39. Develop a C program to simulate C-SCAN disk scheduling algorithm.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
    int queue[20], n, head, i, j, size, total = 0, distance, current;
    int temp, max, min;
    int index, seek_sequence[20];
    printf("Enter the number of disk requests: ");
    scanf("%d", &n);
    printf("Enter the disk request queue (in cylinder numbers):\n");
    for (i = 0; i < n; i++)
     scanf("%d", &queue[i]);
    printf("Enter the initial head position: ");
    scanf("%d", &head);
    printf("Enter the total disk size: ");
    scanf("%d", &size);
    // Sort the request queue
    for (i = 0; i < n - 1; i++) {
        for (j = i + 1; j < n; j++) {
            if (queue[i] > queue[j]) {
                temp = queue[i];
                queue[i] = queue[j];
                queue[j] = temp;
            }
        }
    }
    // Find the index of the first request greater than the head
    for (i = 0; i < n; i++) {
        if (queue[i] > head) {
```

```
            index = i;
            break;
        }
    }
    printf("\nSeek sequence is:\n");
    // Move right from head to end
    for (i = index; i < n; i++) {
        distance = abs(queue[i] - head);
        total += distance;
        head = queue[i];
        printf("%d -> ", head);
    }
    // Jump to beginning (circular move)
    total += (size - head); // move to end
    total += (size - 1);    // move from end to start
    head = 0;
    // Move from start to the last request before index
    for (i = 0; i < index; i++) {
        distance = abs(queue[i] - head);
        total += distance;
        head = queue[i];
        printf("%d -> ", head);
    }
    printf("\nTotal head movement: %d\n", total);
    printf("Average head movement: %.2f\n", (float) total / n);
    return 0;
}
```

OUTPUT:

File 'demo.txt' created successfully.

Initial File permissions: rw-r--r--

File permissions changed to 754 (rwxr-xr--).

Updated File permissions: rwxr-xr--

Explanation:

Owner: rwx (read, write, execute)

Group: r-x (read, execute)

Others: r-- (read only)