

SJF

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import java.util.Scanner;

class SJF {

    public static void main(String args[]) {

        Scanner scanner = new Scanner(System.in);

        // Get the number of processes from the user
        System.out.print("Enter the number of processes: ");
        int numProcesses = scanner.nextInt();

        String[] processes = new String[numProcesses];
        int[] BT = new int[numProcesses];
        int[] WT = new int[numProcesses];
        int[] TAT = new int[numProcesses];

        // Input process names and burst times
        for (int i = 0; i < numProcesses; i++) {
            processes[i] = "p" + (i + 1); // Generate process names
            System.out.print("Enter burst time for " + processes[i] + ": ");
            BT[i] = scanner.nextInt();
        }

        // Sort processes based on burst time (SJF algorithm)
        for (int j = 0; j < numProcesses; j++) {
            for (int i = 0; i < numProcesses; i++) {
                if (BT[i] > BT[j]) {
                    // Swap process names
                    String temp = processes[i];
                    processes[i] = processes[j];
                    processes[j] = temp;
                }
            }
        }
    }
}
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        processes[j] = temp;

        // Swap burst times
        int temp1 = BT[i];
        BT[i] = BT[j];
        BT[j] = temp1;
    }
}

// Calculate Waiting Time (WT)
WT[0] = 0; // First process has no waiting time
for (int i = 1; i < numProcesses; i++) {
    WT[i] = BT[i - 1] + WT[i - 1];
}

// Calculate Turnaround Time (TAT)
for (int i = 0; i < numProcesses; i++) {
    TAT[i] = BT[i] + WT[i];
}

// Calculate totals and averages
float total_BT = 0, total_WT = 0, total_TAT = 0;
for (int i = 0; i < numProcesses; i++) {
    total_BT += BT[i];
    total_WT += WT[i];
    total_TAT += TAT[i];
}

float avg_BT = total_BT / numProcesses;
float avg_WT = total_WT / numProcesses;
float avg_TAT = total_TAT / numProcesses;

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// Output results

String title[] = {"Processes", "BT", "WT", "TAT"};

System.out.println("\n");

for (String t : title) {
    System.out.print(t + "\t");
}

System.out.println("\n-----");

for (int i = 0; i < numProcesses; i++) {
    System.out.println(processes[i] + "\t\t" + BT[i] + "\t" + WT[i] + "\t" + TAT[i]);
}


System.out.println("\nTotal Burst Time = " + total_BT);
System.out.println("Total Waiting Time = " + total_WT);
System.out.println("Total Turn Around Time = " + total_TAT);
System.out.println("Average Burst Time = " + avg_BT);
System.out.println("Average Waiting Time = " + avg_WT);
System.out.println("Average Turn Around Time = " + avg_TAT);


scanner.close(); // Close the scanner
}
}

```