Research Topic Version (D)
Title: Traffic Control System

1. Data Model

- **constant variables** if we want to change the value in the variable, we can do it easily as we change in one place not need to change everywhere, we used it. for example,

1) NumOfDrivers 100 => define the number of drivers.
2) MaxOfCars 3 => define the maximum number of the owner's cars.
3) NumOfFines 20 => define the number of fines for each car.
4) SpeedOfRoad 100 => define the speed of the road which cars not allowed to exceed it.

Certainly, we can change initialization of these variables easily.

- **global variable** it can be used in any function in the program. not need to declaration it again. for example,

1) Person_Index => the index of the specific driver whose user entered his name
2) Car_Index => the index of the specific driver's car whose user entered his name
3) Search_Plate_Number => the user set value in this variable and the program search about the value to know who has this car

These variables are integer number so we use data type {int}

4) Owner_Name => the user enters the name of the driver and the program search about the name to know who is the driver and know the data about him. so we use data type {string}.

5) Answer =>the user choice he wants the program to do it (yes) or no (no). so the data type is {string}

- **local variable** it can be used in specific function in the program. we can declaration it .in specific function. for example,

1) Chosen_Number => the number was defined by the user. and this number was chosen from the menu. (I use it in main function)

2) Count_Drives = -1 => it is counter to know how many drivers and started by -1. (I use it in main function)

3) Count_Fine_Car =0 => it is counter to know how many fines for each car and started by 0. (I use it in Violation_Recording function)

   These variables are integer number so we use data type{int}

4) isEnd => to know this loop is end or not so we use data type {bool} . (I use it in many functions)

- **Struct** use it if we have something that contains a lot of data with a different data type. for example,

1) Date => to define the date and the members are day, month, year. These variables are integer number so we use data type {int}

2) Fine => define the fine for cars and the members are

   - Car_Speed => define the speed of the car. The data type is {int} because the speed is integer number

- Value => define the value of the fine. The data type is {float} because if the value is decimal number.
- Street_Name => define the street name which the car violation in, so the data type is{sting} because street name is characters.
- Fine_Date => define the data which the car violation in. the data type is {Date (struct)} because we use the members in it
- isPaid => define the fine was paid or not, so the data type is {bool}

3) Drivers_Cars => define the data for cars for each driver the members are

- Plate_Num => define the plate number for car
- Num_Fines => define the number of the fines for each car

  These variables are integer number so we use data type {int}
- Model => to define the model of the car for example (audi , BMW,…)

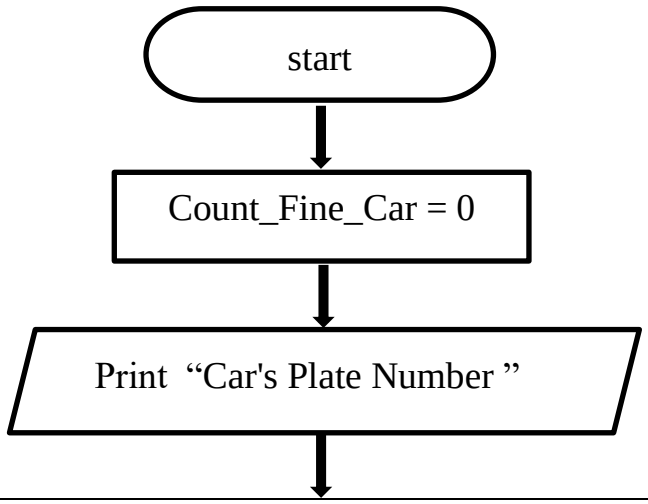
  So that the data type is {string}
- Sum_Fines => summation the cost of all fines for each car. The data type is {float} because if the value of the fines is decimal.
- Production_Year => to define the production year for cars. we use data type {Date(struct)} because we use the member year in it
- MyFine[NumOfFines] => define the list of fines for each car so we use {array}. the size is 20 because the maximum number of the fines for each car. we can change it. we need to know different data about the fine so we use data type is {Fine (struct)}

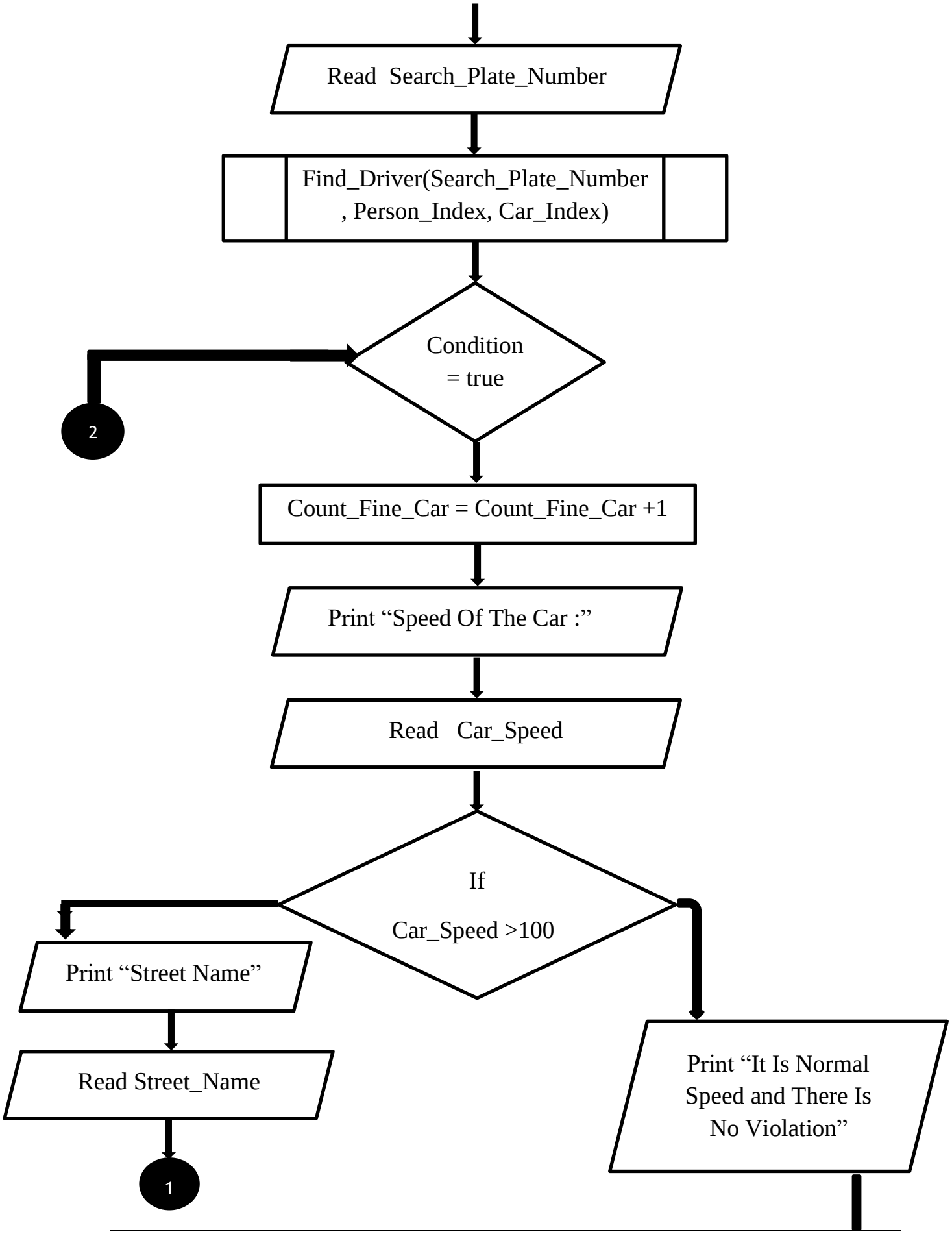
4) Drivers => to define the data for driver the members are

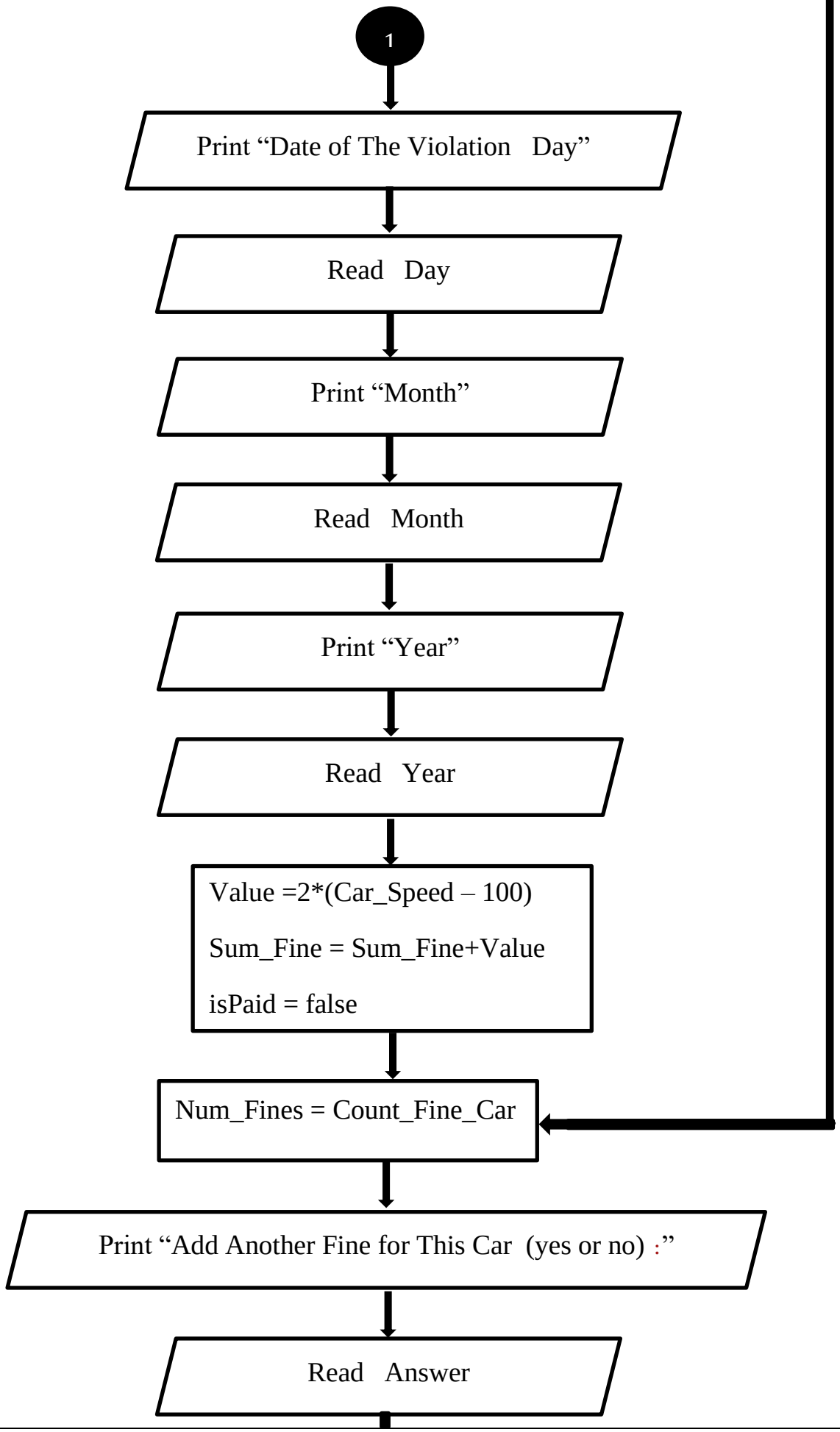
- Person_Name => define the name of driver. The data type is {string}
- Car_Num => to define the number of the cars for each driver. The data type is {int}.
- Total_Fines => summation the cost of fines for all cars which the driver has. The data type is {float} because if the value of the fines is decimal number.
- License_Num => define the license number for each driver. We use data type {long long} because the number can be maximum 18 digits
- Birthdate => define the driver's birthdate. we need to know the day, month and year so that we use data type {Data (struct)}.
- MyCar => define the list of cars for each driver so we use {array}.the size is 3 because the maximum number of the owner's cars is 3. We need to know different data about the car so we use data type is {Drives_Cars (struct)}.

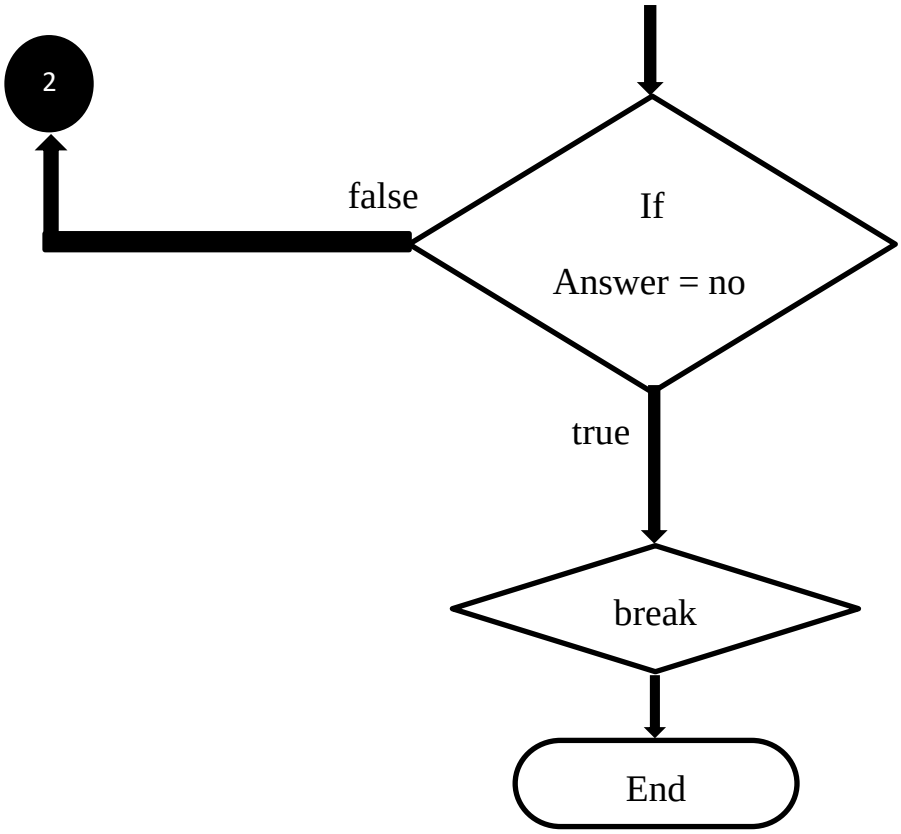
Finally, we create an object drivers[NumOfDrivers] => we use {array} because there is list of drivers the size is 100 because the maximum number of drivers is 100. We can change it as we want. we need to know different data about the driver so we use data type {Drivers (struct)}.

2. Logical Model (Algorithm)




Read Search_Plate_Number
Find_Driver(Search_Plate_Number , Person_Index, Car_Index)
Condition = true
2
Count_Fine_Car = Count_Fine_Car +1
Print “Speed Of The Car :”
Read Car_Speed
If Car_Speed >100
Print “Street Name”
Read Street_Name
1
Print “It Is Normal Speed and There Is No Violation”


1
Print “Date of The Violation Day”
Read Day
Print “Month”
Read Month
Print “Year”
Read Year
Value =2*(Car_Speed – 100)
Sum_Fine = Sum_Fine+Value
isPaid = false
Num_Fines = Count_Fine_Car
Print “Add Another Fine for This Car (yes or no) :”
Read Answer



3. Process Model (Functions)

These functions don't return anything so it is void (no output)

- void Find_Driver(int Search_Plate_Number,int &Person_Index,int &Car_Index);

  the data type of the input (int).because this data is integer number

  the user set value in this variable and the function search about the value to know who has this car and store the index of the car in Car_Index. And the function search about the driver who has this car and store the index of the driver in Person_Index.

  I can't return 2 variables so I use passing by reference.

  (this function finds who is the driver has the same data)

- void Car_License(int Count_Drives);

  Count_Driver it is counter to know how many drivers and use it as index . the data type of the input (int).because this data is integer number . (this function store the data of the drivers and driver's cars)

- void Violation_Recording(); there is no input
  (this function recording the violation of the cars)

- void Search(int Chosen_Number);
  (this function display the data of the driver and his cars).

  there are two methods to search and the user choose number. his choice store in Chosen_Number) so the data type is int

- void Pay_Fines (); there is no input
  (in this function the user can pay the fines for each violation of the his cars)

4. Coding Style

1) When we want to write sentences between brackets, we put the brackets on the line alone (ON an EMPTY LINE) and they are in the same height to each other and when writing the sentences, we leave a distance after the brackets. that call Allman style. This is what we used in the lines

   (67, 82, 94, 104, 109,….etc)

2) We use comment to make the code understandable to everyone, and there is a way to make the code more understandable by making the comment on an empty line and not putting it at the end of the line. This was used in lines (113, 144, 303,)

3) We can write the constant variables anywhere in the code, but it is better to write it at the top after the libraries. This was used in lines (2,3,4,5)

4) When we are naming variables, we must name it the same as what the variable is used. This was used in lines (37, 38, 39, 40, ….etc)

5) When we are naming variables, it is preferred that they be combined with upper-case and lower-case letters and be beginning with upper case letters. This was used in lines (18, 19, 20, ….etc)

6) When we are naming a variables which data type is bool we can add(is or has)at the beginning of the variable's name. This was used in lines (22, 171, 304)

7) functions should have little bit of arguments and if we don't put any argument it is the better. This was used in lines (46, 49) and(48, 50)

5. Implementation

```
#include <iostream>
#define MaxOfCars 3
#define NumOfDrivers 50
#define NumOfFines 20
#define SpeedOfRoad 100
using namespace std;

int Person_Index = 0, Car_Index = 0, Search_Plate_Number;
string Answer, Owner_Name;

struct Date
{
    int Day, Month, Year;
};
```

```
struct Fine
{
    int Car_Speed;
    float Value;
    string Street_Name;
    Date Fine_Date;
    bool isPaid;

};

struct  Drivers_Cars
{
    int Plate_Num , Num_Fines = 0;
    string Model;
    Date Production_Year;
    Fine  MyFine[NumOfFines];
    float Sum_Fines=0;
};

struct Drivers
{
    string Person_Name;
    Date Birthdate;
    long long  License_Num;
    int Car_Num;
    Drivers_Cars MyCar[MaxOfCars];
    float Total_Fines = 0;

}drivers[NumOfDrivers];

void Car_License(int Count_Drives);
void Find_Driver(int Search_Plate_Number, int& Person_Index, int& Car_Index);
void Violation_Recording();
void Search(int Chosen_Number);
void  Pay_Fines();

int main()
{
    int Chosen_Number, Count_Drives = -1 ;

    while(true)
    {
        cout << "\t\t-------------------------------------------------------------------
---------------" << endl;
        cout << "\t\t\t\t\t\t## MENU ##" << endl << endl;
        cout << "\t\t\t\t(1) Car License " << endl;
        cout << "\t\t\t\t(2) Report A Car " << endl;
        cout << "\t\t\t\t(3) Search for Car " << endl;
        cout << "\t\t\t\t(4) Pay The Fines " << endl;
        cout << "\t\t\t\t(5) Exit " << endl << endl<< "\t\t\t\t  ";
        cin >> Chosen_Number;

      if (Chosen_Number == 1)
      {
         while (true)
         {
            Count_Drives++;
            Car_License(Count_Drives);
            cout << endl << "\t\t\t\tAdd Another Person's Data  (yes or no) : ";
            cin >> Answer;

            if (Answer == "no")
                break;
```

```
        }

      }

    else if (Chosen_Number == 2)
    {
        while (true)
        {
            Violation_Recording();
            cout << "\t\t\t\tAdd Fine for Another Car  (yes or no) : ";
            cin >> Answer;

            if (Answer == "no")
                break;
        }
    }
    else if (Chosen_Number == 3)
    {
        cout << "\t\t\t\tDO You Want Search Via" << endl;
        cout << "\t\t\t\t (1) Plate Number Of The Car " << endl;
        cout << "\t\t\t\t (2) The Owner Name " << endl << "\t\t\t\t";
        cin >> Chosen_Number;

        Search(Chosen_Number);
    }

    else if (Chosen_Number == 4)
    {
        Pay_Fines();
    }

    else if (Chosen_Number == 5)
    {
        break;
    }
      // In case the user chose number which not in the menu
    else
    {
        cout << "\t\t\t\t Invalid Input (Try Again)" <<endl;
        continue;
    }
}
    return 0;
}

void Car_License(int Count_Drives)
{
    cout << "\t\t\t\tName : ";
    cin >> drivers[Count_Drives].Person_Name;

    cout << "\t\t\t\tBirthdate  " << endl;
    cout << "\t\t\t\t Day : ";
    cin >> drivers[Count_Drives].Birthdate.Day;

    cout << "\t\t\t\t Month : ";
    cin >> drivers[Count_Drives].Birthdate.Month;

    cout << "\t\t\t\t Year : ";
    cin >> drivers[Count_Drives].Birthdate.Year;

    cout << "\t\t\t\tLicense Number : ";
    cin >> drivers[Count_Drives].License_Num;
    while (true)
```

```
    {
        cout << "\t\t\t\tHow Many Cars Do Have ,Sir?  ";
        cin >> drivers[Count_Drives].Car_Num;
        //In case the user enter number of car > 3
        if (drivers[Count_Drives].Car_Num < 4)
            break;
        else
            cout << "\t\t\t\tThe Maximum Number to Own a Car is 3 (Try Again) " <<
endl;
    }

    for (int i = 0; i < drivers[Count_Drives].Car_Num; i++)
    {
        cout << "\t\t-------------------------------------------------------------------
---------------" << endl;
        cout << "\t\t\t\t*** Data For Car Number " << i + 1 << " ***" << endl;

        cout << "\t\t\t\tCar's Plate Number : ";
        cin >> drivers[Count_Drives].MyCar[i].Plate_Num;

        cout << "\t\t\t\tCar's Model : ";
        cin >> drivers[Count_Drives].MyCar[i].Model;

        cout << "\t\t\t\tCar's Production Year : ";
        cin >> drivers[Count_Drives].MyCar[i].Production_Year.Year;

    }
}

void Find_Driver(int Search_Plate_Number, int& Person_Index, int& Car_Index)
{
    int i = 0;
    bool  isEnd = false;

    while (true)
    {
        int j = 0;
        while (j <= MaxOfCars)
        {
            if (Search_Plate_Number == drivers[i].MyCar[j].Plate_Num)
            {
                Person_Index = i;
                Car_Index = j;
                isEnd = true;
                break;
            }
            j++;
        }
        if (isEnd)
            break;
        i++;
    }
}

void Violation_Recording()
{
    int  Count_Fine_Car = 0;

    cout << "\t\t\t\tCar's Plate Number : ";
    cin >> Search_Plate_Number;

    Find_Driver(Search_Plate_Number, Person_Index, Car_Index);
```

```
    while (true)
    {
        Count_Fine_Car++;

        cout << "\t\t\t\tSpeed Of The Car : ";
        cin >>
drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Car_Speed;

        if (drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Car_Speed >
SpeedOfRoad)
        {
            cout << "\t\t\t\tStreet Name : ";
            cin >>
drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Street_Name;

            cout << "\t\t\t\tDate of The Violation  " << endl;
            cout << "\t\t\t\t Day : ";
            cin >>
drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Fine_Date.Day;

            cout << "\t\t\t\t Month : ";
            cin >>
drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Fine_Date.Month;

            cout << "\t\t\t\t Year : ";
            cin >>
drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Fine_Date.Year;

            drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Value = 2.00
* (drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Car_Speed -
SpeedOfRoad);
            drivers[Person_Index].MyCar[Car_Index].Sum_Fines +=
drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].Value;
            drivers[Person_Index].MyCar[Car_Index].MyFine[Count_Fine_Car].isPaid =
false;

        }

        else
            cout << "\t\t\t\tIt Is Normal Speed and There Is No Violation" << endl;

        drivers[Person_Index].MyCar[Car_Index].Num_Fines = Count_Fine_Car;
        cout << "\t\t-----------------------------------------------------------------
---------------" << endl;
        cout << endl << "\t\t\t\tAdd Another Fine for This Car  (yes or no) : ";
        cin >> Answer;

        if (Answer == "no")
            break;
    }
}

void Search(int Chosen_Number)
{
    if (Chosen_Number == 1)
    {
        cout << "\t\t\t\tPlate Number of The Car : ";
        cin >> Search_Plate_Number;
        Find_Driver(Search_Plate_Number, Person_Index, Car_Index);

        cout << "\t\t\t\tThe Owner's Name : " << drivers[Person_Index].Person_Name <<
endl;
```

```
        cout << "\t\t\t\tThe Owner's License Number : " <<
drivers[Person_Index].License_Num << endl;
        cout << "\t\t\t\tThe Owner Has : " << drivers[Person_Index].Car_Num << " Cars"
<< endl;

        cout << endl << "\t\t\t\t*** Data for Car ***" << endl;
        cout << "\t\t\t\tPlate : " << drivers[Person_Index].MyCar[Car_Index].Plate_Num
<< endl;
        cout << "\t\t\t\tModel : " << drivers[Person_Index].MyCar[Car_Index].Model <<
endl;
        cout << "\t\t\t\tProduction Year : " <<
drivers[Person_Index].MyCar[Car_Index].Production_Year.Year << endl << endl;
        cout << "\t\t\t\tThis Car Has " <<
drivers[Person_Index].MyCar[Car_Index].Num_Fines << " Fines" << endl;

        for (int j = 1; j <= drivers[Person_Index].MyCar[Car_Index].Num_Fines; j++)
        {
            cout << "\t\t----------------------------------------------------------------
------------------" << endl;
            cout << "\t\t\t\t***Data of Fine Number " << j << " *** " << endl;

            if (drivers[Person_Index].MyCar[Car_Index].MyFine[j].Car_Speed <=
SpeedOfRoad)
            {
                cout << "\t\t\t\tIt Is Normal Speed and There Is No Violation" <<
endl;
                continue;
            }

            if (drivers[Person_Index].MyCar[Car_Index].MyFine[j].isPaid)
            {
                cout << "\t\t\t\tThe Cost Of The Fine :  0 $ " << endl;
                cout << "\t\t\t\tThe Status of The Fine : Was Paid " << endl;
                drivers[Person_Index].MyCar[Car_Index].Sum_Fines +=
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Value;
            }
            else if (!drivers[Person_Index].MyCar[Car_Index].MyFine[j].isPaid)
            {
                cout << "\t\t\t\tThe Cost Of The Fine : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Value << " $ " << endl;
                cout << "\t\t\t\tThe Status of The Fine : Wasn't Paid " << endl;
            }
        }
        cout << "\t\t----------------------------------------------------------------
---------------" << endl;
        cout << endl << "\t\t\t\tTotal The Cost of All Fines for This Car =  " <<
drivers[Person_Index].MyCar[Car_Index].Sum_Fines << " $ " << endl << endl;


        for (int i = 0; i < drivers[Person_Index].Car_Num; i++)
        {
            drivers[Person_Index].Total_Fines +=
drivers[Person_Index].MyCar[i].Sum_Fines;
        }
        cout << "\t\t\t\tTotal The Cost of All Fines for The Owner =  ";
        cout << drivers[Person_Index].Total_Fines << " $ " << endl << endl;
        drivers[Person_Index].Total_Fines = 0;
    }

    else if (Chosen_Number == 2)
    {
        cout << "\t\t\t\tThe Owner Name : ";
        cin >> Owner_Name;
```

```
        int l = 0;
        // this bool in case the while loop end
        bool  isEnd = false;
        while (true)
        {
                if (Owner_Name == drivers[l].Person_Name)
                {
                    Person_Index = l;
                    isEnd = true;
                    break;
                }
            if (isEnd)
                break;
            l++;
        }

        cout << "\t\t\t\tThe Owner's License Number : " <<
drivers[Person_Index].License_Num << endl;
        cout << "\t\t\t\tThe Owner Has : " << drivers[Person_Index].Car_Num << " Cars"
<< endl;

        for (int i = 0; i < drivers[Person_Index].Car_Num; i++)
        {
            cout << "\t\t----------------------------------------------------------------
------------------" << endl;
            cout << "\t\t\t\t***Data for Car Number " << i + 1 << " ***" << endl;
            cout << "\t\t\t\tPlate : " << drivers[Person_Index].MyCar[i].Plate_Num <<
endl;
            cout << "\t\t\t\tModel : " << drivers[Person_Index].MyCar[i].Model <<
endl;
            cout << "\t\t\t\tProduction Year : " <<
drivers[Person_Index].MyCar[i].Production_Year.Year << endl << endl;
            cout << "\t\t\t\tThis Car Has " <<
drivers[Person_Index].MyCar[i].Num_Fines << " Fines" << endl;

            for (int j = 1; j <= drivers[Person_Index].MyCar[i].Num_Fines; j++)
            {
                cout << "\t\t----------------------------------------------------------
----------------------" << endl;
                cout << "\t\t\t\t***Data Of Fine Number " << j << " ***" << endl;

                if (drivers[Person_Index].MyCar[i].MyFine[j].Car_Speed <= SpeedOfRoad)
                {
                    cout << "\t\t\t\tIt Is Normal Speed and There Is No Violation" <<
endl;
                    continue;
                }

                if (drivers[Person_Index].MyCar[i].MyFine[j].isPaid)
                {
                    cout << "\t\t\t\tThe Cost of The Fine : 0 $ " << endl;
                    cout << "\t\t\t\tThe Status of The Fine : Was Paid " << endl;
                    drivers[Person_Index].MyCar[i].Sum_Fines +=
drivers[Person_Index].MyCar[i].MyFine[j].Value;
                }

                else if (!drivers[Person_Index].MyCar[i].MyFine[j].isPaid)
                {
                    cout << "\t\t\t\tThe Cost of The Fine : " <<
drivers[Person_Index].MyCar[i].MyFine[j].Value << " $ " << endl;
                    cout << "\t\t\t\tThe Status of The Fine : Wasn't Paid " << endl;
                }
```

```
            }

            cout << "\t\t-----------------------------------------------------------------
-------------------" << endl;
            cout << "\t\t\t\tTotal The Cost of All Fines  for This Car =  " <<
drivers[Person_Index].MyCar[i].Sum_Fines << " $ " << endl << endl;

            drivers[Person_Index].Total_Fines +=
drivers[Person_Index].MyCar[i].Sum_Fines;
        }

        cout << "\t\t\t\tTotal The Cost of All Fines for The Owner =  ";
        cout << drivers[Person_Index].Total_Fines << " $ " << endl << endl;
        drivers[Person_Index].Total_Fines = 0;
    }
}

void  Pay_Fines()
{
    cout << "\t\t\t\tName : ";
    cin >> Owner_Name;

    cout << "\t\t\t\tThe Owner's License Number : ";
    cin >> drivers[Person_Index].License_Num ;

    cout << "\t\t\t\tCar's Plate : ";
    cin >> Search_Plate_Number;

    Find_Driver(Search_Plate_Number, Person_Index, Car_Index);

    cout << "\t\t\t\tModel : " << drivers[Person_Index].MyCar[Car_Index].Model <<
endl;
    cout << "\t\t\t\tProduction Year : " <<
drivers[Person_Index].MyCar[Car_Index].Production_Year.Year << endl;

    for (int j = 1; j <= drivers[Person_Index].MyCar[Car_Index].Num_Fines; j++)
    {
        cout << "\t\t-----------------------------------------------------------------
---------------" << endl;
        cout << "\t\t\t\t***Data of Fine Number " << j << " ***" << endl << endl;

        if (drivers[Person_Index].MyCar[Car_Index].MyFine[j].Car_Speed <= SpeedOfRoad)
        {
            cout << "\t\t\t\tIt Is Normal Speed , Car Doesn't Has Fines" << endl;
            continue;
        }
        cout << "\t\t\t\tDate Of The Violation  " << endl;
        cout << "\t\t\t\t Day : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Fine_Date.Day << endl;
        cout << "\t\t\t\t Month : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Fine_Date.Month << endl;
        cout << "\t\t\t\t Year : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Fine_Date.Year << endl;
        cout << "\t\t\t\tStreet Name : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Street_Name << endl;
        cout << "\t\t\t\tSpeed Of Car : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Car_Speed << endl;
        cout << "\t\t\t\tThe Cost Of The Fine : " <<
drivers[Person_Index].MyCar[Car_Index].MyFine[j].Value << " $ " << endl;

        cout << "\t\t\t\tPay The Fine (yes or no) : ";
        cin >> Answer;
```

```
        if (Answer == "yes")
        {
            drivers[Person_Index].MyCar[Car_Index].MyFine[j].isPaid = true;
            drivers[Person_Index].MyCar[Car_Index].MyFine[j].Value *= -1;
        }
    }
}
```

6. Testing

```
--------------------------------------------------------------------------------
                              ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 6
                Invalid Input (Try Again)
--------------------------------------------------------------------------------
                              ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 1
               Name : Moana
               Birthdate
                Day : 8
                Month : 2
                Year : 2001
               License Number : 9876543210987654
               How Many Cars Do Have ,Sir?  2
--------------------------------------------------------------------------------
               *** Data For Car Number 1 ***
               Car's Plate Number : 12304567
               Car's Model : Opel
               Car's Production Year : 2018
--------------------------------------------------------------------------------
               *** Data For Car Number 2 ***
               Car's Plate Number : 98732150
               Car's Model : Mazda
               Car's Production Year : 2016

               Add Another Person's Data  (yes or no) : yes
               Name : Meride
               Birthdate
                Day : 28
                Month : 5
                Year : 2001
               License Number : 5213698470523691
               How Many Cars Do Have ,Sir?  5
               The Maximum Number to Own a Car is 3 (Try Again)
               How Many Cars Do Have ,Sir?  1
```

```
--------------------------------------------------------------------------------
               *** Data For Car Number 1 ***
               Car's Plate Number : 35795108
               Car's Model : Audi
               Car's Production Year : 2020

               Add Another Person's Data  (yes or no) : no
--------------------------------------------------------------------------------
                              ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 3
               DO You Want Search Via
                (1) Plate Number Of The Car
                (2) The Owner Name
               1
               Plate Number of The Car : 35795108
               The Owner's Name : Meride
               The Owner's License Number : 5213698470523691
               The Owner Has : 1 Cars

               *** Data for Car ***
               Plate : 35795108
               Model : Audi
               Production Year : 2020

               This Car Has 0 Fines
--------------------------------------------------------------------------------

               Total The Cost of All Fines for This Car =  0 $

               Total The Cost of All Fines for The Owner =  0 $

--------------------------------------------------------------------------------
                              ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 3
               DO You Want Search Via
                (1) Plate Number Of The Car
```

```
               DO You Want Search Via
                (1) Plate Number Of The Car
                (2) The Owner Name
               2
               The Owner Name : Moana
               The Owner's License Number : 9876543210987654
               The Owner Has : 2 Cars
--------------------------------------------------------------------------------
               ***Data for Car Number 1 ***
               Plate : 12304567
               Model : Opel
               Production Year : 2018

               This Car Has 0 Fines
--------------------------------------------------------------------------------
               Total The Cost of All Fines  for This Car =  0 $

--------------------------------------------------------------------------------
               ***Data for Car Number 2 ***
               Plate : 98732150
               Model : Mazda
               Production Year : 2016

               This Car Has 0 Fines
--------------------------------------------------------------------------------
               Total The Cost of All Fines  for This Car =  0 $

               Total The Cost of All Fines for The Owner =  0 $

--------------------------------------------------------------------------------
                                ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 2
               Car's Plate Number : 12304567
               Speed Of The Car : 150
               Street Name : Abasya
               Date of The Violation
                Day : 6
                Month : 2
                Year : 2020
--------------------------------------------------------------------------------

               Add Another Fine for This Car  (yes or no) : yes
               Speed Of The Car : 125
```

```
                Speed Of The Car : 125
                Street Name : NasrCity
                Date of The Violation
                 Day : 4
                 Month : 3
                 Year : 2020
--------------------------------------------------------------------------------

                Add Another Fine for This Car  (yes or no) : no
                Add Fine for Another Car  (yes or no) : yes
                Car's Plate Number : 98732150
                Speed Of The Car : 134
                Street Name : Heliopolis
                Date of The Violation
                 Day : 8
                 Month : 2
                 Year : 2020
--------------------------------------------------------------------------------

                Add Another Fine for This Car  (yes or no) : no
                Add Fine for Another Car  (yes or no) : yes
                Car's Plate Number : 35795108
                Speed Of The Car : 100
                It Is Normal Speed and There Is No Violation
--------------------------------------------------------------------------------

                Add Another Fine for This Car  (yes or no) : yes
                Speed Of The Car : 90
                It Is Normal Speed and There Is No Violation
--------------------------------------------------------------------------------

                Add Another Fine for This Car  (yes or no) : no
                Add Fine for Another Car  (yes or no) : no
--------------------------------------------------------------------------------
                                ## MENU ##

                (1) Car License
                (2) Report A Car
                (3) Search for Car
                (4) Pay The Fines
                (5) Exit

                  3
                DO You Want Search Via
                 (1) Plate Number Of The Car
                 (2) The Owner Name
                1
                Plate Number of The Car : 35795108
                The Owner's Name : Meride
                The Owner's License Number : 5213698470523691
```

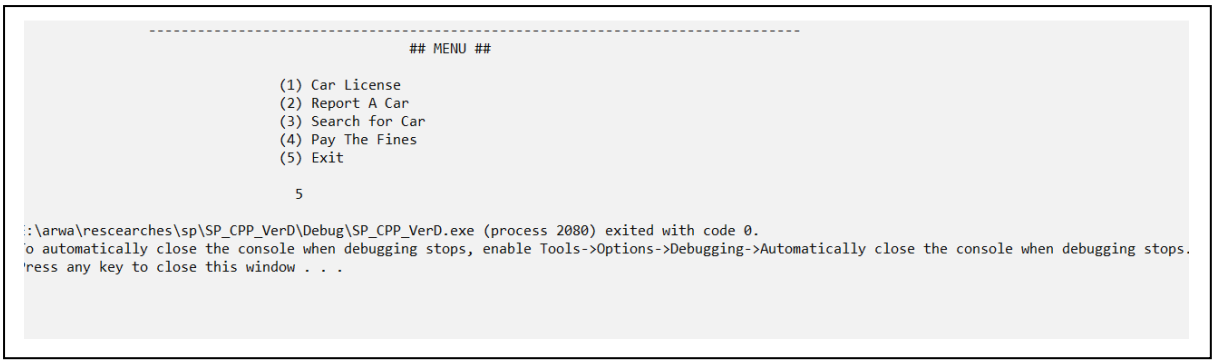
```
                The Owner's License Number : 5213698470523691
                The Owner Has : 1 Cars

                *** Data for Car ***
                Plate : 35795108
                Model : Audi
                Production Year : 2020

                This Car Has 2 Fines
--------------------------------------------------------------------------------
                ***Data of Fine Number 1 ***
                It Is Normal Speed and There Is No Violation
--------------------------------------------------------------------------------
                ***Data of Fine Number 2 ***
                It Is Normal Speed and There Is No Violation
--------------------------------------------------------------------------------

                Total The Cost of All Fines for This Car =  0 $

                Total The Cost of All Fines for The Owner =  0 $

--------------------------------------------------------------------------------
                                ## MENU ##

                (1) Car License
                (2) Report A Car
                (3) Search for Car
                (4) Pay The Fines
                (5) Exit

                  3
                DO You Want Search Via
                 (1) Plate Number Of The Car
                 (2) The Owner Name
                2
                The Owner Name : Moana
                The Owner's License Number : 9876543210987654
                The Owner Has : 2 Cars
--------------------------------------------------------------------------------
                ***Data for Car Number 1 ***
                Plate : 12304567
                Model : Opel
                Production Year : 2018

                This Car Has 2 Fines
--------------------------------------------------------------------------------
                ***Data Of Fine Number 1 ***
                The Cost of The Fine : 100 $
                The Status of The Fine : Wasn't Paid
--------------------------------------------------------------------------------
```

```
---------------------------------------------------------------------------
               ***Data Of Fine Number 2 ***
               The Cost of The Fine : 50 $
               The Status of The Fine : Wasn't Paid
---------------------------------------------------------------------------
               Total The Cost of All Fines  for This Car =  150 $

---------------------------------------------------------------------------
               ***Data for Car Number 2 ***
               Plate : 98732150
               Model : Mazda
               Production Year : 2016

               This Car Has 1 Fines
---------------------------------------------------------------------------
               ***Data Of Fine Number 1 ***
               The Cost of The Fine : 68 $
               The Status of The Fine : Wasn't Paid
---------------------------------------------------------------------------
               Total The Cost of All Fines  for This Car =  68 $

               Total The Cost of All Fines for The Owner =  218 $

---------------------------------------------------------------------------
                              ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 4
               Name : Moana
               The Owner's License Number : 9876543210987654
               Car's Plate : 12304567
               Model : Opel
               Production Year : 2018
---------------------------------------------------------------------------
               ***Data of Fine Number 1 ***

               Date Of The Violation
                Day : 6
                Month : 2
                Year : 2020
               Street Name : Abasya
               Speed Of Car : 150
               The Cost Of The Fine : 100 $
               Pay The Fine (yes or no) : no
---------------------------------------------------------------------------
```

```
               ***Data of Fine Number 2 ***

               Date Of The Violation
                Day : 4
                Month : 3
                Year : 2020
               Street Name : NasrCity
               Speed Of Car : 125
               The Cost Of The Fine : 50 $
               Pay The Fine (yes or no) : yes
--------------------------------------------------------------------------------
                               ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 4
               Name : Moana
               The Owner's License Number : 9876543210987654
               Car's Plate : 98732150
               Model : Mazda
               Production Year : 2016
--------------------------------------------------------------------------------
               ***Data of Fine Number 1 ***

               Date Of The Violation
                Day : 8
                Month : 2
                Year : 2020
               Street Name : Heliopolis
               Speed Of Car : 134
               The Cost Of The Fine : 68 $
               Pay The Fine (yes or no) : yes
--------------------------------------------------------------------------------
                               ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 4
               Name : Meride
               The Owner's License Number : 5123698470523691
               Car's Plate : 35795108
               Model : Audi
```

```
Model : Audi
Production Year : 2020
--------------------------------------------------------------------------------
***Data of Fine Number 1 ***

It Is Normal Speed , Car Doesn't Has Fines
--------------------------------------------------------------------------------
***Data of Fine Number 2 ***

It Is Normal Speed , Car Doesn't Has Fines
--------------------------------------------------------------------------------
                        ## MENU ##

(1) Car License
(2) Report A Car
(3) Search for Car
(4) Pay The Fines
(5) Exit

  3
DO You Want Search Via
 (1) Plate Number Of The Car
 (2) The Owner Name
2
The Owner Name : Moana
The Owner's License Number : 5123698470523691
The Owner Has : 2 Cars
--------------------------------------------------------------------------------
***Data for Car Number 1 ***
Plate : 12304567
Model : Opel
Production Year : 2018

This Car Has 2 Fines
--------------------------------------------------------------------------------
***Data Of Fine Number 1 ***
The Cost of The Fine : 100 $
The Status of The Fine : Wasn't Paid
--------------------------------------------------------------------------------
***Data Of Fine Number 2 ***
The Cost of The Fine : 0 $
The Status of The Fine : Was Paid
--------------------------------------------------------------------------------
Total The Cost of All Fines  for This Car =  100 $

--------------------------------------------------------------------------------
***Data for Car Number 2 ***
Plate : 98732150
Model : Mazda
Production Year : 2016
```

```
               This Car Has 1 Fines
--------------------------------------------------------------------------------
               ***Data Of Fine Number 1 ***
               The Cost of The Fine : 0 $
               The Status of The Fine : Was Paid
--------------------------------------------------------------------------------
               Total The Cost of All Fines  for This Car =  0 $

               Total The Cost of All Fines for The Owner =  100 $

--------------------------------------------------------------------------------
                              ## MENU ##

               (1) Car License
               (2) Report A Car
               (3) Search for Car
               (4) Pay The Fines
               (5) Exit

                 3
               DO You Want Search Via
                (1) Plate Number Of The Car
                (2) The Owner Name
               1
               Plate Number of The Car : 35795108
               The Owner's Name : Meride
               The Owner's License Number : 5213698470523691
               The Owner Has : 1 Cars

               *** Data for Car ***
               Plate : 35795108
               Model : Audi
               Production Year : 2020

               This Car Has 2 Fines
--------------------------------------------------------------------------------
               ***Data of Fine Number 1 ***
               It Is Normal Speed and There Is No Violation
--------------------------------------------------------------------------------
               ***Data of Fine Number 2 ***
               It Is Normal Speed and There Is No Violation
--------------------------------------------------------------------------------

               Total The Cost of All Fines for This Car =  0 $

               Total The Cost of All Fines for The Owner =  0 $

--------------------------------------------------------------------------------
                              ## MENU ##
```



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