

\*\*\*\*\*

## 10. Develop a C program to simulate SCAN disk scheduling algorithm.

\*\*\*\*\*

```
#include<stdio.h>
int main()
{
    int queue[20],n,head,i,j,k,seek=0,max,diff,temp,pos,queue1[20],queue2[20],
    r=0,l=0;
    printf("Enter the max range of disk\n");
    scanf("%d",&max);
    printf("Enter the initial head position\n");
    scanf("%d",&head);
    printf("Enter the size of queue request\n");
    scanf("%d",&n);
    printf("Enter the queue of disk positions to be read\n");
    for(i=1;i<=n;i++)
    {
        scanf("%d",&pos);
        if(pos>=head)
        {
            queue1[r]=pos;
            r++;
        }
        else
        {
            queue2[l]=pos;
            l++;
        }
    }
    for(i=0;i<r-1;i++)
    {
        for(j=i+1;j<r;j++)
        {
            if(queue1[i]>queue1[j])
            {
                temp=queue1[i];
                queue1[i]=queue1[j];
                queue1[j]=temp;
            }
        }
    }
    printf("The sequence of disk positions to be read is:");
    for(i=0;i<r;i++)
    {
        printf("%d ",queue1[i]);
    }
    printf("\n");
    head=queue1[0];
    seek=0;
    for(i=1;i<r;i++)
    {
        if(head<queue1[i])
        {
            seek+=head-queue1[i-1];
            head=queue1[i];
        }
        else if(head>queue1[i])
        {
            seek+=head-queue1[i];
            head=queue1[i];
        }
    }
    printf("The total seek is: %d",seek);
}
```

```

        queue1[i]=queue1[j];
        queue1[j]=temp;
    }
}
for(i=0;i<l-1;i++)
{
    for(j=i+1;j<l;j++)
    {
        if(queue2[i]<queue2[j])
        {
            temp=queue2[i];
            queue2[i]=queue2[j];
            queue2[j]=temp;
        }
    }
}
for(i=1,j=0;j<r;i++,j++)
queue[i]=queue1[j];
queue[i]=max;
for(i=r+2,j=0;j<l;i++,j++)
queue[i]=queue2[j];
queue[0]=head;
for(j=0;j<=n;j++)
{
    diff=abs(queue[j+1]-queue[j]);
    seek+=diff;
    printf("Disk head moves from %d to %d with seek
%d\n",queue[j],queue[j+1],diff);
}
printf("Total seek time is %d\n",seek);
return 0;
}

```