Computer Programming Lab

Project Report

VEHICLE PARKING MANAGEMENT SYSTEM

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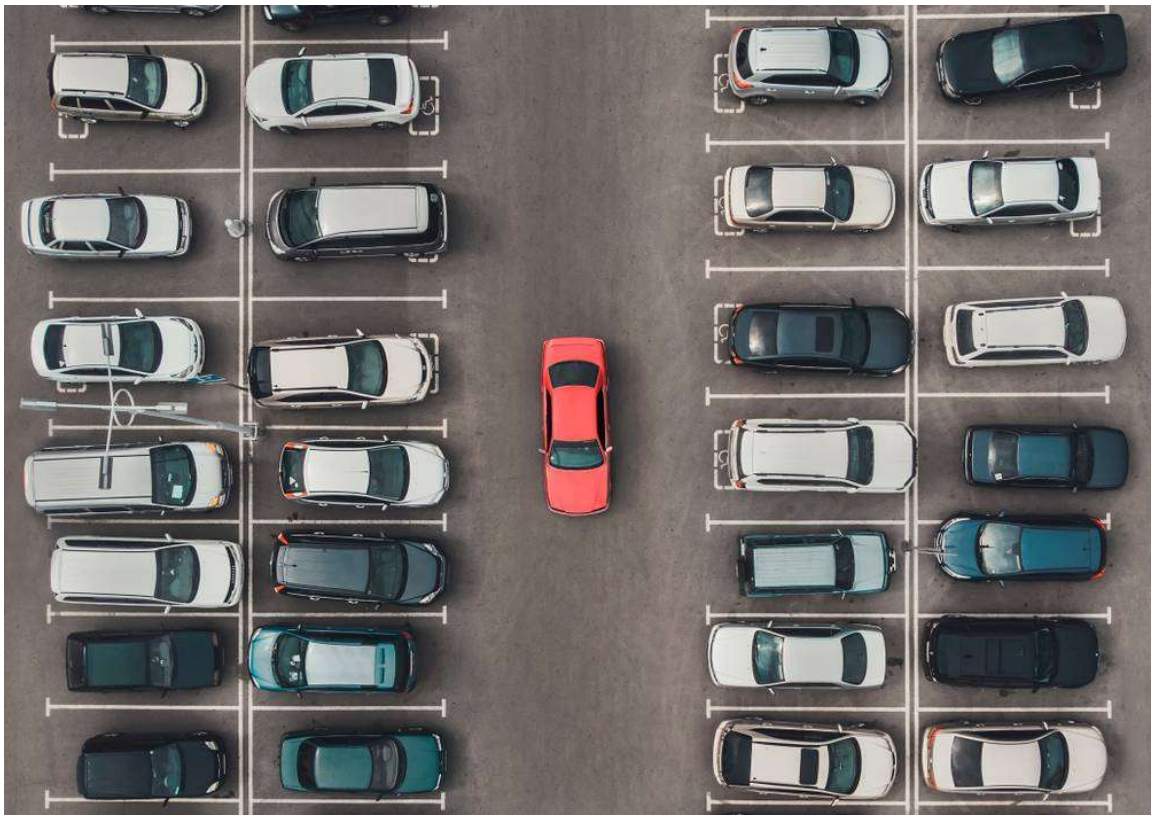
University of Engineering and Technology Peshawar

Department of Computer Systems Engineering

Project:

VEHICLE PARKING MANAGEMENT SYSTEM



Programming Language Used in Project:

C++

IDE used:

Code Blocks

Screenshots of the Code:

here × CP Lab Project.cpp ×

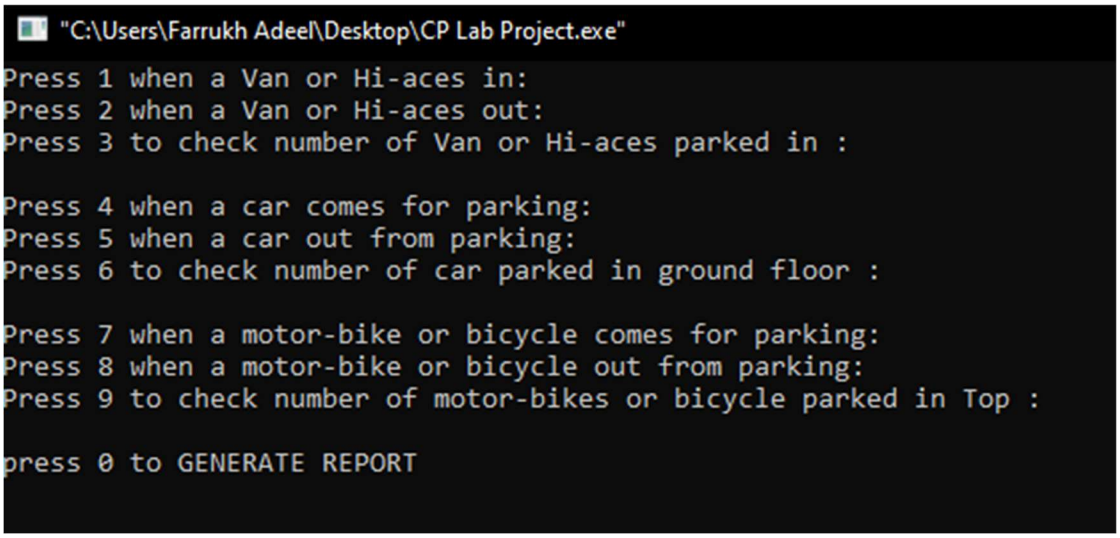
```
#include <iostream>
using namespace std;

class Parking   //class
{
public:
    //data members
    int BparkingSlot=30;
    int GparkingSlot=40;
    int TparkingSlot=150;
    int ManagerPerDayPay=250;
    int FloorAttendPerDayPay=120;
    int GuardPerDayPay=80;

    //member functions/method
    int VanPlusHiceIn(int VanIn);
    int VanPlusHiceOut(int VanOut);
    int CarIn(int c1);
    int CarOut(int c2);
    int MotoBikesBiIn(int b1);
    int MotoBikesBiOut(int b2);
    int Salaries();
};
//main function
int main()
{

   Parking Basement, GroundFloor, TopFloor, Salary;//objects to class Parking

    int totalVanParked=0,   VanCharges=0;
    int totalCarParked=0,   CarCharges=0;
    int totalMotoParked=0,  MotoCharges=0;
    int TotalAmount=0,      SalariesAmount=0;
    float tax;

while(true)
{
    cout<<"Press 1 when a Van or Hi-aces in: "<<endl;
    cout<<"Press 2 when a Van or Hi-aces out: "<<endl;
    cout<<"Press 3 to check number of Van or Hi-aces parked in :"<<endl<<endl;
    cout<<"Press 4 when a car comes for parking: "<<endl;
    cout<<"Press 5 when a car out from parking: "<<endl;
    cout<<"Press 6 to check number of car parked in ground floor : "<<endl<<endl;
    cout<<"Press 7 when a motor-bike or bicycle comes for parking: "<<endl;
    cout<<"Press 8 when a motor-bike or bicycle out from parking: "<<endl;
    cout<<"Press 9 to check number of motor-bikes or bicycle parked in Top :"<<endl<<endl;
    cout<<"press 0 to GENERATE REPORT "<<endl;
    cout<<endl;
```

```
50      int input;
51      cin>>input;
52      cout<<"You  Entered : "<<input<<endl;
53
54  if(input==1)
55      {
56          totalVanParked=Basement.VanPlusHiceIn(totalVanParked);
57          VanCharges=50*totalVanParked;
58          cout<<"Van charges collected till now : "<<VanCharges<<endl<<endl;
59      }
60  else if(input==2)
61      {
62          totalVanParked=Basement.VanPlusHiceOut(totalVanParked);
63      }
64  else if (input==3)
65      {
66          cout<<"\nThe number of van or hi-aces parked :  "<<totalVanParked<<endl<<endl;
67      }
68  else if(input==4)
69      {
70          totalCarParked=GroundFloor.CarIn(totalCarParked);
71          CarCharges=totalCarParked*30;
72          cout<<"\nCar charges collected till now : "<<CarCharges<<endl<<endl;
73      }
74  else if(input==5)
75      {
76          totalCarParked=GroundFloor.CarOut(totalCarParked);
77      }
78  else if (input==6)
79      {
80          cout<<"\nThe number of car parked :  "<<totalCarParked<<endl<<endl;
81      }
82  else if(input==7)
83      {
84          totalMotoParked=TopFloor.MotoBikesBiIn(totalMotoParked);
85          MotoCharges=totalMotoParked*20;
86          cout<<"\nMotorBikes and Bicycle charges collected till now : "<<MotoCharges<<endl<<endl;
87      }
88  else if(input==8)
89      {
90          totalMotoParked=TopFloor.MotoBikesBiOut(totalMotoParked);
91      }
92  else if (input==9)
93      {
94          cout<<"\nThe number of Motorbikes and bicycle parked in Top Floor : "<<totalMotoParked<<endl<<endl;
95      }
```

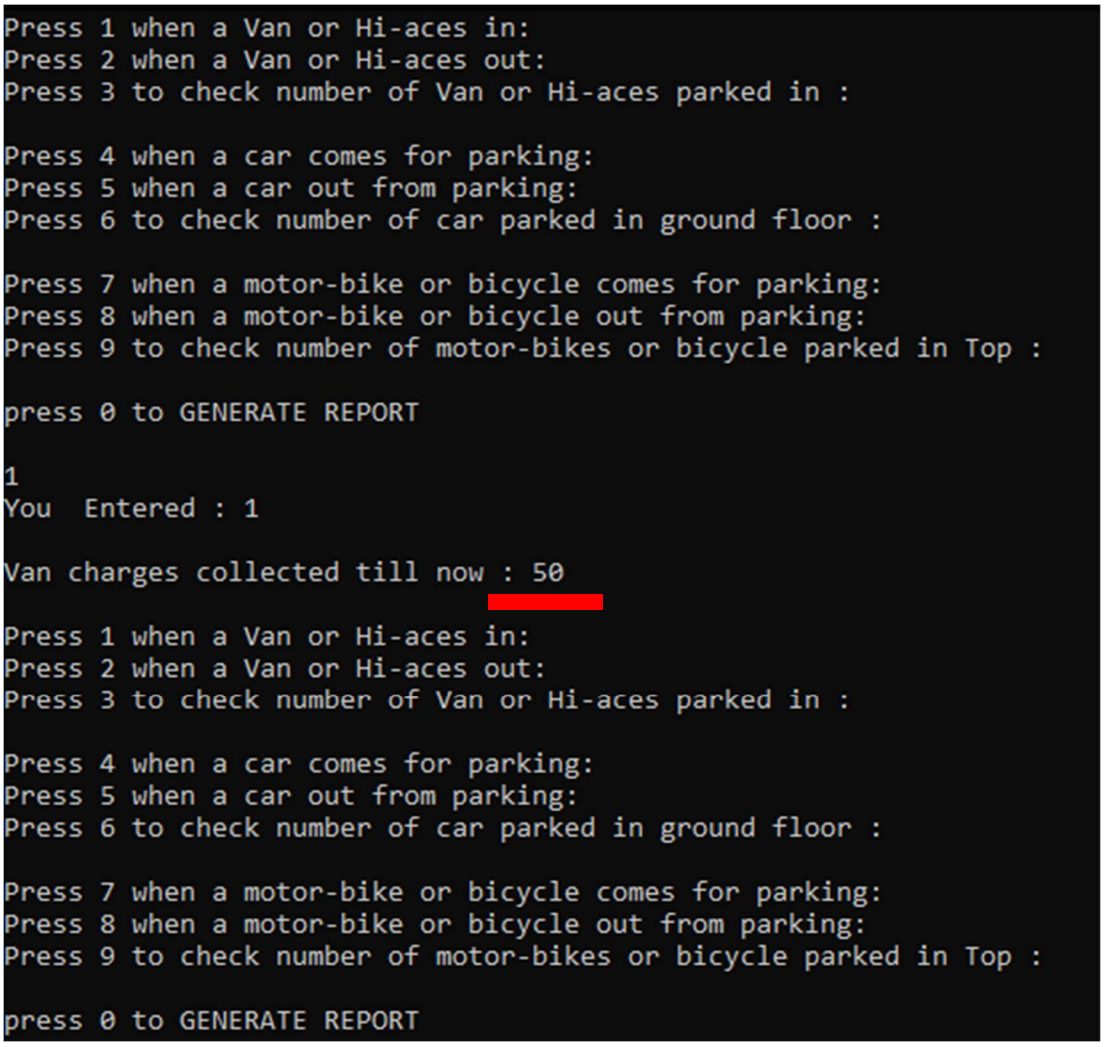
```
else if(input==0)
    {
        cout<<endl;
        cout<<"\t\t*********************************************************************************\n\n";
        cout<<"\t\t\t\tVehicle Parking Management System\n\n";
        cout<<"\t\t\t\t   REPORT AT THE END OF THE DAY"<<endl;
        TotalAmount = VanCharges + CarCharges + MotoCharges;
        cout<<endl;
        cout<<"\t\tTotal Amount = "<<TotalAmount<<endl;
        tax=0.05; //5 divides by 100
        tax = tax * TotalAmount;
        TotalAmount = TotalAmount - tax;
        SalariesAmount = Salary.Salaries();
        cout<<"\t\t5% tax of the total amount paid to the Govt = "<<tax<<endl;
        cout<<"\t\tThe Amount after paying 5% tax to govt is ="<<TotalAmount<<endl;
        if (TotalAmount>SalariesAmount)
        {
        cout<<"\t\tThe Amount after paying Salaries of employees including Manager = "<<TotalAmount-SalariesAmount<<endl;
        }
        else
            cout<<"\t\tSorry wages are not yet given to the employees "<<endl;
        cout<<"\n\t\t*********************************************************************************\n";
        break;
    }
}
return 0;
}
//IN AND OUT fUNCTIONS FOR VAN OR HI-ACES IN THE BASEMENT
int Parking::VanPlusHiceIn(int VanIn)
{
    if(VanIn<=BparkingSlot)
    {
        VanIn++;
    }
    else
    {
         cout<<"No-more space for van "<<endl;
    }
    cout<<endl;
    return VanIn;
}

int Parking :: VanPlusHiceOut(int VanOut)
{
    VanOut--;
    return VanOut;
}
```

```
145   //IN AND OUT fUNCTIONS FOR CARS IN THE GROUND FLOOR
146   int Parking :: CarIn(int c1)
147   {
148       if(c1<=GparkingSlot)
149       {
150           c1++;
151       }
152       else
153       {
154           cout<<"No-more space for cars "<<endl;
155       }
156   return c1;
157   }
158
159   int Parking :: CarOut(int c2)
160   {
161       c2--;
162       return c2;
163   }
164
166   //IN AND OUT fUNCTIONS FOR MOTOR-BIKES IN THE TOP FLOOR
167   int Parking :: MotoBikesBiIn(int b1)
168   {
169       if(b1<=TparkingSlot)
170       {
171           b1++;
172       }
173       else
174       {
175           cout<<"No-more Space For bikes "<<endl;
176       }
177   return b1;
178   }
179
180   int Parking :: MotoBikesBiOut(int b2)
181   {
182       b2--;
183       return b2;
184   }
185
186
187   //FUNCTION FOR SALARIES
188   int Parking ::Salaries()
189   {
190       int Totalsal=ManagerPerDayPay+(GuardPerDayPay*2)+(FloorAttendPerDayPay*3);
191       return Totalsal;
192   }
```

Screenshots of the Output:



when the user enters 1 it will show charges collected from vans and HI-aces



when the user enters 3 it will show total no of vans parked in the parking slots

```
Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT

3
You  Entered : 3

The number of van or hi-aces parked :  23

Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT
```

when the user enters 4 it will show the charges collected from cars(small vehicles)

```
Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT

4
You  Entered : 4

Car charges collected till now : 390

Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT
```

when the user enters 6 it will show the total number of cars parked

```
Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT

6
You  Entered : 6

The number of car parked :  13

Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT
```

When the user enters 7 it will show the charges collected from bicycle and motor-bikes.

```
Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT

7
You  Entered : 7

MotorBikes and Bicycle charges collected till now : 420

Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT
```

When the user enters 9 it will show total number of Motor-Bikes and Bicycles parked.

```
Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT

9
You  Entered : 9

The number of Motorbikes and bicycle parked in Top Floor : 21

Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT
```

When the user enters zero 0 it will generate the report for the Parking Management System of that day.

```
Press 1 when a Van or Hi-aces in:
Press 2 when a Van or Hi-aces out:
Press 3 to check number of Van or Hi-aces parked in :

Press 4 when a car comes for parking:
Press 5 when a car out from parking:
Press 6 to check number of car parked in ground floor :

Press 7 when a motor-bike or bicycle comes for parking:
Press 8 when a motor-bike or bicycle out from parking:
Press 9 to check number of motor-bikes or bicycle parked in Top :

press 0 to GENERATE REPORT

0
You  Entered : 0

                ********************************************************************************

                                Vehicle Parking Management System

                                   REPORT AT THE END OF THE DAY

                Total Amount = 1960
                5% tax of the total amount paid to the Govt = 98
                The Amount after paying 5% tax to govt is =1862
                The Amount after paying Salaries of employees including Manager = 1092

                ********************************************************************************

Process returned 0 (0x0)   execution time : 254.539 s
Press any key to continue.
```

Description about Project:

The main objective of this C++ Project on Vehicle Parking Management System is to manage the details of parking fees, customers, parking slots, types, government tax, employees and manager salaries and vehicles entering and leaving the parking slots. This project will be totally built for administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the Duration, Parking fees, Vehicles, Customers. It tracks all the details about the customers, parking slots and types of vehicles. This project is designed for three parking slot areas that is basement parking slot, ground parking slot and top floor parking slot. In basement area only, Vans and Hi-Aces are allowed while on ground floor cars are allowed and on top floor motor-bikes and bicycles are allowed to be parked. We have limited numbers for vehicles to be parked at each slot. Now, when we run the program a window will popup which will have several options to ask the user to enter numbers from 0 to 9. For example, when the car enters into the parking area the user has to enter 4 and when a car leaves the parking area the user has to enter 5 and to check how many cars are parked in the parking slot the user has to enter 6. This process is same for Vans and Motor-bikes. Now if the user wants to generate the Report at the end of the day he has to enter 0. When he enters 0 a calculated report will be shown to him which contains total amount, tax paid to the government, amount remaining after paying salary to the employees and tax to the government.

Our main focus was to learn c++ in the best way and we tried our best to include most of the topics in this project that we learnt in this course. Our project contains class and objects, user defined functions, loops, decision statements, jump statements and many other features of c++ programming language.