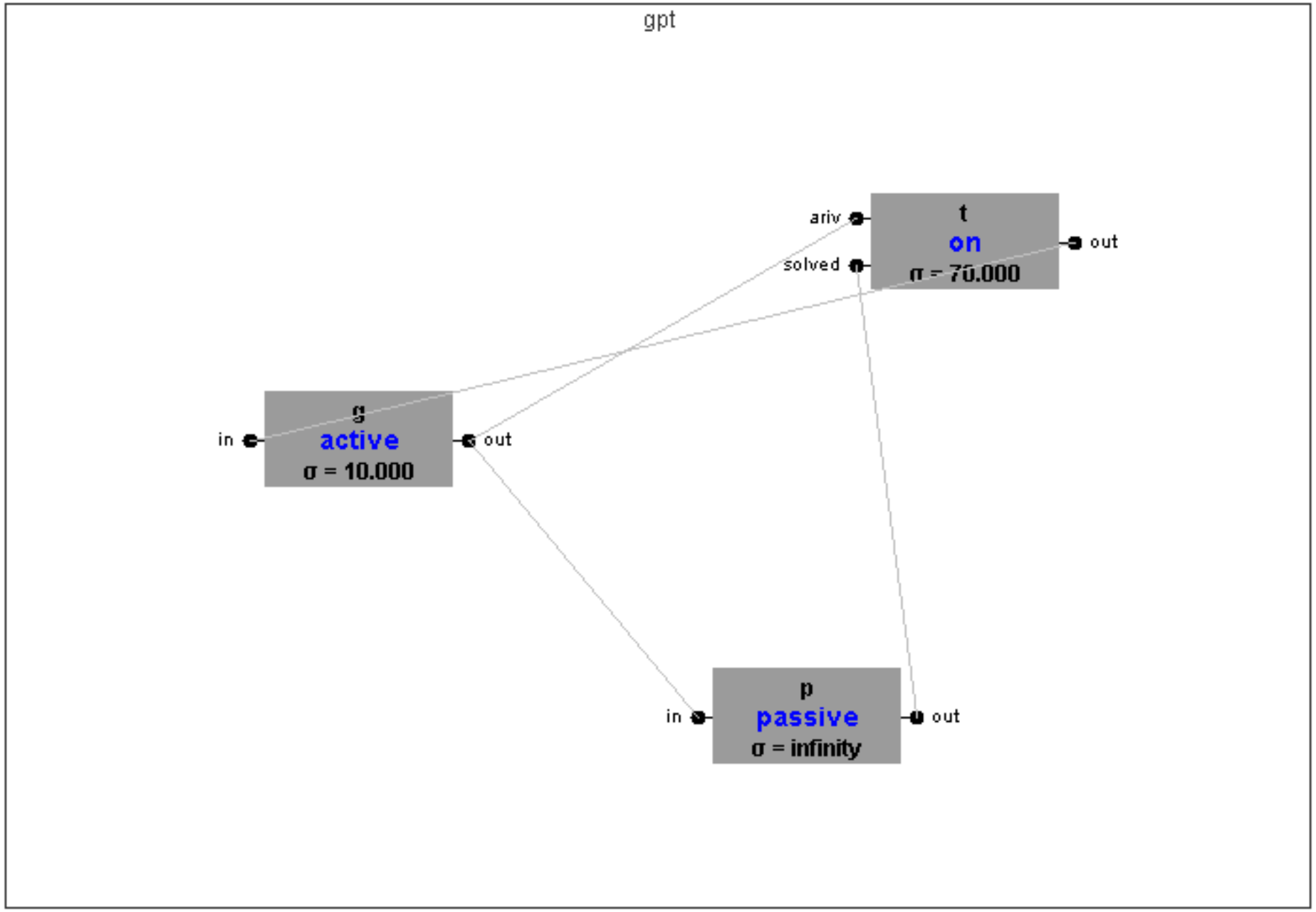
Lab #4

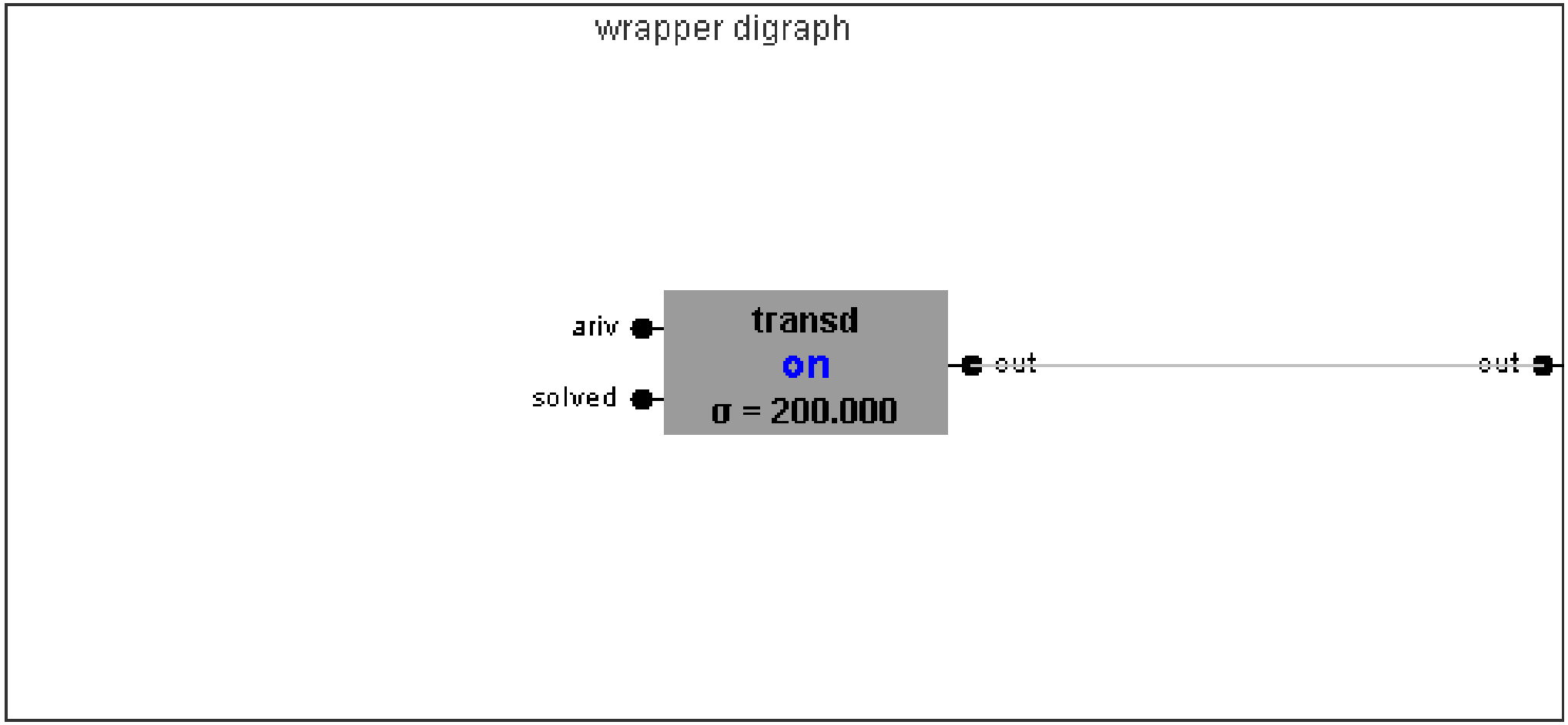
Software Engineering

소프트웨어공학 연구실 김경륜

1. Diagraph model - gpt



2. Transducer



Transducer calculates 2 kinds of factors

1. Turn-Around Time

: (Output event time from processor) - (Input event time to processor)
= 작업 시작 ~ 작업 종료 시간

2. Throughput

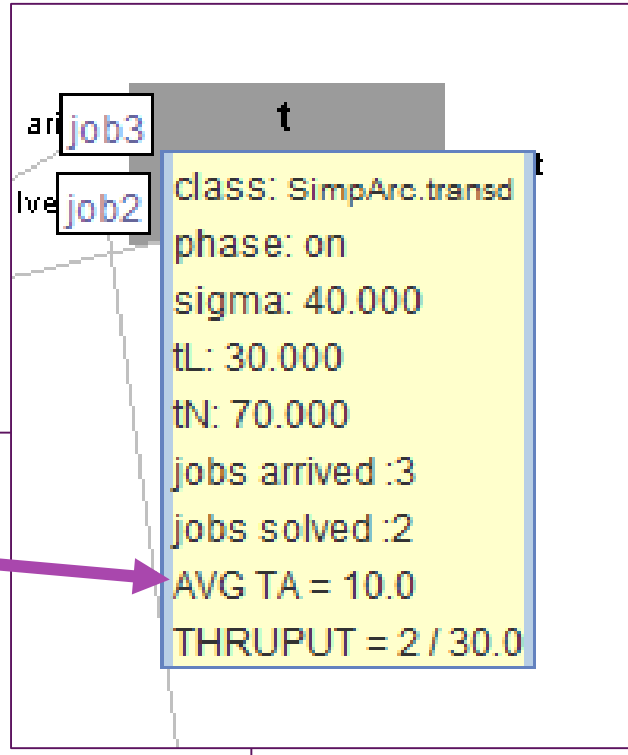
: (Total Solved Job) / (Total Observed Time)

3. Transducer – Turn-Around time(= response time)

1. Turn-Around Time

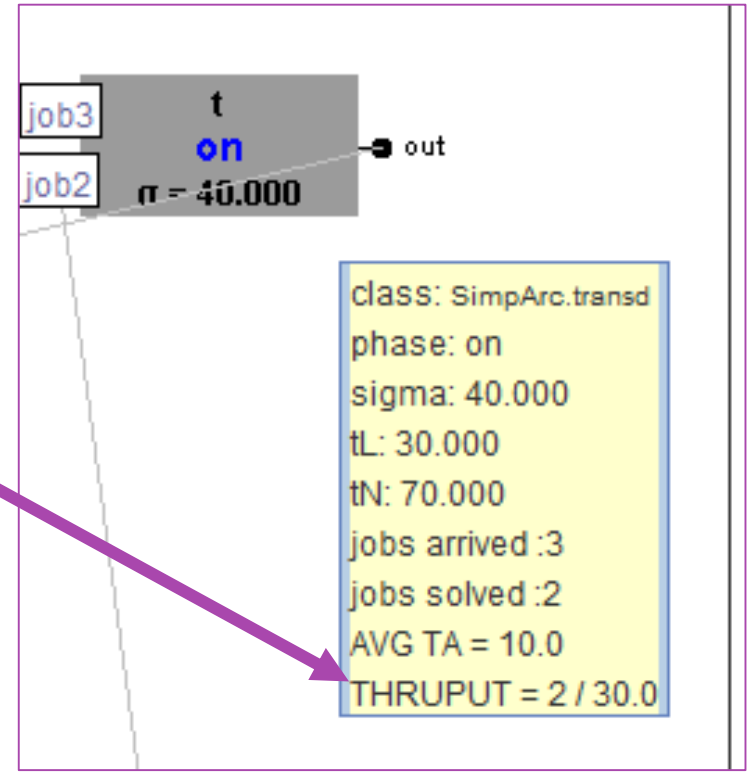
```
double turn_around_time = clock - arrival_time;

total_ta = total_ta + turn_around_time;
```

```
public double compute_TA()
{
    double avg_ta_time = 0;
    if (!solved.isEmpty())
    {
        avg_ta_time = ( (double) total_ta) / solved.size();
    }
    return avg_ta_time;
}
```



2. Throughput

```
public String compute_Thru()
{
    String thruput = "";
    if (clock > 0)
    {
        thruput = solved.size() + " / " + clock;
    }
    return thruput;
}
```



4. Transducer – Pseudo-code description 1

Primary States:

Phase: on

Sigma: any positive number

Parameters:

Job-id: alpha-numeric (e.g. job-23)

Processing-time: any positive number (e.g. 35)

Input port: ariv, solved

Output port: out

4. Transducer – Pseudo-code description 2

Initialize Function:

```
hold_in “on” for observation_time
```

External Transition Function:

```
if phase is on
        when receive input on input port “ariv”
            arrived = input // saving arrived time and job
        when receive input on input port “solved”
            solved = input  // saving solved time and job

        compute total_TA_time
```

4. Transducer – Pseudo-code description 3

Internal Transition Function:

```
Compute Total jobs arrived
Compute Total jobs solved
Compute AVG TA
Compute THRUPUT
```

Out Function:

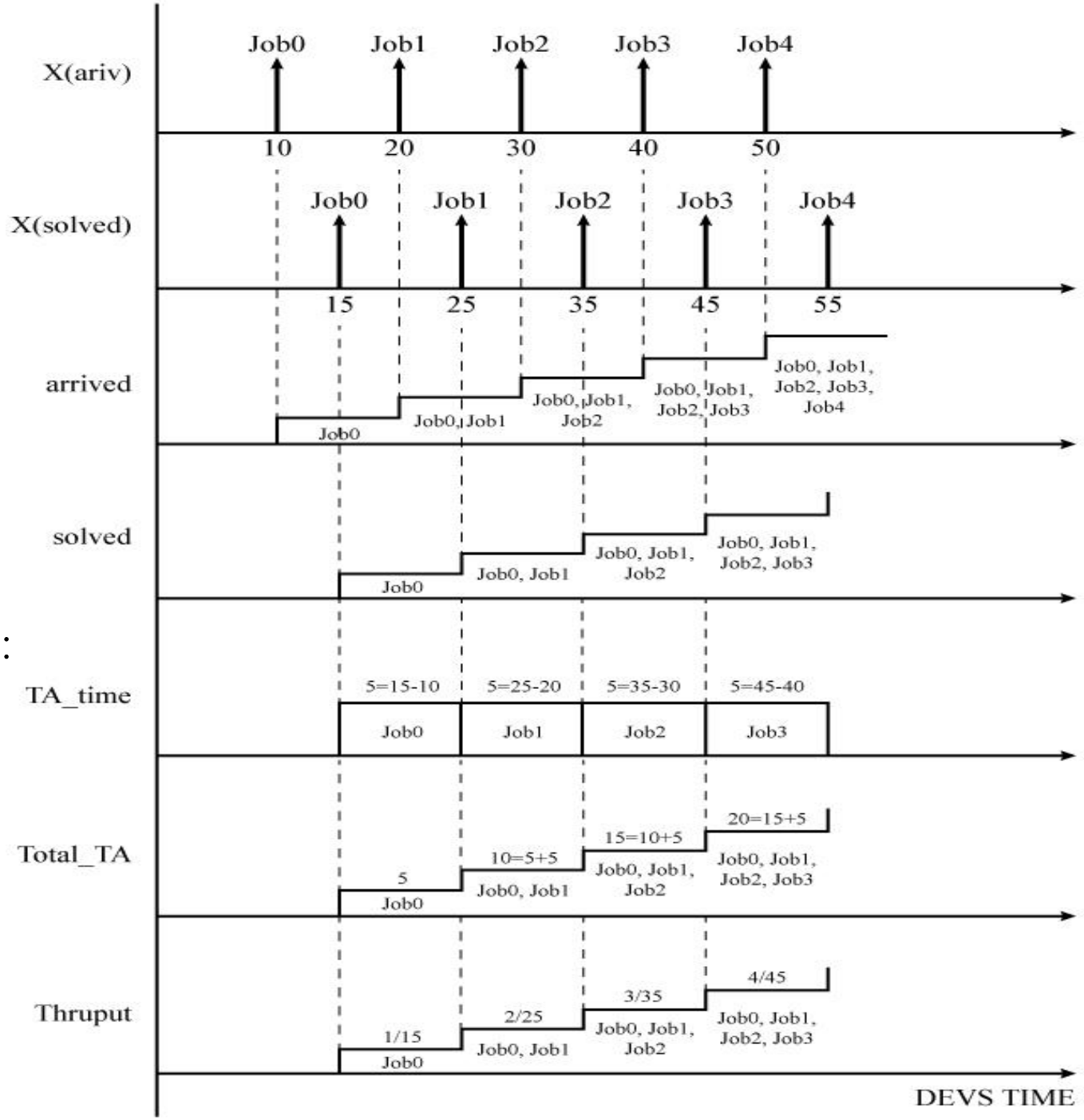
```
Send avg_ta_time to output port “out”
```

5. Transducer – Trajectory

Int_arr_time of generator = 10

Processing time of normal processor = 5

Operation of the transducer in GPT digraph model:



6. Assignment

과제

1. Generator’s sigma = 10, Processor’s sigma = 20, Transducer’s sigma = 420 일 때,
   Total turnaround time과, Average turnaround time, Throughput을 구하시오

2. 위와 같은 조건일 때, clock = 50일 때 까지의 transducer의 Trajectory를 그리시오

과제 제출 유의사항

1. **원본 코드**

2. **주석이 포함**된 수정된 부분의 코드 스크린샷

3. 이클립스 **Console창의 결과** 스크린샷

위 세가지를 **학번_이름**.zip, **학번_이름**.7z로 압축

제출 전 주석, 코드, 파일 이름의 인코딩이 올바른지 확인
압축이 올바르게 잘 되었는지 확인
** 위반 시 부분점수 없습니다*