#include <stdio.h>

void sortProcesses(int processes[], int at[], int bt[], int n) {

for (int i = 0; i < n - 1; i++) {

for (int j = 0; j < n - i - 1; j++) {

if (at[j] > at[j + 1]) {

int temp = at[j];

at[j] = at[j + 1];

at[j + 1] = temp;

temp = bt[j];

bt[j] = bt[j + 1];

bt[j + 1] = temp;

temp = processes[j];

processes[j] = processes[j + 1];

processes[j + 1] = temp;

}

}

}

}

void findWaitingTime(int processes[], int n, int bt[], int at[], int wt[], int tat[]) {

int ct[n];

ct[0] = at[0] + bt[0];

tat[0] = ct[0] - at[0];

wt[0] = tat[0] - bt[0];

for (int i = 1; i < n; i++) {

if (ct[i - 1] < at[i]) {

ct[i] = at[i] + bt[i];

} else {

ct[i] = ct[i - 1] + bt[i];

}

tat[i] = ct[i] - at[i];

wt[i] = tat[i] - bt[i];

}

}

void displayResults(int processes[], int n, int bt[], int at[], int wt[], int tat[]) {

float total\_wt = 0, total\_tat = 0;

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

for (int i = 0; i < n; i++) {

total\_wt += wt[i];

total\_tat += tat[i];

printf("%d\t%d\t\t%d\t\t%d\t\t%d\n", processes[i], at[i], bt[i], wt[i], tat[i]);

}

printf("\nAverage Waiting Time: %.2f ms", total\_wt / n);

printf("\nAverage Turnaround Time: %.2f ms\n", total\_tat / n);

}

int main() {

int n;

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

scanf("%d", &n);

int processes[n], bt[n], at[n], wt[n], tat[n];

printf("Enter Arrival Time and Burst Time for each process:\n");

for (int i = 0; i < n; i++) {

processes[i] = i + 1;

printf("Process %d - Arrival Time: ", i + 1);

scanf("%d", &at[i]);

printf("Process %d - Burst Time: ", i + 1);

scanf("%d", &bt[i]);

}

sortProcesses(processes, at, bt, n);

findWaitingTime(processes, n, bt, at, wt, tat);

displayResults(processes, n, bt, at, wt, tat);

return 0;

}

