LAB-13

Exercise:

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

a) FCFS

PROGRAM:

```c
#include <stdio.h>
#include <conio.h>

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

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

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

    for (i = 1; i < n; i++) {
        tohm[i] = t[i + 1] - t[i];
        if (tohm[i] < 0)
            tohm[i] *= -1;
    }

    for (i = 1; i < n; i++) {
        tot += tohm[i];
    }

    avhm = (float)tot / n;

    printf("Tracks traversed\tDifference between tracks\n");
    for (i = 1; i < n; i++) {
        printf("%d\t\t\t%d\n", t[i], tohm[i]);
    }

    printf("\nAverage header movements: %.2f", avhm);
    getch();
    return 0;
}
```

OUTPUT:

```
PS C:\6th-sems\OS labs> cd "c:\6th-sems\OS labs\" ; if ($?)
{ gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?)
 { .\tempCodeRunnerFile }
Enter the number of tracks: 8
Enter the tracks to be traversed:
98 183 37 122 14 124 65 67
Tracks traversed        Difference between tracks
98                      85
183                     146
37                      85
122                     108
14                      110
124                     59
65                      2

Average header movements: 74.38
```

b) SSTF

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

int main() {
    int RQ[100], n, i, initial, count = 0, TotalHeadMovement = 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) {
        int min = 1000, d, index;

        for (i = 0; i < n; i++) {
            d = abs(RQ[i] - initial);
            if (RQ[i] != 1000 && d < min) {
                min = d;
                index = i;
            }
```

```
        }

        TotalHeadMovement += min;
        initial = RQ[index];
        RQ[index] = 1000;  // Mark as visited
        count++;
    }

    printf("Total head movement is %d\n", TotalHeadMovement);
    return 0;
}
```

OUTPUT:

```
PS C:\6th-sems\OS labs> cd "c:\6th-sems\OS labs\" ; if ($?)
{ gcc lab_13_2.c -o lab_13_2 } ; if ($?) { .\lab_13_2 }
Enter the number of Requests: 8
Enter the Request sequence:
98 183 37 122 14 124 65 67
Enter initial head position: 53
Total head movement is 236
PS C:\6th-sems\OS labs>
```

c) SCAN

```
#include <stdio.h>
#include <conio.h>
int main() {
    int t[20], atr[20], d[20], h, i, j, n, temp, k, p = 0, sum = 0;

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

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

    t[0] = 0;         // Start from 0
    t[1] = h;         // Current head position

    printf("Enter the track numbers:\n");
    for (i = 2; i < n + 2; i++) {
        scanf("%d", &t[i]);
    }
    // Sort the tracks
    for (i = 0; i < n + 2; i++) {
        for (j = 0; j < (n + 2) - i - 1; j++) {
            if (t[j] > t[j + 1]) {
                temp = t[j];
                t[j] = t[j + 1];
```

```
                t[j + 1] = temp;
            }
        }
    }
    // Find head index
    for (i = 0; i < n + 2; i++) {
        if (t[i] == h) {
            j = i;
            k = i;
            break;
        }
    }
    // Traverse left of head
    while (t[j] != 0) {
        atr[p++] = t[j--];
    }
    atr[p++] = t[j]; // add 0

    // Traverse right of head
    for (i = k + 1; i < n + 2; i++) {
        atr[p++] = t[i];
    }

    // Calculate distances
    for (i = 0; i < n + 1; i++) {
        if (atr[i] > atr[i + 1])
            d[i] = atr[i] - atr[i + 1];
        else
            d[i] = atr[i + 1] - atr[i];
        sum += d[i];
    }

    printf("\nAverage header movements: %.2f\n", (float)sum / n);
    getch();
    return 0;
}
```

OUTPUT:

```
PS C:\6th-sems\OS labs> cd "c:\6th-sems\OS labs\" ; if ($?)
{ gcc lab_13_3.c -o lab_13_3 } ; if ($?) { .\lab_13_3 }
Enter the number of tracks to be traversed: 8
Enter the position of head: 53
Enter the track numbers:
98 183 37 122 14 124 65 67

Average header movements: 29.50
PS C:\6th-sems\OS labs>
```