Topic : Bus Scheduling & Booking System

Group no : MLB_04.02_02

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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Requirements

- Customers can visit the bus scheduling and booking system website.
- There are two types of customers as unregistered users and registered users.
- An unregistered user can become a registered user by creating an account providing details such as name, date of birth, NIC, email, address and contact number.
- Registered users can login to the system using their username and password.
- Both unregistered users and registered users can search available bus routes.
- Unregistered users and registered users can view bus schedules by selecting the starting city, destination city, date and bus type.
- A registered user can continue to make a reservation by selecting a bus operator and entering the number of seats required.
- Registered users can also view offers they are eligible for.
- After confirming the reservation, a registered user can make the payment using a debit card or credit card.
- A registered user can view the invoice generated after a successful payment.
- A registered user can rate the service and provide feedback.
- A registered user can update or cancel the reservation.
- Registered users can edit their profile details.
- Administrator manages bus routes and bus operators.
- Administrator manages offers.
- Administrator can generate list of reservations and list of payments made.
- Administrator can manage feedbacks and ratings.

Noun Verb analysis
(Nouns)

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Identified classes

- Unregistered user
- Registered user
- Bus route
- Bus operator
- Offer
- Reservation
- Payment
- Feedback

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CRC cards

Class Name: Unregistered User	
Responsibility	**Collaborators**
Register	
Search bus route	Bus Route
View bus schedule	Bus Operator

Class Name: Registered User	
Responsibility	**Collaborators**
Login	
Search bus route	Bus Route
View bus schedule	Bus Operator
Edit profile details	

Class Name: Bus Route	
Responsibility	**Collaborators**
Store bus route details	Bus operator

Class Name: Bus operator	
Responsibility	**Collaborators**
Store bus operator details	
Store bus schedule details	

Class Name: Offer	
Responsibility	**Collaborators**
Store offer details	
View offer	Registered User

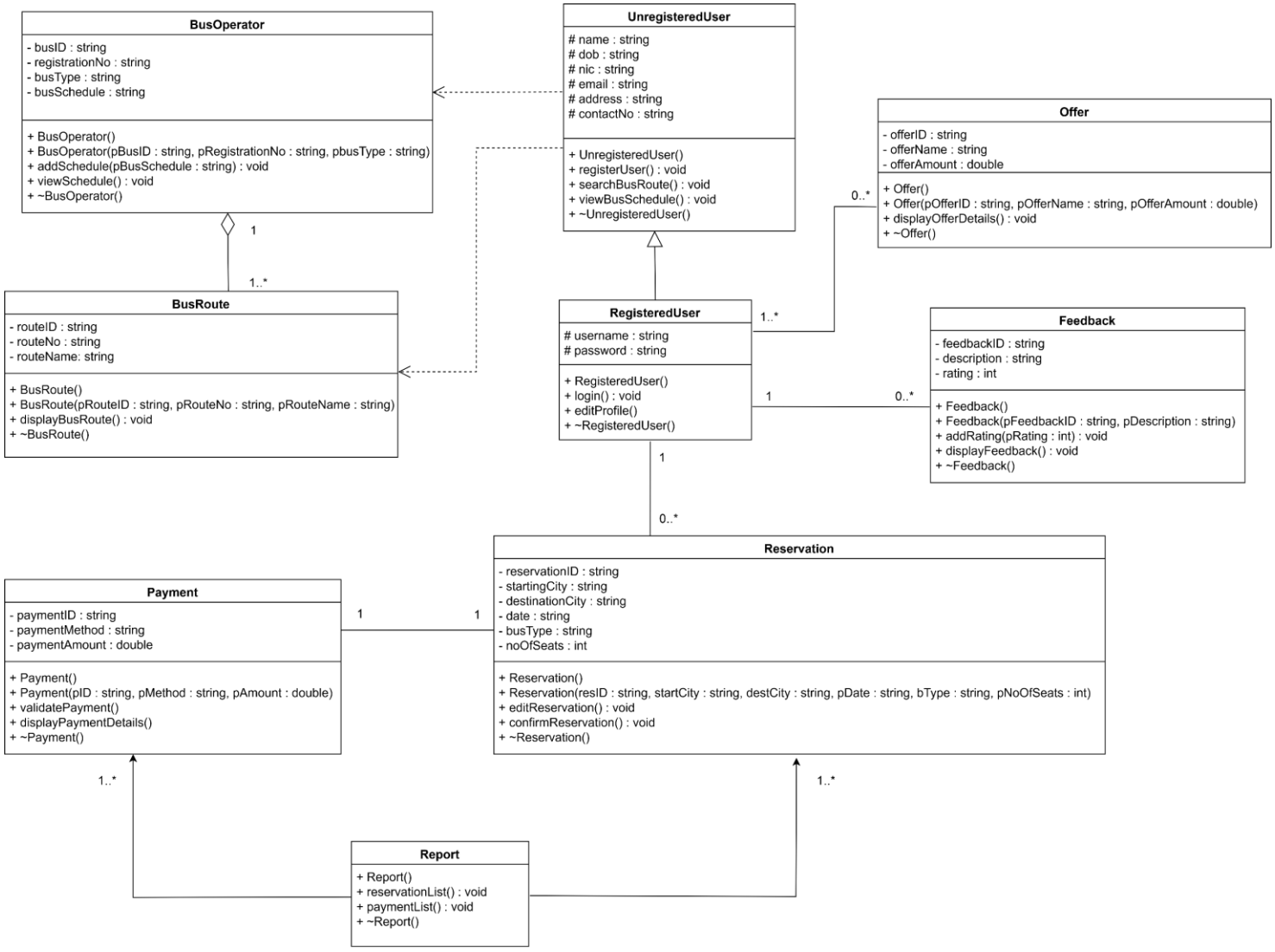
Class Name: Reservation	
Responsibility	**Collaborators**
Make reservation	Registered User
Confirm reservation	Payment
Edit reservation	Registered User

Class Name: Payment	
Responsibility	**Collaborators**
Store payment details	
Validate	
Generate invoice	Reservation

Class Name: Feedback	
Responsibility	**Collaborators**
Rate service	Registered User
Add feedback	Registered User
View feedback	

Class Name: Report	
Responsibility	**Collaborators**
List of Reservations	Reservation
List of Payments	Payment

Exercise 1


BusOperator
- busID : string
- registrationNo : string
- busType : string
- busSchedule : string
+ BusOperator()
+ BusOperator(pBusID : string, pRegistrationNo : string, pbusType : string)
+ addSchedule(pBusSchedule : string) : void
+ viewSchedule() : void
+ ~BusOperator()
UnregisteredUser
name : string
dob : string
nic : string
email : string
address : string
contactNo : string
+ UnregisteredUser()
+ registerUser() : void
+ searchBusRoute() : void
+ viewBusSchedule() : void
+ ~UnregisteredUser()
Offer
- offerID : string
- offerName : string
- offerAmount : double
+ Offer()
+ Offer(pOfferID : string, pOfferName : string, pOfferAmount : double)
+ displayOfferDetails() : void
+ ~Offer()
BusRoute
- routeID : string
- routeNo : string
- routeName: string
+ BusRoute()
+ BusRoute(pRouteID : string, pRouteNo : string, pRouteName : string)
+ displayBusRoute() : void
+ ~BusRoute()
RegisteredUser
username : string
password : string
+ RegisteredUser()
+ login() : void
+ editProfile()
+ ~RegisteredUser()
Feedback
- feedbackID : string
- description : string
- rating : int
+ Feedback()
+ Feedback(pFeedbackID : string, pDescription : string)
+ addRating(pRating : int) : void
+ displayFeedback() : void
+ ~Feedback()
Payment
- paymentID : string
- paymentMethod : string
- paymentAmount : double
+ Payment()
+ Payment(pID : string, pMethod : string, pAmount : double)
+ validatePayment()
+ displayPaymentDetails()
+ ~Payment()
Reservation
- reservationID : string
- startingCity : string
- destinationCity : string
- date : string
- busType : string
- noOfSeats : int
+ Reservation()
+ Reservation(resID : string, startCity : string, destCity : string, pDate : string, bType : string, pNoOfSeats : int)
+ editReservation() : void
+ confirmReservation() : void
+ ~Reservation()
Report
+ Report()
+ reservationList() : void
+ paymentList() : void
+ ~Report()
1
1..*
1..*
0..*
1..*
1
0..*
1
0..*
1
1
1..*
1..*

Contribution

	Student ID	Student Name	Individual Contribution
1	IT21267222	EDIRISINGHE E.A.K.G.	CRC & Class diagram: • UnregisteredUser • RegisteredUser Code: • UnregisteredUser.h • UnregisteredUser.cpp • RegisteredUser.h • RegisteredUser.cpp • main.cpp
2	IT21251450	A.L.V.J. Atapattu	CRC & Class diagram: • Payment Code: • Payment.h • Payment.cpp • main.cpp
3	IT21204784	W.D.O.D Wijerupa	CRC & Class diagram: • Offer Code: • Offer.h • Offer.cpp • main.cpp
4	IT21267086	Hasara L.A.N	CRC & Class diagram: • Reservation • Feedback

			Code: • Reservation.h • Reservation.cpp • Feedback.h • Feedback.cpp • main.cpp
5	IT21267772	Kumanayake I. A.	CRC & Class diagram: • BusRoute • BusOperator • Report Code: • BusRoute.h • BusRoute.cpp • BusOperator.h • BusOperator.cpp • Report.h • Report.cpp • main.cpp

Exercise 2

UnregisteredUser.h

```
#pragma once
#include "BusRoute.h"
#include "BusOperator.h"

class UnregisteredUser
{
protected:
    char name[10];
    char dob[10];
    char nic[12];
    char email[20];
    char address[40];
    char contactNo[10];

public:
    UnregisteredUser();
    void registerUser(const char pName[], const char pDob[], const char pNic[],
const char pEmail[], const char paddress[], const char pContactNo[]);
    void searchBusRoute(BusRoute *br);
    void viewBusSchedule(BusOperator *bo);
    ~UnregisteredUser();
};
```

UnregisteredUser.cpp

```
#include "UnregisteredUser.h"
#include <cstring>

UnregisteredUser::UnregisteredUser()
{
}

void UnregisteredUser::registerUser(const char pName[], const char pDob[], const
char pNic[], const char pEmail[], const char paddress[], const char pContactNo[])
{
    strcpy(name, pName);
    strcpy(dob, pDob);
    strcpy(nic, pNic);
    strcpy(email, pEmail);
    strcpy(address, paddress);
    strcpy(contactNo, pContactNo);
}

void UnregisteredUser::searchBusRoute(BusRoute *br)
{
    br->displayBusRoute();
}

void UnregisteredUser::viewBusSchedule(BusOperator *bo)
{
    bo->viewSchedule();
}

UnregisteredUser::~UnregisteredUser()
{
}
```

RegisteredUser.h

```
#pragma once
#include "UnregisteredUser.h"
#include "Reservation.h"
#include "Offer.h"
#include "Feedback.h"
#define SIZE1 5
#define SIZE2 5
#define SIZE3 5

class RegisteredUser : public UnregisteredUser
{
protected:
    char username[20];
    char password[20];

    //class relationship
    Reservation *rsv[SIZE1];
    Offer *ofr[SIZE2];
    Feedback *fbk[SIZE3];

public:
    RegisteredUser();
    RegisteredUser(const char pUsername[], const char pPassword[]);
    void login();
    void editProfile();
    void addReservation(Reservation *prsv[]);
    void viewOffer(Offer *pofr[]);
    void addFeedback(Feedback *pfbk[]);
    ~RegisteredUser();
};
```

RegisteredUser.cpp

```cpp
#include "RegisteredUser.h"
#include <iostream>
#include <cstring>
using namespace std;

RegisteredUser::RegisteredUser()
{
}

RegisteredUser::RegisteredUser(const char pUsername[], const char pPassword[])
{
    strcpy(username, pUsername);
    strcpy(password, pPassword);
}

void RegisteredUser::login()
{
}

void RegisteredUser::editProfile()
{
}

void RegisteredUser::addReservation(Reservation *prsv[])
{
    for (int i = 0; i < SIZE1; i++)
    {
```

```
        rsv[i] = prsv[i];
    }
}

void RegisteredUser::viewOffer(Offer *pofr[])
{
    for (int i = 0; i < SIZE2; i++)
    {
        ofr[i] = pofr[i];
    }
}

void RegisteredUser::addFeedback(Feedback *pfbk[])
{
    for (int i = 0; i < SIZE3; i++)
    {
        fbk[i] = pfbk[i];
    }
}

RegisteredUser::~RegisteredUser()
{
    cout << "Deleting registered user " << username << endl;
}
```

BusRoute.h

```
#pragma once

class BusRoute
{
private:
    char routeID[6];
    char routeNo[10];
    char routeName[30];

public:
    BusRoute();
    BusRoute(const char pRouteID[], const char pRouteNo[], const char
pRouteName[]);
    void displayBusRoute();
    ~BusRoute();
};
```

BusRoute.cpp

```
#include "BusRoute.h"
#include <iostream>
#include <cstring>
using namespace std;

BusRoute::BusRoute()
{
}

BusRoute::BusRoute(const char pRouteID[], const char pRouteNo[], const char
pRouteName[])
{
    strcpy(routeID, pRouteID);
    strcpy(routeNo, pRouteNo);
    strcpy(routeName, pRouteName);
}

void BusRoute::displayBusRoute()
{
    cout << "Route ID : " << routeID << endl;
    cout << "Route No : " << routeNo << endl;
    cout << "Route Name : " << routeName << endl;
}

BusRoute::~BusRoute()
{
    cout << "Deleting bus route " << routeID << endl;
}
```

BusOperator.h

```
#pragma once
#include "BusRoute.h"
#define SIZE 5

class BusOperator
{
private:
    char busID[5];
    char registrationNo[8];
    char busType[20];
    char busSchedule[50];

    //class relationship
    BusRoute *br[SIZE];

public:
    BusOperator();
    BusOperator(const char pBusID[], const char pRegistrationNo[], const char
pbusType[]);
    void addSchedule(const char pBusSchedule[]);
    void viewSchedule();
    void addBusRoute(BusRoute *br[]);
    ~BusOperator();
};
```

BusOperator.cpp

```
#include "BusOperator.h"
#include <iostream>
#include <cstring>
using namespace std;

BusOperator::BusOperator()
{
}

BusOperator::BusOperator(const char pBusID[], const char pRegistrationNo[], const
char pbusType[])
{
    strcpy(busID, pBusID);
    strcpy(registrationNo, pRegistrationNo);
    strcpy(busType, pbusType);
}

void BusOperator::addSchedule(const char pBusSchedule[])
{
    strcpy(busSchedule, pBusSchedule);
}

void BusOperator::viewSchedule()
{
}

void BusOperator::addBusRoute(BusRoute *pbr[])
{
```

```
    for (int i = 0; i < SIZE; i++)
    {
        br[i] = pbr[i];
    }
}

BusOperator::~BusOperator()
{
    cout << "Deleting bus operator " << busID << endl;
}
```

Offer.h

```
#pragma once
#include "RegisteredUser.h"

class Offer{
  private:
  char offerID[5];
  char offerName[20];
  double offerAmount;
  RegisteredUser *reguser;

  public:
  Offer();
  Offer(const char pOfferID[], const char pOfferName[], double pOfferAmount,
RegisteredUser *pregister);
  void displayOfferDetails();
  ~Offer();
};
```

Offer.cpp

```
#include "Offer.h"
#include <iostream>
#include <cstring>

using namespace std;

    Offer::Offer(){
        strcpy(offerID , "");
        strcpy(offerName , "");
        offerAmount = 0;
    }

    Offer::Offer(const char pOfferID[], const char pOfferName[], double
pOfferAmount, RegisteredUser *pregister){
        strcpy(offerID , pOfferID);
        strcpy(offerName , pOfferName);
        offerAmount = pOfferAmount;
        reguser = pregister;
    }

    void Offer::displayOfferDetails(){
        cout << "Offer ID : " << offerID << endl;
        cout << "Offer Name : " << offerName <<endl;
    }

    Offer::~Offer(){
         cout << "Deleting offer " << offerID << endl;
     }
```

Reservation.h

```
#pragma once
#include "RegisteredUser.h"
#include "Payment.h"

class Reservation{
    private:
    char reservationID[7];
    char startingCity[20];
    char destinationCity[20];
    char date[10];
    char busType[20];
    int noOfSeats;
    RegisteredUser *reguser;
    Payment *payment;

    public:
    Reservation();
    Reservation(const char preservationID[],const char pstartingCity[],const
char pdestinationCity[],const char pdate[],const char pbusType[],int pnoOfSeats);
    void addReservation(Payment *ppay , RegisteredUser *preg);
    void editReservation();
    void confirmReservation();
    ~Reservation();
};
```

Reservation.cpp

```
#include "Reservation.h"
#include <iostream>
#include <cstring>
using namespace std;

Reservation::Reservation(){
        strcpy(reservationID,"");
        strcpy(startingCity,"");
        strcpy(destinationCity,"");
        strcpy(date,"");
        strcpy(busType,"");
        noOfSeats = 0 ;
    }
Reservation ::Reservation(const char preservationID[],const char
pstartingCity[],const char pdestinationCity[],const char pdate[],const char
pbusType[],int pnoOfSeats){
        strcpy(reservationID,preservationID);
        strcpy(startingCity,pstartingCity);
        strcpy(destinationCity,pdestinationCity);
        strcpy(date,pdate);
        strcpy(busType,pbusType);
        noOfSeats = pnoOfSeats ;
    }
void Reservation ::addReservation(Payment *ppay , RegisteredUser *preg){

}
void Reservation :: editReservation(){

}
void Reservation ::confirmReservation(){
```

```
}
Reservation ::~Reservation(){
        cout<<"";
    }
```

Payment.h

```
#pragma once
#include "Reservation.h"
class Payment
{
private:
    char paymentID[6];
    char paymentMethod[10];
    double paymentAmount;

  //class relationship
  Reservation *res;

public:
    Payment();
    Payment(const char pID[], const char pMethod[], double pAmount, Reservation
*pres);
    void validatePayment();
    void displayPaymentDetails();
    ~Payment();
};
```

Payment.cpp

```
#include "Payment.h"
#include <iostream>
#include <cstring>
using namespace std;

Payment::Payment()
{
    strcpy(paymentID, "");
    strcpy(paymentMethod, "");
    paymentAmount = 0;
};

Payment::Payment(const char pID[], const char pMethod[], double pAmount,
Reservation *pres)
{
    strcpy(paymentID, pID);
    strcpy(paymentMethod, pMethod);
    paymentAmount = pAmount;
  res = pres;
};

void Payment::validatePayment()
{

};

void Payment::displayPaymentDetails()
{
    cout << "Payment ID is :" << paymentID << endl;
    cout << "Payment Method is :" << paymentMethod << endl;
```

```
    cout << "Payment Amount :" << paymentAmount << endl;
}

Payment::~Payment()
{
    cout << "!PR" << endl;
}
```

Feedback.h

```
#pragma once
#include "RegisteredUser.h"

class Feedback{
    private:
    char feedbackID[6];
    char description[20];
    int rating;
    RegisteredUser *user;

    public:
    Feedback();
    Feedback(const char pfeedbackID[] ,const char pdescription[], RegisteredUser
*pregister);
    void addRating(int pRating);
    void displayFeedback();
    ~Feedback();
};
```

Feedback.cpp

```
#include "Feedback.h"
#include <iostream>
#include <cstring>

using namespace std;

  Feedback::Feedback(){
        strcpy(feedbackID , "");
        strcpy(description , "");
    }
  Feedback::Feedback(const char pfeedbackID[] ,const char pdescription[] ,
RegisteredUser *pregister){
        strcpy(feedbackID , pfeedbackID);
        strcpy(description , pdescription);
        user = pregister;
    }
    void Feedback:: addRating(int pRating){

    }
    void Feedback:: displayFeedback(){

    }
   Feedback ::~Feedback(){
        cout<<"";
    }
```

Report.h

```
#pragma once
#include "Payment.h"
#include "Reservation.h"
#define SIZE1 5
#define SIZE2 5

class Report
{
private:
    Payment *pmt[SIZE1];
    Reservation *res[SIZE2];

public:
    Report(Payment *p[], Reservation *r[]);
    void reservationList();
    void paymentList();
    ~Report();
};
```

Report.cpp

```cpp
#include "Report.h"

Report::Report(Payment *p[], Reservation *r[])
{
    for (int i = 0; i < SIZE1; i++)
    {
        pmt[i] = p[i];
    }

    for (int i = 0; i < SIZE2; i++)
    {
        res[i] = r[i];
    }
}

void Report::reservationList()
{
}

void Report::paymentList()
{
}

Report::~Report()
{
}
```

main.cpp

```
#include <iostream>
#include "UnregisteredUser.h"
#include "RegisteredUser.h"
#include "BusRoute.h"
#include "BusOperator.h"
#include "Offer.h"
#include "Reservation.h"
#include "Payment.h"
#include "Feedback.h"
#include "Report.h"

int main() {
    UnregisteredUser *unregUser;

    unregUser->registerUser("Kavindu", "02-04-2000",
"200008456789","kavindugithmin@gmail.com","No.22/1,Parakrama
Mawatha,Maradana","0769645678");

    RegisteredUser *regUser = new RegisteredUser("kavinduEdirisinghe",
"jimmy21");

    BusRoute *busroute[2];

    busroute[0] = new BusRoute("BR001", "01", "Colombo - Kandy");
    busroute[1] = new BusRoute("BR002", "17", "Panadura - Kandy");

    BusOperator *busop = new BusOperator("B001", "ND-9021", "Semi Luxury");

    busop->addBusRoute(busroute);
```

```
    regUser->viewBusSchedule(busop);

    Offer *offer = new Offer("O001", "New Year", 2000, regUser);

    offer->displayOfferDetails();

    Reservation *reservation[2];

    reservation[0] = new Reservation("R00001","Colombo","Kandy","2022-05-
25","Luxuary",2);
    reservation[1] = new Reservation("R00002","Matara","Kandy","2022-05-
27","Luxuary",1);

    reservation[0]->confirmReservation();
    reservation[1]->confirmReservation();

    Payment *payment[2];

    payment[0]= new Payment("PR0001","VISA",3000,reservation[0]);
    payment[1]= new Payment("PR0002","AMEX",4000,reservation[1]);

    payment[0]->displayPaymentDetails();
    payment[1]->displayPaymentDetails();

    Feedback *feed = new Feedback("FB0023","Great service",regUser);
    feed->displayFeedback();

    Report *report = new Report(payment, reservation);

    delete unregUser;
    delete regUser;

    delete busop;
```

```
    delete busroute[0];
    delete busroute[1];

    delete offer;

    delete reservation[0];
    delete reservation[1];

    delete feed;

    delete payment[0];
    delete payment[1];

    delete report;

    return 0;
}
```