//Student Name: Jing Ma

//Lab: Tuesday 5:00 PM

#include "library.h"

#include <fstream>

using namespace std;

#include <string>

#include <iostream>

#include <sstream>

#include <math.h>

//Part 1.

/\*

struct information{

string productName;

int quantity;

double pricePerUnit;

bool discount;

bool eligibleTax;

};

double round\_num(double val){

return floor(val\*100 + 0.5)/ 100;

}

void main(){

string file = "items.txt";

ifstream fin(file.c\_str());

ofstream fout("receipt.text");

string line;

string name;

double quantity, ppu;

double discount;

char taxornot;

double price\_discount;

double total\_price;

double tax;

int quantity\_count = 0;

double total\_amount = 0;

double total\_tax = 0;

double total\_payable = 0;

if(!fin.eof()){

cout<<"Warning: can't open file"<<file<<"\n";

}

if(!fout){

cout<<"error opening receipt.txt \n";

}

string cfile, ofile;

cfile = "items.txt";

ofile = "receipts.txt";

cout<<"InputFile = "<<cfile<<endl;

cout<<"OutputFile = "<<ofile<<endl;

while(getline(fin, line)){

istringstream iss(line);

iss>>name>>quantity>>ppu>>discount>>taxornot;

cout<<"product name: "<<name<<endl;

fout<<name<<" "<< quantity<< " "<< ppu<< " "<< discount<< " "<< taxornot<< " ";

total\_price = ppu\*quantity;

price\_discount = total\_price \* (1.0-discount / 100.0);

quantity\_count += quantity;

total\_amount += total\_price;

if(taxornot == 'Y'){

tax = price\_discount \*0.07;

total\_tax += tax;

}

else{

tax = 0.0;

}

fout<<round\_num(total\_price)<< " "<< round\_num(price\_discount)<< " "<<round\_num(tax)<< " "<< round\_num(price\_discount - tax)<< " "<<endl;

}

total\_payable = total\_amount + total\_tax;

fout << "ITEM-COUNT"<< " " << quantity\_count <<endl;

fout << "AMOUNT" << " " << round\_num(total\_amount) << endl;

fout << "TAX" << " " << round\_num(total\_tax) <<endl;

fout<< "TOTAL-PAYABLE" << " " << round\_num(total\_payable) <<endl;

}

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//Part 2

/\*

struct information{

string productName;

int quantity;

double pricePerUnit;

bool discount;

bool eligibleTax;

};

double round\_num(double val){

return floor(val\*100 + 0.5)/ 100;

}

void main(){

string file = "items.txt";

ifstream fin(file.c\_str());

ofstream fout("receipt.text");

string line;

string name;

double quantity, ppu;

double discount;

char taxornot;

double price\_discount;

double total\_price;

double tax;

int quantity\_count = 0;

double total\_amount = 0;

double total\_tax = 0;

double total\_payable = 0;

if(!fin.eof()){

cout<<"Warning: can't open file"<<file<<"\n";

}

if(!fout){

cout<<"error opening receipt.txt \n";

}

string customer;

cout << "Please enter customer name" << "\n";

cin >> customer;

string cfile, ofile;

cfile = customer + "\_items.txt";

ofile = customer + "\_receipts.txt";

cout<<"InputFile = "<<cfile<<endl;

cout<<"OutputFile = "<<ofile<<endl;

while(getline(fin, line)){

istringstream iss(line);

iss>>name>>quantity>>ppu>>discount>>taxornot;

cout<<"product name: "<<name<<endl;

fout<<name<<" "<< quantity<< " "<< ppu<< " "<< discount<< " "<< taxornot<< " ";

total\_price = ppu\*quantity;

price\_discount = total\_price \* (1.0-discount / 100.0);

quantity\_count += quantity;

total\_amount += total\_price;

if(taxornot == 'Y'){

tax = price\_discount \*0.07;

total\_tax += tax;

}

else{

tax = 0.0;

}

fout<<round\_num(total\_price)<< " "<< round\_num(price\_discount)<< " "<<round\_num(tax)<< " "<< round\_num(price\_discount - tax)<< " "<<endl;

}

total\_payable = total\_amount + total\_tax;

fout << "ITEM-COUNT"<< " " << quantity\_count <<endl;

fout << "AMOUNT" << " " << round\_num(total\_amount) << endl;

fout << "TAX" << " " << round\_num(total\_tax) <<endl;

fout<< "TOTAL-PAYABLE" << " " << round\_num(total\_payable) <<endl;

}

\*/

//Part 3 Prime Counter

/\*

int isPrime(int num) {

for (int i=2; i<=num/2 ; i++) {

if (num % i == 0) {

return 0;

}

}

return 1;

}

void main(){

string filename = "numbers.txt";

ifstream inFile;

ofstream outFile;

outFile.open("prime\_frequency.txt");

inFile.open(filename);

if(!inFile){

cout<<"Unable to open file!\n";

}

int number;

while (inFile >> number){

int prime\_count = 0;

for (int i = 2; i <= number; ++i) {

if(isPrime(i)){

++prime\_count;

}

}

outFile << prime\_count << "\n";

}

cout<<"Output will be saved to prime\_frequency.txt\n";

inFile.close();

outFile.close();

}

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//Part 4.1

/\*

void main(){

ifstream fin;

ofstream outfile;

fin.open("words.txt");

outfile.open("frequency\_one.txt");

char ch;

int i;

int freq\_upper[26]={0};

int freq\_lower[26]={0};

if (!fin){

cout << "Unable to open file words.txt";

}

else{

while (fin >> ch){

//cout<<ch<<"\t";

// find frequency of lower and upper case

if (ch >= 'a' && ch<= 'z')

freq\_lower[ch - 'a']++;

else if (ch >= 'A' && ch<= 'Z')

freq\_upper[ch - 'A']++;

}

}

ch='A';

for(i=0;i<26;i++){

if(freq\_upper[i]!=0)

outfile << ch << " " << freq\_upper[i]<<"\n";

cout << ch << " " << freq\_upper[i]<<"\n";

ch=ch+1;

}

ch='a';

for(i=0;i<26;i++){

if(freq\_lower[i]!=0)

outfile << ch<< " " << freq\_lower[i]<<"\n";

cout << ch << " "<< freq\_lower[i]<<"\n";

ch=ch+1;

}

fin.close();

outfile.close();

}

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//Part 4.2

/\*

void main(){

ifstream fin;

ofstream outfile;

fin.open("frequency\_one.txt");

outfile.open("frequency\_two.txt");

char ch;

int i;

int freq\_upper[26]={0};

int freq\_lower[26]={0};

int freq\_all[26] = {0};

if (!fin){

cout << "Unable to open file words.txt";

}

else{

while (fin >> ch){

if (ch >= 'a' && ch<= 'z')

freq\_lower[ch - 'A']++;

else if (ch >= 'A' && ch<= 'Z')

freq\_upper[ch - 'A']++;

}

}

ch='A';

for(i=0;i<26;i++){

if(freq\_upper[i]!=0)

outfile << ch << " " << freq\_upper[i]<<"\n";

cout << ch << " " << freq\_upper[i]<<"\n";

ch=ch+1;

}

ch='a';

for(i=0;i<26;i++){

if(freq\_lower[i]!=0)

outfile << ch<< " " << freq\_upper[i]<<"\n";

cout << ch << " "<< freq\_upper[i]<<"\n";

ch=ch+1;

}

fin.close();

outfile.close();

}

\*/

//Part 5

struct People{

string firstName;

string lastName;

string state;

int birthDate;

int height;

int weight;

};

void main(){

ifstream infile;

string line;

int currentDataCounter=-1;

People peopleRecord[100];

infile.open ("people.txt");

if (infile.is\_open())

{

while( getline(infile, line,'\n') ) {

stringstream inputStream(line);

currentDataCounter++;

People people;

inputStream >> people.birthDate;

inputStream >> people.firstName;

inputStream >> people.lastName;

inputStream >> people.weight;

inputStream >> people.height;

inputStream >> people.state;

peopleRecord[currentDataCounter] = people;

}

infile.close();

}

else{

cout << "Sorry, we could not find the file." << endl;

}

ofstream myfile ("WestCoastPeople.txt");

if (myfile.is\_open()){

for(int i=0;i<=currentDataCounter;i++){

if(peopleRecord[i].state.compare("CA")==0 ||peopleRecord[i].state.compare("OR")==0||peopleRecord[i].state.compare("WA")==0){

myfile<<peopleRecord[i].birthDate<<" "<<peopleRecord[i].firstName<<" "<<peopleRecord[i].lastName<<" ";

myfile<<peopleRecord[i].weight<<" "<<peopleRecord[i].height<<" "<<peopleRecord[i].state<<endl;

}

}

}else cout << "Unable to open file";

cout<<"Total number of record : "<<currentDataCounter;

cout<<endl;

int minHeight=1000;

int minIndex=0;

for(int i=0;i<=currentDataCounter;i++){

if(minHeight>peopleRecord[i].height){

minIndex=i;

minHeight = peopleRecord[i].height;

}

}

cout<<"Height of shortest person is : "<<minHeight<<endl;

cout<<"First name of shortest person is : "<<peopleRecord[minIndex].firstName<<endl;

cout<<"Last name of shortest person is : "<<peopleRecord[minIndex].lastName<<endl;

myfile.close();

}

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