PROGRAM: SCAN Algorithm —Niyati Savant

Code:

```
#include<stdio.h>
#include<stdlib.h>
struct track
{
  int track_no;
  int covered;
};


void main()
{
   printf("Niyati Savant--SCAN Algorithm\n");
   struct track track_order[20];
   int i,j,k,no_tracks,temp,diff=0,x=0,head_movement=0,curr_head,end;

   printf("Enter the number of Tracks: ");
   scanf("%d",&no_tracks);

   for(i=0;i<no_tracks;i++)
   {
      printf("Enter Track %d :",i+1);
      scanf("%d",&track_order[i].track_no);
      track_order[i].covered=0;
   }

   printf("Enter the last track number: ");
   scanf("%d",&end);
   track_order[no_tracks].track_no=end;
   track_order[no_tracks].covered=0;
```

```
  printf("Enter the cuurent Head position:");
  scanf("%d",&curr_head);
  track_order[no_tracks+1].track_no=curr_head;
  track_order[no_tracks+1].covered=0;
  no_tracks=no_tracks+2;
for(i=0;i<no_tracks;i++)
  {
    for(j=0;j<no_tracks;j++)
    {
      if(track_order[i].track_no < track_order[j].track_no)
      {
        temp=track_order[i].track_no;
        track_order[i].track_no=track_order[j].track_no;
        track_order[j].track_no=temp;
      }
    }
  }

  printf("\n Moving towards Larger value\n");

  //finding current
  for(i=0;i<no_tracks;i++)
  {
    if(track_order[i].track_no==curr_head)
    {
      k=i;
      break;}
  }

  while(x!=no_tracks)
  {
```

```
    for(i=k+1;i<no_tracks;i++)
    {
       if(track_order[i].covered==0)
       {
       diff=abs(curr_head-track_order[i].track_no);
       head_movement +=diff;
       curr_head=track_order[i].track_no;
       track_order[i].covered=1;
       printf("\n Track chosen: %d  & The difference : %d",curr_head,diff);
       }
    }
    for(i=k-1;i>=0;i--)
    {
       if(track_order[i].covered==0)
       {
       diff=abs(curr_head-track_order[i].track_no);
       head_movement +=diff;
       curr_head=track_order[i].track_no;
       track_order[i].covered=1;
       printf("\n Track chosen: %d  & The difference : %d",curr_head,diff);
       }
    }
    x++;
    }
    printf("\n The total Head Movement is %d",head_movement);
}
```

Output:

Niyati Savant—SCAN Algorithm

Enter the number of Tracks: 7

Enter Track 1 :82

Enter Track 2 :170

Enter Track 3 :43

Enter Track 4 :140

Enter Track 5 :24

Enter Track 6 :16

Enter Track 7 :190

Enter the last track number: 199

Enter the cuurent Head position:50

Moving towards Larger value

Track chosen: 82 & The difference : 32

Track chosen: 140 & The difference : 58

Track chosen: 170 & The difference : 30

Track chosen: 190 & The difference : 20

Track chosen: 199 & The difference : 9

Track chosen: 43 & The difference : 156

Track chosen: 24 & The difference : 19

Track chosen: 16 & The difference : 8

The total Head Movement is 332