

# RAILWAY RESERVATION SYSTEM

## GROUP MEMBERS:

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# PROJECT DESCRIPTION

- We will be implementing the ability to reserve and modify railway tickets.

We will use

- Linked List Operations
- Searching Algorithm
- Sorting Algorithms

To modify and print the data according to user's needs. This project is simple to use and very user-friendly. It has minimal hardware and software requirements, and no training is needed for using it.

# Project Scope

The scope of this project is to help a user reserve and modify their tickets without any hassle. This program will allow a user to reserve a ticket, edit their personal details, ask for a refund or cancel booking and view the reserved ticket. An Admin Panel will allow admins to View all the booked tickets, Add or Remove scheduled trains and Modify/Cancel a Ticket on User Request.

We have 2 modules in this scenario, where a user or the passenger, has their own options while admin has to login separately before having their own options. It works from the entering of user details, to payment, to printing of tickets and other operations are available as well.

# Modules in Project

This program has 2 Modules:

**User Module**: This module is for user or the passenger to book their ticket, make payments for ticket directly, modify their ticket, ask for a refund, and print/generate their ticket.

**Admin Module**: This module allows admins to View all the booked tickets, Add or Remove Trains and Modify a ticket or remove it on a passenger's request.

# DATA STRUCTURES USED

- Linked List Operations are used as they have no fixed size and values can be added constantly and data can be collected or called without affecting earlier or later values. We have mainly used linked list as insertion(reserving a ticket) and deletion (cancelling a tickets) are more is efficient.
- Searching algorithm is used to search a train and its corresponding values
- Sorting Algorithm to used to sort the data about train and tickets

# METHODS USED:

- Admin() – for accessing and using Admin Portal
- Payment()-Regarding payment of tickets
- Trainsort()-Sorting Train According to time
- SeatChoose()-Choosing of seat while reserving
- iniTrain()-Available Trains
- trainFill()-For adding new train
- trainPrice()-For creating different class type tickets(economy, first class, business class)
- Reserveticket()-For reservation of ticket
- Viewticket()-For viewing Booked tickets
- Display()-For displaying all info
- Editdetails()-Editing info
- addTrains()-Adding new trains in admin portal

# Project Features:

## User Module:

**Reserve a Ticket**: Allows user to Reserve Tickets for available trains on desirable dates. We will be using linked list operations to insert ticket details. –

**Choose Payment Methods & Pay**: Allows user to pay for the ticket using Credit Card Details. We will use simply hard-coded Input/output for this feature as there is no other way to check Credit Card details i.e. No Databases used.

**Cancel/Refund Booked Tickets**: Allows user to Cancel and Refund your tickets. - We will be using linked list to delete ticket details. We will use searching algorithms to search and delete.

**Edit Booked Tickets Personal Details**: Allows user to Edit Personal Details from your Booked Ticket. We will use searching algorithms to search and edit. We will be using linked list operations to edit ticket details.

**Print the Tickets**: Prints on screen your ticket details for viewing and printing. - We will be using linked list operations to display ticket details. We will use searching algorithms to search and print

## Admin Module:

- **View All Booked Tickets**: Allows Admin to View All Booked Tickets saved. We will be using linked list operations to display all tickets details.
- **Add or Remove Trains**: Add or Remove Available Trains from Database. We will be using linked list operations to display all trains details.
- **Modify Booked Tickets (based on User Requests)**: Tickets booked can be modified. We will be using linked list operations to edit ticket details.

# SCREENSHOT FOR INVALID INPUT CHECKING:

```
If you are a user looking to book a ticket, type 1
If you are an admin, type 2
```

```
Choice: abc
Invalid input. Try again.
```

```
If you are a user looking to book a ticket, type 1
If you are an admin, type 2
```

```
Choice: 3
Invalid input. Try again.
```

```
If you are a user looking to book a ticket, type 1
If you are an admin, type 2
```

```
Choice:
```

```
-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit
```

```
Enter Choice To Proceed (1-7): 8
Enter correct choice. Try again.
```

```
-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit
```

```
Enter Choice To Proceed (1-7): abc
Enter correct choice. Try again.
```

```
-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit
```

```
Enter Choice To Proceed (1-7):
```



# SCREENSHOT FOR INPUT CHECKING:

```
Enter Your Departure City: Karachi
Enter Your Arrival City: Lahore

AVAILABLE TRAINS ON THAT DAY IN THIS ROUTE ARE AS FOLLOWS (IF ANY):

Train Name: Karachi Express
Train ID: KHE123
Train Source: Karachi
Train Destination: Lahore
Train Departure Date: 31-Dec-2000
Train Arrival Time: 12:00 (12:00 AM)
Train Departure Time: 12:00 (09:00 PM)
Available Train Classes: Economy, AC Lower, AC Business
Seats Available: 30

Train Name: Shalimar Express
Train ID: SHE753
Train Source: Karachi
Train Destination: Lahore
Train Departure Date: 24-Dec-2020
Train Arrival Time: 20:00 (8:00 PM)
Train Departure Time: 16:40 (4:40 PM)
Available Train Classes: Economy, AC Lower, AC Business
Seats Available: 30

Input Train ID that you wish to book: ABC123
Input correct train ID!
Input Train ID that you wish to book: SHE753
Prices based on classes are as follows:
1. Economy          2500 PKR
2. AC Lower         3500 PKR
3. AC Business      4500 PKR

Input Choice (1-3):
```

```
Input Choice (1-3): 3

      A      B      C
      XX      XX     21
      XX      XX     22
      XX      XX     23
      XX      XX     24
      XX     15     25
      XX     16     26
      XX     17     27
      XX     18     28
      XX     19     XX
      XX     20     30

-----

Enter the row name that you chose: D

Invalid row, please try again.

Enter the row name that you chose: A

Enter the seat number that you chose: 31

Seat number not found, please try again.
```

# SAMPLE SCREEN SHOTS OF SYSTEM:

## USER PANEL:

```
-----  
Select 1 to Reserve a Ticket,  
Select 2 to View your Reservation.  
Select 3 to Display all tickets.  
Select 4 to Delete a ticket.  
Select 5 to Edit Details.  
Select 6 to Log Out of Session.  
Select 7 to Exit
```

```
Enter Choice To Proceed (1-7): 1
```

## RESERVE TICKET:

```
Enter First Name of Passenger: Fazeel  
Enter Last Name of Passenger: Zafar  
Enter Age: 21  
Enter CNIC Number: 4200025907413  
Enter Contact Number: 03062655988  
Enter Your Departure City: Karachi  
Enter Your Arrival City: Lahore
```

```
AVAILABLE TRAINS ON THAT DAY IN THIS ROUTE ARE AS FOLLOWS (IF ANY):
```

```
Train Name: Karachi Express  
Train ID: KHE123  
Train Source: Karachi  
Train Destination: Lahore  
Train Departure Date: 31-Dec-2000  
Train Arrival Time: 12:00 (12:00 AM)  
Train Departure Time: 12:00 (09:00 PM)  
Available Train Classes: Economy, AC Lower, AC Business  
Seats Available: 30
```

```
Train Name: Shalimar Express  
Train ID: SHE753  
Train Source: Karachi  
Train Destination: Lahore  
Train Departure Date: 24-Dec-2020  
Train Arrival Time: 20:00 (8:00 PM)  
Train Departure Time: 16:40 (4:40 PM)  
Available Train Classes: Economy, AC Lower, AC Business  
Seats Available: 30
```

```
Input Train ID that you wish to book: KHE123  
Prices based on classes are as follows:  
1. Economy          2500 PKR  
2. AC Lower         3500 PKR  
3. AC Business      4500 PKR
```

```
Input Choice (1-3): 3
```

DOWSystem32cmd.exe

Input Train ID that you wish to book: BHE123  
Prices based on classes are as follows:  
1. Economy 2500 PKR  
2. AC Lower 3500 PKR  
3. AC Business 4500 PKR

Input Choice (1-3): 3

A	B	C
01	11	21
02	12	22
XX	XX	23
04	14	24
05	XX	25
06	16	26
07	17	XX
08	18	28
09	XX	29
XX	XX	30

Enter the row name that you chose: C

Enter the seat number that you chose: 21

\*\*\*\*\*PAYMENT DETAILS\*\*\*\*\*  
Choose Payment Method.  
1. JazzCash.  
2. EasyPaisa.  
3. Credit/Debit Card.

Enter Choice (1-3): 3

-----  
Select 1 to Reserve a Ticket.  
Select 2 to View your Reservation.  
Select 3 to Display all tickets.  
Select 4 to Delete a ticket.  
Select 5 to Edit Details.  
Select 6 to Log Out of Session.  
Select 7 to Exit

Enter Choice To Proceed (1-7): 8  
Enter correct choice. Try again.

-----  
Select 1 to Reserve a Ticket.  
Select 2 to View your Reservation.  
Select 3 to Display all tickets.  
Select 4 to Delete a ticket.  
Select 5 to Edit Details.  
Select 6 to Log Out of Session.  
Select 7 to Exit

Enter Choice To Proceed (1-7): abc  
Enter correct choice. Try again.

-----  
Select 1 to Reserve a Ticket.  
Select 2 to View your Reservation.  
Select 3 to Display all tickets.  
Select 4 to Delete a ticket.  
Select 5 to Edit Details.  
Select 6 to Log Out of Session.  
Select 7 to Exit

Enter Choice To Proceed (1-7):

## TICKET GENERATED

```
C:\WINDOWS\system32\cmd.exe

Your payment is successfully processed!
PKR 4500 has been deducted from your Account.

Ticket Generated! Your ID is: 10091

-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit

Enter Choice To Proceed (1-7):
```

## VIEW TICKET THROUGH SEARCHING

```
W\system32\cmd.exe

Do You Want to View Most Recent Booking? If so, Press 1
Do You Want to Search on Older Booking? If so, Press 2
Enter Choice (1-2): 2
Enter Your Booking ID: 10091

Booking ID: 10091
Name: Fazeel Zafar
Age: 21
NIC: 4200025067413
Contact: 03062655088
Train ID: KH123
Train Name: Karachi Express
Train Class: AC Business [Berth Included]
Seat Number: C21
Date of Booking: 11-Dec-2000
Source: Karachi
Destination: Lahore
Departure Time: 12:00 (09:00 PM)
Arrival Time: 12:00 (12:00 AM)

-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit

Enter Choice To Proceed (1-7):
```

## VIEW RECENT TICKET

```
C:\WINDOWS\system32\cmd.exe

Do You Want to View Most Recent Booking? If so, Press 1.
Do You Want to Search on Older Booking? If so, Press 2.
Enter Choice (1-2): 1
Booking ID: 11884
Name: Abdullah Wahid
Age: 21
NIC: 4290036714569
Contact: 03002297134
Train ID: XK1694
Train Name: Karakoram Express
Train Class: AC Business [Berth Included]
Seat Number: 811
Date of Booking: 25-Dec-2020
Source: Karachi
Destination: Faisalabad
Departure Time: 04:40 (4:40 AM)
Arrival Time: 08:00 (8:00 AM)

-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit.

Enter Choice to Proceed (1-7):
```

## EDIT DETAILS

```
system32\cmd.exe

EDIT DETAILS:

Enter ticket ID: 10891
Enter First Name of Passenger: Fazeel
Enter Last Name of Passenger: Ahmed
Enter CNIC Number: 4860046589900
Enter Contact Number: 03003694175
-----
```

## SEARCH AFTER EDITING

```
C:\WINDOWS\system32\cmd.exe

List is as follows:
Ticket ID: 10891
Name: Fazeel Ahmed
Age: 21
NIC: 4060046589908
Contact: 03003694175
Train ID: KHE123
Train Name: Karachi Express
Train Class: AC Business [Berth Included]
Seat Number: C21
Date of Booking: 31-Dec-2008
Source: Lahore
Destination: Karachi
Departure Time: 12:00 (09:00 PM)
Arrival Time: 12:00 (12:00 AM)

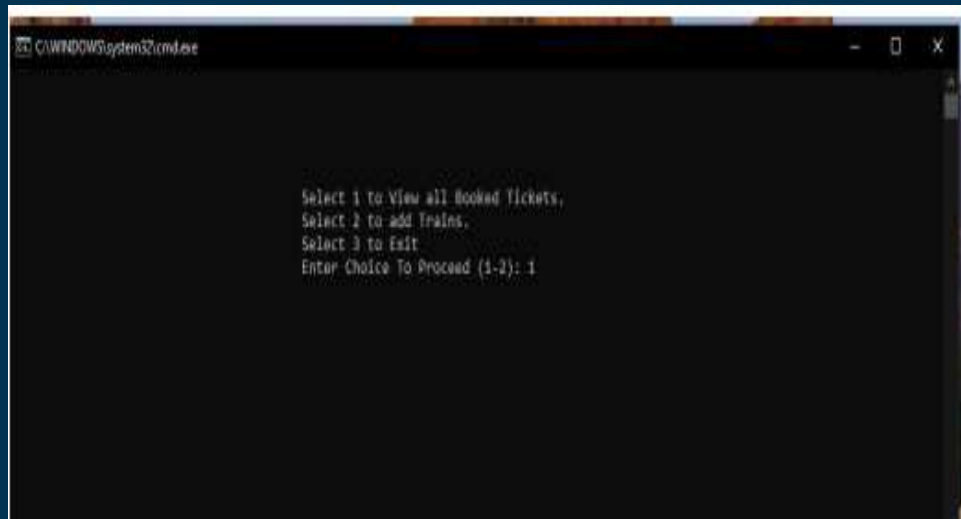
Ticket ID: 11884
Name: Abdullah Wahid
```

## DELETION

```
-----
Select 1 to Reserve a Ticket.
Select 2 to View your Reservation.
Select 3 to Display all tickets.
Select 4 to Delete a ticket.
Select 5 to Edit Details.
Select 6 to Log Out of Session.
Select 7 to Exit
```

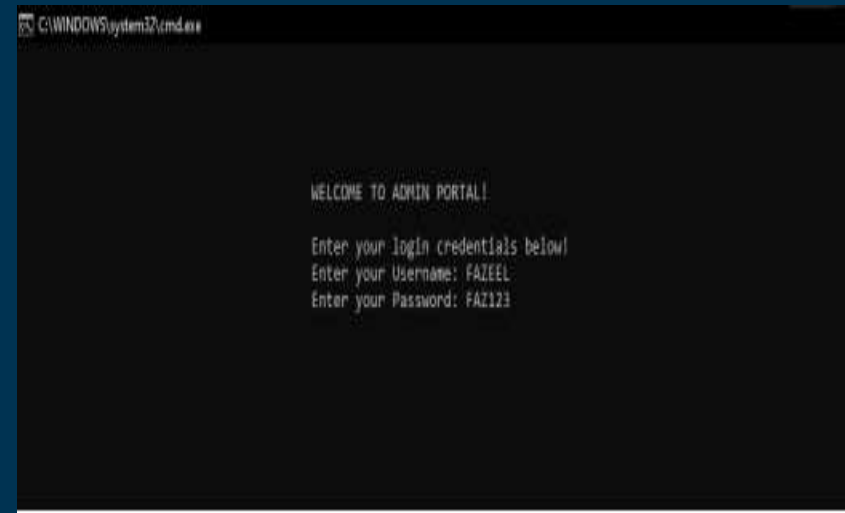
```
Enter Choice To Proceed (1-7): 4
Enter your Ticket ID: 11884
```

# ADMIN:



```
C:\WINDOWS\system32\cmd.exe

Select 1 to View all Booked Tickets.
Select 2 to add Trains.
Select 3 to Exit
Enter Choice To Proceed (1-3): 1
```



```
C:\WINDOWS\system32\cmd.exe

WELCOME TO ADMIN PORTAL!

Enter your login credentials below!
Enter your Username: FAZEEL
Enter your Password: FAZ123
```

# VIEWING TICKETS AS ADMIN

```
C:\WINDOWS\system32\cmd.exe

Select 1 to View all Booked Tickets.
Select 2 to add Trains.
Select 3 to Exit
Enter Choice To Proceed (1-3): 1

List is as follows:
Ticket ID: 20495
Name: Fazeel Zafar
Age: 21
NIC: 1234567890123
Contact: 12345678910
Train ID: GLE400
Train Name: Green Line Express
Train Class: AC Business [Berth Included]
Seat Number: B16
Date of Booking: 05-Jan-2021
Source: Islamabad
Destination: Karachi
Departure Time: 10:00 (10:00 AM)
Arrival Time: 12:00 (12:00 PM)

Ticket ID: 20734
Name: Abdullah Mahid
Age: 21
NIC: 1234567891011
Contact: 12345678910
Train ID: KH6123
Train Name: Karachi Express
Train Class: AC Business [Berth Included]
Seat Number: A05
Date of Booking: 31-Dec-2000
Source: Lahore
Destination: Karachi
Departure Time: 12:00 (09:00 PM)
Arrival Time: 12:00 (12:00 AM)

Ticket ID: 21138
Name: Kashif Khan
Age: 21
NIC: 1231111111111
Contact: 01231231234
Train ID: GLE400
Train Name: Green Line Express
Train Class: AC Business [Berth Included]
Seat Number: B18
Date of Booking: 05-Jan-2021
Source: Islamabad
Destination: Karachi
Departure Time: 10:00 (10:00 AM)
Arrival Time: 12:00 (12:00 PM)

Enter Choice To Proceed (1-2):
```



# AFTER ADDING THAT TRAIN:

```
Train Arrival Time: 20:00 (8:00 PM)  
Train Departure Time: 16:40 (4:40 PM)  
Available Train Classes: Economy, AC Lower, AC Business  
Seats Available: 30
```

```
Train Name: Sindhi Express  
Train ID: SND773  
Train Source: Karachi  
Train Destination: Lahore  
Train Departure Date: 12-Jan-2021  
Train Arrival Time: 22:00 (10:00 PM)  
Train Departure Time: 12:00 (12:00 AM)  
Available Train Classes: Economy, AC Lower, AC Business  
Seats Available: 30
```

```
Input Train ID that you wish to book:
```

# CONTRIBUTION AND SOURCES

- UTKARSH-Cancelling and editing ticket details
- PAVAN TEJ-Admin modules and implementation of methods
- PRASHANTH- Admin module and errors ,PPT Presentation
- AARUSH-Payment Methods ( Implementation of Methods),PPT Presentation
- KANISHK-Compilation Errors and Ticket Reservation

## SOURCES-

- ❑ STACK OVERFLOW
- ❑ GEEKSForGEEKS
- ❑ Coursera
- ❑ Youtube Videos