#include<iostream>

using namespace std;

int arr[10][6];

void swap(int \*a, int \*b)

{

int temp = \*a;

\*a = \*b;

\*b = temp;

}

void arrangeArrival(int num, int arr[][6])

{

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

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

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

for(int k=0; k<5; k++) {

swap(arr[j][k], arr[j+1][k]);

}

}

}

}

}

void completionTime(int num, int arr[][6])

{

int temp, val;

arr[0][3] = arr[0][1] + arr[0][2];

arr[0][5] = arr[0][3] - arr[0][1];

arr[0][4] = arr[0][5] - arr[0][2];

for(int i=1; i<num; i++)

{

temp = arr[i-1][3];

int low = arr[i][2];

for(int j=i; j<num; j++)

{

if(temp >= arr[j][1] && low >= arr[j][2])

{

low = arr[j][2];

val = j;

}

}

arr[val][3] = temp + arr[val][2];

arr[val][5] = arr[val][3] - arr[val][1];

arr[val][4] = arr[val][5] - arr[val][2];

for(int k=0; k<6; k++)

{

swap(arr[val][k], arr[i][k]);

}

}

}

int main()

{

int num, temp;

cout<<"Enter number of Process: ";

cin>>num;

cout<<"...Enter the process ID...\n";

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

{

cout<<"...Process "<<i+1<<"...\n";

cout<<"Enter Process Id: ";

cin>>arr[i][0];

cout<<"Enter Arrival Time: ";

cin>>arr[i][1];

cout<<"Enter Burst Time: ";

cin>>arr[i][2];

}

cout<<"Before Arrange...\n";

cout<<"Process ID\tArrival Time\tBurst Time\n";

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

{

cout<<arr[i][0]<<"\t\t"<<arr[i][1]<<"\t\t"<<arr[i][2]<<"\n";

}

arrangeArrival(num, arr);

completionTime(num, arr);

cout<<"Final Result...\n";

cout<<"Process ID\tArrival Time\tBurst Time\tWaiting Time\tTurnaround Time\n";

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

{

cout<<arr[i][0]<<"\t\t"<<arr[i][1]<<"\t\t"<<arr[i][2]<<"\t\t"<<arr[i][4]<<"\t\t"<<arr[i][5]<<"\n";

} }