Noman Ahmed
DT-22032

Operating System (CT-353)

Lab no 13

Noman Ahmed
DT-22032

Implement the above code and paste the screen shot of the output.

CODE:

A) FCFS

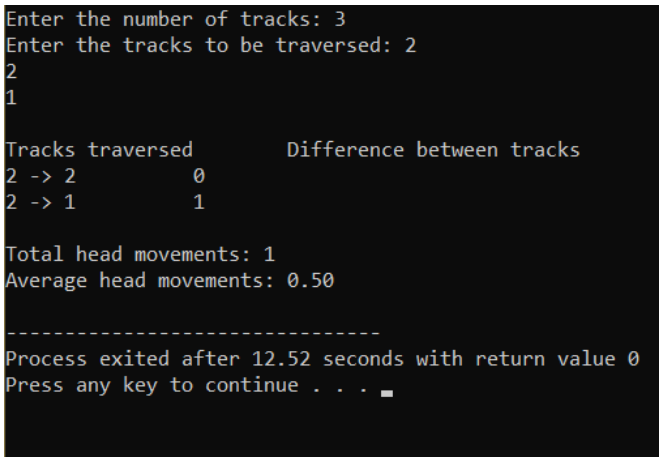
```
#include <stdio.h>
#include <stdlib.h>

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
```

Noman Ahmed
DT-22032

```
    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;
}
```

Noman Ahmed
DT-22032

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++) {
```

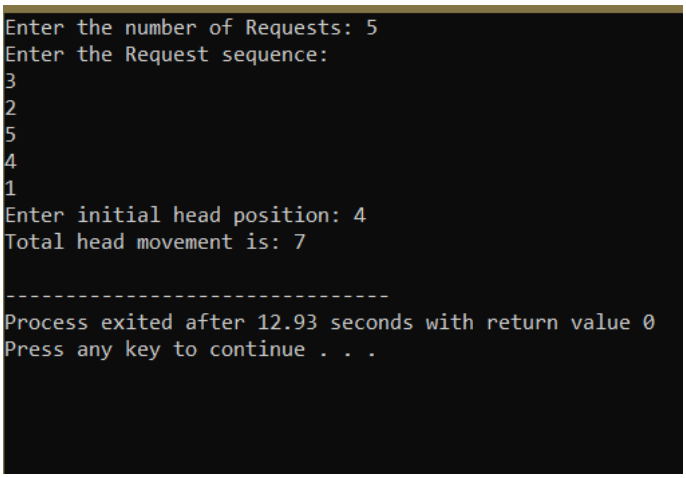
Noman Ahmed
DT-22032

```
        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;
```

Noman Ahmed
DT-22032

```
        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;
```

Noman Ahmed
DT-22032

```
   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]) {
```

Noman Ahmed
DT-22032

```
            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");
```

Noman Ahmed
DT-22032

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

Noman Ahmed
DT-22032

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


    return 0;
}
```

OUTPUT: