24. Design a C program to simulate SCAN disk scheduling algorithm.

**PROGRAM:**

**#include<stdio.h>**

**int absoluteValue(int);**

**int main()**

**{**

**int queue[25],n,headposition,i,j,k,seek=0, maxrange,**

**difference,temp,queue1[20],queue2[20],temp1=0,temp2=0;**

**float averageSeekTime;**

**printf("Enter the maximum range of Disk: ");**

**scanf("%d",&maxrange);**

**printf("Enter the number of queue requests: ");**

**scanf("%d",&n);**

**printf("Enter the initial head position: ");**

**scanf("%d",&headposition);**

**printf("Enter the disk positions to be read(queue): ");**

**for(i=1;i<=n;i++)**

**{**

**scanf("%d",&temp);**

**if(temp>headposition)**

**{**

**queue1[temp1]=temp;**

**temp1++;**

**}**

**else**

**{**

**queue2[temp2]=temp;**

**temp2++;**

**}**

**}**

**for(i=0;i<temp1-1;i++)**

**{**

**for(j=i+1;j<temp1;j++)**

**{**

**if(queue1[i]>queue1[j])**

**{**

**temp=queue1[i];**

**queue1[i]=queue1[j];**

**queue1[j]=temp;**

**}**

**}**

**}**

**for(i=0;i<temp2-1;i++)**

**{**

**for(j=i+1;j<temp2;j++)**

**{**

**if(queue2[i]<queue2[j])**

**{**

**temp=queue2[i];**

**queue2[i]=queue2[j];**

**queue2[j]=temp;**

**}**

**}**

**}**

**for(i=1,j=0;j<temp1;i++,j++)**

**{**

**queue[i]=queue1[j];**

**}**

**queue[i]=maxrange;**

**{**

**queue[i]=queue2[j];**

**}**

**queue[i]=0;**

**queue[0]=headposition;**

**for(j=0; j<=n; j++)**

**{**

**difference = absoluteValue(queue[j+1]-queue[j]);**

**seek = seek + difference;**

**printf("Disk head moves from position %d to %d with Seek %d \n", queue[j], queue[j+1], difference);**

**}**

**averageSeekTime = seek/(float)n;**

**printf("Total Seek Time= %d\n", seek);**

**printf("Average Seek Time= %f\n", averageSeekTime);**

**}**

**int absoluteValue(int x)**

**{**

**if(x>0)**

**{**

**return x;**

**}**

**else**

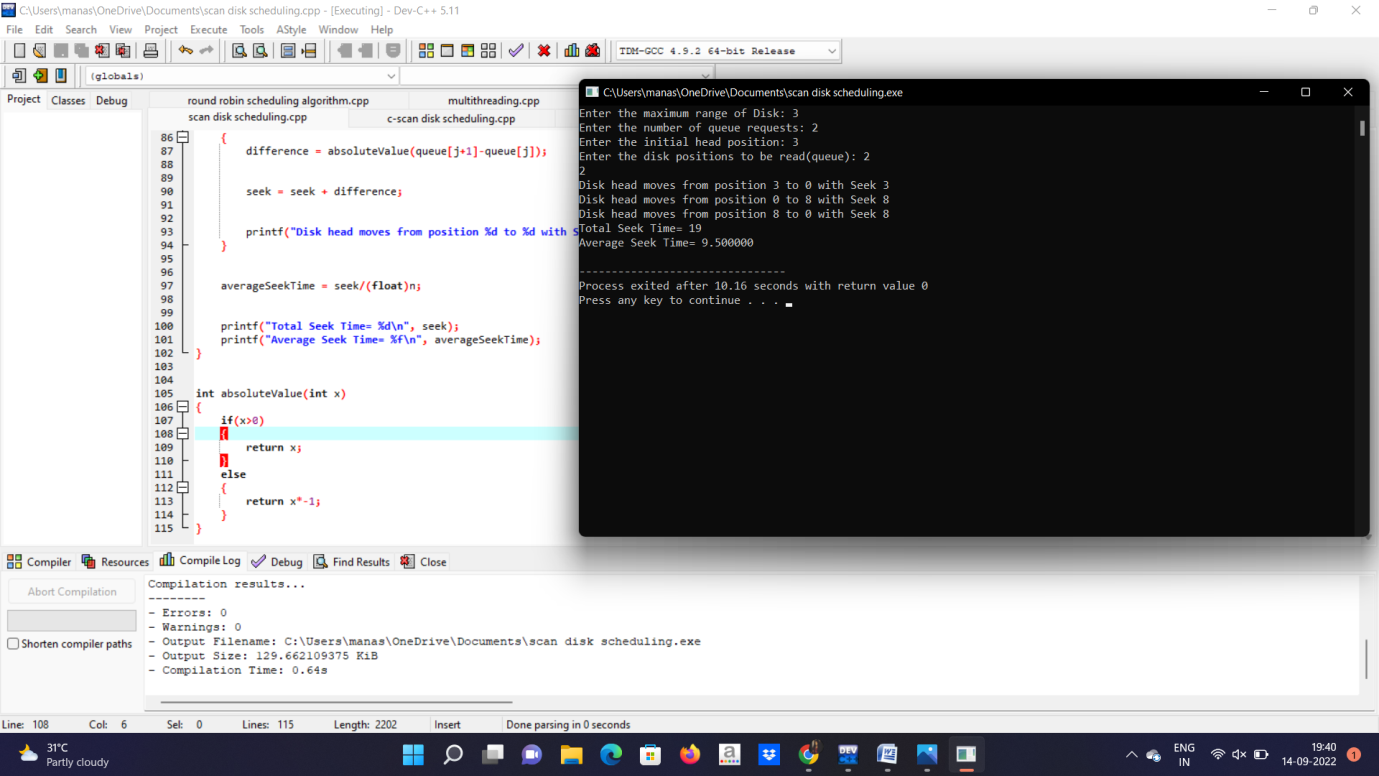
**{**

**return x\*-1;**

**}**

**}**

**OUTPUT:**

****