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3 Design a CPU scheduling program with C using First Come First Served technique with the following considerations.

- a. All processes are activated at time 0.
- b. Assume that no process waits on I/O devices.

Aim:

To design a program to simulate the **First Come First Serve (FCFS)** CPU scheduling algorithm, considering all processes are activated at time 0 and no I/O wait.

Algorithm:

1. Input the number of processes and their burst times.
2. Compute the completion time (CT) for each process.
 - o $CT[i] = CT[i-1] + BT[i]$ $CT[i] = CT[i-1] + BT[i]$ for $i \geq 1$
3. Calculate Turnaround Time (TAT) and Waiting Time (WT):
 - o $TAT = CT - ArrivalTime$
 - o $WT = TAT - BT$
4. Display results including Completion Time, Turnaround Time, and Waiting Time.

Procedure:

1. Input process details (arrival times are 0 by default).
2. Iterate through processes in the order of arrival.
3. Use the FCFS formula to calculate the required times.
4. Output the computed metrics.

Code:

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

```
int main() {
```

```
    int n, i;
```

```
    printf("Enter the number of processes: ");
```

```
    scanf("%d", &n);
```

```
    int bt[n], ct[n], tat[n], wt[n];
```

```
    printf("Enter burst times: ");
```

```

for (i = 0; i < n; i++) {
    scanf("%d", &bt[i]);
}

ct[0] = bt[0];

for (i = 1; i < n; i++) {
    ct[i] = ct[i - 1] + bt[i];
}

for (i = 0; i < n; i++) {
    tat[i] = ct[i];
    wt[i] = tat[i] - bt[i];
}

printf("\nProcess\tBurst Time\tCompletion Time\tTurnaround Time\tWaiting Time\n");

for (i = 0; i < n; i++) {
    printf("%d\t%d\t%d\t%d\t%d\n", i + 1, bt[i], ct[i], tat[i], wt[i]);
}

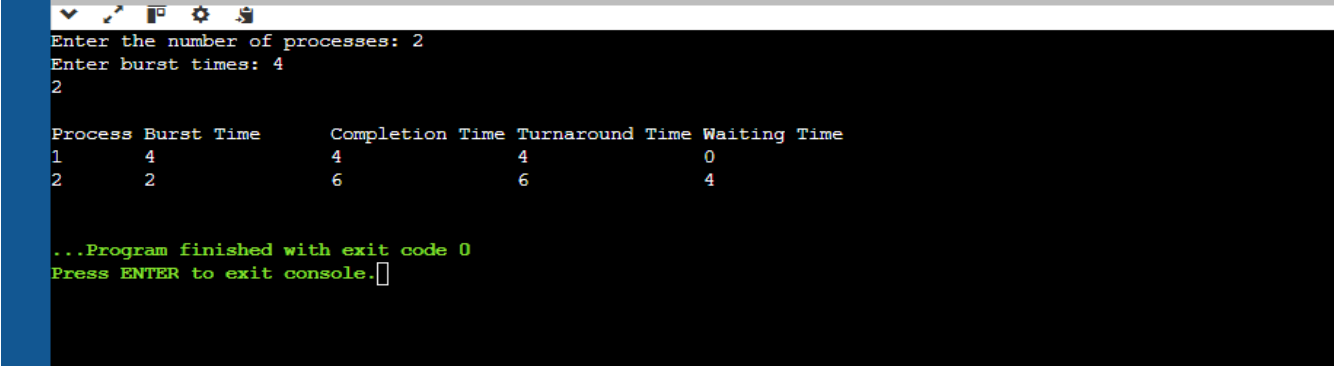
return 0;
}

```

Result

This simple implementation calculates the Completion Time (CT), Turnaround Time (TAT), and Waiting Time (WT) for all processes following FCFS scheduling.

Output:



```
Enter the number of processes: 2
Enter burst times: 4
2

Process Burst Time      Completion Time Turnaround Time Waiting Time
1         4             4             4             0
2         2             6             6             4

...Program finished with exit code 0
Press ENTER to exit console.
```

The screenshot shows a terminal window with a dark background and a blue vertical bar on the left. The text is displayed in a monospaced font. The first part shows user input for the number of processes (2) and burst times (4, 2). The second part is a table with five columns: Process, Burst Time, Completion Time, Turnaround Time, and Waiting Time. The third part shows the program's completion message and a prompt to press ENTER.

Process	Burst Time	Completion Time	Turnaround Time	Waiting Time
1	4	4	4	0
2	2	6	6	4