**SCAN Code:**

#include <bits/stdc++.h>

using namespace std;

int disk\_size = 200;

void SCAN(int arr[], int head, string direction,int n)

{

int seek\_count = 0;

int distance, cur\_track;

vector<int> left, right;

vector<int> seek\_sequence;

if (direction == "left")

left.push\_back(0);

else if (direction == "right")

right.push\_back(disk\_size - 1);

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

if (arr[i] < head)

left.push\_back(arr[i]);

if (arr[i] > head)

right.push\_back(arr[i]);

}

std::sort(left.begin(), left.end());

std::sort(right.begin(), right.end());

int run = 2;

while (run--) {

if (direction == "left") {

for (int i = left.size() - 1; i >= 0; i--) {

cur\_track = left[i];

seek\_sequence.push\_back(cur\_track);

distance = abs(cur\_track - head);

seek\_count += distance;

head = cur\_track;

}

direction = "right";

}

else if (direction == "right") {

for (int i = 0; i < right.size(); i++) {

cur\_track = right[i];

seek\_sequence.push\_back(cur\_track);

distance = abs(cur\_track - head);

seek\_count += distance;

head = cur\_track;

}

direction = "left";

}

}

cout << "Total number of seek operations = "

<< seek\_count << endl;

cout << "Seek Sequence is" << endl;

for (int i = 0; i < seek\_sequence.size(); i++) {

cout << seek\_sequence[i] << endl;

}

}

int main()

{

int n;

cout<<"enter no of indexes: ";

cin>>n;

int arr[n];

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

{

cout<<"enter the index";

cin>>arr[i];

}

int head,x;

cout<<"enter the head element: ";

cin>>head;

string direction;

cout<<”choose direction:1:right 2:left: ";

cin>>x;

if(x==1)

{

direction="right";

}

else if(x==2)

{

direction="left";

}

else

{

cout<<"enter valid direction";

}

SCAN(arr, head, direction,n);

return 0;

}

**Output:**

enter no of indexes: 6

enter the index12

enter the index50

enter the index68

enter the index108

enter the index44

enter the index98

enter the head element: 50

choose direction:1:right 2:left: 2

Total number of seek operations = 158

Seek Sequence is

44

12

0

68

98

108