

**37. Construct a C program to simulate the First Come First Served disk scheduling algorithm.**

#### **AIM**

**To design a C program that simulates the First Come First Served (FCFS) Disk Scheduling Algorithm, where disk requests are served in the order they arrive.**

#### **ALGORITHM**

1. **Start**
2. Read the total number of disk requests and their corresponding disk track numbers.
3. Sort the disk track requests in the order they arrive (FCFS doesn't require sorting).
4. Start servicing the requests from the initial head position, one by one.
5. Calculate the total number of movements made by the disk arm.
6. Print the sequence of serviced requests and the total number of disk movements.
7. **Stop**

#### **PROCEDURE**

1. Include necessary libraries (stdio.h for input/output and stdlib.h for memory management).
2. Read the total number of disk requests and the track numbers.
3. Use a loop to process each disk request sequentially, and calculate the total movement.
4. Display the sequence in which the disk requests are processed and the total distance moved by the disk head.
5. **End**

#### **CODE:**

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
void FCFS(int arr[], int n, int start) {
```

```
    int total_distance = 0;
```

```
    int current_position = start;
```

```
    printf("Disk Request Sequence: ");
```

```
    for (int i = 0; i < n; i++) {
```

```
        printf("%d ", arr[i]);

        total_distance += abs(arr[i] - current_position);

        current_position = arr[i];
    }

    printf("\nTotal Number of Disk Movements: %d\n", total_distance);
}

int main() {
    int n, start;

    printf("Enter the number of disk requests: ");
    scanf("%d", &n);

    int arr[n];

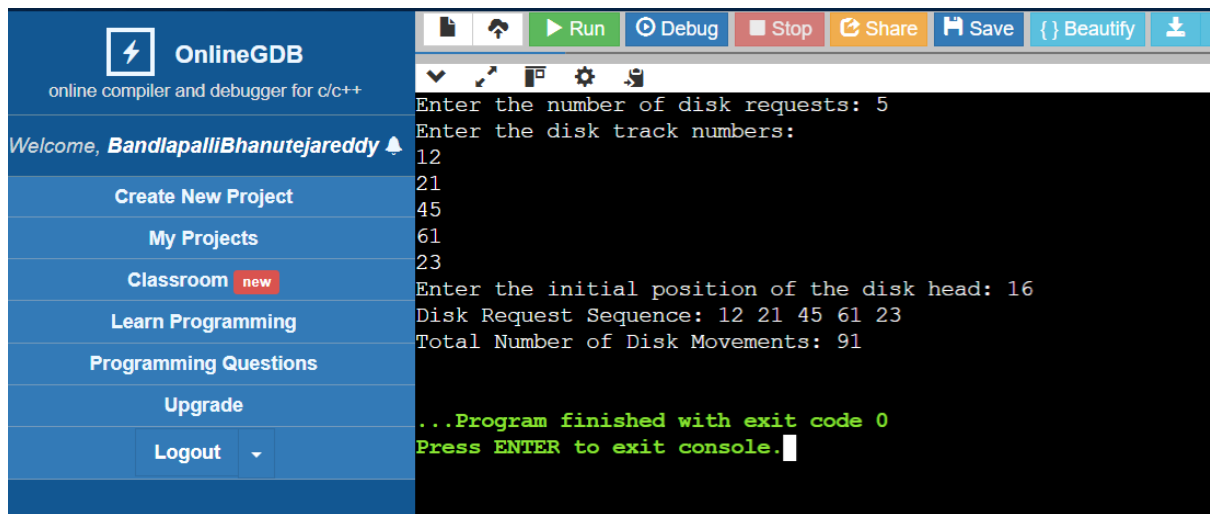
    printf("Enter the disk track numbers:\n");
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    printf("Enter the initial position of the disk head: ");
    scanf("%d", &start);

    FCFS(arr, n, start);

    return 0;
}
```

OUTPUT:



The screenshot shows the OnlineGDB web interface. On the left is a blue sidebar with the OnlineGDB logo and navigation links: 'Create New Project', 'My Projects', 'Classroom' (with a 'new' badge), 'Learn Programming', 'Programming Questions', 'Upgrade', and 'Logout'. The main area has a top toolbar with icons for file operations and buttons for 'Run', 'Debug', 'Stop', 'Share', 'Save', 'Beautify', and a download icon. Below the toolbar is a black console window displaying the program's output. The output shows a sequence of disk requests and the total number of movements.

```
Enter the number of disk requests: 5
Enter the disk track numbers:
12
21
45
61
23
Enter the initial position of the disk head: 16
Disk Request Sequence: 12 21 45 61 23
Total Number of Disk Movements: 91

...Program finished with exit code 0
Press ENTER to exit console.
```