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Experiment No.	**8**

Program 1

PROBLEM STATEMENT :

A men’s sports club keeps elaborate computerized records of all its members. The records contain typical information such as age, address, etc. of each person. But there is also information about whether a member is an active playing member, about whether he is married, and so on; if he is married the record contains information about his wife’s name, the no. of children and their names. Write a program which demonstrates how such a system might be printed.

ALGORITHM:

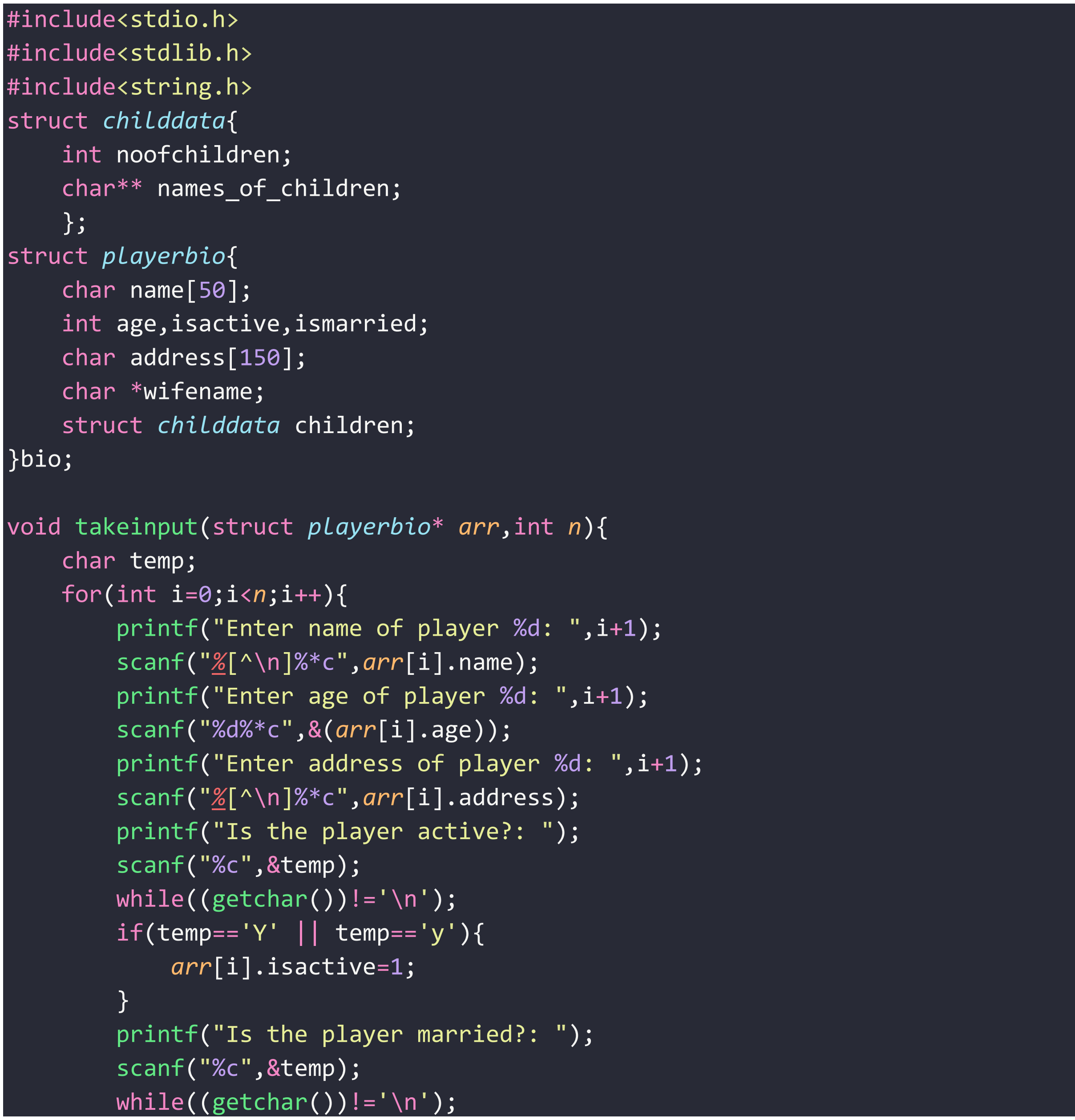
1. Input the number of players n.
2. Create a struct player with fields: name, address, age, activity status, marital status,
3. wife name and 3 child names (c1, c2, c3).
4. Define a function "info" that takes the player array and n as input.
5. Inside the info function, use a for loop to input the details of each player.
6. For each player, get the player's name, address, age, activity status, and marital status
7. using scanf.
8. If the marital status is 1 (i.e., married), input the player's wife's name and 3 child
9. names using scanf.
10. After inputting the details of all players, print the header (Name, Address, Age, Wife,
11. Use a for loop to print the details of each player. If the player is married, print all
12. the details including the wife's name and 3 children's names.
13. End the program.

1. Start of function info
2. Input: player array "p" and integer "n".
3. Initialize a for loop to input the details of each player.
4. For each iteration of the for loop:
    a. Use "getchar()" to clear the input buffer.
    b. Input the player's name using scanf.
    c. Input the player's address using scanf.
    d. Input the player's age using scanf.
    e. Input the player's activity status using scanf.
    f. Input the player's marital status using scanf.

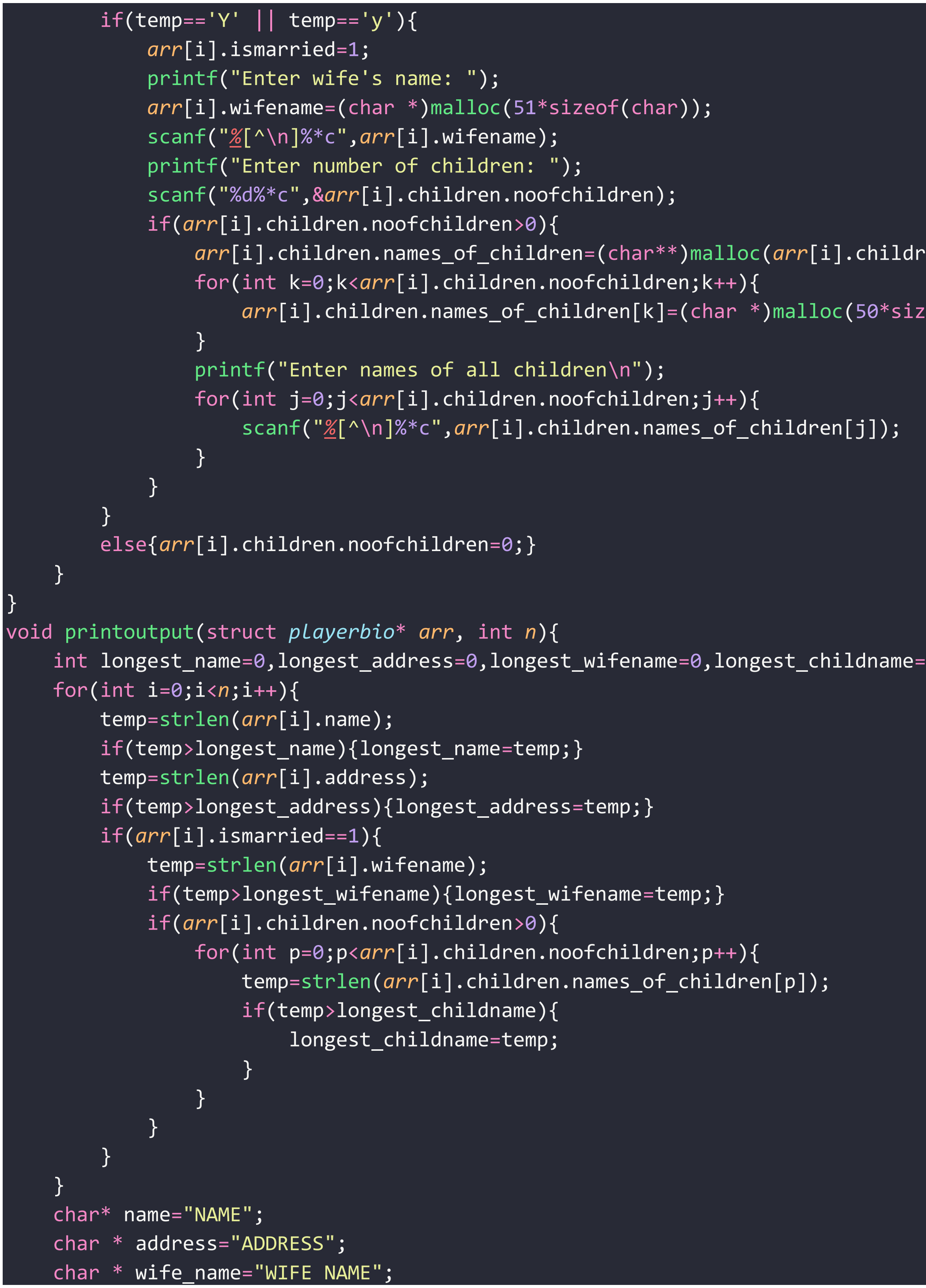
        g. If the marital status is 1 (i.e., married), input the player's wife's name and 3 chi

5. End the for loop.
6. Print the header (Name, Address, Age, Wife, Child1, Child2, Child3).
7. Initialize a for loop to print the details of each player.
8. For each iteration of the for loop:
    a. If the player is active, print all the details including the wife's name and 3
    b. children's names.
    c. End the for loop.
9. End the "info" function.

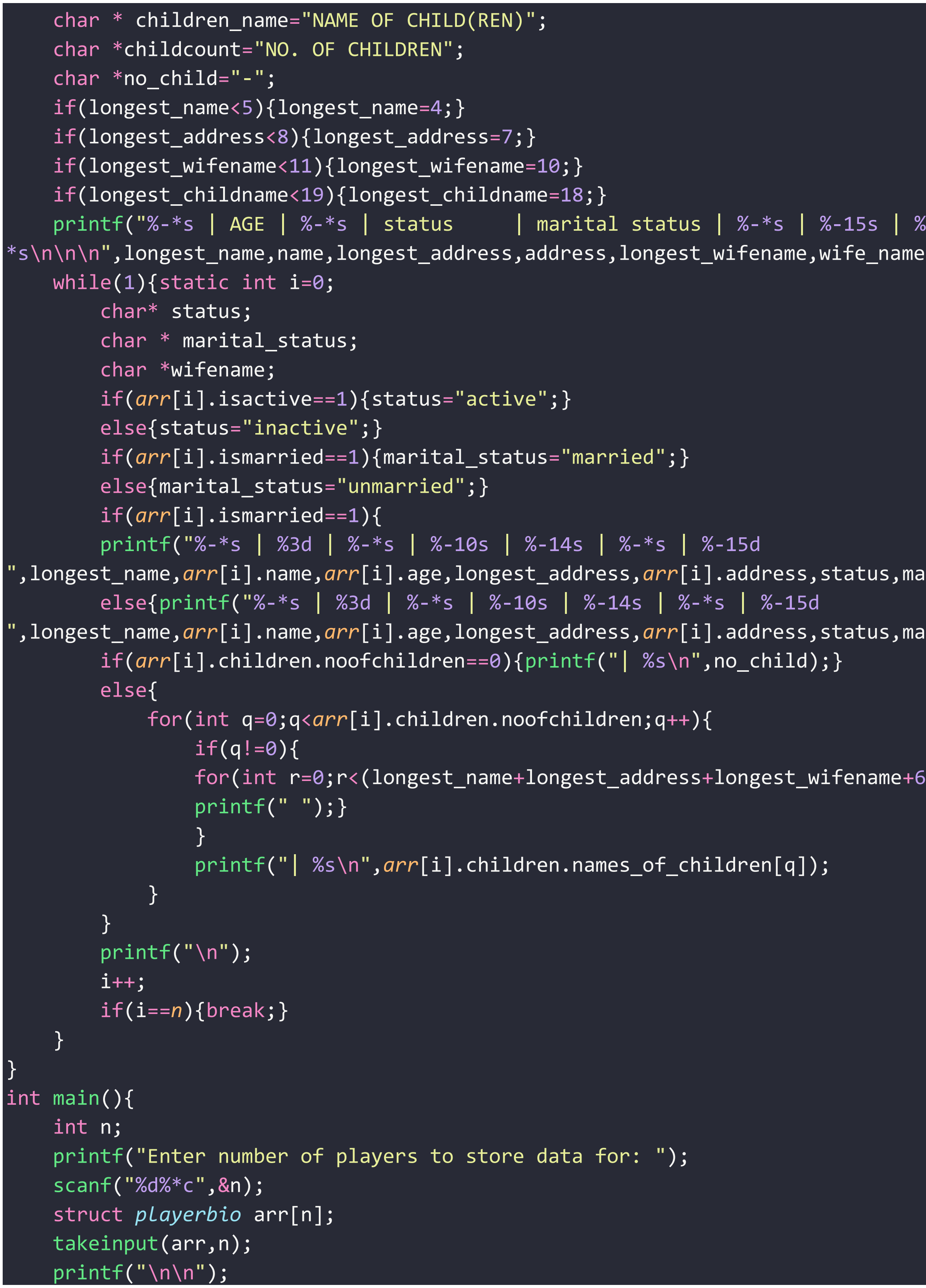
PROGRAM:



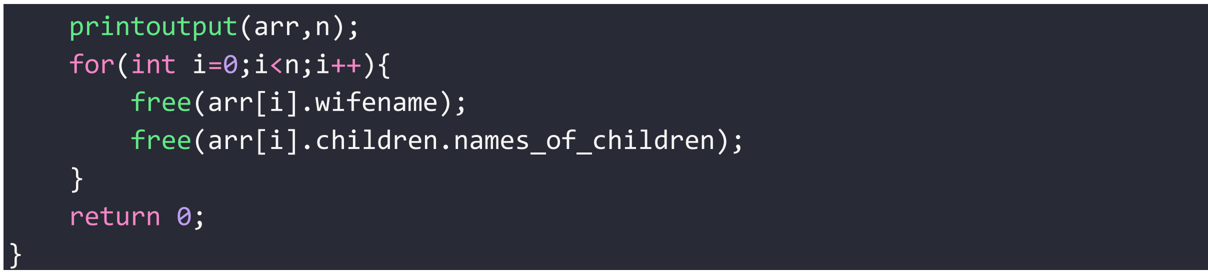
```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
struct childdata{
    int noofchildren;
    char** names_of_children;
    };
struct playerbio{
    char name[50];
    int age,isactive,ismarried;
    char address[150];
    char *wifename;
    struct childdata children;
}bio;

void takeinput(struct playerbio* arr,int n){
    char temp;
    for(int i=0;i<n;i++){
        printf("Enter name of player %d: ",i+1);
        scanf("%[^\n]%*c",arr[i].name);
        printf("Enter age of player %d: ",i+1);
        scanf("%d%*c",&(arr[i].age));
        printf("Enter address of player %d: ",i+1);
        scanf("%[^\n]%*c",arr[i].address);
        printf("Is the player active?: ");
        scanf("%c",&temp);
        while((getchar())!='\n');
        if(temp=='Y' || temp=='y'){
            arr[i].isactive=1;
        }
        printf("Is the player married?: ");
        scanf("%c",&temp);
        while((getchar())!='\n');
```



```
        if(temp=='Y' || temp=='y'){
            arr[i].ismarried=1;
            printf("Enter wife's name: ");
            arr[i].wifename=(char *)malloc(51*sizeof(char));
            scanf("%[^\n]%*c",arr[i].wifename);
            printf("Enter number of children: ");
            scanf("%d%*c",&arr[i].children.noofchildren);
            if(arr[i].children.noofchildren>0){
                arr[i].children.names_of_children=(char**)malloc(arr[i].childr
                for(int k=0;k<arr[i].children.noofchildren;k++){
                    arr[i].children.names_of_children[k]=(char *)malloc(50*siz
                }
                printf("Enter names of all children\n");
                for(int j=0;j<arr[i].children.noofchildren;j++){
                    scanf("%[^\n]%*c",arr[i].children.names_of_children[j]);
                }
            }
        }
        else{arr[i].children.noofchildren=0;}
    }
}
void printoutput(struct playerbio* arr, int n){
    int longest_name=0,longest_address=0,longest_wifename=0,longest_childname=
    for(int i=0;i<n;i++){
        temp=strlen(arr[i].name);
        if(temp>longest_name){longest_name=temp;}
        temp=strlen(arr[i].address);
        if(temp>longest_address){longest_address=temp;}
        if(arr[i].ismarried==1){
            temp=strlen(arr[i].wifename);
            if(temp>longest_wifename){longest_wifename=temp;}
            if(arr[i].children.noofchildren>0){
                for(int p=0;p<arr[i].children.noofchildren;p++){
                    temp=strlen(arr[i].children.names_of_children[p]);
                    if(temp>longest_childname){
                        longest_childname=temp;
                    }
                }
            }
        }
    }
    char* name="NAME";
    char * address="ADDRESS";
    char * wife_name="WIFE NAME";
```

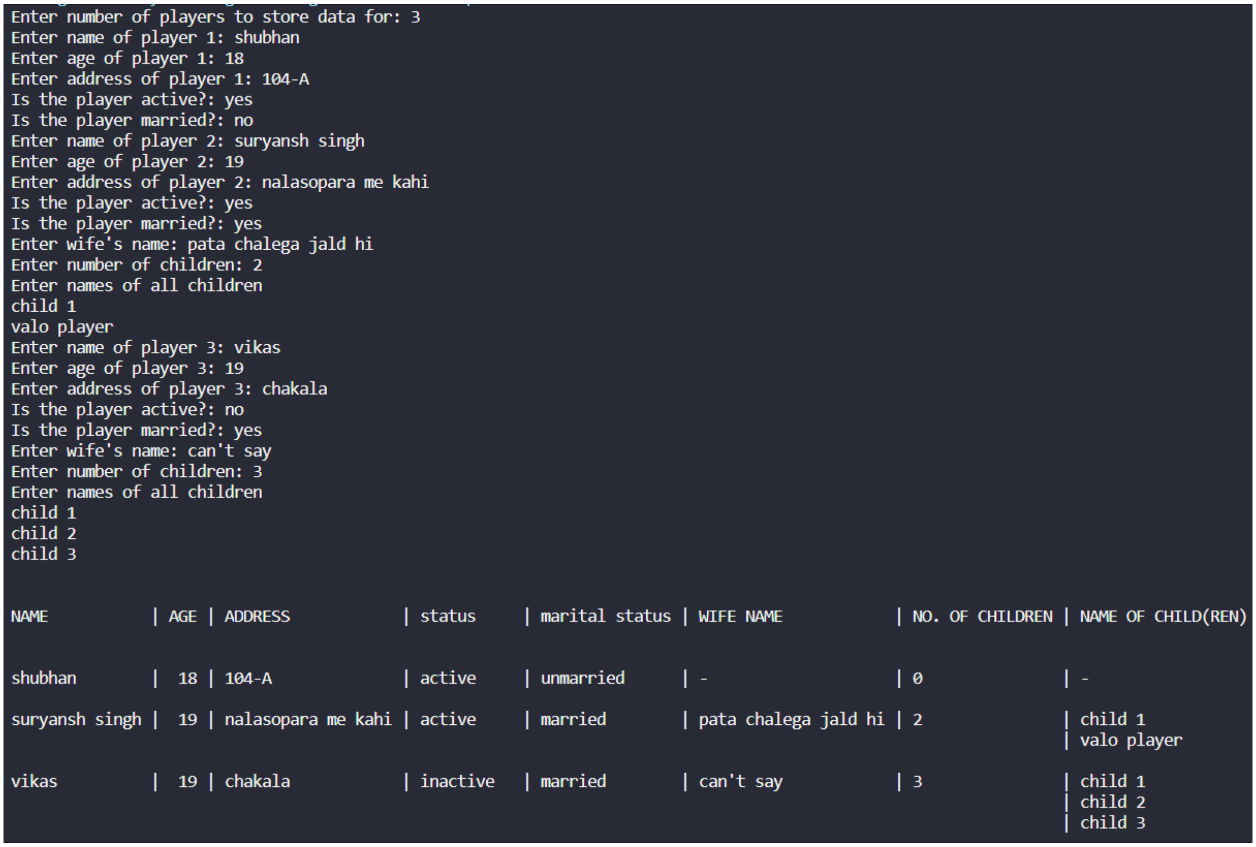


```c
    char * children_name="NAME OF CHILD(REN)";
    char *childcount="NO. OF CHILDREN";
    char *no_child="-";
    if(longest_name<5){longest_name=4;}
    if(longest_address<8){longest_address=7;}
    if(longest_wifename<11){longest_wifename=10;}
    if(longest_childname<19){longest_childname=18;}
    printf("%-*s | AGE | %-*s | status     | marital status | %-*s | %-15s | %
*s\n\n\n",longest_name,name,longest_address,address,longest_wifename,wife_name
    while(1){static int i=0;
        char* status;
        char * marital_status;
        char *wifename;
        if(arr[i].isactive==1){status="active";}
        else{status="inactive";}
        if(arr[i].ismarried==1){marital_status="married";}
        else{marital_status="unmarried";}
        if(arr[i].ismarried==1){
        printf("%-*s | %3d | %-*s | %-10s | %-14s | %-*s | %-15d
",longest_name,arr[i].name,arr[i].age,longest_address,arr[i].address,status,ma
        else{printf("%-*s | %3d | %-*s | %-10s | %-14s | %-*s | %-15d
",longest_name,arr[i].name,arr[i].age,longest_address,arr[i].address,status,ma
        if(arr[i].children.noofchildren==0){printf("| %s\n",no_child);}
        else{
            for(int q=0;q<arr[i].children.noofchildren;q++){
                if(q!=0){
                for(int r=0;r<(longest_name+longest_address+longest_wifename+6
                printf(" ");}
                }
                printf("| %s\n",arr[i].children.names_of_children[q]);
            }
        }
        printf("\n");
        i++;
        if(i==n){break;}
    }
}
int main(){
    int n;
    printf("Enter number of players to store data for: ");
    scanf("%d%*c",&n);
    struct playerbio arr[n];
    takeinput(arr,n);
    printf("\n\n");
```



```
    printoutput(arr,n);
    for(int i=0;i<n;i++){
        free(arr[i].wifename);
        free(arr[i].children.names_of_children);
    }
    return 0;
}
```

RESULT:



```
Enter number of players to store data for: 3
Enter name of player 1: shubhan
Enter age of player 1: 18
Enter address of player 1: 104-A
Is the player active?: yes
Is the player married?: no
Enter name of player 2: suryansh singh
Enter age of player 2: 19
Enter address of player 2: nalasopara me kahi
Is the player active?: yes
Is the player married?: yes
Enter wife's name: pata chalega jald hi
Enter number of children: 2
Enter names of all children
child 1
valo player
Enter name of player 3: vikas
Enter age of player 3: 19
Enter address of player 3: chakala
Is the player active?: no
Is the player married?: yes
Enter wife's name: can't say
Enter number of children: 3
Enter names of all children
child 1
child 2
child 3


NAME           | AGE | ADDRESS            | status     | marital status | WIFE NAME            | NO. OF CHILDREN | NAME OF CHILD(REN)


shubhan        |  18 | 104-A              | active     | unmarried      | -                    | 0               | -

suryansh singh |  19 | nalasopara me kahi | active     | married        | pata chalega jald hi | 2               | child 1
                                                                                                                 | valo player

vikas          |  19 | chakala            | inactive   | married        | can't say            | 3               | child 1
                                                                                                                 | child 2
                                                                                                                 | child 3
```

Program 2

PROBLEM STATEMENT :

An airline reservation system maintains records for possible flights consisting of
STARTING POINT 3 character code
DESTINATION 3 character code
STARTING TIME integer on scale 0001 – 2400
ARRIVAL TIME integer on scale 0001 – 2400
SEATS positive integer in suitable range.

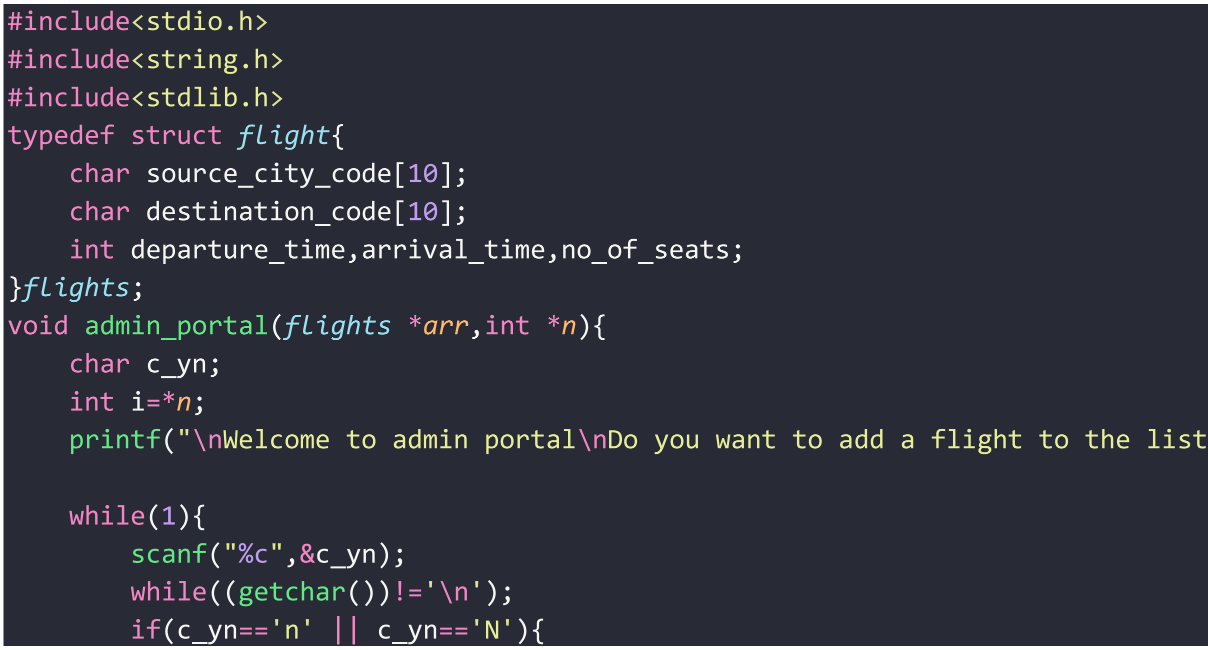
Your program is to read 20 such records followed by queries of the form STARTING POINT– DESTINATION, one to a line. For each query find whether there is a possible flight (or an apology).

ALGORITHM:

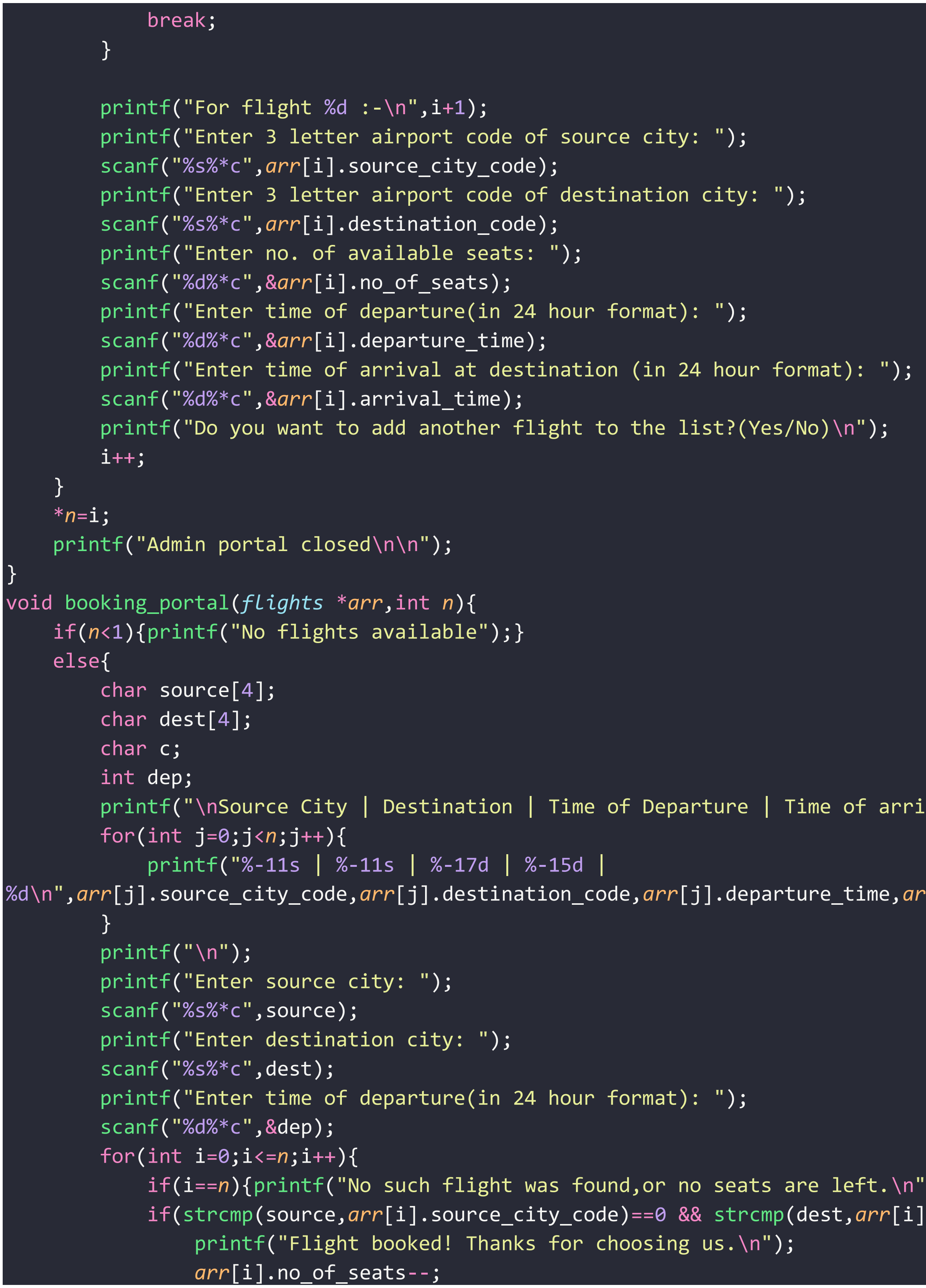
```
Algorithm for flight booking system:
1. Initialize variables:
   a. n: number of flights
   b. ch: flag for repeat booking
   c. i: index number of flight
   d. s2: number of seats
   e. c: confirmation
   f. nsa: available number of seats
2. Prompt user to enter number of flights
3. Get flight information for each flight using getInfo(n) function
4. Repeat steps 5-8 until ch is not equal to 1
   5. Display flight information using printInfo(n) function
   6. Check if flight is available for booking using check(n) function
   7. Confirm flight booking using confirmation value c
   8. Update number of seats if flight is booked
9. Display "BYE BYE!!" message

Algorithm for getInfo(n):
1. Initialize i = 0
2. Repeat steps 3-9 for i = 0 to i < n
   3. Prompt user to enter starting airport code
   4. Read starting airport code and store it in st[i]
   5. Prompt user to enter destination airport code
   6. Read destination airport code and store it in d[i]
   7. Prompt user to enter flight leaving time
   8. Read flight leaving time and store it in ltime[i]
   9. Prompt user to enter flight reaching time
   10. Read flight reaching time and store it in rtime[i]
   11. Prompt user to enter number of seats
   12. Read number of seats and store it in ns[i]
   13. Increment i by 1

Algorithm for printInfo(n):
1. Initialize i = 0
2. Display "Flights Available:" message
3. Repeat steps 4-8 for i = 0 to i < n
```

```
    4. Display flight information
    5. Display "Starting Airport:" and the starting airport code from st[i]
    6. Display "Destination Airport:" and the destination airport code from d[i]
    7. Display "Flight Leaving Time:" and the flight leaving time from ltime[i]
    8. Display "Flight Reaching Time:" and the flight reaching time from rtime[i]
    9. Display "Number of Seats Available:" and the number of seats from ns[i]
    10. Increment i by 1

Algorithm for check(n):
1. Prompt user to enter flight number to be booked
2. Read flight number and store it in i
3. Initialize s2 = 0
4. Repeat steps 5-9 until s2 is less than or equal to ns[i-1]
    5. Prompt user to enter number of seats to be booked
    6. Read number of seats to be booked and store it in s2
    7. Check if ns[i-1] is equal to 0
        a. If yes, display "Sorry!! This flight is full, please find some other flight. Incovinience is
    8. Check if s2 is greater than ns[i-1]
        a. If yes, display "Only ns[i-1] seats available."
    9. If s2 is less than or equal to ns[i-1], break the loop
10. Display flight booking information
11. Prompt user to enter 1 to confirm booking
12. Read confirmation value and store it in c
13. Check if c is equal to 1
```

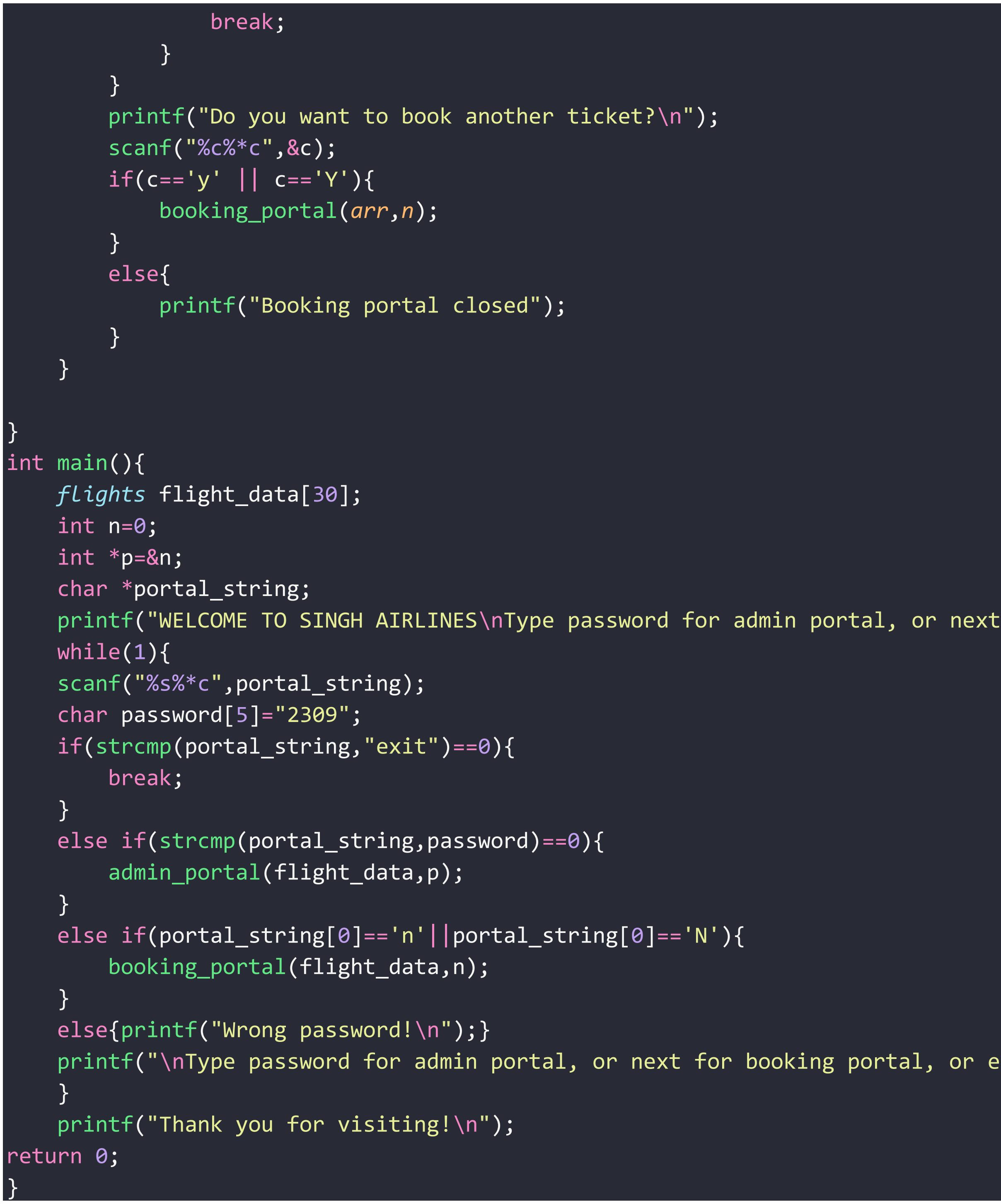
PROGRAM:



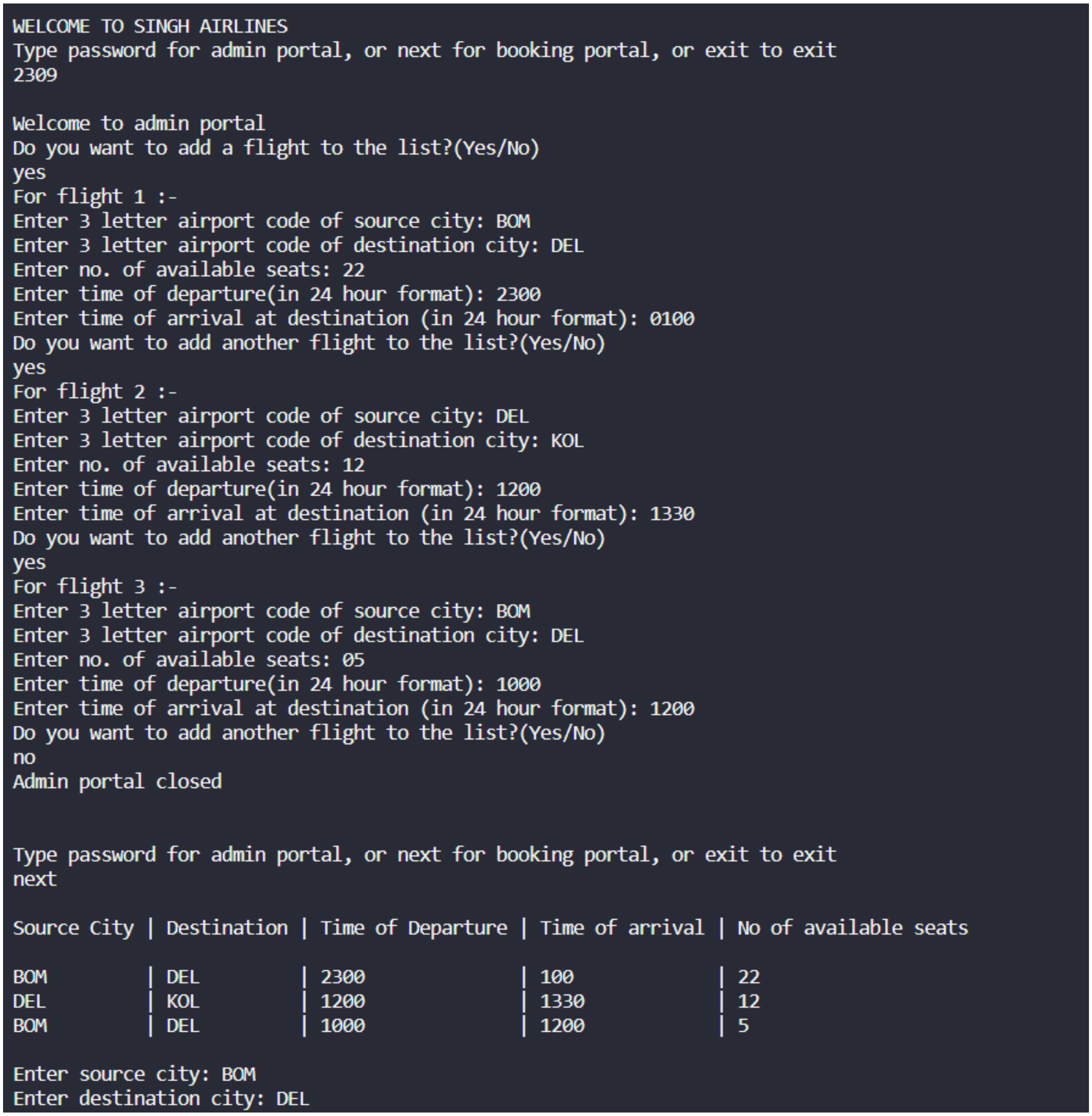
```c
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
typedef struct flight{
    char source_city_code[10];
    char destination_code[10];
    int departure_time,arrival_time,no_of_seats;
}flights;
void admin_portal(flights *arr,int *n){
    char c_yn;
    int i=*n;
    printf("\nWelcome to admin portal\nDo you want to add a flight to the list

    while(1){
        scanf("%c",&c_yn);
        while((getchar())!='\n');
        if(c_yn=='n' || c_yn=='N'){
```



```
            break;
        }

        printf("For flight %d :-\n",i+1);
        printf("Enter 3 letter airport code of source city: ");
        scanf("%s%*c",arr[i].source_city_code);
        printf("Enter 3 letter airport code of destination city: ");
        scanf("%s%*c",arr[i].destination_code);
        printf("Enter no. of available seats: ");
        scanf("%d%*c",&arr[i].no_of_seats);
        printf("Enter time of departure(in 24 hour format): ");
        scanf("%d%*c",&arr[i].departure_time);
        printf("Enter time of arrival at destination (in 24 hour format): ");
        scanf("%d%*c",&arr[i].arrival_time);
        printf("Do you want to add another flight to the list?(Yes/No)\n");
        i++;
    }
    *n=i;
    printf("Admin portal closed\n\n");
}
void booking_portal(flights *arr,int n){
    if(n<1){printf("No flights available");}
    else{
        char source[4];
        char dest[4];
        char c;
        int dep;
        printf("\nSource City | Destination | Time of Departure | Time of arri
        for(int j=0;j<n;j++){
            printf("%-11s | %-11s | %-17d | %-15d |
%d\n",arr[j].source_city_code,arr[j].destination_code,arr[j].departure_time,ar
        }
        printf("\n");
        printf("Enter source city: ");
        scanf("%s%*c",source);
        printf("Enter destination city: ");
        scanf("%s%*c",dest);
        printf("Enter time of departure(in 24 hour format): ");
        scanf("%d%*c",&dep);
        for(int i=0;i<=n;i++){
            if(i==n){printf("No such flight was found,or no seats are left.\n"
            if(strcmp(source,arr[i].source_city_code)==0 && strcmp(dest,arr[i]
                printf("Flight booked! Thanks for choosing us.\n");
                arr[i].no_of_seats--;
```

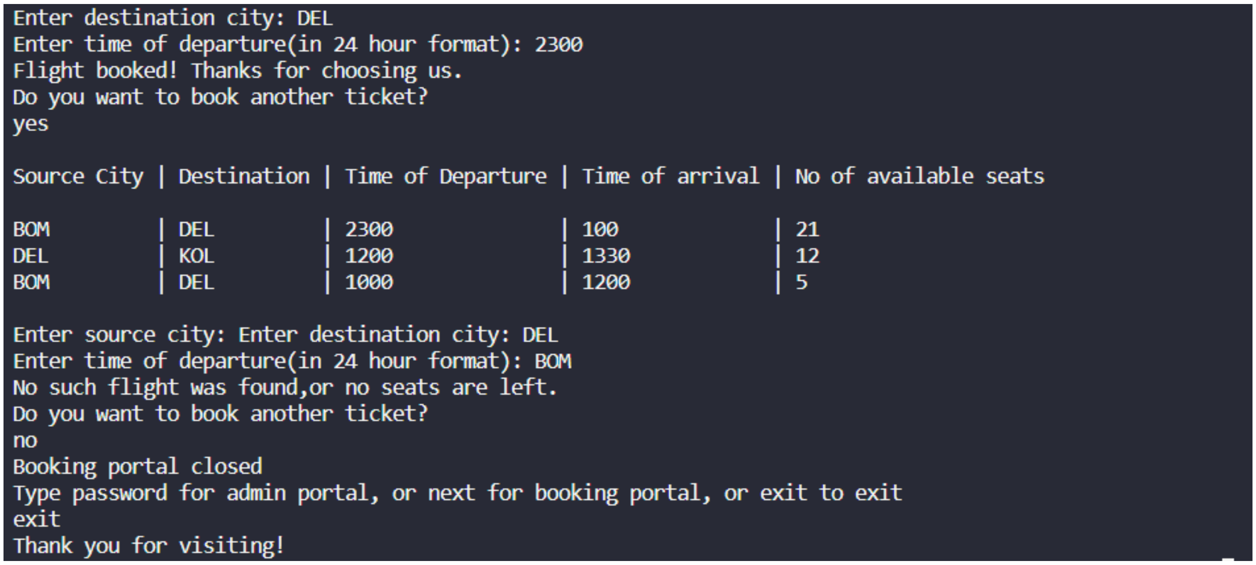


```
                break;
            }
        }
        printf("Do you want to book another ticket?\n");
        scanf("%c%*c",&c);
        if(c=='y' || c=='Y'){
            booking_portal(arr,n);
        }
        else{
            printf("Booking portal closed");
        }
    }

}
int main(){
    flights flight_data[30];
    int n=0;
    int *p=&n;
    char *portal_string;
    printf("WELCOME TO SINGH AIRLINES\nType password for admin portal, or next
    while(1){
    scanf("%s%*c",portal_string);
    char password[5]="2309";
    if(strcmp(portal_string,"exit")==0){
        break;
    }
    else if(strcmp(portal_string,password)==0){
        admin_portal(flight_data,p);
    }
    else if(portal_string[0]=='n'||portal_string[0]=='N'){
        booking_portal(flight_data,n);
    }
    else{printf("Wrong password!\n");}
    printf("\nType password for admin portal, or next for booking portal, or e
    }
    printf("Thank you for visiting!\n");
return 0;
}
```



```
WELCOME TO SINGH AIRLINES
Type password for admin portal, or next for booking portal, or exit to exit
2309

Welcome to admin portal
Do you want to add a flight to the list?(Yes/No)
yes
For flight 1 :-
Enter 3 letter airport code of source city: BOM
Enter 3 letter airport code of destination city: DEL
Enter no. of available seats: 22
Enter time of departure(in 24 hour format): 2300
Enter time of arrival at destination (in 24 hour format): 0100
Do you want to add another flight to the list?(Yes/No)
yes
For flight 2 :-
Enter 3 letter airport code of source city: DEL
Enter 3 letter airport code of destination city: KOL
Enter no. of available seats: 12
Enter time of departure(in 24 hour format): 1200
Enter time of arrival at destination (in 24 hour format): 1330
Do you want to add another flight to the list?(Yes/No)
yes
For flight 3 :-
Enter 3 letter airport code of source city: BOM
Enter 3 letter airport code of destination city: DEL
Enter no. of available seats: 05
Enter time of departure(in 24 hour format): 1000
Enter time of arrival at destination (in 24 hour format): 1200
Do you want to add another flight to the list?(Yes/No)
no
Admin portal closed


Type password for admin portal, or next for booking portal, or exit to exit
next

Source City | Destination | Time of Departure | Time of arrival | No of available seats

BOM         | DEL         | 2300              | 100             | 22
DEL         | KOL         | 1200              | 1330            | 12
BOM         | DEL         | 1000              | 1200            | 5

Enter source city: BOM
Enter destination city: DEL
```

RESULT:



```
Enter destination city: DEL
Enter time of departure(in 24 hour format): 2300
Flight booked! Thanks for choosing us.
Do you want to book another ticket?
yes

Source City | Destination | Time of Departure | Time of arrival | No of available seats

BOM         | DEL         | 2300              | 100             | 21
DEL         | KOL         | 1200              | 1330            | 12
BOM         | DEL         | 1000              | 1200            | 5

Enter source city: Enter destination city: DEL
Enter time of departure(in 24 hour format): BOM
No such flight was found,or no seats are left.
Do you want to book another ticket?
no
Booking portal closed
Type password for admin portal, or next for booking portal, or exit to exit
exit
Thank you for visiting!
```