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import java.util.Scanner;

public class _7_8_9_fcfs {

    void Bubble_sort(int arr1[],int arr2[],int arr3[])
    {
        int n = arr1.length;

        for (int i = 0; i < n; i++) {
            for (int j = 0; j < n-i-1; j++) {
                if (arr1[j] > arr1[j + 1]) {
                    // swap arr[j+1] and arr[j]

                    int temp1 = arr1[j];
                    int temp2 = arr2[j];
                    int temp3 = arr3[j];

                    arr1[j] = arr1[j + 1];
                    arr2[j] = arr2[j + 1];
                    arr3[j] = arr3[j + 1];

                    arr1[j + 1] = temp1;
                    arr2[j + 1] = temp2;
                    arr3[j + 1] = temp3;
                }
            }
        }
        //

    }

    public static void main(String[] args) {

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Scanner sc = new Scanner(System.in);

System.out.println("Enter the number of processes ");

int processes = sc.nextInt();


int[] pid = new int[processes];
int[] at = new int[processes];
int[] bt = new int[processes];
int[] ct = new int[processes];
int[] tat = new int[processes];
int[] wt = new int[processes];


for (int i = 0; i < processes; i++) {
    System.out.println("Enter AT for " + (i + 1) + " processes:-");
    at[i] = sc.nextInt();

    System.out.println("Enter BT for " + (i + 1) + " processes:-");
    bt[i] = sc.nextInt();

    pid[i] = i + 1;
}


_7_8_9_fcfs obj = new _7_8_9_fcfs();
obj.Bubble_sort(at, bt, pid);


for (int i = 0; i < processes; i++) {
    if (i == 0) {
        ct[i] = at[i] + bt[i];
    } else {
        if (at[i] > ct[i - 1]) {
            ct[i] = at[i] + bt[i];
        } else {

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

//display
for (int i = 0; i < processes; i++) {
    System.out.println(pid[i] + " " + at[i] + " " + bt[i]);
}
for (int i = 0; i < processes; i++) {
    tat[i] = ct[i] - at[i];
    wt[i] = tat[i] - bt[i];
}
System.out.println("@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@");
System.out.println("pid at bt ct tat wt");
//ct[i]-at[i]=tat
//tat[i]-bt[i]=wt
for (int i = 0; i < processes; i++) {
    System.out.println(pid[i] + "\t " + at[i] + "\t " + bt[i] + "\t " + ct[i] + "\t " + tat[i] + "\t " +
wt[i] + "\t ");
}
float avg_tat=0,avg_wt=0;
float sum_tat=0,sum_wt=0;
for (int i = 0; i < processes; i++) {
    sum_tat+=tat[i];
    sum_wt+=wt[i];
}
avg_tat=(sum_tat/processes);
avg_wt=(sum_wt/processes);

System.out.println("Avg of TAT is:- "+avg_tat);

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System.out.println("Avg of WT is:- "+avg_wt);
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}
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}
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