```c
#include <stdio.h>

struct process
{
    int pid, at, bt;
};

int abs(int a)
{
    if(a < 0)
        return -a;
    return a;
}

void line(int n)
{
        for (int i = 0; i < n; i++)
                printf("=");
        printf("\n");
}
int main()
{
    int p;
    printf("Enter no. of processes : ");
    scanf("%d", &p);
    p = abs(p);

    struct process arr[p];

    int total_time = 0;
    printf("Enter Arrival and Burst Time.\n");
    for (int i = 0; i < p; i++)
    {
        printf("Process %d : ", i + 1);
        scanf("%d", &arr[i].at);
        scanf("%d", &arr[i].bt);

        arr[i].at = abs(arr[i].at);
        arr[i].bt = abs(arr[i].bt);

        arr[i].pid = i;
        total_time += arr[i].bt;
    }

    for(int i = 0;i<p;i++)
    {
        for(int j = 0;j<p-i-1;j++)
        {
            if(arr[j].at > arr[j+1].at)
            {
                struct process temp = arr[j+1];
                arr[j+1] = arr[j];
                arr[j] = temp;
            }
        }
    }

    int gantt[total_time];

    int clock = 0;

    for(int i = 0;i<p;i++)
    {
        for(int j = 0;j<arr[i].bt;j++)
        {
            gantt[clock] = arr[i].pid;
            clock++;
        }
    }


    line(2 * total_time);
    for(int i=0;i<total_time;i++)
    {
        printf("%d ", gantt[i] + 1);
    }
    printf("\n");
    line(2 * total_time);


    int ct[p], bt[p], tat[p], wt[p];
    for(int i=0;i<p;i++)
    {
        int total_bt = 0;
        int start = -1;
        int last;
        for(int j = 0;j<total_time;j++)
```

```
        {
            if(gantt[j] == i)
            {
                if(start == -1)
                {
                    start = j;
                }
                else
                {
                    last = j;
                }
                total_bt++;
            }
        }
        ct[i] = last +1;
        bt[i] = total_bt;
        tat[i] = ct[i] - arr[i].at;
        wt[i] = tat[i] - bt[i];
    }

    double avg_tat = 0, avg_wt = 0;
    line(66);
    printf("%10s|%10s|%10s|%10s|%10s|%10s|\n", "Process No", "A. T.","C. T.", "B. T.", "T. A. T.","W. T.");
    for(int i=0;i<p;i++)
    {
        printf("Process %2d|%10d|%10d|%10d|%10d|%10d|\n", i+1, arr[i].at, ct[i], bt[i], tat[i], wt[i]);
        avg_tat += tat[i];
        avg_wt += wt[i];
    }
    line(66);

    avg_tat/=p;
    avg_wt/=p;
    printf("Average T. A. T. : %f\n", avg_tat);
    printf("Average W. T. : %f\n", avg_wt);

    return 0;
}

/*OUTPUT -
Enter no. of processes : 4
Enter Arrival and Burst Time.
Process 1 : 0 7
Process 2 : 2 4
Process 3 : 4 -1
Process 4 : 5 4
================================
1 1 1 1 1 1 1 2 2 2 2 3 4 4 4 4
================================
====================================================================
Process No|     A. T.|     C. T.|     B. T.|  T. A. T.|     W. T.|
Process  1|         0|         7|         7|         7|         0|
Process  2|         2|        11|         4|         9|         5|
Process  3|         4|        11|         1|         7|         6|
Process  4|         5|        16|         4|        11|         7|
====================================================================
Average T. A. T. : 8.500000
Average W. T. : 4.500000


Enter no. of processes : 5
Enter Arrival and Burst Time.
Process 1 : 8 2
Process 2 : 3 8
Process 3 : 0 15
Process 4 : 16 4
Process 5 : 10 11
================================================================================
3 3 3 3 3 3 3 3 3 3 3 3 3 3 2 2 2 2 2 2 2 2 1 1 5 5 5 5 5 5 5 5 5 5 5 4 4 4 4
================================================================================
====================================================================
Process No|     A. T.|     C. T.|     B. T.|  T. A. T.|     W. T.|
Process  1|         0|        25|         2|        25|        23|
Process  2|         3|        23|         8|        20|        12|
Process  3|         8|        15|        15|         7|        -8|
Process  4|        10|        40|         4|        30|        26|
Process  5|        16|        36|        11|        20|         9|
====================================================================
Average T. A. T. : 20.400000
Average W. T. : 12.400000
*/
```