**/\* Bus Ticket Reservation System implementation using C \*/**

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

struct Bus

{

int busNumber;

char source[50];

char destination[50];

int totalSeats;

int availableSeats;

float fare;

};

struct User

{

char username[50];

char password[50];

};

void displayMainMenu()

{

printf("\n=== Main Menu ===\n");

printf("1. Login\n");

printf("2. Exit\n");

printf("Enter your choice: ");

}

void displayUserMenu()

{

printf("\n=== User Menu ===\n");

printf("1. Book a Ticket\n");

printf("2. Cancel a Ticket\n");

printf("3. Check Bus Status\n");

printf("4. Logout\n");

printf("Enter your choice: ");

}

int loginUser(struct User users[], int numUsers, char username[], char password[])

{

for (int i = 0; i < numUsers; i++)

{

if (strcmp(users[i].username, username) == 0 && strcmp(users[i].password, password) ==

0)

{

return i;

}

}

return -1;

}

void bookTicket(struct Bus buses[], int numBuses)

{

printf("\nEnter Bus Number: ");

int busNumber;

scanf("%d", &busNumber);

int busIndex = -1;

for (int i = 0; i < numBuses; i++)

{

if (buses[i].busNumber == busNumber)

{

busIndex = i;

break;

}

}

if (busIndex == -1)

{

printf("Bus with Bus Number %d not found.\n", busNumber);

}

else

{

printf("Enter Number of Seats: ");

int seatsToBook;

scanf("%d", &seatsToBook);

if (buses[busIndex].availableSeats < seatsToBook)

{

printf("Sorry, only %d seats are available.\n", buses[busIndex].availableSeats);

}

else

{

buses[busIndex].availableSeats -= seatsToBook;

printf("Booking successful! %d seats booked on Bus Number %d from %s to %s\n",

seatsToBook, busNumber, buses[busNumber].source, buses[busNumber].destination);

}

}

}

void cancelTicket(struct Bus buses[], int numBuses)

{

printf("\nEnter Bus Number: ");

int busNumber;

scanf("%d", &busNumber);

int busIndex = -1;

for (int i = 0; i < numBuses; i++)

{

if (buses[i].busNumber == busNumber)

{

busIndex = i;

break;

}

}

if (busIndex == -1)

{

printf("Bus with Bus Number %d not found.\n", busNumber);

}

else

{

printf("Enter Number of Seats to Cancel: ");

int seatsToCancel;

scanf("%d", &seatsToCancel);

if (seatsToCancel > (buses[busIndex].totalSeats - buses[busIndex].availableSeats))

{

printf("Error: You can't cancel more seats than were booked.\n");

}

else

{

buses[busIndex].availableSeats += seatsToCancel;

printf("Cancellation successful! %d seats canceled on Bus Number %d from %s to %s\n",

seatsToCancel,busNumber, buses[busNumber].source, buses[busNumber].destination);

}

}

}

void checkBusStatus(struct Bus buses[], int numBuses)  
{

printf("\nEnter Bus Number: ");

int busNumber;

scanf("%d", &busNumber);

int busIndex = -1;

for (int i = 0; i < numBuses; i++)

{

if (buses[i].busNumber == busNumber)

{

busIndex = i;

break;

}

}

if (busIndex != -1)

{

printf("\nBus Number: %d\n", buses[busIndex].busNumber);

printf("Source: %s\n", buses[busIndex].source);

printf("Destination: %s\n", buses[busIndex].destination);

printf("Total Seats: %d\n", buses[busIndex].totalSeats);

printf("Available Seats: %d\n", buses[busIndex].availableSeats);

printf("Fare: %.2f\n", buses[busIndex].fare);

}

else

{

printf("Bus with Bus Number %d not found.\n", busNumber);

}

}

int main()

{

struct User users[4] = {

{"user1", "one"}, {"user2", "two"}, {"user3", "three"}, {"user4", "four"},

};

int numUsers = 5;

struct Bus buses[5] = {

{1, "Amalapuram", "Visakhapatnam", 50, 50, 500.0},

{2, " Amalapuram ", "Vijayawada", 40, 40, 400.0},

{3, " Amalapuram ", "Warangal", 30, 30, 300.0},

{4, " Amalapuram ", "Rajahmundry", 30, 30, 200.0},

{5, " Amalapuram ", "Kakinada", 30, 30, 100.0},

};

int numBuses = 5;

int loggedInUserId = -1;

while (1)

{

if (loggedInUserId == -1)

{

displayMainMenu();

int choice;

scanf("%d", &choice);

if (choice == 1)

{

char username[50];

char password[50];

printf("Enter Username: ");

scanf("%s", username);

printf("Enter Password: ");

scanf("%s", password);

loggedInUserId = loginUser(users, numUsers, username, password);

if (loggedInUserId == -1)

{

printf("Login failed. Please check your username and password.\n");

}

else

{

printf("Login successful. Welcome, %s!\n", username);

}

}

else if (choice == 2)

{

printf("Exiting the program.\n");

break;

}

else

{

printf("Invalid choice. Please try again.\n");

}

}

else

{

displayUserMenu();

int userChoice;

scanf("%d", &userChoice);

switch (userChoice)

{

case 1: bookTicket(buses, numBuses);

break;

case 2: cancelTicket(buses, numBuses);

break;

case 3: checkBusStatus(buses, numBuses);

break;

case 4: printf("Logging out.\n");

loggedInUserId = -1;

break;

default: printf("Invalid choice. Please try again.\n");

}

}

}

return 0;

}

**Output:**

=== Main Menu ===

1. Login

2. Exit

Enter your choice: 1

Enter Username: user1

Enter Password: one

Login successful. Welcome, user1!

=== User Menu ===

1. Book a Ticket

2. Cancel a Ticket

3. Check Bus Status

4. Logout

Enter your choice: 1

Enter Bus Number: 2

Enter Number of Seats: 1

Booking successful! 1 seats booked on Bus Number 2 from Amalapuram to Warangal

=== User Menu ===

1. Book a Ticket

2. Cancel a Ticket

3. Check Bus Status

4. Logout

Enter your choice: 3

Enter Bus Number: 2

Bus Number: 2

Source: Amalapuram

Destination: Vijayawada

Total Seats: 40

Available Seats: 39

Fare: 400.00

=== User Menu ===

1. Book a Ticket

2. Cancel a Ticket

3. Check Bus Status

4. Logout

Enter your choice: 2

Enter Bus Number: 2

Enter Number of Seats to Cancel: 1

Cancellation successful! 1 seats canceled on Bus Number 2 from Amalapuram to Warangal

=== User Menu ===

1. Book a Ticket

2. Cancel a Ticket

3. Check Bus Status

4. Logout

Enter your choice: 4

Logging out.

=== Main Menu ===

1. Login

2. Exit

Enter your choice: 2

Exiting the program.