Operating System – CS23431

Ex 6 a)	First Come First Serve
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Aim:
To implement First-come First- serve (FCFS) scheduling technique

Algorithm:

1. Get the number of processes from the user.
2. Read the process name and burst time.
3. Calculate the total process time.
4. Calculate the total waiting time and total turnaround time for each process 5. Display the process name & burst time for each process. 6. Display the total waiting time, average waiting time, turnaround time

Program Code:

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

void waiting_time(int n, int bt[], int wt[]) {
   wt[0] = 0;
   for (int i = 1; i < n; i++) {
      wt[i] = wt[i - 1] + bt[i - 1];
   }
}

void turnaround_time(int n, int bt[], int wt[], int ta[]) {
   for (int i = 0; i < n; i++) {
      ta[i] = wt[i] + bt[i];
   }
}

void cal_avg(int n, int wt[], int ta[]) {
   int sum1 = 0, sum2 = 0;
   for (int i = 0; i < n; i++) {
      sum1 += wt[i];
      sum2 += ta[i];
   }
   float avg_wt = (float)sum1 / n;
   float avg_ta = (float)sum2 / n;
   printf("\nThe Average Waiting Time: %.2f", avg_wt);
   printf("\nThe Average Turnaround Time: %.2f\n", avg_ta);
}

int main() {
```

```
    int n;
    printf("Enter the Number of Processes: ");
    scanf("%d", &n);

    int bt[n], wt[n], ta[n];

    for (int i = 0; i < n; i++) {
        printf("Enter the Process %d Burst Time: ", i + 1);
        scanf("%d", &bt[i]);
    }

    waiting_time(n, bt, wt);
    turnaround_time(n, bt, wt, ta);

    printf("\nPROCESS_ID    Burst Time    Waiting Time    Turnaround Time\n");
    printf("-------------------------------------------------------------\n");
    for (int i = 0; i < n; i++) {
        printf("    %d          %d          %d            %d\n", i + 1, bt[i], wt[i], ta[i]);
    }

    cal_avg(n, wt, ta);

    return 0;
}
```

Output :

```
C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>gcc FCFS_FINAL.c -o fcfs.exe

C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>fcfs.exe
Enter the Number of Processes: 3
Enter the Process 1 Burst Time: 24
Enter the Process 2 Burst Time: 3
Enter the Process 3 Burst Time: 3

PROCESS_ID    Burst Time    Waiting Time    Turnaround Time
-------------------------------------------------------------
    1           24            0              24
    2           3             24             27
    3           3             27             30

The Average Waiting Time: 17.00
The Average Turnaround Time: 27.00

C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>
```

Result: Thus, the program was executed successfully.