192311035

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EXPERIMENT-37

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

AIM:-

The aim of this program is to simulate the **First Come First Served (FCFS)** disk scheduling algorithm. In FCFS, the requests for disk access are handled in the order they arrive without preemption, meaning the disk arm moves sequentially to the requested tracks.

ALGORITHM:-

1. **Input:** A list of disk requests and the initial position of the disk head.
2. **Sort the Requests:** FCFS processes the requests in the order they are provided, so no sorting is necessary.
3. **Process the Requests:** Start from the initial head position, and for each request, calculate the distance the head needs to move.
4. **Calculate Total Seek Time:** Add up all the individual seek times.
5. **Display the Disk Head Movement:** Display the movement of the disk arm from one request to the next and the total seek time.

PROCEDURE:-

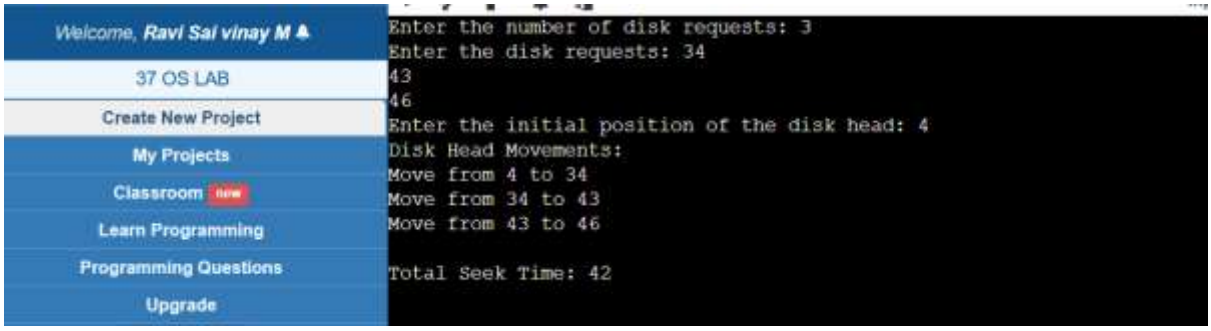
1. Initialize the disk head position.
2. Accept the disk requests from the user.
3. Calculate the movement of the disk head as it processes each request sequentially.
4. Display the movement of the disk head.
5. Calculate and display the total seek time.

CODE:-

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

// Function to calculate the total seek time and simulate FCFS disk scheduling
void FCFS(int requests[], int n, int initialPosition) {
    int totalSeekTime = 0;
    int currentPosition = initialPosition;

    printf("Disk Head Movements: \n");

    // Process each request in the order they arrive
    for (int i = 0; i < n; i++) {
        printf("Move from %d to %d\n", currentPosition, requests[i]);
        totalSeekTime += abs(requests[i] - currentPosition); // Calculate seek time
        currentPosition = requests[i]; // Update the head position
    }

    // Display total seek time
    printf("\nTotal Seek Time: %d\n", totalSeekTime);
}

int main() {
    int n, initialPosition;
```

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

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

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

    // Simulate FCFS disk scheduling
    FCFS(requests, n, initialPosition);

    return 0;
}
```

OUTPUT:-



RESULT:-

The program successfully simulates the **First Come First Served (FCFS)** disk scheduling algorithm. It processes the disk requests in the order they arrive, calculates the seek time for each request, and displays the total seek time at the end. FCFS is a simple and non-preemptive algorithm, making it easy to implement but potentially inefficient if requests are far apart. The program correctly calculates and displays the disk head movements and the total seek time.