

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];
    }

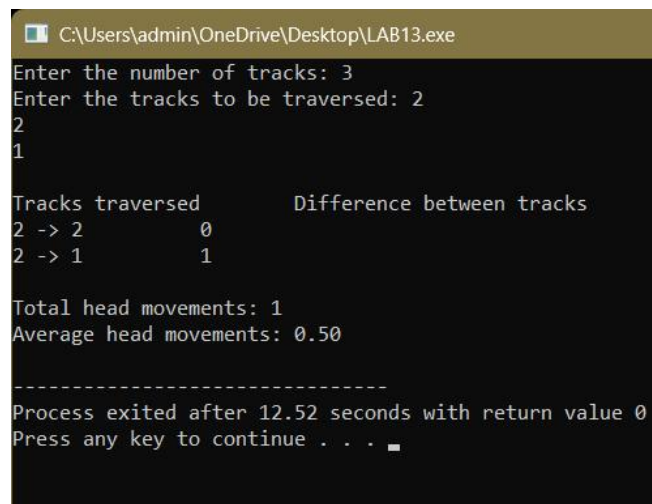
    avhm = (float)tot / (n - 1);

    printf("\nTracks traversed\tDifference between tracks\n");
    for (i = 0; i < n - 1; i++) {
```

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```
        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:



```
C:\Users\admin\OneDrive\Desktop\LAB13.exe  
Enter the number of tracks: 3  
Enter the tracks to be traversed: 2  
2  
1  
  
Tracks traversed      Difference between tracks  
2 -> 2                0  
2 -> 1                1  
  
Total head movements: 1  
Average head movements: 0.50  
  
-----  
Process exited after 12.52 seconds with return value 0  
Press any key to continue . . .
```

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;
```

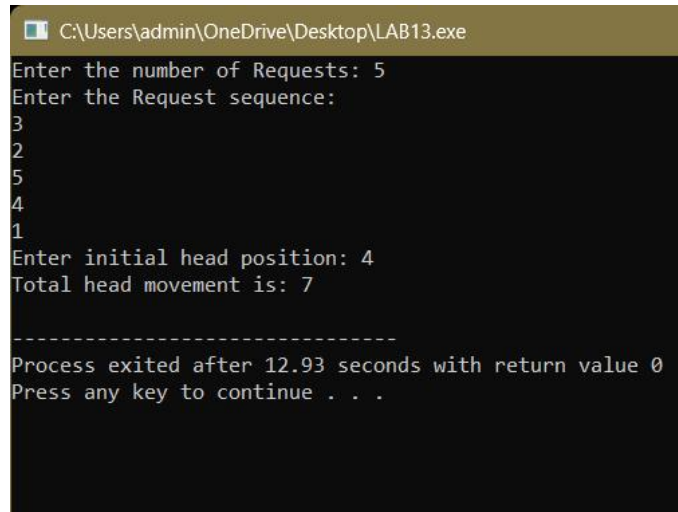
```
    for (i = 0; i < n; i++) {  
        if (!visited[i]) {  
            d = abs(RQ[i] - initial);  
            if (d < min) {  
                min = d;  
                index = i;  
            }  
        }  
    }  
}
```

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

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

return 0;
}
```

OUTPUT:



```
C:\Users\admin\OneDrive\Desktop\LAB13.exe
Enter the number of Requests: 5
Enter the Request sequence:
3
2
5
4
1
Enter initial head position: 4
Total head movement is: 7

-----
Process exited after 12.93 seconds with return value 0
Press any key to continue . . .
```

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]);  
    }  
}
```

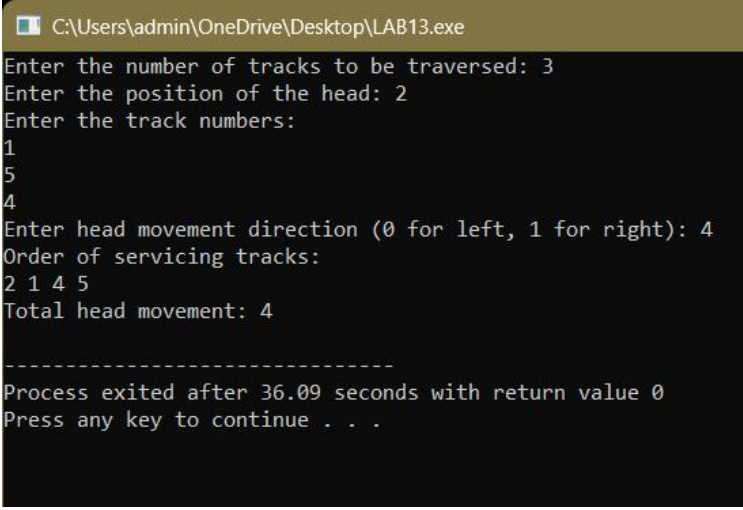
```
// Calculate total head movement
```

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```
    for (i = 0; i < n - 1; i++) {  
        totalMovement += abs(t[i + 1] - t[i]);  
    }  
  
    printf("\nTotal head movement: %d\n", totalMovement);  
  
    return 0;  
}
```

OUTPUT:



```
C:\Users\admin\OneDrive\Desktop\LAB13.exe  
Enter the number of tracks to be traversed: 3  
Enter the position of the head: 2  
Enter the track numbers:  
1  
5  
4  
Enter head movement direction (0 for left, 1 for right): 4  
Order of servicing tracks:  
2 1 4 5  
Total head movement: 4  
  
-----  
Process exited after 36.09 seconds with return value 0  
Press any key to continue . . .
```