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# PROGRAM TO IMPLEMENT DISK SCHEDULING ALGORITHMS - SCAN

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**CODE:**

#include <stdio.h>

#include <stdlib.h>

#define MAX 25

int n, head, size, seek\_count, tracks[MAX], sequence[MAX];

char dir;

void sort(int arr[], int m) {

int temp;

for (int i = 0; i < m; i++) {

for (int j = 0; j < m - 1 - i; j++) {

if (arr[j] > arr[j + 1]) {

temp = arr[j];

arr[j] = arr[j + 1];

arr[j + 1] = temp;

} } } }

void scands() {

int curr\_track, distance, l = 0, r = 0, left[MAX], right[MAX];

seek\_count = 0;

if (dir == 'L') {

left[0] = 0;

l++;

} else if (dir == 'R') {

right[0] = size - 1;

r++;

}

for (int i = 0; i < n; i++) {

if (tracks[i] < head)

left[l++] = tracks[i];

if (tracks[i] > head)

right[r++] = tracks[i];

}

sort(left, l);

sort(right, r);

int run = 2, x = 0;

while (run--> 0) {

if (dir == 'L') {

for (int i = l - 1; i >= 0; i--) {

curr\_track = left[i];

sequence[x++] = curr\_track;

distance = abs(head - curr\_track);

seek\_count += distance;

head = curr\_track;

}

dir = 'R';

} else {

for (int i = 0; i < r; i++) {

curr\_track = right[i];

sequence[x++] = curr\_track;

distance = abs(head - curr\_track);

seek\_count += distance;

head = curr\_track;

}

dir = 'L';

} } }

int main() {

int i;

printf("\n SCAN Disk Scheduling\n");

printf("\n Enter the size of the disk : ");

scanf("%d", & size);

printf("\n Enter the number of tracks to be seeked : ");

scanf("%d", & n);

if (n > MAX) {

printf("\n Number of tracks to be seeked cannot exceed %d Exiting...\n", MAX);

exit(0);

}

printf("\n Enter the starting position of the head : ");

scanf("%d", & head);

if (head > size) {

printf("\n Starting position of head cannot exceed the size of disk. Exiting...\n");

exit(0);

}

printf("\n Enter the initial direction of the head(L/R) : ");

scanf(" %c", & dir);

if ((dir != 'L') && (dir != 'R')) {

printf("\n Invalid direction input. Exiting...\n");

exit(0);

}

printf("\n Enter the tracks to be seeked : ");

for (int i = 0; i < n; i++)

scanf("%d", & tracks[i]);

scands();

printf("\n The Seek Sequence is : ");

for (i = 0; i < n; i++)

printf(" %d -> ", sequence[i]);

printf(" %d\n", sequence[i]);

printf("\n The Seek Count is : %d\n", seek\_count);

return 0;

}

**OUTPUT:**

