**Group : B**

**Assignment No. : 8.3**

**Title : Write a program to implement C-SCAN**

**Roll No. : 2365**

**-------------------------------------------------------------------------------------------**

import java.util.\*;

public class CSCAN {

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner sc=new Scanner(System.in);

int trackseq[]=new int[20];

int sortedseq[]=new int[20],flag[]=new int[20];

int noofcylinders=0;

int curpos=100;

int noofheadpos=0;

int theadmovement,sum=0;

System.out.print("\nEnter no fo cylinders::");

noofcylinders=sc.nextInt();

System.out.print("Enter total no of head positions in work queue::");

noofheadpos=sc.nextInt();

System.out.print("\nEnter the work queue::");

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

{

trackseq[i]=sc.nextInt();

sortedseq[i]=trackseq[i];

}

System.out.print("Enter current head position::");

curpos=sc.nextInt();

sortedseq[noofheadpos]=curpos;

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

{

for(int j=i+1;j<=noofheadpos;j++)

{

if(sortedseq[i]>sortedseq[j])

{

int t=sortedseq[i];

sortedseq[i]=sortedseq[j];

sortedseq[j]=t;

}

}

}

//finding headposition.

int headid=0;

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

{

if(sortedseq[i]==curpos)

{

headid=i;

}

}

sum=0;

System.out.println("C-SCAN ALGORITHM");

System.out.print("\nHEAD MOVEMENT\n");

for(int j=0;j<=(noofheadpos);j++)

flag[j]=0;

int k=1,prev=headid;

for(int j=0;j<headid;j++)

{

if(flag[headid-k]!=1)

{

sum=sum+sortedseq[prev]-sortedseq[headid-k];

System.out.println("Head movement::"+sortedseq[prev]+" - "+sortedseq[headid-k]+"="+(sortedseq[prev]-sortedseq[headid-k]));

flag[headid-k]=1;

}

prev=headid-k;

k++;

}

int maxcylinder=noofcylinders-1;

sum=sum+maxcylinder-sortedseq[prev];

System.out.println(""+maxcylinder+" - "+sortedseq[prev]+"="+(maxcylinder-sortedseq[prev]));

prev=noofheadpos;

System.out.println(""+maxcylinder+" - "+sortedseq[prev]+"="+(maxcylinder-sortedseq[prev]));

sum=sum+(maxcylinder-sortedseq[prev]);

k=prev-1;

for(int j=0;j<(headid-2);j++)

{

if(flag[k]!=1)

{

sum=sum+(sortedseq[prev]-sortedseq[k]);

System.out.println(""+sortedseq[prev]+" - "+sortedseq[k]+"="+(sortedseq[prev]-sortedseq[k]));

flag[k]=1;

}

prev=k;

k--;

}

System.out.println("Total head movement::"+sum);

}

}

/\*

Enter no fo cylinders::200

Enter total no of head positions in work queue::7

Enter the work queue::125

100

175

51

133

8

140

Enter current head position::125

C-SCAN ALGORITHM

HEAD MOVEMENT

Head movement::125 - 125=0

Head movement::125 - 100=25

Head movement::100 - 51=49

Head movement::51 - 8=43

199 - 8=191

199 - 175=24

175 - 140=35

140 - 133=7

Total head movement::374

\*/