CODE

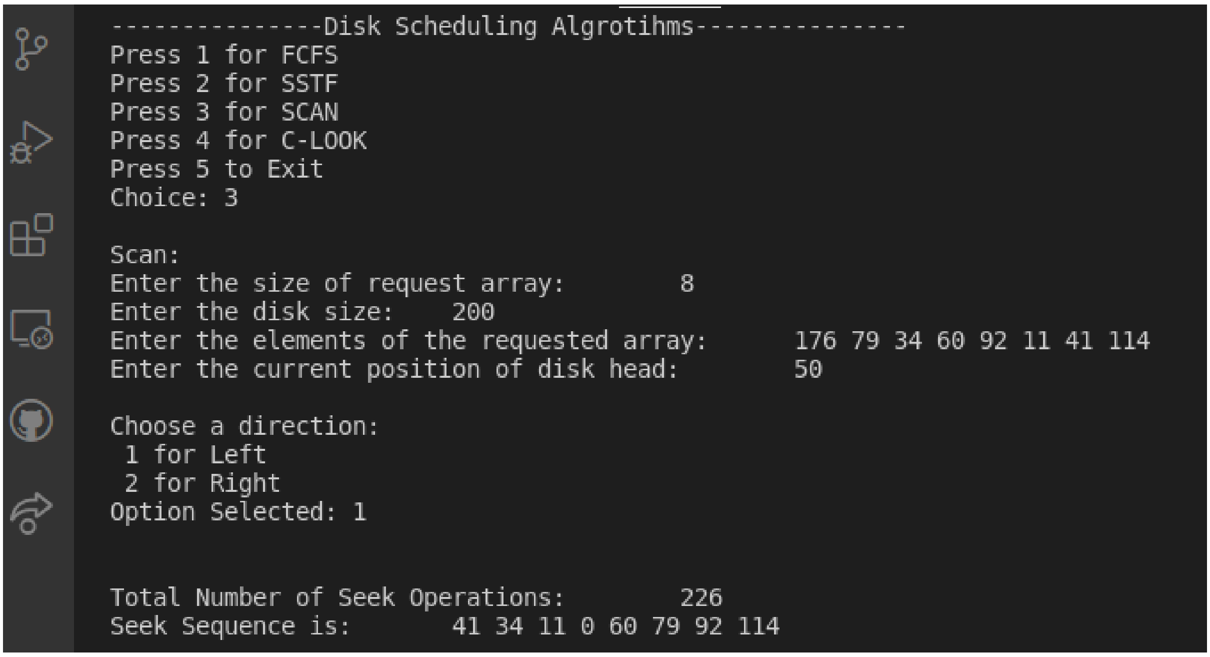
```
#include <stdio.h>
#include <stdlib.h>


// First Come First Serve
void FCFS(){
   int n, i, head;
   printf("\nFCFS:\nEnter the size of request array:\t");
   scanf("%d", &n);

   int arr[n];
   printf("Enter the elements of the requested array:\t");
   for(i=0; i<n; i++){
      scanf("%d", &arr[i]);
   }

   printf("Enter the current position of disk head:\t");
   scanf("%d", &head);


   int seek_count=0; int current_track;
   for(int i = 0; i < n; i++){
      current_track = arr[i];
      seek_count+=abs(current_track-head);
      head=current_track;
   }
   printf("\nTotal number of seek operations is:\t%d",
seek_count);
   printf("\nSeek Sequence: ");
   for(i = 0; i < n; i++){
      printf("%d ", arr[i]);
   }
}


// Shortest Seek Time First
void difference(int req_arr[], int diff[], int head, int n){
   for(int i = 0; i < n; i++){
      diff[i]=abs(head-req_arr[i]);
```

```
    }
}
int min_diff(int req_arr[], int visited[], int diff[], int head, int n){
    int index = 0;
    int min = 9999;
    for(int i = 0; i < n; i++){
        if(visited[i]==0 && diff[i]<min){
            min=diff[i];
            index=i;
        }
    }
    return index;
}
void SSTF(){
    int n, i, head, index;
    printf("\nShortest Seek Time First:\nEnter the size of request
array:\t");
    scanf("%d", &n);

    int arr[n];
    printf("Enter the elements of the requested array:\t");
    for(i=0; i<n; i++){
        scanf("%d", &arr[i]);
    }

    printf("Enter the current position of disk head:\t");
    scanf("%d", &head);

    int visited[100], diff[100];
    for(i=0; i<n; i++){
        visited[i]=0;
    }

    int seek_count=0; int seek_seq[n+1];
    for(i = 0; i<n; i++){
        seek_seq[i]=head;
        difference(arr, diff, head, n);
        index=min_diff(arr, visited, diff, head, n);
        visited[index]=1;
        seek_count+=diff[index];
        head=arr[index];
    }
    seek_seq[n]=head;
    printf("\n\nTotal Number of Seek Operations:\t%d",
seek_count);
    printf("\nSeek Sequence is:\t");
    for(i=0; i<n; i++)
        printf("%d ", seek_seq[i]);
}


// Scan
void sort(int arr[], int size){
    int swapped=0;
    int temp;
    do{
        swapped=0;
        for(int i=0; i<size-1; i++){
            if(arr[i]>arr[i+1]){
                temp = arr[i];
                arr[i]=arr[i+1];
                arr[i+1]=temp;
                swapped=1;
            }
        }
    }while(swapped==1);
}
void SCAN(){
    int n, i, head, disk_size, direction;
    printf("\nScan:\nEnter the size of request array:\t");
    scanf("%d", &n);
    printf("Enter the disk size:\t");
    scanf("%d", &disk_size);

    int arr[n];
    printf("Enter the elements of the requested array:\t");
    for(i=0; i<n; i++){
        scanf("%d", &arr[i]);
    }

    printf("Enter the current position of disk head:\t");
    scanf("%d", &head);
    printf("\nChoose a direction:\n 1 for Left\n 2 for Right\nOption
Selected: ");
    scanf("%d", &direction);



    int seek_count = 0;
    int seek_seq[n];
    int l=0, r=0, seq=0;
    int current_track;
    int left[100], right[100];

    if(direction==2){
        right[r++]=disk_size-1;
    } else if(direction==1){
        left[l++]=0;
    }

    for(i = 0; i<n; i++){
        if(arr[i]<head){
            left[l++]=arr[i];
        }
        if(arr[i]>head){
            right[r++]=arr[i];
        }
    }
    sort(left, l);
    sort(right, r);

    int loop=2;
    while(loop>0){
        if(direction==2){
            for(i=0; i<r; i++){
                current_track=right[i];
                seek_seq[seq++]=current_track;
                seek_count+=abs(current_track-head);
                head=current_track;
            }
            direction=1;
        }  else if(direction==1){
            for(i=l-1; i>=0; i--){
                current_track=left[i];
                seek_seq[seq++]=current_track;
                seek_count+=abs(current_track-head);
                head=current_track;
            }
            direction=2;
        }
        loop--;
    }
    printf("\n\nTotal Number of Seek Operations:\t%d",
seek_count);
    printf("\nSeek Sequence is:\t");
    for(i=0; i<n; i++)
    printf("%d ", seek_seq[i]);
}


// C-Look
void CLOOK(){
    int n, i, head;
    printf("\nC-Look:\nEnter the size of request array:\t");
    scanf("%d", &n);

    int arr[n];
    printf("Enter the elements of the requested array:\t");
    for(i=0; i<n; i++){
        scanf("%d", &arr[i]);
    }

    printf("Enter the current position of disk head:\t");
    scanf("%d", &head);



    int seek_count=0; int seek_seq[n];
    int l=0, r=0, seq=0;
    int current_track;
    int left[100], right[100];

    for(i=0; i<n; i++){
        if(arr[i]<head){
            left[l++]=arr[i];
        }
        if(arr[i]>head){
            right[r++]=arr[i];
        }
    }
    sort(left, l);
    sort(right, r);

    for(i=0; i<r; i++){
        current_track=right[i];
        seek_seq[seq++]=current_track;
        seek_count+=abs(current_track-head);
        head=current_track;
    }
    seek_count+=abs(head-left[0]);
    head=left[0];
    for(i=0; i<l; i++){
        current_track=left[i];
        seek_seq[seq++]=current_track;
        seek_count+=abs(current_track-head);
        head=current_track;
    }
    printf("\n\nTotal Number of Seek Operations:\t%d",
seek_count);
    printf("\nSeek Sequence is:\t");
    for(i=0; i<n; i++)
        printf("%d ", seek_seq[i]);
}


int main(){
    int choice = 0;
    do
    {
        printf("\n\n---------------Disk Scheduling Algrotihms---------------
\n");
        printf("Press 1 for FCFS\nPress 2 for SSTF\nPress 3 for
SCAN\nPress 4 for C-LOOK\nPress 5 to Exit\nChoice:\t");
        scanf("%d", &choice);
        switch (choice)
        {
        case 1:
            FCFS();
            break;
        case 2:
            SSTF();
            break;
        case 3:
            SCAN();
            break;
        case 4:
            CLOOK();
            break;
        case 5:
            printf("\n\n-----------------------THANK YOU------------------------
\n\n");
            exit(0);
        default:
            printf("\n\nEnter options between 1-5.");
            break;
        }

    } while (choice != 5);
    return 0;
}
```

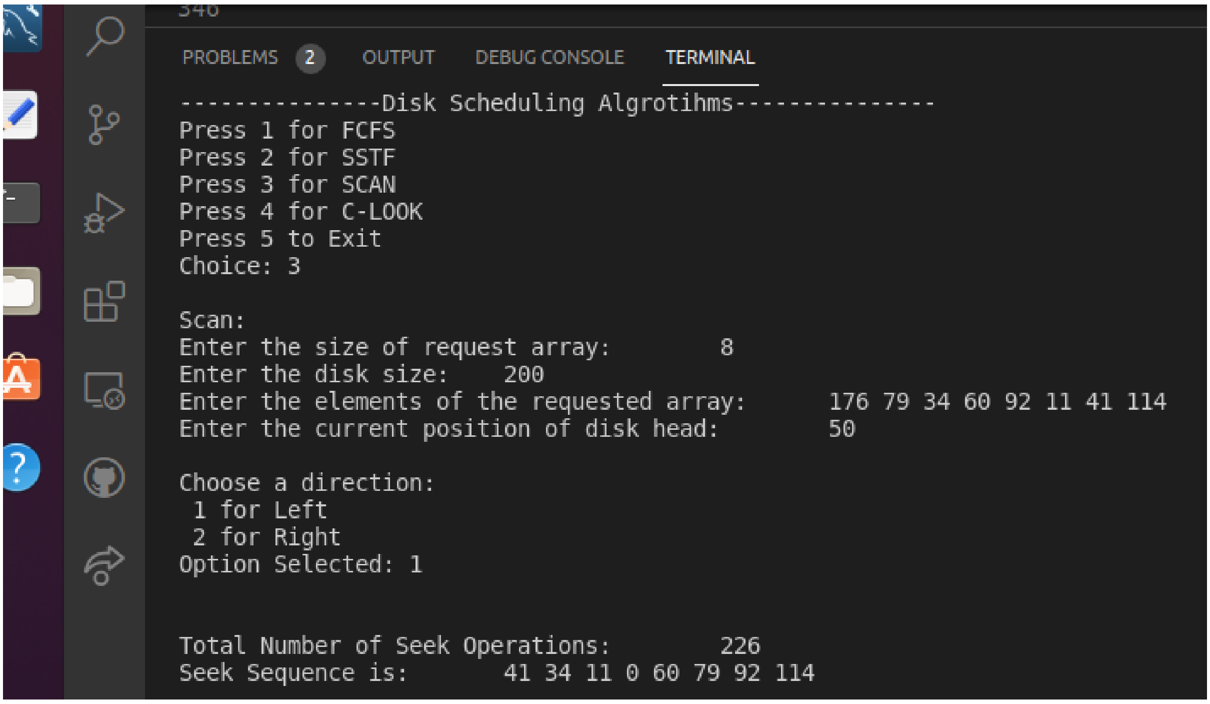
/* **OUTPUT**

```
adi@adi-VirtualBox:~/OSL/Assignment 8$ ./a.out


---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice:
1

FCFS:
Enter the size of request array:       8
Enter the elements of the requested array:      176 79 34 60 92 11
41 114
Enter the current position of disk head:       50

Total number of seek operations is:     510
Seek Sequence: 176 79 34 60 92 11 41 114

---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 2

Shortest Seek Time First:
Enter the size of request array:       8
Enter the elements of the requested array:      176 79 34 60 92 11
41 114
Enter the current position of disk head:       50


Total Number of Seek Operations:       204
Seek Sequence is:       50 41 34 11 60 79 92 114

---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 3

Scan:
Enter the size of request array:       8
Enter the disk size:    200
Enter the elements of the requested array:      176 79 34 60 92 11
41 114
Enter the current position of disk head:       50

Choose a direction:
 1 for Left
 2 for Right
Option Selected: 1


Total Number of Seek Operations:       226
Seek Sequence is:       41 34 11 0 60 79 92 114

---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 3

Scan:
Enter the size of request array:       8
Enter the disk size:    200
Enter the elements of the requested array:      176 79 34 60 92 11
41 114
Enter the current position of disk head:       50

Choose a direction:
 1 for Left
 2 for Right
Option Selected: 2


Total Number of Seek Operations:       337
Seek Sequence is:       60 79 92 114 176 199 41 34

---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 4

C-Look:
Enter the size of request array:	8
Enter the elements of the requested array:	176 79 34 60 92 11
41 114
Enter the current position of disk head:	50


Total Number of Seek Operations:	321
Seek Sequence is:	60 79 92 114 176 11 34 41

---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 5


-----------------------THANK YOU------------------------



*/
```

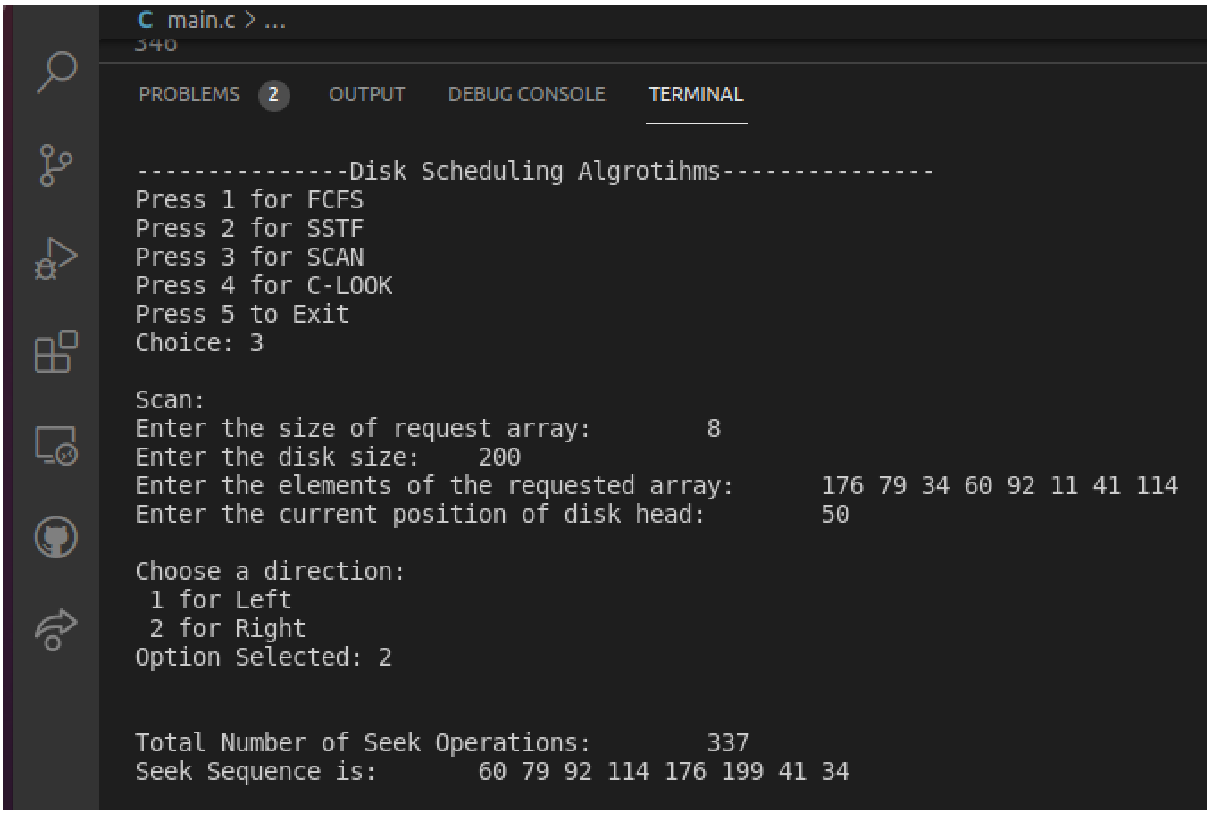
OUTPUT



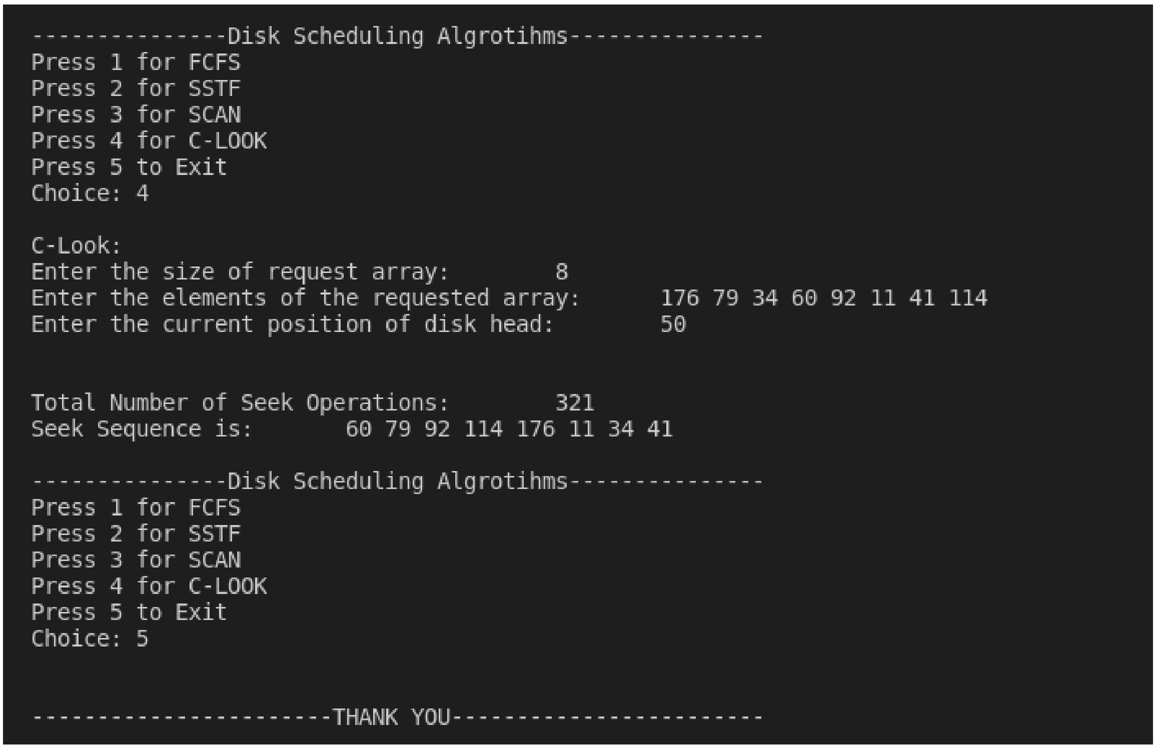
```
---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 3

Scan:
Enter the size of request array:        8
Enter the disk size:    200
Enter the elements of the requested array:      176 79 34 60 92 11 41 114
Enter the current position of disk head:        50

Choose a direction:
 1 for Left
 2 for Right
Option Selected: 1


Total Number of Seek Operations:        226
Seek Sequence is:       41 34 11 0 60 79 92 114
```



```
--------------Disk Scheduling Algrotihms--------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 3

Scan:
Enter the size of request array:        8
Enter the disk size:    200
Enter the elements of the requested array:      176 79 34 60 92 11 41 114
Enter the current position of disk head:        50

Choose a direction:
 1 for Left
 2 for Right
Option Selected: 1


Total Number of Seek Operations:        226
Seek Sequence is:       41 34 11 0 60 79 92 114
```



```
---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 3

Scan:
Enter the size of request array:        8
Enter the disk size:    200
Enter the elements of the requested array:      176 79 34 60 92 11 41 114
Enter the current position of disk head:        50

Choose a direction:
 1 for Left
 2 for Right
Option Selected: 2


Total Number of Seek Operations:        337
Seek Sequence is:       60 79 92 114 176 199 41 34
```



```
---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 4

C-Look:
Enter the size of request array:        8
Enter the elements of the requested array:      176 79 34 60 92 11 41 114
Enter the current position of disk head:        50


Total Number of Seek Operations:        321
Seek Sequence is:       60 79 92 114 176 11 34 41

---------------Disk Scheduling Algrotihms---------------
Press 1 for FCFS
Press 2 for SSTF
Press 3 for SCAN
Press 4 for C-LOOK
Press 5 to Exit
Choice: 5


-----------------------THANK YOU------------------------
```