
Project Definition:

option 1->To enter ticket details and display separately each ticket file as o/p

CodeBase:

```
class ticket;
class BGT{
public:
```

```

static void serach_ticket();
static void display_details(ticket *T);
static string generate_ticket_no();
static string generate_train_no();
static string get_names(int pas_count);
static void serialize_ticket(ticket *T, fstream &ticketFile);
static void deserialize_ticket(ticket *T, fstream &ticketFile);
static void serialize_string(string *str, fstream &ticketFile);
static void deserialize_string(string *str, fstream &ticketFile);
};

```

```

class ticket

```

```

{

```

```

public:

```

```

    string cname;
    string ticket_no;
    string train_no;
    string source;
    string destination;
    string coach;
    int no_pas;
    float price;

```

```

    ticket():price(0){}

```

```

    //option 1

```

```

    static void option1();

```

```

    //puts the details from ptr to file

```

```

    static int put_details_tofile(ticket *ptr);

```

```

    //option 2

```

```

    static void option2();

```

```

    //edit ticket number (tno)

```

```

    static int edit_tno_infile(ticket *old_T, ticket *new_T);

```

```

    //option 3

```

```

    static void option3();

```

```

    //add price to file

```

```

    static int add_price_tofile(ticket *ptr);

```

```

};

```

```

string BGT :: generate_ticket_no()

```

```

{

```

```

    string ticket_no;

```

```

    srand(time(0));

```

```

    // Generate a random 6-digit ticket number

```

```

    int ticket_number = rand() % 900000 + 100000;

```

```

    // Convert the ticket number to a string

```

```

    ticket_no = to_string(ticket_number);

```

```

    return ticket_no;

```

```

}

```

```

string BGT :: generate_train_no()

```

```

{

```

```

    string train_no;

```

```

    srand(time(0));

```

```

    // Generate a random 6-digit train number

```

```

    int ticket_number = rand() % 9000 + 1000;
    // Convert the train number to a string
    train_no = to_string(ticket_number);
    return train_no;
}
string BGT :: get_names( int pas_count )
{
    string all_names;
    string name;
    int i = 1;
    cin.ignore();
    while (i <= pas_count) {
        cout << "\nEnter passenger ["<<i++<<"] name : ";
        getline(cin, name);
        all_names += name + "$";
    }
    return all_names;
}

void BGT :: serialize_ticket(ticket *T, fstream &ticketFile)
{
    BGT::serialize_string(&T->cname, ticketFile);
    BGT::serialize_string(&T->ticket_no, ticketFile);
    BGT::serialize_string(&T->train_no, ticketFile);
    BGT::serialize_string(&T->source, ticketFile);
    BGT::serialize_string(&T->destination, ticketFile);
    BGT::serialize_string(&T->coach, ticketFile);
    ticketFile << ',';
    ticketFile << T->no_pas;
    ticketFile << ',';
    ticketFile << T->price;
}

void BGT :: deserialize_ticket(ticket *T, fstream &ticketFile)
{
    char comma;
    BGT::deserialize_string(&T->cname, ticketFile);
    BGT::deserialize_string(&T->ticket_no, ticketFile);
    BGT::deserialize_string(&T->train_no, ticketFile);
    BGT::deserialize_string(&T->source, ticketFile);
    BGT::deserialize_string(&T->destination, ticketFile);
    BGT::deserialize_string(&T->coach, ticketFile);
    ticketFile >> comma;
    ticketFile >> T->no_pas;
    ticketFile >> comma;
    ticketFile >> T->price;
}

void BGT :: serialize_string(string *str, fstream &ticketFile)
{
    ticketFile << ',';
    ticketFile << str->size();
    ticketFile << ',';
    ticketFile << str->c_str();
}

```

```

void BGT :: deserialize_string(string *str , fstream &ticketFile)
{
    int len;
    char comma;
    ticketFile >> comma;
    ticketFile >> len;
    ticketFile >> comma;
    if (ticketFile && len) {
        vector<char> tmp(len);
        ticketFile.read(tmp.data() , len);
        str->assign(tmp.data(), len);
    }
}

void BGT :: serach_ticket()
{
    ticket T;
    cout<<"Enter ticket number : ";
    cin.ignore();
    getline(cin,T.ticket_no);
    BGT::display_details(&T);
}

void BGT :: display_details(ticket *T)
{
    string ticketNo = T->ticket_no + ".txt";
    fstream ticketFile;
    ticketFile.open(ticketNo, ios::in | ios::binary);
    //checks if file exists
    ticketFile.seekg(0);
    if(ticketFile){
        BGT::deserialize_ticket(T,ticketFile);
        ticketFile.close();
    }
    else
    {
        ticketFile.close();
        cout<<RED_TXT<<"\nFile does not exist !\n"<<RESET_CLR;
        return;
    }
    istringstream iss(T->cname);
    string name;
    cout<<setfill(' ')<<"\n\n"<<WHITE_BG<<BLACK_TXT<<"-----
+<<RESET_CLR<<endl;
    cout<<WHITE_BG<<BLACK_TXT<<"|Train Number   "<<"Number of passengers   "<<"Ticket
Number|"<<RESET_CLR<<endl;
    cout<<WHITE_BG<<BLACK_TXT<<"| "<<left<<setw(16)<<T->train_no<<setw(24)<<T-
>no_pas<<setw(12)<<T->ticket_no<<"| "<<RESET_CLR<<endl;
    cout<<WHITE_BG<<BLACK_TXT<<"|Train Coach   "<<"Boarding Station "<<"Destination
Station|"<<RESET_CLR<<endl;
    cout<<WHITE_BG<<BLACK_TXT<<"| "<<setw(15)<<T->coach<<setw(18)<<T-
>source<<setw(19)<<T->destination<<"| "<<RESET_CLR<<endl<<"\033[2K";
    cout<<WHITE_BG<<BLACK_TXT<<"| Passenger Names :           | "<<RESET_CLR<<endl;
    while (getline(iss, name, '$')) {

```

```

        cout<<RESET_CLR<<WHITE_BG<<BLACK_TXT<<setw(53)<<name<<"|"<<RESET_CLR<<endl;
    }
    if(T->price != 0){
        cout<<WHITE_BG<<BLACK_TXT<<"|"<<"    Price : "<<setw(40)<<T-
>price<<"|"<<RESET_CLR<<endl;
    }
    cout<<WHITE_BG<<BLACK_TXT<<"+"-----+"<<RESET_CLR;
}

```

```

void ticket :: option1()
{
    ticket T;
    cout<<"\nEnter details:\n";
    cout<<"Enter Source : ";
    cin.ignore();
    getline(cin,T.source);
    cout<<"Enter Destination : ";
    cin.ignore();
    getline(cin,T.destination);
    cout<<"Enter Train Coach (1A, 2A, 3A, CC, FC, SL, 2S) : ";
    cin.ignore();
    getline(cin,T.coach);
    cout<<"Enter number of passengers : ";
    cin>>T.no_pas;
    cout<<"Enter customer name : ";
    T.cname = BGT::get_names(T.no_pas);
    T.ticket_no = BGT::generate_ticket_no();
    cin.ignore();
    T.train_no = BGT::generate_train_no();

    if(put_details_tofile(&T) == 0){
        BGT::display_details(&T);
    }
}

```

```

int ticket :: put_details_tofile(ticket *ptr)
{
    string ticketNo = ptr->ticket_no + ".txt";

    fstream ticketFile;
    ticketFile.open(ticketNo, ios::in);
    //checks if file exists
    if(!ticketFile){
        //creates a new file if does not exist
        ticketFile.close();
        ticketFile.open(ticketNo, ios::out|ios::binary);
        BGT::serialize_ticket(ptr,ticketFile);
    }
    else{
        //gives error if file exists
        cout<<YELLOW_TXT<<"\nTicket already exists!"<<RESET_CLR;
    }
    if(ticketFile.fail()){
        cout<<YELLOW_TXT<<"\nError : I/O Error has occurred !\n"<<RESET_CLR;
    }
}

```

```

        ticketFile.close();
        return 1;
    }
    if(ticketFile.bad()){
        cout<<RED_TXT<<"\nFatal Error : Invalid operation attempted !\n"<<RESET_CLR;
        ticketFile.close();
        return 1;
    }
    ticketFile.close();
    return 0;
}

void ticket :: option2()
{
    ticket old_T, new_T;
    cout<<"\nEnter ticket no to be edited : ";
    cin>>old_T.ticket_no;
    new_T.ticket_no = BGT::generate_ticket_no();
    if(ticket::edit_tno_infile(&old_T,&new_T) == 0)
        BGT::display_details(&new_T);
    getchar();
}

int ticket :: edit_tno_infile(ticket *old_T, ticket *new_T)
{
    string Ticket_old = old_T->ticket_no + ".txt";
    string Ticket_new = new_T->ticket_no + ".txt";

    //creating updated file
    fstream ticketFile;
    ticketFile.open(Ticket_old,ios::in);
    ticketFile.seekg(0);
    if(!ticketFile){
        cout<<RED_TXT<<"\nTicket with ticket number "<<old_T->ticket_no<<" does not exist!\n"<<RESET_CLR<<endl;
    }
    else{
        // read data from file in old_T
        BGT::deserialize_ticket(old_T,ticketFile);
        old_T->ticket_no = new_T->ticket_no;

        if(ticketFile.fail()){
            cout<<YELLOW_TXT<<"\nError : I/O Error has occurred !\n"<<RESET_CLR;
            ticketFile.close();
            return 1;
        }

        ticketFile.close();

        char temp[Ticket_old.length() + 1];
        strcpy(temp, Ticket_old.c_str());

        // create new file with new name
        ticketFile.open(Ticket_new, ios::in);
    }
}

```

```

    if(ticketFile){
        cout<<YELLOW_TXT<<"\nTicket already exists !\n"<<RESET_CLR;
        ticketFile.close();
        return 1;
    }
    else{
        if(remove(temp) != 0){
            cout<<RED_TXT<<"\nError in deleting old file !"<<RESET_CLR<<endl;
            return 1;
        }
        ticketFile.close();
        ticketFile.open(Ticket_new, ios::out|ios::binary);
        ticketFile.seekg(0);
        BGT::serialize_ticket(old_T,ticketFile);
    }
}
if(ticketFile.fail()){
    cout<<YELLOW_TXT<<"\nError : I/O Error has occurred !\n"<<RESET_CLR;
    ticketFile.close();
    return 1;
}
if(ticketFile.bad()){
    cout<<RED_TXT<<"\nFatal Error : Invalid operation attempted !\n"<<RESET_CLR;
    ticketFile.close();
    return 1;
}
if(ticketFile.good()){
    cout<<GREEN_TXT<<"\nTicket updated successfully\n"<<RESET_CLR;
}
ticketFile.close();
return 0;
}

void ticket :: option3()
{
    ticket T;
    cout<<"\nEnter Ticket number : ";
    cin>>T.ticket_no;
    cin.ignore();
    cout<<"\nEnter ticket price: ";
    cin>>T.price;
    if(ticket :: add_price_tofile(&T) == 0)
        BGT::display_details(&T);
    getchar();
}

int ticket :: add_price_tofile(ticket *ptr)
{
    string ticketNo = ptr->ticket_no + ".txt";
    fstream ticketFile;
    ticket temp;

    ticketFile.open(ticketNo, ios::in|ios::binary);
    //checks if file exists

```

```

if(ticketFile){
    //copys contents from file to temp
    ticketFile.seekg(0);
    BGT::deserialize_ticket(&temp,ticketFile);
    if(ticketFile.fail()){
        cout<<YELLOW_TXT<<"\nError : I/O Error has occurred !\n"<<RESET_CLR;
        ticketFile.close();
        return 1;
    }

    ticketFile.close();
    //update price in temp
    temp.price = ptr->price;
    //update contents of file
    ticketFile.open(ticketNo, ios::out|ios::binary);
    ticketFile.seekg(0);
    BGT::serialize_ticket(&temp, ticketFile);
    if(ticketFile.fail()){
        cout<<YELLOW_TXT<<"\nError : I/O Error has occurred !\n"<<RESET_CLR;
        ticketFile.close();
        return 1;
    }
}
else{
    //gives error if file does not exists
    cout<<RED_TXT<<"\nFile does not exists!"<<RESET_CLR<<endl;
    ticketFile.close();
    return 1;
}
if(ticketFile.bad()){
    cout<<RED_TXT<<"\nFatal Error : Invalid operation attempted !\n"<<RESET_CLR;
    ticketFile.close();
    return 1;
}
ticketFile.close();
return 0;
}

int main()
{
    int choice;

    while (1)
    {
        system("CLS");
        cout<<intro;
        cout<<BLUE_TXT<<"\n-----MENU-----" << endl;
        cout<< "[1] Enter Ticket Details " << endl;
        cout<< "[2] Edit Ticket Number " << endl;
        cout<< "[3] Append Price to a Ticket " << endl;
        cout<< "[4] Search and Display Ticket"<<endl;
        cout<< "[5] Exit" << endl;
        cout<< "Enter your choice: "<<RESET_CLR;
        cin >> choice;
    }
}

```



```

switch (choice)
{
case 1:
    ticket::option1();
    break;

case 2:
    ticket::option2();
    break;

case 3:
    ticket::option3();
    break;

case 4:
    BGT::serach_ticket();
    break;
case 5:
    return 0;

default:
    cout <<YELLOW_TXT<< "Invalid choice. Please try again."<<RESET_CLR<< endl;
    break;
}
cout<<GREEN_TXT<<"\ncontinue ? (y/n) :"<<RESET_CLR;
char c = getchar();
if(c=='n' || c=='N')
    return 0;
}
return 0;
}

```

Code Documentation:

BGT Class:

1. search_ticket()

Purpose:

Searches for a ticket based on the provided ticket number and displays its details.

Input Parameters:

None

Output Values:

None

Exceptions:

None

Example Usage:

```
BGT::search_ticket();
```

2. display_details(ticket *T)

Purpose:

Displays details of a ticket.

Input Parameters:

- T: Pointer to a ticket object.

Output Values:

None

Exceptions:

None

Example Usage:

```
ticket T;  
// Populate T with ticket details  
BGT::display_details(&T);
```

3. generate_ticket_no()

Purpose:

Generates a random 6-digit ticket number.

Input Parameters:

None

Output Values:

- Returns a string representing the generated ticket number.

Exceptions:

None

Example Usage:

```
string ticket_no = BGT::generate_ticket_no();
```

4. generate_train_no()

Purpose:

Generates a random 6-digit train number.

Input Parameters:

None

Output Values:

- Returns a string representing the generated train number.

Exceptions:

None

Example Usage:

```
string train_no = BGT::generate_train_no();
```

5. get_names(int pas_count)

Purpose:

Gets names of passengers from user input.

Input Parameters:

- pas_count: Number of passengers.

Output Values:

- Returns a string containing names separated by '\$' delimiter.

Exceptions:

None

Example Usage:

```
int passenger_count = 3;  
string all_names =  
BGT::get_names(passenger_count);
```

6. serialize_ticket(ticket *T, fstream &ticketFile)

Purpose:

Serializes ticket details to a file.

Input Parameters:

- T: Pointer to a ticket object.
- ticketFile: Reference to a file stream.

Output Values:

None

Exceptions:

None

Example Usage:

```
ticket T;
fstream ticketFile;
// Open ticket file stream
BGT::serialize_ticket(&T, ticketFile);
```

7. deserialize_ticket(ticket *T, fstream &ticketFile)

Purpose:

Deserializes ticket details from a file.

Input Parameters:

- T: Pointer to a ticket object.
- ticketFile: Reference to a file stream.

Output Values:

None

Exceptions:

None

Example Usage:

```
ticket T;
fstream ticketFile;
// Open ticket file stream
BGT::deserialize_ticket(&T, ticketFile);
```

8. serialize_string(string *str, fstream &ticketFile)

Purpose:

Serializes a string to a file.

Input Parameters:

- str: Pointer to a string object.
- ticketFile: Reference to a file stream.

Output Values:

None

Exceptions:

None

Example Usage:

```
string myString = "Hello, World!";
fstream ticketFile;
// Open ticket file stream
BGT::serialize_string(&myString, ticketFile);
```

9. deserialize_string(string *str, fstream &ticketFile)

Purpose:

Deserializes a string from a file.

Input Parameters:

- str: Pointer to a string object.
- ticketFile: Reference to a file stream.

Output Values:

None

Exceptions:

None

Example Usage:

```
string myString;
fstream ticketFile;
// Open ticket file stream
BGT::deserialize_string(&myString, ticketFile);
```

ticket Class:

1. option1()

Purpose:

Allows the user to enter details for a new ticket.

Input Parameters:

None

Output Values:

None

Exceptions:

None

Example Usage:

```
ticket::option1();
```

2. put_details_tofile(ticket *ptr)

Purpose:

Puts ticket details into a file.

Input Parameters:

- ptr: Pointer to a ticket object.

Output Values:

- Returns 0 if successful.

Exceptions:

- Displays an error message if the ticket already exists.

Example Usage:

```
ticket T;  
// Populate T with ticket details  
int result = ticket::put_details_tofile(&T);
```

3. option2()

Purpose:

Allows the user to edit a ticket number in the file.

Input Parameters:

None

Output Values:

None

Exceptions:

None

Example Usage:

```
ticket::option2();
```

4. edit_tno_infile(ticket *old_T, ticket *new_T)

Purpose:

Edits the ticket number in the file.

Input Parameters:

- old_T: Pointer to a ticket object with the old ticket number.
- new_T: Pointer to a ticket object with the new ticket number.

Output Values:

- Returns 0 if successful.

Exceptions:

- Displays an error message if the old ticket number does not exist.

Example Usage:

```
ticket oldTicket, newTicket;  
// Populate oldTicket and newTicket with  
details  
int result = ticket::edit_tno_infile(&oldTicket,  
&newTicket);
```

5. option3()

Purpose:

Allows the user to add a price to an existing ticket.

Input Parameters:

None

Output Values:

None

Exceptions:

None

Example Usage:

```
ticket::option3();
```

6. add_price_tofile(ticket *ptr)

Purpose:

Adds a price to an existing ticket in the file.

Input Parameters:

- ptr: Pointer to a ticket object with the ticket number and price.

Output Values:

- Returns 0 if successful.

Exceptions:

- Displays an error message if the ticket does not exist.

Example Usage:

```
ticket T;  
// Populate T with ticket details  
int result = ticket::add_price_tofile(&T);
```



```

+-----+
|          TICKET MANAGEMENT SYSTEM          |
| Developed by: Damodar Banaulikar (22B-CO-012) |
|           : Dattaraj Gawde (22B-CO-014)   |
|           : Divyam Redkar (22B-CO-016)    |
|           : Ervin (22B-CO-018)           |
|           : Giselle Fernandes (22B-CO-019)|
|           : Goraksh Naik (22B-CO-020)    |
+-----+

```

```

-----MENU-----
[1] Enter Ticket Details
[2] Edit Ticket Number
[3] Append Price to a Ticket
[4] Search and Display Ticket
[5] Exit
Enter your choice: 2

```

Enter ticket no to be edited : 103370

Ticket updated successfully

```

+-----+
|Train Number  Number of passengers  Ticket Number|
|4376          3                     104719          |
|Train Coach   Boarding Station   Destination Station|
|L             Goa Margao         unjab            |
|Passenger Names :                      |
|Damodar Banaulikar                     |
|Dattaraj Gawde                          |
|Divyam Redkar                           |
+-----+

```

continue ? (y/n) :

```

+-----+
|          TICKET MANAGEMENT SYSTEM          |
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|           : Ervin (22B-CO-018)           |
|           : Giselle Fernandes (22B-CO-019)|
|           : Goraksh Naik (22B-CO-020)    |
+-----+

```

```

-----MENU-----
[1] Enter Ticket Details
[2] Edit Ticket Number
[3] Append Price to a Ticket
[4] Search and Display Ticket
[5] Exit
Enter your choice: 3

```

Enter Ticket number : 104317

Enter ticket price: 300

```

+-----+
|Train Number  Number of passengers  Ticket Number|
|5323          3                     104317          |
|Train Coach   Boarding Station   Destination Station|
|L             Goa Margao         erala            |
|Passenger Names :                      |
|Ervin                                                |
|Giselle Fernandes                                 |
|Goraksh Naik                                       |
|Price : 300                                         |
+-----+

```

continue ? (y/n) :

```

+-----+
|                                     |
|          TICKET MANAGEMENT SYSTEM |
| Developed by: Damodar Banaulikar   | (22B-CO-012)
|           : Dattaraj Gawde         | (22B-CO-014)
|           : Divyam Redkar          | (22B-CO-016)
|           : Ervin                  | (22B-CO-018)
|           : Giselle Fernandes      | (22B-CO-019)
|           : Goraksh Naik           | (22B-CO-020)
|                                     |
+-----+

```

```

-----MENU-----
[1] Enter Ticket Details
[2] Edit Ticket Number
[3] Append Price to a Ticket
[4] Search and Display Ticket
[5] Exit
Enter your choice: 3

```

Enter Ticket number : 104719

Enter ticket price: 500

```

+-----+
| Train Number   Number of passengers   Ticket Number |
| 4376           3                      104719           |
| Train Coach    Boarding Station       Destination Station |
| L              Goa Margao             unjab             |
| Passenger Names :                               |
| Damodar Banaulikar                               |
| Dattaraj Gawde                                   |
| Divyam Redkar                                     |
| Price : 500                                       |
+-----+

```

continue ? (y/n) :

```

+-----+
|                                     |
|          TICKET MANAGEMENT SYSTEM |
| Developed by: Damodar Banaulikar   | (22B-CO-012)
|           : Dattaraj Gawde         | (22B-CO-014)
|           : Divyam Redkar          | (22B-CO-016)
|           : Ervin                  | (22B-CO-018)
|           : Giselle Fernandes      | (22B-CO-019)
|           : Goraksh Naik           | (22B-CO-020)
|                                     |
+-----+

```

```

-----MENU-----
[1] Enter Ticket Details
[2] Edit Ticket Number
[3] Append Price to a Ticket
[4] Search and Display Ticket
[5] Exit
Enter your choice: 4
Enter ticket number : 104719

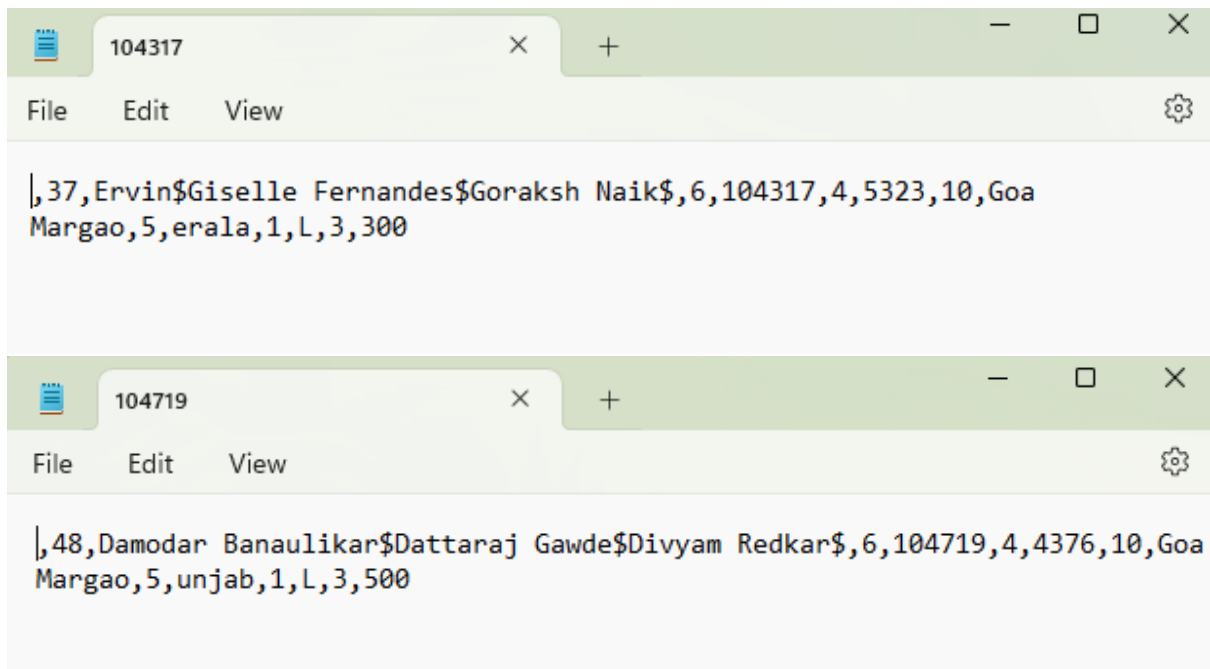
```

```

+-----+
| Train Number   Number of passengers   Ticket Number |
| 4376           3                      104719           |
| Train Coach    Boarding Station       Destination Station |
| L              Goa Margao             unjab             |
| Passenger Names :                               |
| Damodar Banaulikar                               |
| Dattaraj Gawde                                   |
| Divyam Redkar                                     |
| Price : 500                                       |
+-----+

```

continue ? (y/n) :



Developed by

: Damodar Banaulikar (22B-CO-012)
: Dattaraj Gawde (22B-CO-014)
: Divyam Redkar (22B-CO-016)
: Ervin (22B-CO-018)
: Giselle Fernandes (22B-CO-019)
: Goraksh Naik (22B-CO-020)

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