Topic : Automated parking system

Group no : MLB_01.02_12

Campus : Malabe

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We declare that this is our own work and this Assignment does not incorporate without acknowledgment any material previously submitted by anyone else in SLIIT or any other university/Institute. And we declare that each one of us equally contributed to the completion of this Assignment.

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Automated Parking System

1) Member can visit the automated parking system using URL and browse the website.
2) Member can login by using membership id and password.
3) Member needs to register to the automated parking system by providing NIC, Full Name, Address, Contact Number.
4) After the registration, Member can edit his/her user account.
5) Member can request for a parking slot through a package by parking slot id.
6) A member can add selected parking slots to the package.
7) If member choose a package, he/she must provide package type and vehicle number.
8) The total price is displayed and the member choose a payment method (Debit card, Credit card).
9) After the member confirms the package, the parking slot is reserved and parking slots are updated.
10) The online parking slot manager can add new parking slots and vehicle types to the system, and also generates list of parking slots that are reserved.
11) The Financial Manager validates payment details.
12) The Financial Manager send a successful confirmation message to the member which is about validated payment via Email.
13) The Financial Manager sends the package details to the Reservation Staff.
14) The Reservation Staff checks the package details and prepares to reserve the parking slot.
15) The Financial Manager creates a financial report.
16) The online system Admin can add or remove users.

Identified Classes

- Member
- Payment
- Package
- Parking Slot
- Financial Manager
- Reservation Staff
- Report

CRC Cards

Class Name: Payment	
Responsibility	***Collaborators***
Give the report to the financial manager.	Financial Manager class
Check the payment method.	Package class

Class Name : Member	
Responsibility	***Collaborators***
• *Login to the website*	*Package class*
• *Request for a parking slot*	
• *Choose a package type*	
• *Choose a payment method*	

Class name: **Reservation Staff**	
Responsibility	Collaborators
Checks the package details.	Package class
Prepares to reserve the parking slot.	

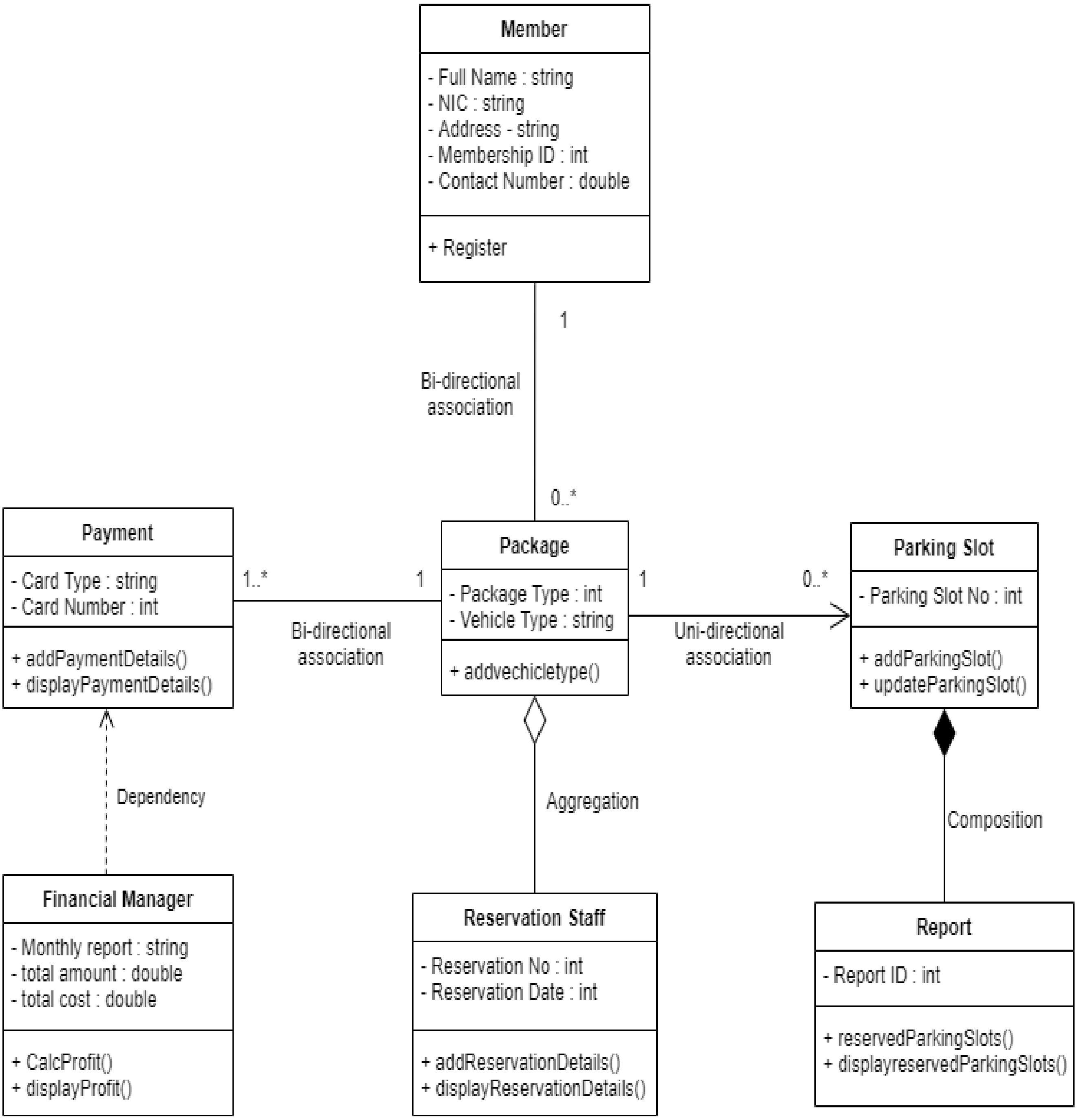
Class Name : Financial Manager	
Responsibility	***Collaborators***
Create a monthly report	Payment class
Calculate total amount	
Calculate total cost	

Class Name : Parking Slot	
Responsibility	***Collaborators***
Add parking slot	
Update parking slot	

Class Name : Report	
Responsibility	***Collaborators***
Reserved parking slots	Parking slot class

Class Name : Package	
Responsibility	***Collaborators***
Add vehicle type	Payment class
	Parking slot class
	Member

Class Diagram



Coding

```
#include<iostream>
#include<string>

using namespace std;
//class
class Member;
class Package;
class ParkingSlot;
class Payment;
class FinancialManager;
class ReservationStaff;
class Report;

class Member {
private :
string fullname;
string NIC;
string address;
int MembershipID;
double contactnumber;
public :
Member(string Mname, string NIC, string maddress, int MID, double Mcontactnumber);
void Register();
};
```

```
class Package {
private :
string packageType;
string vehicleType;
public :
Package(string paType, string veType,Member*M,ParkingSlot*PS,Payment*P,ReservationStaff*R);
//Bi-Directional,Uni-Directional,Bi-Directional,Aggregational
};

class ParkingSlot {
private :
int ParkingSlotNO;
Report * Re;//composition
public :
ParkingSlot(int SlotNO);
int getParkingSlotNO();
};

class Payment{
private :
string cardtype;
string cardnumber;
Package * Package;//association relationship
public :
};

Payment (string PcType, string PcNumber);
void displayPaymentDetails();
};

class FinancialManager{
private :
string monthlyreport;
double totalamount;
double totalcost;
public:
FinancialManager(string Mreport, double Tamount, double Tcost,Payment*P);//Dependency
float clacProfit();
void displayProfit();
};

class ReservationStaff{
private :
string ReservationNO;
string ReservationDate;
public :
ReservationStaff(string ReNO, string ReD);
void addReservationStaff();
void displayReservationStaffDetails();
};
```

```
class Report {
private :
string ReportID;
public :
Report(string RID);
void reservedParkingSlot();
void displayreservedParkingSlot();
};
//Implementaion of constructor in memeber class


Member::Member (string Mname, string MNIC, string maddress, int MID, double Mcontactnumber){
fullname = Mname;
NIC = MNIC;
address = MID;
contactnumber = Mcontactnumber;
}

//Implelemntaion of constructor in package class

Package :: Package(string paType , string veType, Member*M,ParkingSlot*PS,Payment*P,ReservationStaff*R){
packageType = paType;
vehicleType = veType;
}
```

```
    //Implelemntaion of constructor in parkingslot class

    ParkingSlot :: ParkingSlot(int slotNO){
    ParkingSlotNO = slotNO;
    }

    //Implelemntaion of constructor in payment class

    Payment :: Payment(string PcType, string PcNumber){
    cardtype = PcType;
    cardnumber = PcNumber;
    }

    //Implelemntaion of constructor in Financial Manager class

FinancialManager :: FinancialManager(string Mreport, double Tamount, double
Tcost,Payment*P){
    monthlyreport = Mreport;
    totalamount = Tamount;
    totalcost  = Tcost;
    }

    //Implelemntaion of constructor in Reservation Staff class

    ReservationStaff ::  ReservationStaff(string ReNO, string ReD){
    ReservationNO = ReNO;
    ReservationDate= ReD;

    }

    //Implelemntaion of constructor in Report class

    Report :: Report(string RID){

    ReportID = RID;

    }




    int main(){

    Member * M1 = new Member("Nethma Dananjaya","995532190V","Nitambwa",5,0722270552);

    Report * r1 = new Report("c");

    ParkingSlot  *s1 = new ParkingSlot(25);

    Payment * P1 = new Payment("Credit", "123456");

    ReservationStaff * Re1 = new ReservationStaff("12","2022/5/14");

    Package * p1 = new Package("A","Car",M1,s1,P1,Re1);

    FinancialManager * F1 = new FinancialManager("June",30000.00,20000.00,P1);

    return 0;

    }
```