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#include <iostream>
using namespace std;

void FCFS(int *arr, int n, int head){
    int seq_op=0;
    cout<<"\nDisk Movement details : ";

    for(int i=0; i<n; i++){
        cout<<"\n"<<head<<" -----> "<<arr[i];

        int dist = abs(arr[i]-head);
        seq_op+=dist;
        head=arr[i];
    }

    cout<<"\n\nTotal seek operations : "<<seq_op;
    cout<<"\nAvg Head Movement : "<<float(seq_op)/n<<"\n";
}

int search(int *arr, bool *done, int n, int head){
    int idx=-1, mn = INT16_MAX;
    for(int i=0; i<n; i++){
        if(!done[i] && arr[i]!=head && abs(head-arr[i])<mn){
            mn=abs(head-arr[i]);
            idx=i;
        }
    }
    return idx;
}

void SSTF(int *arr, int n, int head){
    int seq_op=0;
    bool done[n]={false};
    cout<<"\nDisk Movement details : ";

    for(int i=0; i<n; i++){
        int findIdx = search(arr, done, n, head);
        done[findIdx]=true;

        cout<<"\n"<<head<<" -----> "<<arr[findIdx];

        int dist = abs(arr[findIdx]-head);
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        seq_op+=dist;
        head=arr[findIdx];

    }

    cout<<"\n\nTotal seek operations : "<<seq_op;
    cout<<"\nAvg Head Movement : "<<float(seq_op)/n<<"\n";
}

int main(){
    cout << "\n\nName : Mohd Adil \nRoll No : 20BCS042\n";

    int n;
    cout<<"\nEnter No of Sequences : ";
    cin>>n;
    int *arr = new int[n];
    cout<<"Enter the Sequences : ";
    for(int i=0; i<n; i++){
        cin>>arr[i];
    }
    int head;
    cout<<"Enter head position : ";
    cin>>head;

    cout << "\nPress 1 for FCFS disk Scheduling Algorithm";
    cout << "\nPress 2 for SSTF disk Scheduling Algorithm";
    cout << "\nPress 3 to exit";
    while (1){
        cout << "\nEnter your choice : ";
        int ch;
        cin>>ch;

        switch (ch){
            case 1:
                FCFS(arr,n,head);
                break;
            case 2:
                SSTF(arr,n,head);
                break;
            case 3: exit(0);
            default: cout<<"\nEnter a correct choice please";
                    break;
        }
    }

    return 0;
}

```

}

OUTPUT

```
Name : Mohd Adil
Roll No : 20BCS042

Enter No of Sequences : 8
Enter the Sequences : 176 79 34 60 92 11 41 114
Enter head position : 50

Press 1 for FCFS disk Scheduling Algorithm
Press 2 for SSTF disk Scheduling Algorithm
Press 3 to exit
Enter your choice : 1

Disk Movement details :
50 -----> 176
176 -----> 79
79 -----> 34
34 -----> 60
60 -----> 92
92 -----> 11
11 -----> 41
41 -----> 114

Total seek operations : 510
Avg Head Movement : 63.75
```

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Enter your choice : 2

Disk Movement details :
50 -----> 41
41 -----> 34
34 -----> 11
11 -----> 60
60 -----> 79
79 -----> 92
92 -----> 114
114 -----> 176

Total seek operations : 204
Avg Head Movement : 25.5

Enter your choice : 3
Exiting...
PS C:\Users\aadil\Desktop\CSE\OS Lab> █
```