**DISK SCHEDULING ALGORITHMS**

**FCFS, SCAN, C-SCAN**

**SANJANA S NAIR**

**CSE C**

**33**

#include<stdio.h>

int a[50],b[50],i,j,n,f,h,ch,head\_pos,final,initial,res;

void fcfs();

void scan();

void cscan();

void main()

{

do

{

int a[50],n;

printf("1 FCFS\n2 SCAN\n3 CSCAN\n");

printf("enter the choice\n");

scanf("%d",&ch);

switch(ch)

{

case 1: fcfs();

break;

case 2: scan();

break;

case 3: cscan();

break;

}

printf("Tap 1 to continue\n");

scanf("%d",&f);

}while(f==1);

}

void fcfs()

{

printf("Enter the number of request\n");

scanf("%d",&n);

printf("Enter the request in order\n");

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

{

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

}

printf("Requests are:\n");

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

{

printf("%d\t",a[i]);

}

printf("\n");

printf("Enter the head start\n");

scanf("%d",&head\_pos);

initial=head\_pos;

printf("\_\_\_\_\_\_\_Disk traversal\_\_\_\_\_\_\_\n");

printf("%d->",head\_pos);

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

{

final=a[i];

printf("%d",final);

if(i!=n-1)

{

printf("->");

}

if(final>initial)

{

res+=final-initial;

}

else

{

res+=initial-final;

}

initial=final;

}

printf("\n\nTotal head movements=%d cylinders\n",res);

}

void scan()

{

int n,a[20],head,diff,min=10000,loc=-1;

int c,st,ed,k,res,val,count=0,x;

printf("Enter the number of requests:\n");

scanf("%d",&n);

printf("Enter the requests in order \n");

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

{

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

}

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

{

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

{

if(a[j]>a[j+1])

{

int temp=a[j];

a[j]=a[j+1];

a[j+1]=temp;

}

}

}

printf("Enter the head position\n");

scanf("%d",&head);

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

scanf("%d",&c);

st=0;

ed=c-1;

printf("\n\_\_\_\_\_\_\_\_\_Disk Traversal\_\_\_\_\_\_\_\_\n"); printf("%d->",head);

if(head<(ed-head))

{

for(int i=n-1;i>=0;i--)

{

if(a[i]<head)

{

count++;

x=a[i];

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

if(count!=n)

{

printf("0->");

x=st;

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

{

if(a[i]>head)

{

count++;

val=a[i];

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

}

if(x==st)

{

res=(head-x)+(val-x);

}

else

{

res=head-x;

}

}

else

{

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

{

if(a[i]>head)

{

x=a[i];

count++;

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

if(count!=n)

{

printf("%d->",ed);

x=ed;

for(int i=n-1;i>=0;i--)

{

if(a[i]<head)

{

count++;

val=a[i];

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

}

if(x==ed)

{

res=(x-head)+(x-val);

}

else

{

res=x-head;

}

}

printf("\n\nTotal head movements=%d cylinders\n",res);

}

void cscan()

{

int n,a[20],head,diff,min=10000,loc=-1;

int c,st,ed,k,res,val,count=0,x;

printf("Enter the number of requests:\n");

scanf("%d",&n);

printf("Enter the requests in order\n");

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

{

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

}

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

{

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

{

if(a[j]>a[j+1])

{

int temp=a[j];

a[j]=a[j+1];

a[j+1]=temp;

}

}

}

printf("Enter the head position\n");

scanf("%d",&head);

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

scanf("%d",&c);

st=0;

ed=c-1;

printf("\n\_\_\_\_\_\_\_\_\_Disk Traversal\_\_\_\_\_\_\_\_\_\n"); printf("%d->",head);

if(head<(ed-head))

{

for(int i=n-1;i>=0;i--)

{

if(a[i]<head)

{

count++;

x=a[i];

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

if(count!=n)

{

printf("%d->%d->",st,ed);

x=st;

for(int i=n-1;i>=0;i--)

{

if(a[i]>head)

{

count++;

val=a[i];

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

}

if(x==st)

{

res=head+ed+(ed-val);

}

else

{

res=head-x;

}

}

else

{

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

{

if(a[i]>head)

{

x=a[i];

count++;

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

if(count!=n)

{

printf("%d->%d->",ed,st);

x=ed;

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

{

if(a[i]<head)

{

count++;

val=a[i];

printf("%d",a[i]);

if(count!=n)

{

printf("->");

}

}

}

}

if(x==ed)

{

res=(ed-head)+ed+val;

}

else

{

res=x-head;

}

}

printf("\n\nTotal head movements=%d cylinders\n",res);

}

**SAMPLE OUTPUT**

1 FCFS

2 SCAN

3 CSCAN

enter the choice

1

Enter the number of request

8

Enter the request in order

98

183

37

122

14

124

65

67

Requests are:

98 183 37 122 14 124 65 67

Enter the head start

52

\_\_\_\_\_\_\_Disk traversal\_\_\_\_\_\_\_

52->98->183->37->122->14->124->65->67

Total head movements=640 cylinders

Tap 1 to continue

1

1 FCFS

2 SCAN

3 CSCAN

enter the choice

2

Enter the number of requests:

8

Enter the requests in order

98

183

27

122

14

124

65

67

Enter the head position

52

Enter the total size of disk:

200

\_\_\_\_\_\_\_\_\_Disk Traversal\_\_\_\_\_\_\_\_

52->47->24->0->65->67->98->122->124->183

Total head movements=236 cylinders

Tap 1 to continue

1

1 FCFS

2 SCAN

3 CSCAN

enter the choice

3

Enter the number of requests:

8

Enter the requests in order

98

183

37

122

14

124

65

67

Enter the head position

53

Enter the total size of disk:

200

\_\_\_\_\_\_\_\_\_Disk Traversal\_\_\_\_\_\_\_\_\_

52->47->24->0->199->183->124->122->98->67->65

Total head movements=386 cylinders

Tap 1 to continue

2