23. Write a C program to simulate SCAN disk scheduling algorithms. and execute your program and find out and print the average head movement for the following test case.

No of tracks:5; Track position:55 58 60 70 18

#include <stdio.h>

#include <stdlib.h>

int main() {

int n = 5;

int tracks[5] = {55, 58, 60, 70, 18};

int head = 50; // initial head position

int direction = 1; // 1 for moving right, -1 for moving left

int total\_head\_movement = 0;

// sort tracks in ascending order

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

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

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

int temp = tracks[j];

tracks[j] = tracks[j+1];

tracks[j+1] = temp;

}

}

}

// find index of current track

int current\_track\_index = 0;

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

if (tracks[i] >= head) {

current\_track\_index = i;

break;

}

}

// move in the current direction until the end of the disk is reached

while (current\_track\_index < n && current\_track\_index >= 0) {

total\_head\_movement += abs(head - tracks[current\_track\_index]);

head = tracks[current\_track\_index];

current\_track\_index += direction;

}

// if end of disk is reached, change direction and move back to beginning

direction = -1;

current\_track\_index = n-2;

while (current\_track\_index >= 0) {

total\_head\_movement += abs(head - tracks[current\_track\_index]);

head = tracks[current\_track\_index];

current\_track\_index += direction;

}

printf("Average head movement: %.2f\n", (float) total\_head\_movement/n);

return 0;

}

