LAB 10

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1 Disk Scheduling Algorithms:

1.1 C-SCAN:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n,minRequest,maxRequest;
    cout<<"--------------------C-SCAN DISK SCHEDULING
        ------------------------"<<endl;
    cout<<"Enter range of requests.\nMinimum request:"<<endl;
    cin>>minRequest;
    cout<<"Maximum request:"<<endl;
    cin>>maxRequest;
    int head;
    cout<<"Enter head position:"<<endl;
    cin>>head;
    cout<<"Enter number of disk requests:"<<endl;
    cin>>n;
    vector<int>diskRequests(n);
    int justbeforeHead=minRequest,justAfterHead=maxRequest;
    for(int i=0;i<n;i++){
        cout<<"Enter request number "<<i+1<<":"<<endl;
        cin>>diskRequests[i];
        if(diskRequests[i]<=head && diskRequests[i]>justbeforeHead)
            justbeforeHead=diskRequests[i];
        if(diskRequests[i]>=head && diskRequests[i]<justAfterHead)
            justAfterHead=diskRequests[i];
    }
    bool isHigher;
    cout<<"Enter where the head moves first.\nPress 0-Towards lower value\
        nPress 1-Towards higher value"<<endl;
    cin>>isHigher;
    int totalSeekTime;
    if(isHigher)totalSeekTime=(maxRequest-head)+(maxRequest-minRequest)+(
        justbeforeHead-minRequest);
    else totalSeekTime=(head-minRequest)+(maxRequest-minRequest)+(
        maxRequest-justAfterHead);
    cout<<"Total seek time using C-SCAN disk scheduling:"<<totalSeekTime<<
        endl;
```

```
31     cout<<"Average seek time using C-SCAN disk scheduling:"<<totalSeekTime
           *1.0/n<<endl;
32     return 0;
33 }
```

1.2 LOOK:

```
1  #include <bits/stdc++.h>
2  using namespace std;
3  int main()
4  {
5      int n,minRequest,maxRequest;
6      cout<<"--------------------LOOK DISK SCHEDULING
           ------------------------"<<endl;
7      cout<<"Enter range of requests.\nMinimum request:"<<endl;
8      cin>>minRequest;
9      cout<<"Maximum request:"<<endl;
10     cin>>maxRequest;
11     int head;
12     cout<<"Enter head position:"<<endl;
13     cin>>head;
14     cout<<"Enter number of disk requests:"<<endl;
15     cin>>n;
16     vector<int>diskRequests(n);
17     int maxUserRequest=minRequest,minUserRequest=maxRequest;
18     for(int i=0;i<n;i++){
19         cout<<"Enter request number "<<i+1<<":"<<endl;
20         cin>>diskRequests[i];
21         if(diskRequests[i]<minUserRequest)minUserRequest=diskRequests[i];
22         if(diskRequests[i]>maxUserRequest)maxUserRequest=diskRequests[i];
23     }
24     bool isHigher;
25     cout<<"Enter where the head moves first.\nPress 0-Towards lower value\
           nPress 1-Towards higher value"<<endl;
26     cin>>isHigher;
27     int totalSeekTime;
28     if(isHigher)totalSeekTime=(maxUserRequest-head)+(maxUserRequest-
           minUserRequest);
29     else totalSeekTime=(head-minUserRequest)+(maxUserRequest-
           minUserRequest);
30     cout<<"Total seek time using LOOK disk scheduling:"<<totalSeekTime<<
           endl;
31     cout<<"Average seek time using LOOK disk scheduling:"<<totalSeekTime
           *1.0/n<<endl;
32     return 0;
33 }
```

1.3 C-LOOK:

```
1  #include <bits/stdc++.h>
2  using namespace std;
```

```cpp
int main()
{
    int n,minRequest,maxRequest;
    cout<<"-------------------C-LOOK DISK SCHEDULING
        ------------------------"<<endl;
    cout<<"Enter range of requests.\nMinimum request:"<<endl;
    cin>>minRequest;
    cout<<"Maximum request:"<<endl;
    cin>>maxRequest;
    int head;
    cout<<"Enter head position:"<<endl;
    cin>>head;
    cout<<"Enter number of disk requests:"<<endl;
    cin>>n;
    vector<int>diskRequests(n);
    int justbeforeHead=minRequest,justAfterHead=maxRequest;
    int maxUserRequest=minRequest,minUserRequest=maxRequest;
    for(int i=0;i<n;i++){
        cout<<"Enter request number "<<i+1<<":"<<endl;
        cin>>diskRequests[i];
        if(diskRequests[i]<=head && diskRequests[i]>justbeforeHead)
            justbeforeHead=diskRequests[i];
        if(diskRequests[i]>=head && diskRequests[i]<justAfterHead)
            justAfterHead=diskRequests[i];
        if(diskRequests[i]<minUserRequest)minUserRequest=diskRequests[i];
        if(diskRequests[i]>maxUserRequest)maxUserRequest=diskRequests[i];
    }
    bool isHigher;
    cout<<"Enter where the head moves first.\nPress 0-Towards lower value\
        nPress 1-Towards higher value"<<endl;
    cin>>isHigher;
    int totalSeekTime;
    if(isHigher)totalSeekTime=(maxUserRequest-head)+(maxUserRequest-
        minUserRequest)+(justbeforeHead-minUserRequest);
    else totalSeekTime=(head-minUserRequest)+(maxUserRequest-
        minUserRequest)+(maxUserRequest-justAfterHead);
    cout<<"Total seek time using C-LOOK disk scheduling:"<<totalSeekTime<<
        endl;
    cout<<"Average seek time using C-LOOK disk scheduling:"<<totalSeekTime
        *1.0/n<<endl;
    return 0;
}
```