#include "stdafx.h"

#include<iostream>

#include<cmath>

#include<string>

using namespace std;

class ParkedCar

{

private:

string carMake;

string carModel;

string carColor;

string carNum;

int numMinutes;

public:

ParkedCar()

{

carMake = "";

carModel = "";

carColor = "";

carNum = "";

numMinutes = 0;

}

ParkedCar(string cMake, string cModel, string cColor, string cLicenseNum, int cNumMinParked)

{

carMake = cMake;

carModel = cModel;

carColor = cColor;

carNum = cLicenseNum;

numMinutes = cNumMinParked;

}

int getNumParkedMinutes() const

{

return numMinutes;

}

void print()

{

cout << "- Car -\n" << endl;

cout << "Make: " << carMake << endl;

cout << "Model: " << carModel << endl;

cout << "Color: " << carColor << endl;

cout << "License Number: " << carNum << endl;

}

};

class ParkingMeter

{

private:

int numBoughtMins;

public:

ParkingMeter()

{

numBoughtMins = 0;

}

ParkingMeter(int purchasedMinutes)

{

numBoughtMins = purchasedMinutes;

}

int getPurchasedParkingMins() const

{

return numBoughtMins;

}

void print()

{

cout << "- Meter -\n" << endl;

cout << "Number of minutes purchased : " << numBoughtMins << endl;

}

};

class PoliceOfficer

{

private:

string lastName;

string firstName;

string numBadge;

public:

PoliceOfficer()

{

lastName = "";

firstName = "";

numBadge = "";

}

PoliceOfficer(string lName, string fName, string bNum)

{

lastName = lName;

firstName = fName;

numBadge = bNum;

}

bool isFined(ParkedCar& c, ParkingMeter& m)

{

if ((m.getPurchasedParkingMins() - c.getNumParkedMinutes()) < 0)

{

return true;

}

else

{

return false;

}

}

void print()

{

cout << "- Police Officer -\n" << endl;

cout << "First Name: " << firstName << endl;

cout << "Last Name: " << lastName << endl;

cout << "Badge Number: " << numBadge << endl;

}

};

class ParkingTicket

{

private:

ParkedCar car;

ParkingMeter meter;

PoliceOfficer officer;

int fineAmount;

public:

ParkingTicket(ParkedCar &carT, ParkingMeter &meterT, PoliceOfficer &officerT)

{

car = carT;

meter = meterT;

officer = officerT;

fineAmount = calcFineAmount();

}

int calcFineAmount()

{

return (25 + 10 \* (ceil((car.getNumParkedMinutes() - meter.getPurchasedParkingMins()) / 60.0) - 1));

}

void print()

{

cout << "You got fined!" << endl;

cout << "\n\n-------TICKET--------" << endl;

cout << endl;

car.print();

cout << endl;

officer.print();

cout << endl;

cout << "- Fine -\n\n" << "Amount: $" << fineAmount << endl;

cout << endl;

}

};

int main()

{

string carMake;

string carModel;

string carColor;

string carNum;

int numMinutes;

int numBoughtMins;

string lastName;

string firstName;

string numBadge;

cout << "Enter information below.\n" << endl;

cout << "Vehicle:\n" << endl;

cout << "Make: ";

cin >> carMake;

cout << "Model: ";

cin >> carModel;

cout << "Color: ";

cin >> carColor;

cout << "License Number: ";

cin >> carNum;

do

{

cout << "Number of minutes car has been parked: ";

cin >> numMinutes;

} while (numMinutes < 0);

ParkedCar car1(carMake, carModel, carColor, carNum, numMinutes);

cout << "\nParking Meter:\n" << endl;

do

{

cout << "Number of minutes purchased: ";

cin >> numBoughtMins;

} while (numBoughtMins < 0);

ParkingMeter meter1(numBoughtMins);

cout << "\nPolice Officer:\n" << endl;

cout << "First Name: ";

cin >> firstName;

cout << "Last Name: ";

cin >> lastName;

cout << "Badge Number: ";

cin >> numBadge;

PoliceOfficer off(lastName, firstName, numBadge);

if (off.isFined(car1, meter1) == true)

{

ParkingTicket ticket1(car1, meter1, off);

ticket1.print();

}

else

{

cout << "\n\* No ticket\*" << endl;

}

return 0;

}