch;
        i++;
    }
    else if (i <= 25 && ch == '\n') // end of account name reached
    {
        accountName[i] = '\0';  // make input string be null-
            terminated
    }
    // else string is too long, and remaining char's are scanned
        but ignored
}  // end of while loop

//Step 3
bool validElectric = false;

while(validElectric==false){
cout << endl<< "Enter in the Kwh electirc consumption. ";
cin >> kwh;
cout << endl;
cin.ignore(80,'\n');
    if (kwh <0) {
        cout <<  "Please enter in a valid amount";
    }else {
        validElectric = true;
    }

}
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//Step 4
bool validWater = false;
while (validWater==false) {
    cout << "Please enter in water consumption.";
    cin >> water;
    cin.ignore(80,'\n');
    cout << endl;
        if (water < 0) {
            cout << "Please enter in a valid amount";
            cin.ignore(80,'\n');
        }else {
            validWater = true;
        }

}

//Step 5
bool validCategory = false;
char serviceCatergory;

while (validCategory == false) {
    cout << "Please enter in a service category. (R,C,I)";
    cin.get(serviceCatergory);


    if (serviceCatergory =='r'||serviceCatergory == 'R') {
        validCategory = true;
    }
    if (serviceCatergory == 'c'||serviceCatergory== 'C') {
        validCategory = true;
    }
    if (serviceCatergory == 'i'||serviceCatergory == 'I')
    {
        validCategory = true;
    }
}



//Step 6
double kwhR, kwhC, kwhI;
double waterR, waterC, waterI;
double surchargeR, surchargeC, surchargeI;

    //residential kwh calculation
        if (serviceCatergory =='r'||serviceCatergory =='R') {
            if (kwh < 500) {
                kwhR = 2.00;
            }
            if (kwh > 500) {
                kwhR = ((kwh-500.0)*0.025)+25.0;
            }
            if (kwh>1000) {
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            surchargeR = 5.0;

        }
    }
//Residential water calculation
if (serviceCatergory =='r'||serviceCatergory == 'R') {
    if (waterR < 30) {
        waterR = 2.00;
    }
    if (water > 30) {
        waterR = ((water-30.0)*0.10)+6.0;
    }

}

//Commercial kwh calculation
    if (serviceCatergory == 'c'|| serviceCatergory == 'C') {
        if (kwh < 600) {
            kwhC = 10.00;
        }
        if (kwh > 600) {
            kwhC = ((kwh-600.0)*0.050)+48.0;
        }
        if (kwh>1500) {
            surchargeC=10.0;
        }
    }

//Commercial water calculation
    if (serviceCatergory =='c'||serviceCatergory =='C') {
        if (waterC < 30) {
            waterC = 2.00;
        }
        if (water > 30) {
            waterC = ((water-30.0)*0.15)+6.0;
        }
    }
//Industrial kwh calculation
if (serviceCatergory =='i'|| serviceCatergory == 'I') {
    if (kwh < 2500) {
        kwhI = 100.0;
    }
    if (kwh > 2500) {
        kwhR = ((kwh-2500.0)*0.015)+150.0;
    }
    if (kwh>10000) {
    surchargeI=25.0;
    }
}

//Industrial water calculation
if (serviceCatergory =='i'||serviceCatergory == 'I') {
    if (waterI < 5000) {
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            waterI = 50.00;
        }
        if (water > 5000) {
            waterI = ((water-5000.0)*0.02)+500;
        }
    }


//Step 7
int j=0;
int k=0;
int l=0;
double electricCharge, waterCharge, surcharge, total;



while (j < 80) {
    cout << "*";
    j++;
}
cout << endl<<endl;
cout << setw(25)<<"                    Cumberland Utiltiy District"
    <<endl<<endl;
while (k < 80) {
    cout << "*";
    k++;
}
cout << endl;

cout << "Account Number : "<< setw(2)<<accountNumber<<endl;
cout << "Account Name :"<< setw(2)<<accountName<<endl<<endl;
cout << fixed<<setprecision(2)<<endl;



if (serviceCatergory == 'r' || serviceCatergory == 'R') {

    cout << "Service Category:  Residential" <<endl<<endl;
    electricCharge = kwhR;
    waterCharge = waterR;
    surcharge = surchargeR;
}
if (serviceCatergory == 'i' || serviceCatergory =='I') {
    cout << "Service Category:  Industrial" << endl<<endl;
    electricCharge = kwhI;
    waterCharge = waterI;
    surcharge = surchargeI;
}
if (serviceCatergory == 'c' || serviceCatergory == 'C') {
    cout << "Service Category:  Commercial"<<endl<<endl;
    electricCharge = kwhC;
    waterCharge = waterC;
    surcharge = surchargeC;
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        }
        total = electricCharge+waterCharge+surcharge;

        cout << "Electric Consumption: "<<setw(4)<<kwh<<setw(25)<<"Electric
            Charge: $"<<setw(10)<<electricCharge<<endl;
        cout << setw(55)<<"Surcharge: $"<<setw(10)<<surcharge<<endl<<endl;
        cout << "Water Consumption: "<<setw(11)<<water<<setw(24)<<"Water
            Charge : $"<<setw(10)<<waterCharge<<endl<<endl;
        cout << setw(55)<<"Total Charge: $"<<setw(10)<<total<<endl;



        while (l < 80) {
            cout << "*";
            l++;
        }
        cout << endl;


        //Step 8
        customerCount++;
        cout << "Process another customer? Enter y/n ";
        cin >> response;
        cin.ignore(80,'\n');
        cout << endl;
        if (response =='n') anotherCustomer = false;

    }
    cout << "There were " <<customerCount<< " bills processed.";
    return 0;
}
```