TICKET BOOKING

Project Based Learning Report

DATA STRUCTURES LAB

B Tech III Semester

IN

COMPUTER SCIENCE AND ENGINEERING

BY

A SAI VENKAT (22331A0501)

A YASWANTH (22331A0502)

A RAVICHANDRIKA (22331A0503)

A LOKESH (22331A0504)

A BHAGYA LAXMI (22331A0505)

A DURGA PRASAD (22331A0506)

S H K SATVIK (22331A05J5)

Batch No: 01

Under the Supervision of

Mr. P. L. N. RAJU

(Assistant Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING MVGR COLLEGE OF ENGINEERING (Autonomous) VIZIANAGARAM-535003, AP (INDIA)

(Accredited by NBA, NAAC, and Permanently Affiliated to Jawaharlal Nehru Technological University Kakinada)

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Problem Statement: Ticket Booking System

In this programming exercise, we are tasked with creating a simple ticket booking system for a bus service. The system should allow users to view available buses, book tickets for a selected bus, and provide details such as the passenger's name, the number of tickets, and the chosen bus's information. Additionally, the program should calculate and display the fare for the booked tickets.

Introduction:

The Ticket Booking System is designed to streamline the process of reserving bus tickets. Users can interact with the system to explore the available buses, make a booking, and receive a confirmation of their reservation. The system includes features such as displaying bus details, calculating fares, and providing a user-friendly interface for a seamless booking experience.

Algorithm:

1. Struct Definition:

- Define a structure, `ticket_booking`, to store details such as passenger name, bus number, and the number of tickets.

2.Display Available Buses:

- Implement a function, `available_buses()`, to present a list of available buses with their respective details (bus number, destination, fare, and departure time).

3.Print Bus Details:

- Create a function, `print_bus(int bus_num)`, to print detailed information about a specific bus based on its number.

4.Calculate Fare:

- Develop a function, `fare(int bus_num, int num_of_tickets)`, to calculate the fare for a given bus and the number of tickets booked.

5.Print Ticket:

- Implement a function, `print_ticket(struct ticket_booking *details, float charge)`, to display the booking details, including the passenger's name, bus information, and the calculated fare.

6.Booking Process:

- Create a function, `book()`, to facilitate the booking process. - Prompt the user for their name, the number of tickets, and display the available buses.
- Allow the user to choose a bus and confirm the booking.
- Calculate the fare and display the booking details. - Request confirmation from the user.

7. Main Function:

- Implement the main function, `main()`, to serve as the program's entry point.
- Display a menu with options to book a ticket, view available buses, or exit the program. - Continuously loop until the user chooses to exit.

Description:

The program is written in C and uses structures to store information about ticket bookings. Functions are modularized to handle specific tasks such as clearing the screen, displaying available buses, calculating fare, and printing tickets. Memory is dynamically allocated for storing user details during the booking process.

Source Code:

BATCH_01_PBL_TICKET_BOOKING.c

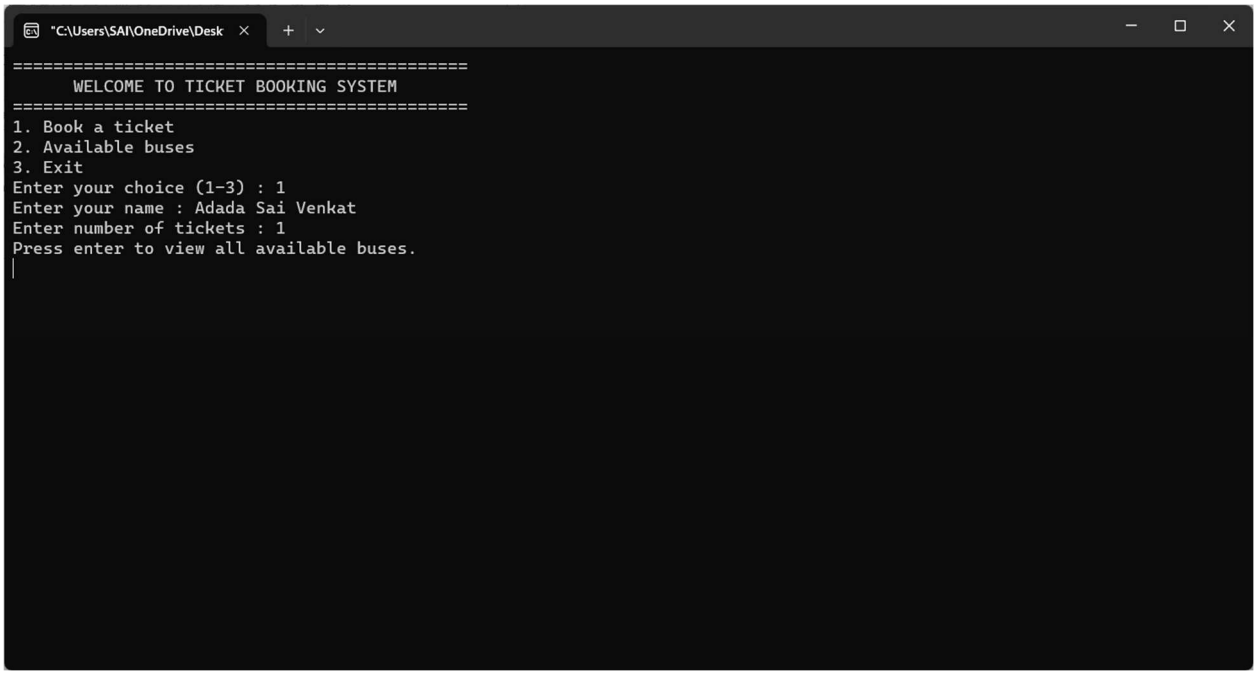
```c
#include<stdio.h>
#include<stdlib.h>
#include<stddef.h>
#include<string.h>
struct ticket_booking
{
    char name[50];
    int bus_num;
    int num_of_tickets;
};
void clear_screen()
{
    printf("\033[H\033[J");     //ANSI escape code to clear the screen //ANSI stands for the American National Standards Institute
}
void available_buses()
{
    clear_screen();
    printf("| Bus no | Bus name |         Destination                |  Fare   | Time |\n");
    printf("-------------------------------------------------------------------------\n");
    printf("| 533101 | Bus A    | Kakinada to Visakhapatnam          | Rs.500  | 9am  |\n");
    printf("| 533102 | Bus B    | Kakinada to Vizianagaram           | Rs.500  | 11am |\n");
    printf("| 533103 | Bus C    | Rajahmundry to Vizianagaram        | Rs.450  | 3pm  |\n");
    printf("| 533104 | Bus D    | Visakhapatnam to Rajahmundry       | Rs.450  | 8pm  |\n");
    printf("| 533105 | Bus E    | Vizianagaram to Kakinada           | Rs.500  | 10pm |\n");
}
void print_bus(int bus_num)
{
    switch(bus_num)
    {
        case 533101:
                    printf("Bus               : Bus A\n");
                    printf("Destination       : Kakinada to Visakhapatnam\n");
                    printf("Departure         : 9am\n");
                    break;
        case 533102:
                    printf("Bus               : Bus B\n");
                    printf("Destination       : Kakinada to Vizianagaram\n");
                    printf("Departure         : 11am\n");
                    break;
        case 533103:
                    printf("Bus               : Bus C\n");
                    printf("Destination       : Rajahmundry to Vizianagaram\n");
                    printf("Departure         : 3pm\n");
                    break;
        case 533104:
                    printf("Bus               : Bus D\n");
                    printf("Destination       : Visakhapatnam to Rajahmundry\n");
                    printf("Departure         : 8pm\n");
                    break;
        case 533105:
                    printf("Bus               : Bus E\n");
                    printf("Destination       : Vizianagaram to Kakinada\n");
```

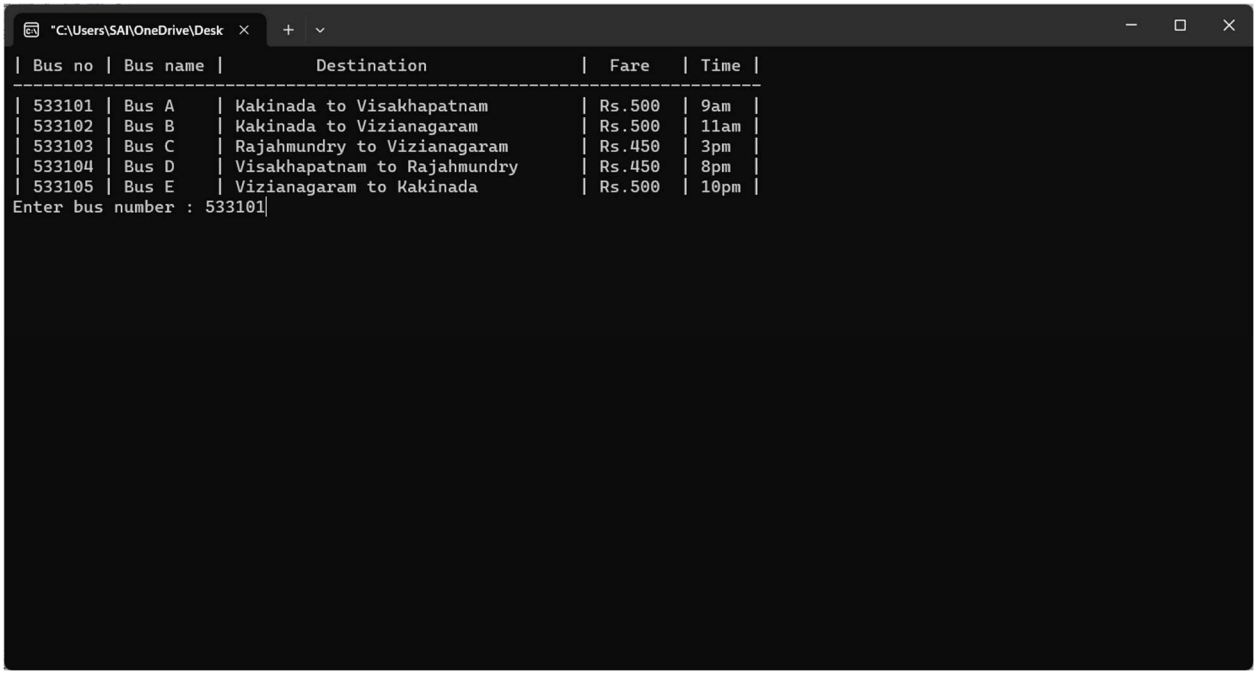
```
                    printf("Departure          : 10pm\n");
                    break;
        default:
                    printf("Invalid bus number!!\n");
                    break;
    }
}
float fare(int bus_num, int num_of_tickets)
{
    return (bus_num == 533103 || bus_num == 533104) ? (float)(num_of_tickets * 450) : (float)(num_of_tickets * 500);
}
void print_ticket(struct ticket_booking *details, float charge)
{
    clear_screen();
    printf("=============================================\n");
    printf("                   DETAILS\n");
    printf("=============================================\n");
    printf("Name               : %s\n", details->name);
    printf("Number of tickets  : %d\n", details->num_of_tickets);
    printf("Bus number         : %d\n", details->bus_num);
    print_bus(details->bus_num);
    printf("Fare               : Rs/- %.2f\n", charge);
}
void book()
{
    char confirm;
    struct ticket_booking *details=(struct ticket_booking *)malloc(sizeof(struct ticket_booking));
    printf("Enter your name : ");
    scanf(" %[^\n]s",details->name);
    printf("Enter number of tickets : ");
    scanf("%d",&details->num_of_tickets);
    printf("Press enter to view all available buses.\n");
    getchar();      //Consume newline
    getchar();      //Wait for key press
    clear_screen();
    available_buses();
    printf("Enter bus number : ");
    scanf("%d",&details->bus_num);
    if(details->bus_num >= 533101 && details->bus_num <= 533105)
    {
        float charge=fare(details->bus_num,details->num_of_tickets);
        print_ticket(details,charge);
        printf("Are you sure you want to confirm? (y/n) : ");
        scanf(" %c",&confirm);
        if(confirm=='y' || confirm=='Y')
        {
            printf("Booking successful! Wishing you a happy journey.\n");
            free(details);
            exit(0);
        }
        else
        {
            printf("Booking not successful! Please try again.\n");
            free(details);
            exit(0);
```

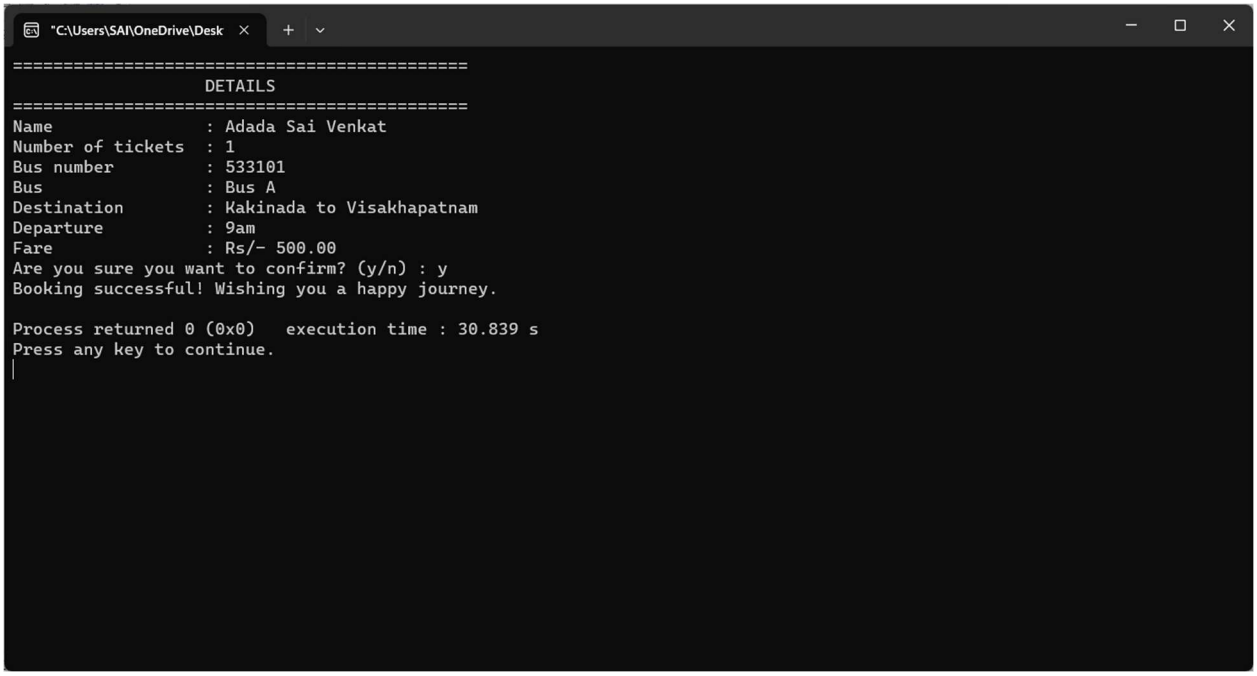
```
        }
    }
    else
    {
        printf("Invalid bus number! Booking failed.\n");
        free(details);
        exit(0);
    }
}
int main()
{
    int choice;
    do
    {
        clear_screen();
        printf("=============================================\n");
        printf("      WELCOME TO TICKET BOOKING SYSTEM\n");
        printf("=============================================\n");
        printf("1. Book a ticket\n");
        printf("2. Available buses\n");
        printf("3. Exit\n");
        printf("Enter your choice (1-3) : ");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:
                    book();
                    break;
            case 2:
                    available_buses();
                    printf("Press any key to go back to main menu.\n");
                    getchar(); // Consume newline
                    getchar(); // Wait for key press
                    break;
            case 3:
                    exit(0);
            default:
                    printf("Invalid choice! Please enter a valid choice.\n");
                    exit(0);
        }
    }while(1);
    return 0;
}

```

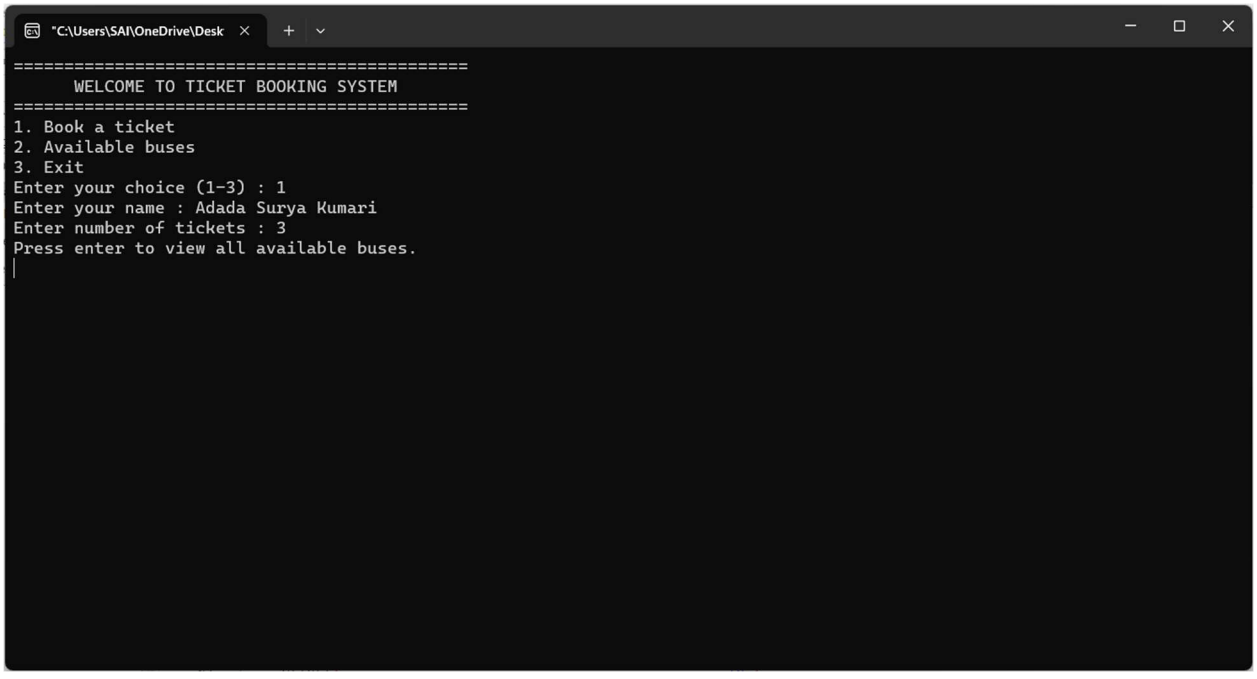
Output:
Test Case -1

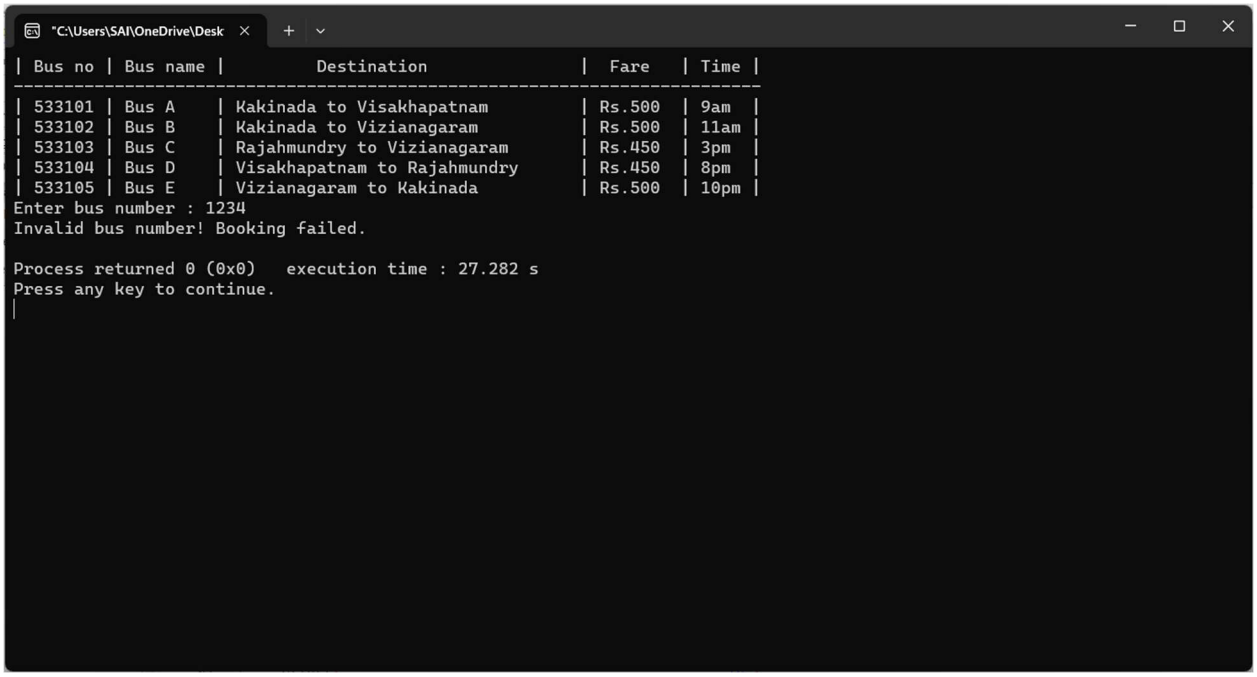




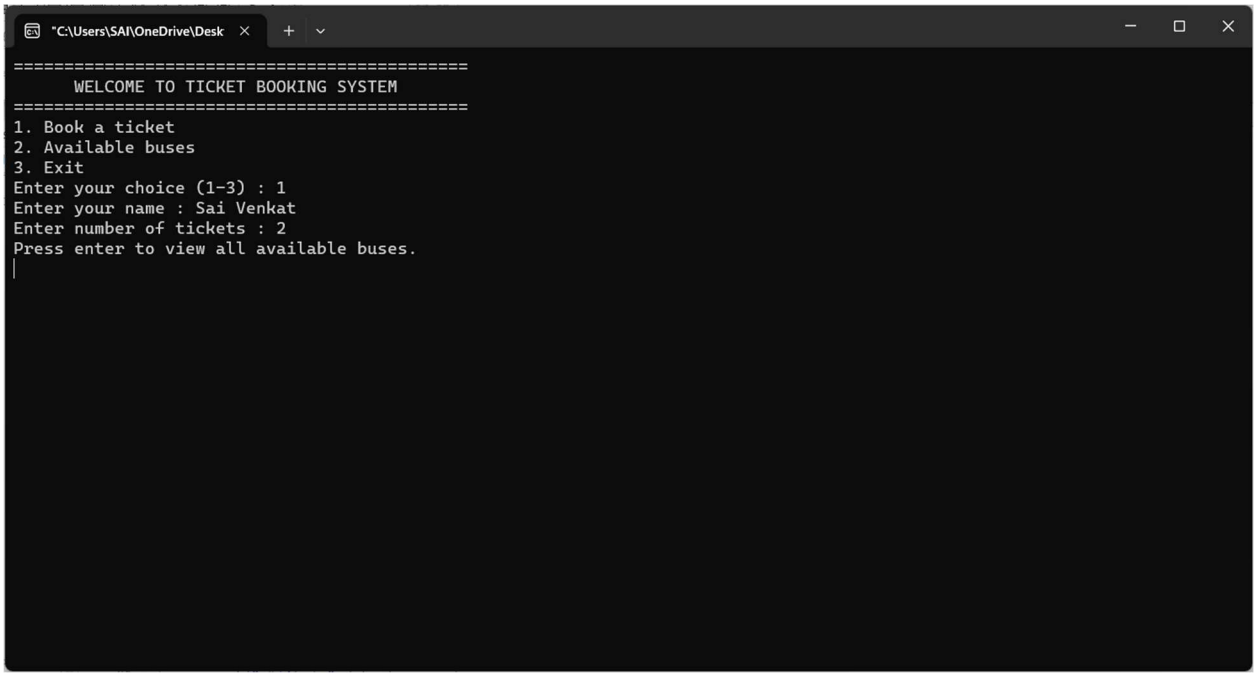

"C:\Users\SAI\OneDrive\Desk
==========
DETAILS
==========
Name : Adada Sai Venkat
Number of tickets : 1
Bus number : 533101
Bus : Bus A
Destination : Kakinada to Visakhapatnam
Departure : 9am
Fare : Rs/- 500.00
Are you sure you want to confirm? (y/n) : y
Booking successful! Wishing you a happy journey.
Process returned 0 (0x0) execution time : 30.839 s
Press any key to continue.

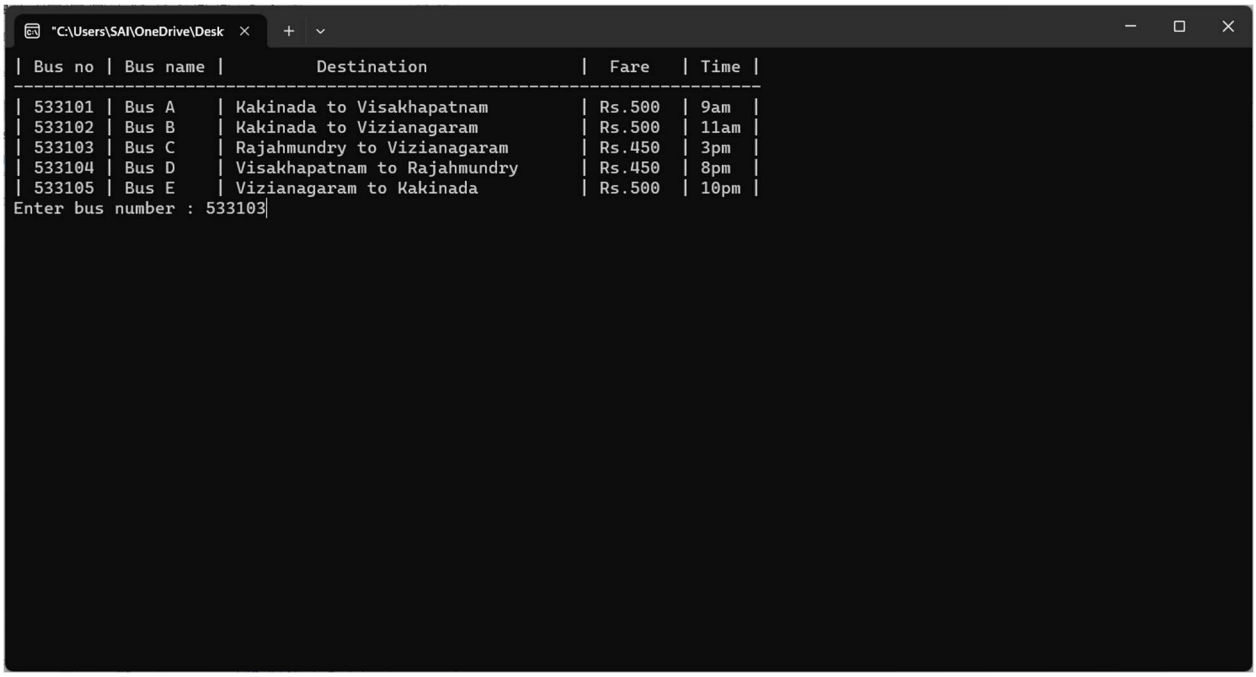
Test Case -2

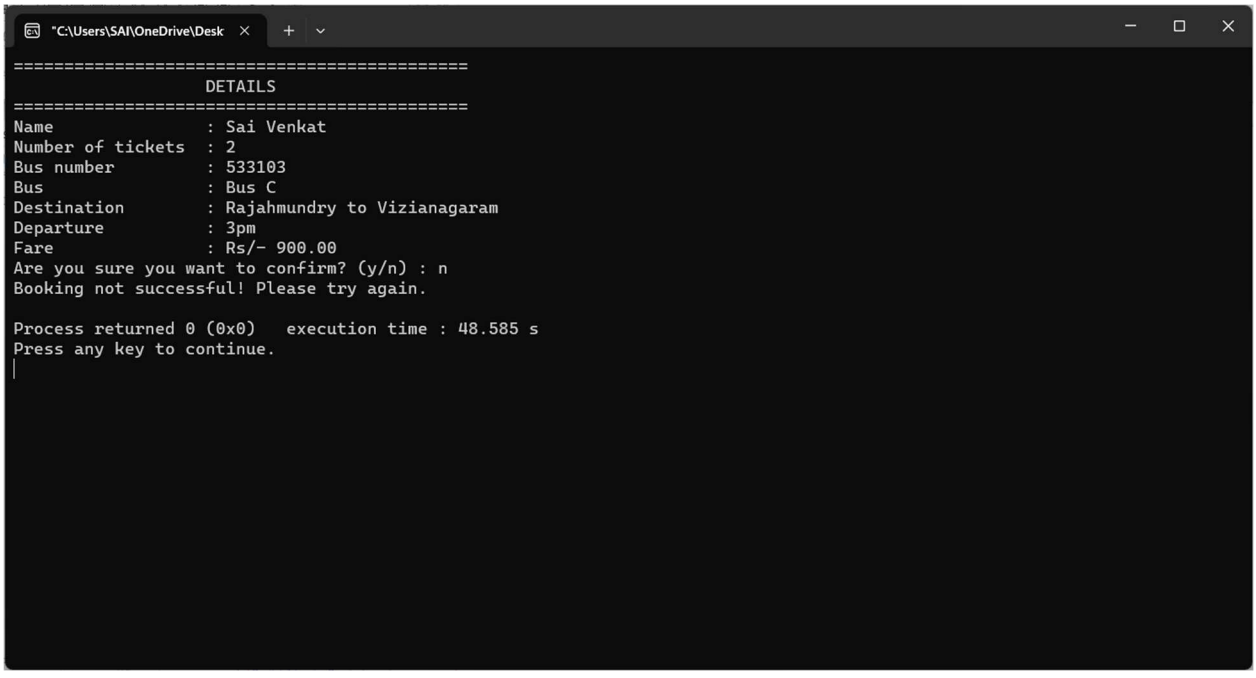

"C:\Users\SAI\OneDrive\Desk
==========
WELCOME TO TICKET BOOKING SYSTEM
==========
1. Book a ticket
2. Available buses
3. Exit
Enter your choice (1-3) : 1
Enter your name : Adada Surya Kumari
Enter number of tickets : 3
Press enter to view all available buses.


"C:\Users\SAI\OneDrive\Desk
Bus no	Bus name	Destination	Fare	Time
533101	Bus A	Kakinada to Visakhapatnam	Rs.500	9am
533102	Bus B	Kakinada to Vizianagaram	Rs.500	11am
533103	Bus C	Rajahmundry to Vizianagaram	Rs.450	3pm
533104	Bus D	Visakhapatnam to Rajahmundry	Rs.450	8pm
533105	Bus E	Vizianagaram to Kakinada	Rs.500	10pm
Enter bus number : 1234
Invalid bus number! Booking failed.
Process returned 0 (0x0) execution time : 27.282 s
Press any key to continue.

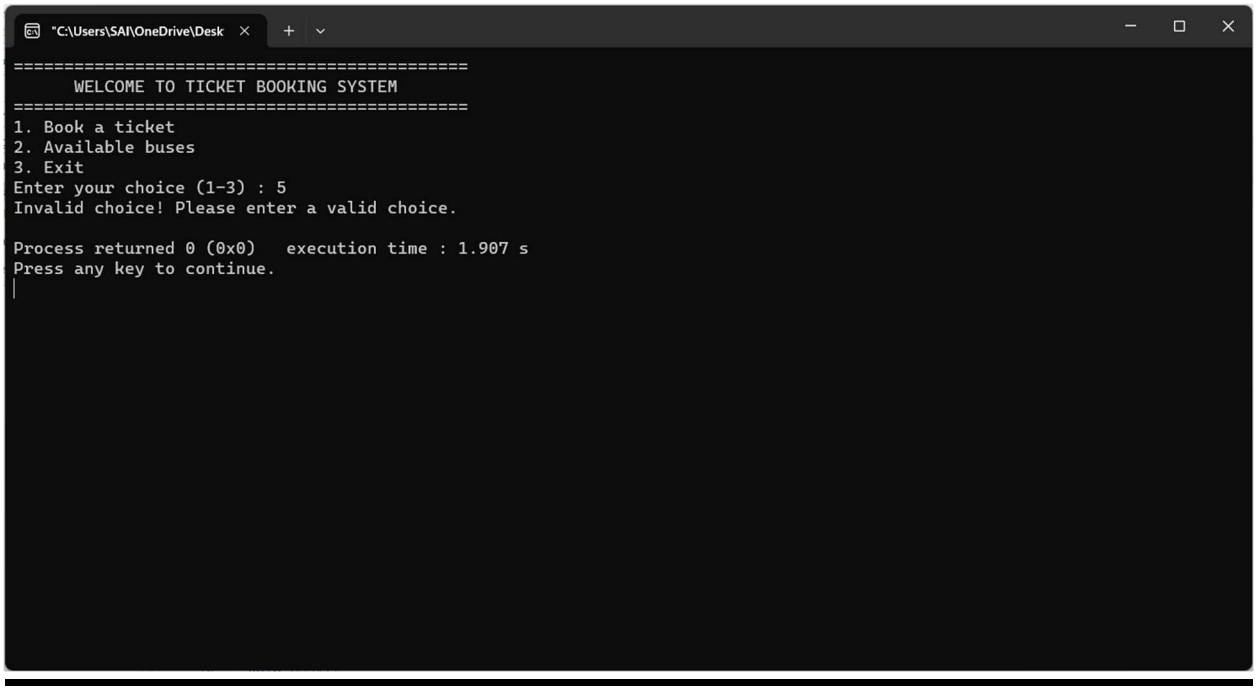
Test Case -3


"C:\Users\SAI\OneDrive\Desk
==========
WELCOME TO TICKET BOOKING SYSTEM
==========
1. Book a ticket
2. Available buses
3. Exit
Enter your choice (1-3) : 1
Enter your name : Sai Venkat
Enter number of tickets : 2
Press enter to view all available buses.


"C:\Users\SAI\OneDrive\Desk
Bus no	Bus name	Destination	Fare	Time
533101	Bus A	Kakinada to Visakhapatnam	Rs.500	9am
533102	Bus B	Kakinada to Vizianagaram	Rs.500	11am
533103	Bus C	Rajahmundry to Vizianagaram	Rs.450	3pm
533104	Bus D	Visakhapatnam to Rajahmundry	Rs.450	8pm
533105	Bus E	Vizianagaram to Kakinada	Rs.500	10pm
Enter bus number : 533103


"C:\Users\SAI\OneDrive\Desk
DETAILS
Name   : Sai Venkat
Number of tickets   : 2
Bus number   : 533103
Bus   : Bus C
Destination   : Rajahmundry to Vizianagaram
Departure   : 3pm
Fare   : Rs/- 900.00
Are you sure you want to confirm? (y/n) : n
Booking not successful! Please try again.
Process returned 0 (0x0)   execution time : 48.585 s
Press any key to continue.

Test Case -4



Conclusion:

This Ticket Booking System provides a straightforward and interactive way for users to book bus tickets. It incorporates features for viewing available buses, making bookings, and confirming reservations. The system aims to enhance user experience and streamline the process of bus ticket reservation through a simple and efficient interface. Users can navigate through the system, explore available options, and enjoy a hassle-free booking experience