FCFS :

CODE :

import java.util.Scanner;

class Process {

int pid, burstTime, arrivalTime, waitingTime, turnaroundTime;

public Process(int pid, int burstTime, int arrivalTime) {

this.pid = pid;

this.burstTime = burstTime;

this.arrivalTime = arrivalTime;

}

}

public class FCFS {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int n = sc.nextInt();

Process[] processes = new Process[n];

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

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

int at = sc.nextInt();

int bt = sc.nextInt();

processes[i] = new Process(i + 1, bt, at);

}

// Sort processes based on arrival time

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

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

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

Process temp = processes[j];

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

processes[j + 1] = temp;

}

}

}

// Calculate waiting time and turnaround time

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

for (Process p : processes) {

p.waitingTime = totalTime - p.arrivalTime;

totalTime += p.burstTime;

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

totalWT += p.waitingTime;

totalTAT += p.turnaroundTime;

}

// Print Gantt Chart

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

for (Process p : processes) {

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

}

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

// Print process details

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

for (Process p : processes) {

System.out.println("P" + p.pid + "\t" + p.arrivalTime + "\t" + p.burstTime + "\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 arrival time and burst time for process 1: 0 24

Enter arrival time and burst time for process 2: 0 3

Enter arrival time and burst time for process 3: 0 4

Gantt Chart:

P1 P2 P3

Process Arrival Burst Waiting Turnaround

P1 0 24 0 24

P2 0 3 24 27

P3 0 4 27 31

Average Waiting Time: 17.0

Average Turnaround Time: 27.333334