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//Implement the C program for Disk Scheduling Algorithms:

//SCAN considering the initial head position moving away from the spindle

#include<stdio.h>

#include<stdlib.h>

int main()

{

    int RQ[100],i,j,n,TotalHeadMoment=0,initial,size,move;

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

    scanf("%d",&n);

    printf("Enter the Requests sequence\n");

    for(i=0;i<n;i++)

     scanf("%d",&RQ[i]);

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

    scanf("%d",&initial);

    printf("Enter total disk size\n");

    scanf("%d",&size);

    printf("Enter the head movement direction for high 1 and for low 0\n");

    scanf("%d",&move);

    // logic for Scan disk scheduling

     /\*logic for sort the request array \*/

    for(i=0;i<n;i++)

    {

        for(j=0;j<n-i-1;j++)

        {

            if(RQ[j]>RQ[j+1])

            {

                int temp;

                temp=RQ[j];

                RQ[j]=RQ[j+1];

                RQ[j+1]=temp;

            }

        }

    }

    int index;

    for(i=0;i<n;i++)

    {

        if(initial<RQ[i])

        {

            index=i;

            break;

        }

    }

    // if movement is towards high value

    if(move==1)

    {

        for(i=index;i<n;i++)

        {

            TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);

            initial=RQ[i];

        }

        //  last movement for max size

        TotalHeadMoment=TotalHeadMoment+abs(size-RQ[i-1]-1);

        initial = size-1;

        for(i=index-1;i>=0;i--)

        {

             TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);

             initial=RQ[i];

        }

    }

    // if movement is towards low value

    else

    {

        for(i=index-1;i>=0;i--)

        {

            TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);

            initial=RQ[i];

        }

        //  last movement for min size

        TotalHeadMoment=TotalHeadMoment+abs(RQ[i+1]-0);

        initial =0;

        for(i=index;i<n;i++)

        {

             TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);

             initial=RQ[i];

        }

    }

    printf("Total head movement is %d",TotalHeadMoment);

    return 0;

}