Write a C program to simulate the following non-pre-emptive CPU scheduling algorithm to find turnaround time and waiting time.

FCFS

```
#include <stdio.h>

typedef struct
{
   int pID, aT, bT, sT, cT, taT, wT;
} Process;

double avgTAT;
double avgWT;

void calculateTimes(Process p[], int n)
{

   int currT = 0;
   for (int i = 0; i < n; i++)
   {
      p[i].sT = currT;
      p[i].cT = currT + p[i].bT;
      p[i].taT = p[i].cT - p[i].aT;
      p[i].wT = p[i].taT - p[i].bT;
      currT = p[i].cT;
   }

   // To calculate Avg Turn Around Time and Avg Wating Time
   int sumTAT = 0;
   int sumWT = 0;
```

```
    for (int i = 0; i < n; i++)
    {
        sumTAT += p[i].taT;
        sumWT += p[i].wT;
    }
    avgTAT = (double)sumTAT / n;
    avgWT = (double)sumWT / n;
}

void displayp(Process p[], int n)
{
    printf("Process\tArrival Time\tBurst Time\tStart Time\tCompletion Time\tTurnaround Time\tWaiting Time\n");
    for (int i = 0; i < n; i++)
    {
        printf("%d\t%d\t\t%d\t\t%d\t\t%d\t\t%d\t\t%d\n", p[i].pID, p[i].aT,
            p[i].bT, p[i].sT, p[i].cT,
            p[i].taT, p[i].wT);
    }
    printf("Average Turnaround time = %.2f\n", avgTAT);
    printf("Average Waiting time = %.2f\n", avgWT);
}
int main()
{
    int n;
    printf("Enter the number of processes: ");
    scanf("%d", &n);
    Process p[n];
    for (int i = 0; i < n; i++)
    {
        printf("Enter the arrival time and burst time for process %d: ", i + 1);
```

```
        scanf("%d %d", &p[i].aT, &p[i].bT);
        p[i].pID = i + 1;
    }
    for (int i = 0; i < n - 1; i++)
    {
        for (int j = 0; j < n - i - 1; j++)
        {
            if (p[j].aT > p[j + 1].aT)
            {
                Process temp = p[j];
                p[j] = p[j + 1];
                p[j + 1] = temp;
            }
        }
    }
    calculateTimes(p, n);
    displayp(p, n);
    return 0;
}
```

OUTPUT:

```
PROBLEMS    OUTPUT    TERMINAL

PS C:\Users\VIGNESH\Desktop\4th Sem Lab\OS Lab> gcc FCFS.c
PS C:\Users\VIGNESH\Desktop\4th Sem Lab\OS Lab> .\a.exe
Enter the number of processes: 4
Enter the arrival time and burst time for process 1: 0 8
Enter the arrival time and burst time for process 2: 1 4
Enter the arrival time and burst time for process 3: 2 9
Enter the arrival time and burst time for process 4: 3 5
Process Arrival Time    Burst Time      Start Time      Completion Time Turnaround Time Waiting Time
1               0               8               0               8               8               0
2               1               4               8               12              11              7
3               2               9               12              21              19              10
4               3               5               21              26              23              18
Average Turnaround time = 15.25
Average Waiting time = 8.75
PS C:\Users\VIGNESH\Desktop\4th Sem Lab\OS Lab>
```