#include <stdio.h>

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

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

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

if (at[i] > at[j]) {

int temp = at[i];

at[i] = at[j];

at[j] = temp;

temp = bt[i];

bt[i] = bt[j];

bt[j] = temp;

temp = index[i];

index[i] = index[j];

index[j] = temp;

}

}

}

}

void calculateTimes(int n, int at[], int bt[], int index[]) {

int ct[n], tat[n], wt[n], completed = 0, current\_time = 0, is\_completed[n];

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

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

is\_completed[i] = 0;

}

while (completed < n) {

int min\_index = -1;

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

if (at[i] <= current\_time && !is\_completed[i]) {

if (min\_index == -1 || bt[i] < bt[min\_index]) {

min\_index = i;

}

}

}

if (min\_index == -1) {

current\_time++;

continue;

}

current\_time += bt[min\_index];

ct[min\_index] = current\_time;

tat[min\_index] = ct[min\_index] - at[min\_index];

wt[min\_index] = tat[min\_index] - bt[min\_index];

is\_completed[min\_index] = 1;

total\_wt += wt[min\_index];

total\_tat += tat[min\_index];

completed++;

}

printf("\nProcess\tAT\tBT\tCT\tTAT\tWT\n");

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

int original\_index = index[i];

printf("%d\t%d\t%d\t%d\t%d\t%d\n", original\_index + 1, at[i], bt[i], ct[i], tat[i], wt[i]);

}

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

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

}

int main() {

int n;

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

scanf("%d", &n);

int at[n], bt[n], index[n];

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

printf("Enter arrival time and burst time for process %d: ", i + 1);

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

index[i] = i;

}

sortProcesses(n, at, bt, index);

calculateTimes(n, at, bt, index);

return 0;

}

