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1  #include <stdio.h>
2  #include <stdlib.h>
3  int main() {
4      int n, head, seek_time = 0;
5      printf("Enter the number of disk requests: ");
6      scanf("%d", &n);
7      int request_queue[n];
8      printf("Enter the disk request queue:\n");
9      for (int i = 0; i < n; i++) {
10         scanf("%d", &request_queue[i]);
11     }
12     printf("Enter the initial position of the disk head: ");
13     scanf("%d", &head);
14     for (int i = 0; i < n - 1; i++) {
15         for (int j = i + 1; j < n; j++) {
16             if (request_queue[i] > request_queue[j]) {
17                 int temp = request_queue[i];
18                 request_queue[i] = request_queue[j];
19                 request_queue[j] = temp;
20             }
21         }
22     }
23     printf("\nSCAN (Elevator) Disk Scheduling:\n");
24     int seek_sequence[n + 2];
25     int seq_index = 0;
26     int i;
27     for (i = 0; i < n; i++) {
28         if (request_queue[i] >= head) {
29             break;
30         }
31     }
32     int disk_start = 0;
33     int disk_end = 199;
34     for (int j = i; j < n; j++) {
35         seek_time += abs(head - request_queue[j]);
36         head = request_queue[j];
37         seek_sequence[seq_index++] = head;
38     }

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39 if (head != disk_end) {
40     seek_time += abs(head - disk_end);
41     head = disk_end;
42     seek_sequence[seq_index++] = head;
43 }
44 for (int j = i - 1; j >= 0; j--) {
45     seek_time += abs(head - request_queue[j]);
46     head = request_queue[j];
47     seek_sequence[seq_index++] = head;
48 }
49 if (head != disk_start) {
50     seek_time += abs(head - disk_start);
51     head = disk_start;
52     seek_sequence[seq_index++] = head;
53 }
54 printf("Seek Sequence: 0");
55 for (int k = 0; k < seq_index; k++) {
56     printf(" -> %d", seek_sequence[k]);
57 }
58 printf("\nTotal Seek Time: %d\n", seek_time);
59 printf("Average Seek Time: %.2f\n", (float)seek_time / n);
60 return 0;
61 }
```

Enter the number of disk requests: 3

Enter the disk request queue:

77

84

32

Enter the initial position of the disk head: 2

SCAN (Elevator) Disk Scheduling:

Seek Sequence: 0 -> 32 -> 77 -> 84 -> 199 -> 0

Total Seek Time: 396

Average Seek Time: 132.00

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Process exited after 22.59 seconds with return value 0

Press any key to continue . . . |