

Problem 01:

In-Lab-10_24k-2000 > C problem_01.c > ...

```
1  #include <stdio.h>
2  // Recursive function that calculates the sum of digits of a number
3  int recursiveSum(int num){
4      if (num == 0){
5          return 0;
6      }
7      return num % 10 + recursiveSum(num / 10);
8  }
9
10 int main(){
11     int number;
12     printf("\nEnter number: ");
13     scanf("%d", &number);
14
15     int result = recursiveSum(number);
16     printf("Sum of digits of %d is: %d\n", number, result);
17
18     return 0;
19 }
```

```
PS C:\Users\DELL\OneDrive\Desktop\lab10> cd "c:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000\" ; if ($?) { gcc problem_01.c -o problem_01 } ; if ($?) { .\problem_01 }
```

Enter number: 123

Sum of digits of 123 is: 6

```
PS C:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000> 
```

Problem 02:

```
In-Lab-10_24k-2000 > C problem_02.c > main()
1  #include <stdio.h>
2  #include <string.h>
3  // Recursive function that takes a string as input
4  // and returns the reversed string
5  void reversedfunction(char str[], int start, int end){
6      if (start >= end){
7          return;
8      }
9      char temp = str[start];
10     str[start] = str[end];
11     str[end] = temp;
12
13     reversedfunction(str, start + 1, end - 1);
14 }
15
16 int main(){
17     char str[100];
18
19     printf("Input the string: ");
20     fgets(str, 100, stdin);
21
22     int len = strlen(str);
23
24     reversedfunction(str, 0, len - 1);
25     printf("Reversed string: %s", str);
26
27     return 0;
28 }
```

```
PS C:\Users\DELL\OneDrive\Desktop\lab10> cd "c:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000\" ; if ($?) { gcc problem_02.c -o problem_02 } ; if ($?) { .\problem_02 }
Input the string: Recursion
Reversed string:
noisruceR
PS C:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000> 
```

Problem 03:

In-Lab-10_24k-2000 > C problem_03.c > main()

```

1  #include <stdio.h>
2  #include <string.h>
3  // Program that uses structures to manage flight information, including
4  // number, departure city, destination city, date, and available seats. Create f
5  // to book a seat and display flight details
6  struct flight_info{
7      char flightname[20];
8      char flightdate[20];
9      char depart_city[20];
10     char dest_city[20];
11     int avail_seats;
12 };
13
14 int main(){
15     struct flight_info s;
16     int count[10] = {0};
17     int choice;
18     int seatnum = 0;
19
20     printf("Enter the flight name you want to board: ");
21     scanf("%s", s.flightname);
22
23     printf("Enter the date you want to board the flight : ");
24     scanf("%s", s.flightdate);
25
26     printf("Enter the departure city : ");
27     scanf("%s", s.depart_city);
28
29     printf("Enter the destination city : ");
30     scanf("%s", s.dest_city);
31
32     printf("-----Your Boarding Info-----\n");
33     printf("Your Flight Name : %s\n", s.flightname);
34     printf("Your Flight Date : %s \n", s.flightdate);
35     printf("Your Departure City : %s\n", s.depart_city);
36     printf("Your Destination City : %s\n", s.dest_city);
37
38     while (1){
39         printf("-----Choose one of the following Options-----\n");
40         printf("1. Check availability \n");

```

```

\\OneDrive\\Desktop\\lab10\\In-Lab-10_24k-2000\\" ; if ($?) { g
cc problem_03.c -o problem_03 } ; if ($?) { .\\problem_03 }

```

Enter the flight name you want to board: PIA
Enter the date you want to board the flight : 2-dec-2024
Enter the departure city : Karachi
Enter the destination city : Dubai

-----Your Boarding Info-----

Your Flight Name : PIA
Your Flight Date : 2-dec-2024
Your Departure City : Karachi
Your Destination City : Dubai

-----Choose one of the following Options-----

1. Check availability
2. Book flight
3. Exit

1

Available seats:

Seat 1
Seat 2
Seat 3
Seat 4
Seat 5
Seat 6
Seat 7
Seat 8
Seat 9
Seat 10

-----Choose one of the following Options-----

1. Check availability
2. Book flight
3. Exit

2

Which seat do you want to book? (1-20):

7

Seat 7 has been successfully booked!

-----Choose one of the following Options-----

1. Check availability
2. Book flight
3. Exit

3

Program Exited Successfully

PS C:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000
>

In-Lab-10_24k-2000 > C problem_03.c > main()

```

14  int main(){
38      while (1){
39          printf("-----Choose one of the following Options-----\n");
40          printf("1. Check availability \n");
41          printf("2. Book flight \n");
42          printf("3. Exit\n");
43          scanf("%d", &choice);
44
45          switch (choice){
46              case 1:
47                  printf("Available seats: \n");
48                  for (int i = 0; i < 10; i++){
49                      if (count[i] == 0) { //
50                          printf("Seat %d\n", i + 1);
51                      }
52                  }
53                  break;
54
55              case 2:
56                  printf("Which seat do you want to book? (1-10): \n");
57                  scanf("%d", &seatnum);
58
59                  if (seatnum < 1 || seatnum > 20){
60                      printf("Invalid seat number!\n");
61                  } else if (count[seatnum - 1] == 1){
62                      printf("This seat is already booked\n");
63                  } else {
64                      count[seatnum - 1] = 1;
65                      printf("Seat %d has been successfully booked!\n", seatnum);
66                  }
67                  break;
68
69              case 3:
70                  printf("Program Exited Successfully \n");
71                  return 0;
72
73              default:
74                  printf("Invalid Input... Please choose a valid option.\n");
75                  break;
76          }

```

```

\OneDrive\Desktop\lab10\In-Lab-10_24k-2000\" ; if ($?) { g
cc problem_03.c -o problem_03 } ; if ($?) { .\problem_03 }

```

Enter the flight name you want to board: PIA
Enter the date you want to board the flight : 2-dec-2024
Enter the departure city : Karachi
Enter the destination city : Dubai

-----Your Boarding Info-----

Your Flight Name : PIA
Your Flight Date : 2-dec-2024
Your Departure City : Karachi
Your Destination City : Dubai

-----Choose one of the following Options-----

1. Check availability
2. Book flight
3. Exit

1

Available seats:

Seat 1
Seat 2
Seat 3
Seat 4
Seat 5
Seat 6
Seat 7
Seat 8
Seat 9
Seat 10

-----Choose one of the following Options-----

1. Check availability
2. Book flight
3. Exit

2

Which seat do you want to book? (1-20):

7

Seat 7 has been successfully booked!

-----Choose one of the following Options-----

1. Check availability
2. Book flight
3. Exit

3

Program Exited Successfully

PS C:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000

>

Problem 04:

In-Lab-10_24k-2000 > C problem_04.c > main()

```

1  #include <stdio.h>
2  #include <string.h>
3  // Program that use a structure to hold information about movies,
4  // such as title, genre, director, release year, and rating.
5  typedef struct movies{
6      char title[20];
7      char genre[20];
8      char director[20];
9      char release_date[20];
10     float rating;
11 } Movies;
12
13 int main(){
14     int n;
15     int choice = 0;
16     char search_genre[20];
17     printf("How many movies do you want to store? : ");
18     scanf("%d", &n);
19     Movies s[n];
20
21     for (int i = 0; i < n; i++){
22         printf("-----Movie %d:-----\n", i + 1);
23         printf("Enter the title of the movie: ");
24         scanf(" %[^\\n]s", s[i].title);
25         printf("Enter the genre of the movie: ");
26         scanf(" %[^\\n]s", s[i].genre);
27         printf("Enter the director of the movie: ");
28         scanf(" %[^\\n]s", s[i].director);
29         printf("Enter the release date of the movie: ");
30         scanf(" %[^\\n]s", s[i].release_date);
31         printf("Enter the rating of the movie: ");
32         scanf("%f", &s[i].rating);
33     }
34     while (choice != 3){
35         printf("\\n----Menu-----\\n");
36         printf("1. Search by genre\\n");
37         printf("2. Display all movie details\\n");
38         printf("3. Exit\\n");
39         printf("Choose one of the following options: ");
40         scanf("%d", &choice);

```

```

PS C:\Users\DELL\OneDrive\Desktop\lab10> cd "c:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000\" ; if ($?) { gcc problem_04.c -o problem_04 } ; if ($?) { .\problem_04 }

```

How many movies do you want to store? : 1

-----Movie 1:-----

Enter the title of the movie: Pushpa 2

Enter the genre of the movie: Mas

Enter the director of the movie: Alu Aurgun

Enter the release date of the movie: 5-dec-2024

Enter the rating of the movie: 8.5

----Menu----

1. Search by genre

2. Display all movie details

3. Exit

Choose one of the following options: 1

Enter the genre of the movie you want to search: Mas

Title: Pushpa 2

Genre: Mas

Director: Alu Aurgun

Release Date: 5-dec-2024

Rating: 8.5

No movies of the genre 'Mas' found.

----Menu----

1. Search by genre

2. Display all movie details

3. Exit

Choose one of the following options: 2

Movie 1:

Title: Pushpa 2

Genre: Mas

Director: Alu Aurgun

Release Date: 5-dec-2024

Rating: 8.5

----Menu----

1. Search by genre

2. Display all movie details

3. Exit

Choose one of the following options: █

```

In-Lab-10_24k-2000 > C problem_04.c > main()
13  int main(){
34      while (choice != 3){
42          switch (choice){
43              case 1:{
44                  printf("Enter the genre of the movie you want to search: ")
45                  scanf("%[^\n]s", search_genre);
46                  int found = 0;
47                  for (int i = 0; i < n; i++){
48                      if (strcmp(search_genre, s[i].genre) == 0){
49                          printf("\nTitle: %s\n", s[i].title);
50                          printf("Genre: %s\n", s[i].genre);
51                          printf("Director: %s\n", s[i].director);
52                          printf("Release Date: %s\n", s[i].release_date);
53                          printf("Rating: %.1f\n", s[i].rating);
54                          found = 1;
55                      }
56                  }
57                  if (found != 0){
58                      printf("No movies of the genre '%s' found.\n", search_g
59                  }
60                  break;
61              }
62              case 2:
63                  for (int i = 0; i < n; i++){
64                      printf("\nMovie %d:\n", i + 1);
65                      printf("Title: %s\n", s[i].title);
66                      printf("Genre: %s\n", s[i].genre);
67                      printf("Director: %s\n", s[i].director);
68                      printf("Release Date: %s\n", s[i].release_date);
69                      printf("Rating: %.1f\n", s[i].rating);
70                  }
71                  break;
72              case 3:
73                  printf("Exiting the program. Goodbye!\n");
74                  break;
75              default:
76                  printf("Invalid choice. Please try again.\n");
77                  break;
78          }
79      } return 0; }

```

```

PS C:\Users\DELL\OneDrive\Desktop\lab10> cd "c:\Users\DELL\OneDrive\Desktop\lab10\In-Lab-10_24k-2000\" ; if ($?) { gcc p
roblem_04.c -o problem_04 } ; if ($?) { .\problem_04 }

```

How many movies do you want to store? : 1

-----Movie 1:-----

Enter the title of the movie: Pushpa 2

Enter the genre of the movie: Mas

Enter the director of the movie: Alu Aurgun

Enter the release date of the movie: 5-dec-2024

Enter the rating of the movie: 8.5

----Menu-----

1. Search by genre
2. Display all movie details
3. Exit

Choose one of the following options: 1

Enter the genre of the movie you want to search: Mas

Title: Pushpa 2

Genre: Mas

Director: Alu Aurgun

Release Date: 5-dec-2024

Rating: 8.5

No movies of the genre 'Mas' found.

----Menu-----

1. Search by genre
2. Display all movie details
3. Exit

Choose one of the following options: 2

Movie 1:

Title: Pushpa 2

Genre: Mas

Director: Alu Aurgun

Release Date: 5-dec-2024

Rating: 8.5

----Menu-----

1. Search by genre
2. Display all movie details
3. Exit

Choose one of the following options: