PRIORITY (NON PREMPTION):

CODE :

import java.util.Scanner;

class PriorityProcess {

int pid, burstTime, priority, waitingTime, turnaroundTime;

public PriorityProcess(int pid, int burstTime, int priority) {

this.pid = pid;

this.burstTime = burstTime;

this.priority = priority;

}

}

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter number of processes: ");

int n = sc.nextInt();

PriorityProcess[] processes = new PriorityProcess[n];

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

System.out.print("Enter burst time and priority for process " + (i + 1) + ": ");

int bt = sc.nextInt();

int priority = sc.nextInt();

processes[i] = new PriorityProcess(i + 1, bt, priority);

}

// Sort processes by priority (non-preemptive)

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

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

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

PriorityProcess temp = processes[j];

processes[j] = processes[j + 1];

processes[j + 1] = temp;

}

}

}

int totalTime = 0, totalWT = 0, totalTAT = 0;

for (PriorityProcess p : processes) {

p.waitingTime = totalTime;

totalTime += p.burstTime;

p.turnaroundTime = p.waitingTime + p.burstTime;

totalWT += p.waitingTime;

totalTAT += p.turnaroundTime;

}

// Print Gantt Chart

System.out.println("Gantt Chart: ");

for (PriorityProcess p : processes) {

System.out.print("P" + p.pid + " ");

}

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

// Print process details

System.out.println("Process\tBurst\tPriority\tWaiting\tTurnaround");

for (PriorityProcess p : processes) {

System.out.println("P" + p.pid + "\t" + p.burstTime + "\t" + p.priority + "\t" + p.waitingTime + "\t" + p.turnaroundTime);

}

System.out.println("Average Waiting Time: " + (totalWT / (float) n));

System.out.println("Average Turnaround Time: " + (totalTAT / (float) n));

sc.close();

}

}

OUTPUT :

Enter number of processes: 3

Enter burst time and priority for process 1: 10 2

Enter burst time and priority for process 2: 5 0

Enter burst time and priority for process 3: 8 1

Gantt Chart:

P2 P3 P1

Process Burst time Priority Waiting time Turnaround time

P2 5 0 0 5

P3 8 1 5 13

P1 10 2 13 23

Average Waiting Time: 6.0

Average Turnaround Time: 13.666667