# Operating Systems

## Week 1 - Lab

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# Index

## Problem Statement:

Implementation of First Come First Served CPU Scheduling algorithm in C language.

**Input**: Number of Processes.
Arrival and Burst times of all processes
**Output:** Completion Time, Turn-around time, Waiting time, Response time

## Code: Click on below image to inspect the code.

```c
#include <stdio.h>

int main(){

    int n;
    int arr_time[20],burst_time[20];
    int comp_time[20],turn_ar_time[20],wait_time[20];
    //no special variable is required for response time as waiting time and response time are equal in
fcfs
    int avg_tat,avg_wt;
    printf("Enter no. of processes (Max 20):");
    scanf("%d",&n);

    int i;
    for(i=0;i<n;i++){
        printf("Enter Arrival Time <space> Burst Time (P%d):",i+1);
        scanf("%d %d",&arr_time[i],&burst_time[i]);
    }

    //complete time

    comp_time[0] = arr_time[0]+burst_time[0];

    for(i=1;i<n;i++){
        if(arr_time[i]>comp_time[i-1])
            comp_time[i]=arr_time[i]+burst_time[i];
        else
            comp_time[i] = comp_time[i-1]+burst_time[i];
    }

    //turn around time
    for (i = 0; i < n; i++)
        turn_ar_time[i]=comp_time[i]-arr_time[i];

    //waiting time
    for(i=0;i<n;i++)
        wait_time[i] = turn_ar_time[i] - burst_time[i];

    printf("P(ID)\tArrival Time\tBurst Time\tCompletion Time\tTurn-around Time\tWaiting Time\tResponse
Time\n");
    for(i=0;i<n;i++){

printf("P%d\t\t%d\t\t%d\t\t%d\t\t%d\t\t%d\t\t\t%d\t\t%d\n",i+1,arr_time[i],burst_time[i],comp_time[i],turn_ar
_time[i],wait_time[i],wait_time[i] );
        avg_wt+=wait_time[i];
        avg_tat+=turn_ar_time[i];
    }

    printf("Average Turn-around Time: %d\nAverage Waiting Time: %d\n",avg_tat/n,avg_wt/n);
}
```

## Execution Screenshot: