An
Activity Based Learning report
on

Railway Reservation System

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ABSTRACT

write one or two paragraphs to describe application/problem statement

C programming is used to implement the railway ticket booking system. It is identical to what is seen when we order tickets online. When using this software to book a train ticket, the following procedures are taken:

Providing the total number of passengers and submitting all required passenger information is the first step.
Entering the source and destination is the next step.

There will be a list of trains that are available. The user must select one of these. The value of the ticket will be assessed. By displaying the seat matrix, the system will prompt you to select a seat. Finally, the screen will provide a receipt.

ANALYSIS

Briefly discuss the concepts used, applications, end users etc.

The first step is to implement a structure for taking the details of the passengers, like name, gender, and age.

Five functions are defined void details(int), void add_node(char, char, int), int seat(int), int cal(int, int, int), void bill(int, int) to work smoothly.

There are three elements in the structure like two strings one for taking passenger name and gender and one integer for taking passenger age. Also, a structure pointer will be used which helps to link the next node of another passenger. It is similar to the linked list.

Character arrays are defined and some integer arrays are defined globally.

Take the number of passengers as input and these details are sent to the details() function.

Execute a for loop to take details of each passenger. The details inputted by the user will be sent to the add_node() function.

In the add_node function, every detail will store in a node for each passenger. These nodes will link each other. This is based on the linked list concept.

Take the input for source place, destination place and it will give some choice of trains available. Based on that user has to give a choice. Then call the cal() function.

In cal() function, the user has to give a choice for sleeper or a.c. class. If the user chooses a.c. class another three options will open where the user has to give another choice based on that the system will add 18% GST on the amount and make total amount.

Call the seat() function where a seat matrix will be given to the user and the user has to choose a seat same with the number of passengers.

At last, call the bill() function where the total bill amount with all the necessary details will be displayed.

IMPLEMENTATION

code

```
// 1
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

// 2
typedef struct mynode {
	char name[20];
	char gen[6];
	int age;
	struct mynode* link;
} Node;

Node* start = NULL;

void details(int);
int seat(int);
int cal(int, int, int);
void bill(int, int);
void add_node(char[], char[], int);

// 3
char source[20], des[20], train[40];
char station[40], cla[40];
int time1, time2, a[55];

// 4
int main()
{
	int i, j, a1, a2, b, c, x = 0, d, e, r;
	char o;
	printf("Enter Number Of Passengers: ");
	scanf("%d", &j);
```

```
// 5
        // 6
        details(j);
        printf("Enter The Source Place: ");
        getchar();
        gets(source);
        printf("Enter The Destination Place: ");
        gets(des);
        printf("\t\tThe Following Trains "
               "Are Available.....\n");
        printf("\t\t1. Rajdhani Express.."
               ".....10:00 "
               "a.m.....Station 1\n");
        printf("\t\t2. Satabdi Express..."
               ".....05:00 "
               "p.m.....Station 2\n");
        printf("\t\t3. Humsafar Express..."
               ".....11:00 "
               "p.m.....Station 3"
               " \n");
        printf("\t\t4. Garib-Rath Express"
               ".....05:00 "
               "p.m.....Station 1\n");
        printf("\t\t5. Duronto Express..."
               ".....07:00 "
               "a.m.....Station 5"
               "\n");
        scanf("%d", &i);
        do {
               switch (i) {
               case 1: {
                      strcpy(train,
                             "Rajdhani Express");
                      strcpy(station,
                             "Station 1");
                      time1 = 10;
                      time2 = 00;
                      a1 = 2099;
                      a2 = 1560;
```

```
// 7
                    // 8
                    // 9
                    d = cal(a1, a2, j);
                    printf("Total Bill Amount:"
                           " %d\n",
                           d);
                }; break;
                case 2: {
                    strcpy(train,
                           "Satabdi Express");
                    strcpy(station,
                           "Station 2");
                    time1 = 05;
                    time2 = 00;
                    a1 = 1801;
                    a2 = 981;

                    // 10
                    // 11
                    d = cal(a1, a2, j);
                    printf("Total Bill Amount:"
                           "%d\n",
                           d);
                }; break;
                case 3: {
                    strcpy(train,
                           "Humsafar Express");
                    strcpy(station,
                           "Station 3 Express");
                    time1 = 11;
                    time2 = 00;
                    a1 = 2199;
                    a2 = 1780;
```

```
// 12
                    // 13
                    d = cal(a1, a2, j);
                    printf("Total Bill Amount: %d\n", d);
                }; break;
                case 4: {
                    strcpy(train, "Garib-Rath Express");
                    strcpy(station, "Station 1");
                    time1 = 05;
                    time2 = 00;
                    a1 = 1759;
                    a2 = 1200;

                    // 14
                    // 15
                    d = cal(a1, a2, j);
                    printf("Total Bill Amount: %d\n", d);
                }; break;
                case 5: {
                    strcpy(train, "Duronto Express");
                    strcpy(station, "Station 5 Station");
                    time1 = 07;
                    time2 = 00;
                    a1 = 2205;
                    a2 = 1905;

                    // 16
                    // 17
                    d = cal(a1, a2, j);
                    printf("Total Bill Amount: %d\n", d);
                }; break;
                default:
                    printf("Enter Correct choice.....\n");
                    x = 1;
                    break;
                }
        } while (x);
        printf("Now Book Your Seats......\n");
```

```
// 18
        // 19
        seat(j);

        // 20
        // 21
        // 22
        bill(d, j);
       return 0;
}

// 23
int cal(int y1, int y2, int h)
{
        int b, c, i, t, r, n;
        printf("\t\tEnter Your Choice......\n");
        printf("\t\t1. Sleeper Class....\n");
        printf("\t\t2. A.C Class.......\n");
        scanf("%d", &i);
        switch (i) {
        case 1: {
                strcpy(cla, "Sleeper Class");
                b = y2 * h;
                c = b + (b * 0.18);
        } break;
        case 2: {
                printf("\t\tEnter Your Choice....\n");
                printf("\t\t1. 3A Class....\n");
                printf("\t\t2. 2A Class....\n");
                printf("\t\t3. 1st Class A.C.....\n");
                scanf("%d", &n);
                switch (n) {
                case 1: {
                        strcpy(cla, "3A Class");
                        b = y1 * h;
                        c = b + (b * 0.18);
                } break;
```

```
            case 2: {
                    strcpy(cla, "2A Class");
                    b = (y1 + 1000) * h;
                    c = b + (b * 0.18);
            } break;
            case 3: {
                    strcpy(cla, "1st Class A.C.");
                    b = (y1 + 5000) * h;
                    c = b + (b * 0.18);
            } break;
            default: {
                    printf("\t\tEnter Right Choice.....\n");
            }
            }
        } break;
        default: {
                printf("\t\tEnter Right Choice.....\n");
        }
        }
        return c;
}

// 24
// 25
void details(int k)
{
        int i, a;
        char val[20], gen[6];
        for (i = 1; i <= k; i++) {
                printf("Enter The %dth Passenger Name: ", i);
                getchar();
                gets(val);
                printf("Enter The %dth Passenger Gender: ", i);
                getchar();
                gets(gen);
                printf("Enter The %dth Passenger Age: ", i);
                getchar();
                scanf("%d", &a);
```

```
                // 26
                add_node(val, gen, a);
        }
}

// 27
// 28
void add_node(char lol[20], char der[6], int b)
{
        Node *newptr = NULL, *ptr;
        newptr = (Node*)malloc(sizeof(Node));
        strcpy(newptr->name, lol);
        strcpy(newptr->gen, der);
        newptr->age = b;
        newptr->link = NULL;
        if (start == NULL)
                start = newptr;
        else {
                ptr = start;
                while (ptr->link != NULL)
                        ptr = ptr->link;
                ptr->link = newptr;
        }
}

// 29
int seat(int p)
{
        int i;
        printf("\t              -:SEAT MATRIX:-     \n");
        printf("\t(U) (M)          (L) (L) "
                " (U)\n\n");
        printf("\t01 02     03\t04       "
                "05\n\n");
        printf("\t06 07     08\t09       "
                "10\n");
        printf("\t11 12     13\t14       "
                "15\n\n");
        printf("\t16 17     18\t19       "
                "20\n");
```

```
	printf("\t21 22	23\t24	"
		"25\n\n");
	printf("\t26 27	28\t29	"
		"30\n");
	printf("\t31 32	33\t34	"
		"35\n\n");
	printf("\t36 37	38\t39	"
		"40\n");
	printf("\t41 42	43\t44	"
		"45\n\n");
	printf("\t46 47	48\t49	"
		"50\n");
	printf("\t51 52	53\t54	"
		"55\n\n");
	printf("\t56 57	58\t59	"
		"60\n");
	printf("\tEnter Seat Numbers: \n");
	for (i = 0; i < p; i++)
		scanf("%d", &a[i]);
}

// 30
void bill(int y, int j)
{
	int i;
	Node* ptr = start;
	for (i = 1; i <= j; i++) {
		printf("\t\t%dst Passenger Name: ", i);
		puts(ptr->name);
		printf("\t\t%dst Passenger Gender: ", i);
		puts(ptr->gen);
		printf("\t\t%dst Passenger Age: %d\n\n", i,
			ptr->age);
		ptr = ptr->link;
	}
```

```
        printf("\t\tSource Place: ");
        puts(source);
        printf("\t\tDestination Place: ");
        puts(des);
        printf("\t\tThe Boarding Station: ");
        puts(station);
        printf("\t\tTrain Is: ");
        puts(train);
        printf("\t\tAllocated Class: ");
        puts(cla);
        printf("\t\tBoarding Time: %d:%d\n", time1, time2);
        printf("\t\tTotal Bill Amount: %d\n", y);
        printf("\t\tAllocated Seats Are: \n");
        for (i = 0; i < j; i++) {
                printf("\t\t%d ", a[i]);
        }
        printf("\n");
        printf("\t\t\t\tThank You.....\n");

}
```

RESULTS

Put snapshots of output

```
Enter Number Of Passengers: 3
Enter The 1th Passenger Name: ABDULLAH
Enter The 1th Passenger Gender: M
Enter The 1th Passenger Age: 20
Enter The 2th Passenger Name: ANSHUMAN
Enter The 2th Passenger Gender: M
Enter The 2th Passenger Age: 18
Enter The 3th Passenger Name: SUMITA
Enter The 3th Passenger Gender: F
Enter The 3th Passenger Age: 18
Enter The Source Place: TUMKUR
Enter The Destination Place: BANGLORE
               The Following Trains Are Available.....
               1. Rajdhani Express.........10:00 a.m........Station 1
               2. Satabdi Express..........05:00 p.m........Station 2
               3. Humsafar Express..........11:00 p.m........Station 3
               4. Garib-Rath Express.........05:00 p.m........Station 1
               5. Duronto Express............07:00 a.m.........Station 5
2
               Enter Your Choice......
               1. Sleeper Class....
               2. A.C Class.......
2
               Enter Your Choice....
               1. 3A Class....
               2. 2A Class....
               3. 1st Class A.C.....
1
```

```
Total Bill Amount:6375
Now Book Your Seats......
                          -:SEAT MATRIX:-
        (U) (M)  (L) (L)  (U)

        01 02    03     04       05

        06 07    08     09       10
        11 12    13     14       15

        16 17    18     19       20
        21 22    23     24       25

        26 27    28     29       30
        31 32    33     34       35

        36 37    38     39       40
        41 42    43     44       45

        46 47    48     49       50
        51 52    53     54       55

        56 57    58     59       60
        Enter Seat Numbers:
16
17
18
```

```
                1st Passenger Name: BDULLAH
                1st Passenger Gender:
                1st Passenger Age: 0

                2st Passenger Name: ANSHUMAN
                2st Passenger Gender:
                2st Passenger Age: 8

                3st Passenger Name: SUMITA
                3st Passenger Gender:
                3st Passenger Age: 8

                Source Place: TUMKUR
                Destination Place: BANGLORE
                The Boarding Station: Station 2
                Train Is: Satabdi Express
                Allocated Class: 3A Class
                Boarding Time: 5:0
                Total Bill Amount: 6375
                Allocated Seats Are:
                16              17              18
                                Thank You......

Process returned 0 (0x0)   execution time : 95.698 s
Press any key to continue.
```

CONCLUSION

This C code presents a straightforward and efficient Railway Booking System allowing users to Tickets, Trains, And Seats based on their Intrest. The application is designed with simplicity and usability in mind, making it a useful for Ticket Bookings.