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DT-22037

OS LAB 13

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

Solution:

a. **FCFS:**

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

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

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

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

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

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

    printf("\nTrack 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 Movement: %.2f\n", avhm);

    return 0;
}
```

```
Enter the number of tracks: 5
Enter the tracks to be traversed (starting from current head position):
100
180
40
120
10

Track Traversed Difference Between Tracks
100 -> 180              80
180 -> 40               140
40 -> 120               80
120 -> 10               110

Total Head Movements: 410
Average Head Movement: 102.50
```

b. **SSTF:**

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

int main()
{
    int RQ[100], i, n, TotalHeadMovement = 0, initial, count = 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 = 100000, d, index = -1;

        for (i = 0; i < n; i++)
        {
            d = abs(RQ[i] - initial);
            if (RQ[i] != -1 && d < min)
            {
                min = d;
                index = i;
```

```
            }
        }

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

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

    return 0;
}
```

```
Enter the number of Requests: 5
Enter the Request sequence:
82 170 43 140 24
Enter initial head position: 50
Total head movement is 172
```

c. **SCAN:**

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

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

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

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

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

    while (count != n)
    {
        int min = 10000, d, index = -1;

        for (i = 0; i < n; i++)
        {
            if (RQ[i] != -1)
            {
```

```
                d = abs(RQ[i] - initial);
                if (min > d)
                {
                    min = d;
                    index = i;
                }
            }
        }

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

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

    return 0;
}
```

```
Enter the number of Requests:
5
Enter the Request sequence:
82 170 43 140 24
Enter initial head position:
50

Total head movement is 172
```