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/*
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*/
#include<bits/stdc++.h>
using namespace std;
// FCFS
void FCFS(){
        int i,n,m,h;
   cout<<"Enter the size of disk\n";
   cin>>m;
   cout<<"Enter number of requests\n";
   cin>>n;
   cout<<"Enter the requests\n";
   vector <int> a(n);
   for(i=0;i<n;i++){
      cin>>a[i];
   }
   for(i=0;i<n;i++){
      if(a[i]>m){
         cout<<"Error, Unknown position "<<a[i]<<"\n";
         return FCFS();
      }
   }
   cout<<"Enter the head position\n";
   cin>>h;
   cout<<h;
   for(i=0;i<n;i++){
      cout<<" -> "<<a[i]<<' ';
   }
}
```

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// SCAN
void SCAN(){
        int i,k,n,m,h;
   cout<<"Enter the size of disk\n";
   cin>>m;
   cout<<"Enter number of requests\n";
   cin>>n;
   cout<<"Enter the requests\n";
   vector <int> a(n),b;
   for(i=0;i<n;i++){
      cin>>a[i];
   }
   for(i=0;i<n;i++){
      if(a[i]>m){
         cout<<"Error, Unknown position "<<a[i]<<"\n";
         return SCAN();
      }
   }
   cout<<"Enter the head position\n";
   cin>>h;
   int temp=h;
   a.push_back(h);
   a.push_back(m);
   a.push_back(0);
   sort(a.begin(),a.end());
   for(i=0;i<a.size();i++){
      if(h==a[i])
         break;
   }
   k=i;
   if(k<n/2){
```

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        for(i=k;i<a.size();i++){
            b.push_back(a[i]);
        }
        for(i=k-1;i>=0;i--){
            b.push_back(a[i]);
        }
    }
    else{
        for(i=k;i>=0;i--){
            b.push_back(a[i]);
        }
        for(i=k+1;i<a.size();i++){
            b.push_back(a[i]);
        }
    }
    cout<<b[0];
    for(i=1;i<b.size();i++){
        cout<<" -> "<<b[i];
    }
}
//CSCAN
void CSCAN(){
            int i,k,n,m,h;
    cout<<"Enter the size of disk\n";
    cin>>m;
    cout<<"Enter number of requests\n";
    cin>>n;
    cout<<"Enter the requests\n";
    vector <int> a(n),b;
    for(i=0;i<n;i++){
        cin>>a[i];
```

```
}
for(i=0;i<n;i++){
   if(a[i]>m){
      cout<<"Error, Unknown position "<<a[i]<<"\n";
      return CSCAN();
   }
}
cout<<"Enter the head position\n";
cin>>h;
int temp=h;
a.push_back(h);
a.push_back(m);
a.push_back(0);
sort(a.begin(),a.end());
for(i=0;i<a.size();i++){
   if(h==a[i])
      break;
}
k=i;
if(k<n/2){
   for(i=k;i<a.size();i++){
      b.push_back(a[i]);
   }
   for(i=0;i<=k-1;i++){
      b.push_back(a[i]);
   }
}
else{
   for(i=k;i>=0;i--){
      b.push_back(a[i]);
   }
```

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        for(i=a.size()-1;i>=k+1;i--){
            b.push_back(a[i]);
        }
    }
    cout<<b[0];
    for(i=1;i<b.size();i++){
        cout<<" -> "<<b[i];
    }
}
// Main
int main(){
        int input;
        cout<<"Welcome to Disk Scheduling!\n";
        cout<<"Enter Your Choice...\n";
        cout<<"1. First Come First Served (FCFS)\n";
        cout<<"2. SCAN\n";
        cout<<"3. C-SCAN\n";
        cin>>input;
        switch (input){
                case 1:
                        FCFS();
                        break;
                case 2:
                        SCAN();
                        break;
                case 3:
                        CSCAN();
                        break;
                default:
                        cout<<"Please choose 1 or 2 or 3";
        }
```

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        return 0;
}
```