MUHAMMAD AAMIR
DT-047

LAB 13

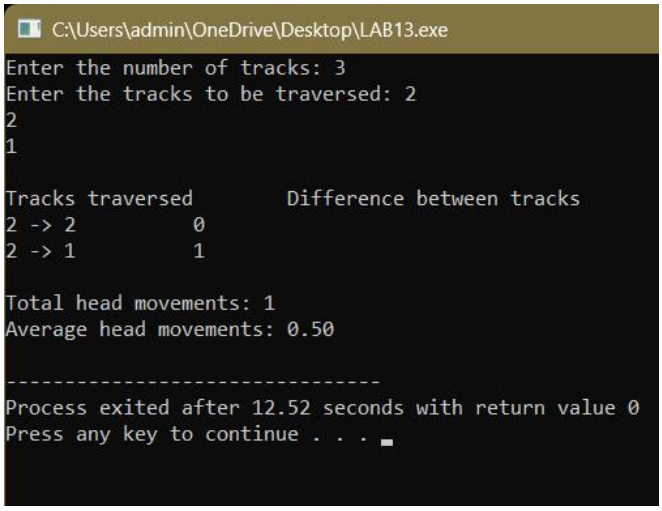
CODE:

A) FCFS

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

int main() {
    int t[20], tohm[20], n, i, tot = 0;
    float avhm;

    printf("Enter the number of tracks: ");
    scanf("%d", &n);

    printf("Enter the tracks to be traversed: ");
    for (i = 0; i < n; i++) {
        scanf("%d", &t[i]);
    }

    // Calculate the head movements
    for (i = 0; i < n - 1; i++) {
        tohm[i] = abs(t[i + 1] - t[i]);
        tot += tohm[i];
    }

    avhm = (float)tot / (n - 1);

    printf("\nTracks traversed\tDifference between tracks\n");
```

```
    for (i = 0; i < n - 1; i++) {
        printf("%d -> %d\t\t%d\n", t[i], t[i + 1], tohm[i]);
    }

    printf("\nTotal head movements: %d", tot);
    printf("\nAverage head movements: %.2f\n", avhm);

    return 0;
}
```

OUTPUT:



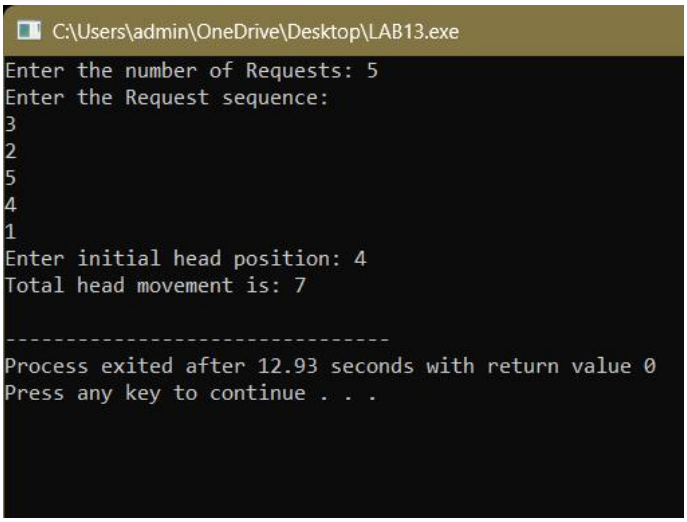
B) SSTF

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

int main() {
    int RQ[100], n, initial, TotalHeadMovement = 0, count = 0;
    int i, min, d, index, visited[100] = {0};
```

```
    printf("Enter the number of Requests: ");
    scanf("%d", &n);

    printf("Enter the Request sequence:\n");
    for (i = 0; i < n; i++) {
        scanf("%d", &RQ[i]);
    }

    printf("Enter initial head position: ");
    scanf("%d", &initial);

    while (count < n) {
        min = 100000; // Large value
        index = -1;

        for (i = 0; i < n; i++) {
            if (!visited[i]) {
                d = abs(RQ[i] - initial);
                if (d < min) {
                    min = d;
                    index = i;
                }
            }
        }

        visited[index] = 1;
        TotalHeadMovement += min;
        initial = RQ[index];
```

```
        count++;
    }

    printf("Total head movement is: %d\n", TotalHeadMovement);

    return 0;
}
```

OUTPUT:



C) SCAN

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

int main() {
    int t[100], n, head, i, j, temp;
    int totalMovement = 0;
    int direction;

    printf("Enter the number of tracks to be traversed: ");
    scanf("%d", &n);
```

```
    printf("Enter the position of the head: ");
    scanf("%d", &head);

    t[0] = head;

    printf("Enter the track numbers:\n");
    for (i = 1; i <= n; i++) {
        scanf("%d", &t[i]);
    }

    n++; // include the head in the track list

    // Sorting the track array
    for (i = 0; i < n - 1; i++) {
        for (j = 0; j < n - i - 1; j++) {
            if (t[j] > t[j + 1]) {
                temp = t[j];
                t[j] = t[j + 1];
                t[j + 1] = temp;
            }
        }
    }

    // Ask direction: 0 for left, 1 for right
    printf("Enter head movement direction (0 for left, 1 for right): ");
    scanf("%d", &direction);
```

```
    // Find the index of the head
    int index;
    for (i = 0; i < n; i++) {
        if (t[i] == head) {
            index = i;
            break;
        }
    }

    printf("Order of servicing tracks:\n");

    if (direction == 1) {
        // Move right
        for (i = index; i < n; i++) {
            printf("%d ", t[i]);
        }
        for (i = index - 1; i >= 0; i--) {
            printf("%d ", t[i]);
        }
    } else {
        // Move left
        for (i = index; i >= 0; i--) {
            printf("%d ", t[i]);
        }
        for (i = index + 1; i < n; i++) {
            printf("%d ", t[i]);
        }
    }
```

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```
    // Calculate total head movement
    for (i = 0; i < n - 1; i++) {
        totalMovement += abs(t[i + 1] - t[i]);
    }

    printf("\nTotal head movement: %d\n", totalMovement);

    return 0;
}
```

OUTPUT: