

```

#include<bits/stdc++.h>

using namespace std;

void FCFS(){
    int i,n,m,h;

    cout<<"Enter disk size\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"<<a[i]<<"\n";

            return FCFS();

        }
    }

    cout<<"Enter the head position\n";

    cin>>h;

    cout<<h;

    for(i=0;i<n;i++){
        cout<<" -> "<<a[i]<<' ';
    }
}

void SCAN(){
    int i,k,n,m,h;

    cout<<"Enter disk size\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"<<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){
    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];
}
}
void CSCAN(){
    int i,k,n,m,h;
    cout<<"Enter disk size\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"<<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]);

    }

    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 x;

    cout<<"Enter Your Choice...\n";

    cout<<"1. First Come First Served (FCFS)\n";

    cout<<"2. SCAN\n";

    cout<<"3. C-SCAN\n";

    cin>>x;

    switch (x){

        case 1:

            FCFS();

            break;

        case 2:

            SCAN();

            break;

        case 3:

            CSCAN();

            break;

        default:

            cout<<"Please choose 1 or 2 or 3";

    }

    return 0;

}

```