

FCFS-3

```
import java.util.*;
```

```
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();
```

```
        int pid[] = new int[n], at[] = new int[n], bt[] = new int[n];
```

```
        int wt[] = new int[n], tat[] = new int[n], ct[] = new int[n];
```

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

```
            System.out.print("Process ID: ");
```

```
            pid[i] = sc.nextInt();
```

```
            System.out.print("Arrival Time: ");
```

```
            at[i] = sc.nextInt();
```

```
            System.out.print("Burst Time: ");
```

```
            bt[i] = sc.nextInt();
```

```
            System.out.println();
```

```
        }
```

```
        // Sort by Arrival Time
```

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

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

```
                if(at[i] > at[j]) {
```

```
                    int t=at[i]; at[i]=at[j]; at[j]=t;
```

```
                    t=bt[i]; bt[i]=bt[j]; bt[j]=t;
```

```
                    t=pid[i]; pid[i]=pid[j]; pid[j]=t;
```

```
                }
```

```

    }
}

// Calculation
int time = 0;
double avgWT = 0, avgTAT = 0;

for(int i=0;i<n;i++){
    if(time < at[i]) time = at[i]; // CPU Idle case
    time += bt[i];
    ct[i] = time;
    tat[i] = ct[i] - at[i];
    wt[i] = tat[i] - bt[i];
    avgWT += wt[i];
    avgTAT += tat[i];
}

// Output
System.out.println("\nPID\tAT\tBT\tWT\tTAT\tCT");
for(int i=0;i<n;i++){
    System.out.println(pid[i]+" \t"+at[i]+" \t"+bt[i]+" \t"+wt[i]+" \t"+tat[i]+" \t"+ct[i]);
}

System.out.println("\nGantt Chart:");
System.out.print(" | ");
for(int i=0;i<n;i++) System.out.print(" P"+pid[i]+" | ");
System.out.println();

System.out.println("\nAverage Waiting Time: " + avgWT/n);
System.out.println("Average Turnaround Time: " + avgTAT/n);
} }

```

