#include <stdio.h>

#include <limits.h>

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

int remaining\_bt[n];

int complete = 0, t = 0, min\_index;

int shortest = INT\_MAX, finish\_time;

int check = 0;

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

remaining\_bt[i] = bt[i];

while (complete != n) {

shortest = INT\_MAX;

min\_index = -1;

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

if (at[i] <= t && remaining\_bt[i] > 0 && remaining\_bt[i] < shortest) {

shortest = remaining\_bt[i];

min\_index = i;

check = 1;

}

}

if (check == 0) {

t++;

continue;

}

remaining\_bt[min\_index]--;

if (remaining\_bt[min\_index] == 0) {

complete++;

check = 0;

finish\_time = t + 1;

tat[min\_index] = finish\_time - at[min\_index];

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

if (wt[min\_index] < 0)

wt[min\_index] = 0;

}

t++;

}

}

void displayResults(int processes[], int n, int at[], int bt[], 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], at[n], bt[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]);

}

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

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

return 0;

}

