#include <iostream>

using namespace std;

int main() {

int n;

cout << "Enter the number of processes: ";

cin >> n;

int bt[n], priority[n], wt[n], tat[n];

int avg\_wt = 0, avg\_tat = 0;

// Input burst time and priority for each process

cout << "Enter burst time and priority for each process:\n";

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

cout << "Process " << i + 1 << " Burst Time: ";

cin >> bt[i];

cout << "Process " << i + 1 << " Priority: ";

cin >> priority[i];

}

// Bubble sort to arrange processes by priority (lower number = higher priority)

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

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

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

// Swap priority

int temp = priority[j];

priority[j] = priority[j + 1];

priority[j + 1] = temp;

// Swap burst time

temp = bt[j];

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

bt[j + 1] = temp;

}

}

}

// Calculate waiting time

wt[0] = 0; // First process has 0 waiting time

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

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

}

// Calculate turnaround time

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

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

}

// Display results with process IDs based on sorted order

cout << "Process\tPriority\tBurst Time\tWaiting Time\tTurnaround Time\n";

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

cout << "P" << i + 1 << "\t" << priority[i] << "\t\t" << bt[i]

<< "\t\t" << wt[i] << "\t\t" << tat[i] << "\n";

avg\_wt += wt[i];

avg\_tat += tat[i];

}

// Display average waiting and turnaround times

cout << "Average Waiting Time: " << (float)avg\_wt / n << "\n";

cout << "Average Turnaround Time: " << (float)avg\_tat / n << "\n";

return 0;

}