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#include <stdio.h>

#include <stdlib.h>

int abs_diff(int a, int b) {
    return (a > b) ? a - b : b - a;
}

void sstf(int requests[], int n, int head) {
    int total = 0, i, j, min, index, visited[100] = {0};
    printf("\nSSTF Order: ");
    for (i = 0; i < n; i++) {
        min = 9999;
        for (j = 0; j < n; j++) {
            if (!visited[j] && abs_diff(head, requests[j]) < min) {
                min = abs_diff(head, requests[j]);
                index = j;
            }
        }
        visited[index] = 1;
        total += abs_diff(head, requests[index]);
        head = requests[index];
        printf("%d ", head);
    }
    printf("\nTotal Seek Time (SSTF): %d\n", total);
}

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void scan(int requests[], int n, int head, int disk_size) {

    int total = 0, i, j, temp, sorted[100];

    for (i = 0; i < n; i++) sorted[i] = requests[i];


    // Sort requests
    for (i = 0; i < n - 1; i++)
        for (j = i + 1; j < n; j++)
            if (sorted[i] > sorted[j]) {
                temp = sorted[i];
                sorted[i] = sorted[j];
                sorted[j] = temp;
            }


    printf("\nSCAN Order: ");

    // Move toward higher cylinders
    for (i = 0; i < n; i++)
        if (sorted[i] >= head) break;


    for (j = i; j < n; j++) {
        printf("%d ", sorted[j]);

        total += abs_diff(head, sorted[j]);

        head = sorted[j];
    }


    // Go to end of disk
    if (head != disk_size - 1) {

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        total += abs_diff(head, disk_size - 1);
        head = disk_size - 1;
    }

    // Then reverse
    for (j = i - 1; j >= 0; j--) {
        printf("%d ", sorted[j]);
        total += abs_diff(head, sorted[j]);
        head = sorted[j];
    }

    printf("\nTotal Seek Time (SCAN): %d\n", total);
}

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void clook(int requests[], int n, int head) {
    int total = 0, i, j, temp, sorted[100];
    for (i = 0; i < n; i++) sorted[i] = requests[i];

    // Sort requests
    for (i = 0; i < n - 1; i++)
        for (j = i + 1; j < n; j++)
            if (sorted[i] > sorted[j]) {
                temp = sorted[i];
                sorted[i] = sorted[j];
                sorted[j] = temp;
            }
}

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printf("\nC-LOOK Order: ");
for (i = 0; i < n; i++)
    if (sorted[i] >= head) break;

// Move toward higher cylinders
for (j = i; j < n; j++) {
    printf("%d ", sorted[j]);
    total += abs_diff(head, sorted[j]);
    head = sorted[j];
}

// Jump to beginning
if (i > 0) {
    total += abs_diff(head, sorted[0]);
    head = sorted[0];
    for (j = 0; j < i; j++) {
        printf("%d ", sorted[j]);
        total += abs_diff(head, sorted[j]);
        head = sorted[j];
    }
}

printf("\nTotal Seek Time (C-LOOK): %d\n", total);
}

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int main() {  
    int n, i, head, disk_size, requests[100];  
  
    printf("Enter number of disk requests: ");  
    scanf("%d", &n);  
  
    printf("Enter disk requests: ");  
    for (i = 0; i < n; i++)  
        scanf("%d", &requests[i]);  
  
    printf("Enter initial head position: ");  
    scanf("%d", &head);  
  
    printf("Enter total disk size (e.g., 200): ");  
    scanf("%d", &disk_size);  
  
    sstf(requests, n, head);  
    scan(requests, n, head, disk_size);  
    clook(requests, n, head);  
  
    return 0;  
}
```