

CS344 Lab 14 – Elevator Simulation I

Assigned: 11/20/09

Points: 30

Purpose

The purpose of the lab is to use simulate an elevator.

Process

Create a FORTRAN program that simulates a single elevator. The simulator will track the arrival and departures of people and the elevator. Your output should mirror the following:

```
Start Simulation
Step: 1
  Person 1 arrives
  Person 1 entered elevator
Step: 2
Step: 3
Step: 4
Step: 5
Step: 6
  Person 2 arrives
Step: 7
Step: 8
  Person 3 arrives
Step: 9
  Person 4 arrives
  Person 2 entered elevator
  Person 3 entered elevator
  Person 4 entered elevator
Step: 10
Step: 11
Step: 12
  Person 5 arrives
Step: 13
Step: 14
Step: 15
  Person 6 arrives
Step: 16
  Person 5 entered elevator
  Person 6 entered elevator
Step: 17
Step: 18
  Person 7 arrives
Step: 19
Step: 20
Step: 21
  Person 8 arrives
Step: 22
  Person 9 arrives
Step: 23
  Person 7 entered elevator
```

```

    Person 8 entered elevator
    Person 9 entered elevator
Step: 24
    Person 10 arrives
Step: 25
    Person 11 arrives
Step: 26
Step: 27
    Person 12 arrives
Step: 28
    Person 10 entered elevator
    Person 11 entered elevator
    Person 12 entered elevator
Step: 29
    Person 13 arrives
Step: 30
Step: 31
Step: 32
Step: 33
    Person 14 arrives
Step: 34
Step: 35
    Person 15 arrives
Step: 36
    Person 16 arrives
    Person 13 entered elevator
    Person 14 entered elevator
    Person 15 entered elevator
    Person 16 entered elevator
Step: 37
Step: 38
Step: 39
Step: 40
Step: 41
Step: 42
Step: 43
Step: 44
Step: 45
Step: 46
Step: 47
Step: 48
Step: 49
    Person 17 arrives
    Person 17 entered elevator
Simulation Complete

```

| Person Number | Arrival Time | Entered Elevator |
|---------------|--------------|------------------|
| 1 | 1 | 1 |
| 2 | 6 | 9 |
| 3 | 8 | 9 |
| 4 | 9 | 9 |
| 5 | 12 | 16 |
| 6 | 15 | 16 |
| 7 | 18 | 23 |
| 8 | 21 | 23 |
| 9 | 22 | 23 |
| 10 | 24 | 28 |
| 11 | 25 | 28 |
| 12 | 27 | 28 |
| 13 | 29 | 36 |
| 14 | 33 | 36 |
| 15 | 35 | 36 |

| | | |
|----|----|----|
| 16 | 36 | 36 |
| 17 | 49 | 49 |

To achieve this result:

- Use an initial seed of 2003
- At any step there is a 30% chance of someone showing up
- Use an elevator transit time between 5 and 10 time units

Turn in a copy of your program and its output.