DISK SCHEDULING-1

to simulate disk scheduling algorithms

a) FCFS
b)SCAN
c) C-SCAN

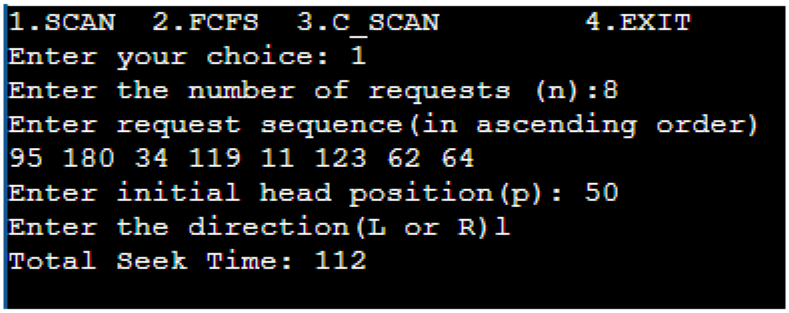
```
#include <stdio.h>
#include <stdlib.h>

void SCAN()
{
   int n, head;
   char direction;
   int sum = 0;
   printf("Enter the number of requests (n):");
   scanf("%d", &n);
   int rs[n];
   printf("Enter request sequence(in ascending order)\n");
   for (int i = 0; i < n; i++)
   {
      scanf("%d", &rs[i]);
   }
   printf("Enter initial head position(p): ");
   scanf("%d", &head);
   printf("Enter the direction(L or R)");
   scanf(" %c", &direction);
   if (direction == 'l')
   {
      sum = head + rs[n - 2];
      printf("Total Seek Time: %d\n", sum);
   }

   else if (direction == 'r')
   {
      sum = abs(rs[n - 1] - head) + abs(rs[n - 1] - rs[1]);
      printf("Total Seek Time: %d\n", sum);
   }

   else
      printf("invalid input try L or R");
}
```

```
void FCFS(){
    int n,head;
    printf("First come first serve\n");
    printf("Enter the number of request(n):");
    scanf("%d",&n);
    int i,rs[n];
    printf("Enter request sequence one by one\n");
    for( i=0;i<n;i++){
        scanf("%d",&rs[i]);
    }
    printf("Enter initial head position(p):");
    scanf("%d",&head);
    int sum=0;
    sum=abs(head-rs[0]);
    for(int j=1;j<n;j++){
        sum=sum+abs(rs[j]-rs[j-1]);
    }
    printf("Total seek operation:%d",sum);
}

void C_SCAN(){
    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);
    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(move==1)
    {
        for(i=index;i<n;i++)
        {
            TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);
            initial=RQ[i];
        }
        TotalHeadMoment=TotalHeadMoment+abs(size-RQ[i-1]-1);
        TotalHeadMoment=TotalHeadMoment+abs(size-1-0);
        initial=0;
        for( i=0;i<index;i++)
        {
             TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);
             initial=RQ[i];
        }
    }
    else
    {
        for(i=index-1;i>=0;i--)
        {
            TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);
            initial=RQ[i];
        }
        TotalHeadMoment=TotalHeadMoment+abs(RQ[i+1]-0);
        TotalHeadMoment=TotalHeadMoment+abs(size-1-0);
        initial =size-1;
        for(i=n-1;i>=index;i--)
        {
             TotalHeadMoment=TotalHeadMoment+abs(RQ[i]-initial);
             initial=RQ[i];
        }
    }
```

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

int main(){
    int ch;
    printf("1.SCAN\t2.FCFS\t3.C_SCAN\t4.EXIT");
    printf("\nEnter your choice: ");
    scanf("%d",&ch);
    switch(ch){
        case 1: SCAN();
                break;
        case 2: FCFS();
                break;
        case 3: C_SCAN();
                break;
        case 4: exit(0);
                break;
        default: printf("Invalid input");
                 break;
    }
    return(0);
}
```

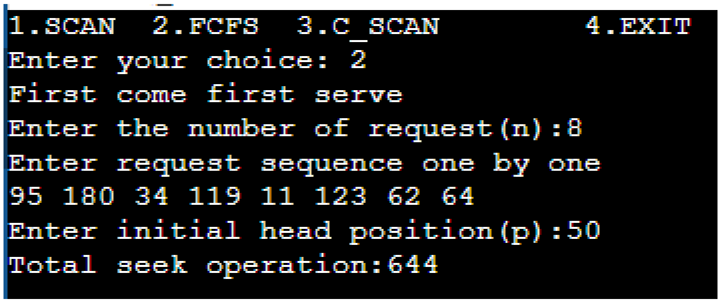
OUTPUT:

Scan:



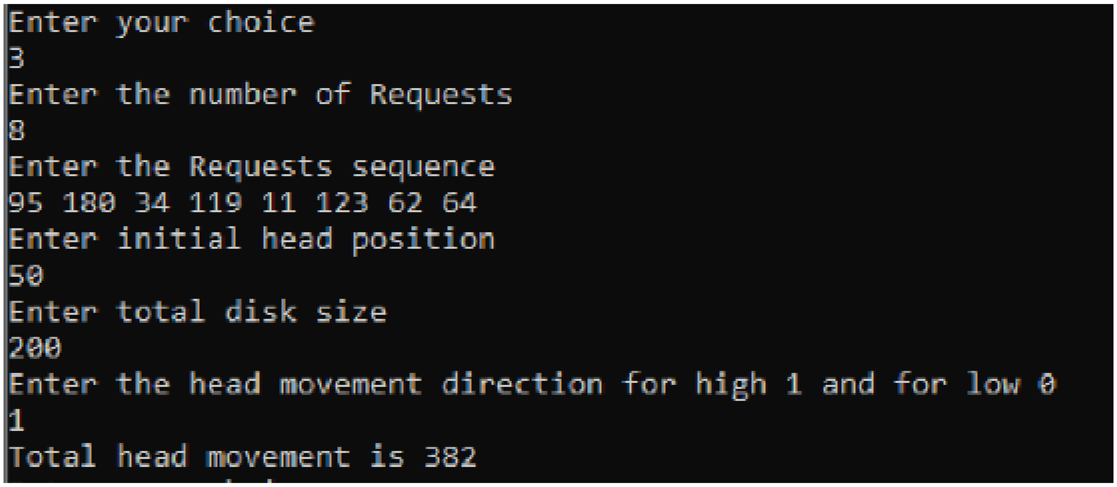
```
1.SCAN  2.FCFS  3.C_SCAN        4.EXIT
Enter your choice: 1
Enter the number of requests (n):8
Enter request sequence(in ascending order)
95 180 34 119 11 123 62 64
Enter initial head position(p): 50
Enter the direction(L or R)1
Total Seek Time: 112
```

Fcfs:



```
1.SCAN  2.FCFS  3.C_SCAN        4.EXIT
Enter your choice: 2
First come first serve
Enter the number of request(n):8
Enter request sequence one by one
95 180 34 119 11 123 62 64
Enter initial head position(p):50
Total seek operation:644
```

C_SCAN:



```
Enter your choice
3
Enter the number of Requests
8
Enter the Requests sequence
95 180 34 119 11 123 62 64
Enter initial head position
50
Enter total disk size
200
Enter the head movement direction for high 1 and for low 0
1
Total head movement is 382
```