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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> // For abs()

int main() {
   int n, initial, totalMovement = 0;


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

   int requests[n];


   printf("Enter the disk request sequence: ");
   for (int i = 0; i < n; i++) {
      scanf("%d", &requests[i]);
   }


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

```
    printf("\nServing disk requests in the following order:\n");
    printf("%d ", initial);


    for (int i = 0; i < n; i++) {
        totalMovement += abs(requests[i] - initial);
        initial = requests[i]; // Move the head to the current request
        printf("-> %d ", requests[i]);
    }


    printf("\n\nTotal head movement: %d\n", totalMovement);

    return 0;
}
```

Output: