

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

a) FCFS

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

```
int arr[5];
int bt[5];
int wt[5];
int ct[5];
int tat[5];
int pid[5];
int totalwt = 0;
int totaltat = 0;
int time = 0;
int i = 0;
```

```
void main() {
    printf("Enter the Arrival times for 5 processes:\n");
    for (i = 0; i < 5; i++) {
        pid[i] = i + 1;
        printf("Process %d Arrival Time: ", i + 1);
        scanf("%d", &arr[i]);
    }
```

```
    printf("Enter the Burst times for 5 processes:\n");
    for (i = 0; i < 5; i++) {
        printf("Process %d Burst Time: ", i + 1);
        scanf("%d", &bt[i]);
    }
```

```
    for (i = 0; i < 5; i++) {
        wt[i] = 0;
        tat[i] = 0;
    }
```

```
    for (i = 0; i < 5 - 1; i++) {
```

```

for (int j = i + 1; j < 5; j++) {
    if (arr[i] > arr[j]) {

        int temp_arr = arr[i];
        arr[i] = arr[j];
        arr[j] = temp_arr;

        int temp_bt = bt[i];
        bt[i] = bt[j];
        bt[j] = temp_bt;

        int temp_pid = pid[i];
        pid[i] = pid[j];
        pid[j] = temp_pid;
    }
}
}

```

```

for (i = 0; i < 5; i++) {
    if (i == 0) {
        time = arr[i] + bt[i];
        ct[i]=time;
        tat[i] = bt[i];
        wt[i] = 0;
    } else {
        if (arr[i] > time) {
            time = arr[i] + bt[i];
            ct[i]=time;
            tat[i] = bt[i];
            wt[i] = 0;
        } else {
            tat[i] = time - arr[i] + bt[i];
            wt[i] = time - arr[i];
            time = time + bt[i];
            ct[i]=time;
        }
    }
}
totalwt += wt[i];
totaltat += tat[i];

```

```

    }

    printf("\nProcess ID | Arrival Time | Burst Time | Completion Time | Waiting Time |
Turnaround Time\n");
    for (i = 0; i < 5; i++) {
        printf("    %d    |    %d    |    %d    |    %d    |    %d    |    %d\n",
            pid[i], arr[i], bt[i], ct[i], wt[i], tat[i]);
    }

    printf("\nTotal Waiting Time: %d\n", totalwt);
    printf("Total Turnaround Time: %d\n", totaltat);
    printf("Average Waiting Time: %.2f\n", (float)totalwt / 5);
    printf("Average Turnaround Time: %.2f\n", (float)totaltat / 5);
}

```

Output :

```

C:\Users\An\Desktop\CPP FILES> ./77.exe
Enter the Arrival times for 5 processes:
Process 1 Arrival Time: 0
Process 2 Arrival Time: 8
Process 3 Arrival Time: 3
Process 4 Arrival Time: 5
Process 5 Arrival Time: 10
Enter the Burst times for 5 processes:
Process 1 Burst Time: 7
Process 2 Burst Time: 3
Process 3 Burst Time: 4
Process 4 Burst Time: 6
Process 5 Burst Time: 10

Process ID | Arrival Time | Burst Time | Completion Time | Waiting Time | Turnaround Time
1          | 0           | 7          | 7               | 0           | 7
3          | 3           | 4          | 11              | 4           | 8
4          | 5           | 6          | 17              | 6           | 12
2          | 8           | 3          | 20              | 9           | 12
5          | 10          | 10         | 30              | 10          | 20

Total Waiting Time: 29
Total Turnaround Time: 59
Average Waiting Time: 5.80

```