**Week 2 Problem Analysis – Algorithmic Thinking Exercise 2 [5pts]**

**Traffic Signal Controller**

Design an algorithm to decide which lights should turn green/red next.

Assumptions:

* This is a 4-way intersection with 8 sets of lights
  1. For going north (N)
  2. For going south (S)
  3. For going east (E)
  4. For going west (W)
  5. For north-bound turning left (NL)
  6. For south-bound turning left (SL)
  7. For east-bound turning left (EL)
  8. For west-bound turning left (WL)
* Your system can use any information such as the time of the day.

Your algorithm should state clearly what information your program uses to decide which lights become green/red next.

**Group member names:**

**Detailed Algorithm in English:**

**Which ones(1-8) are green at first?**

**1 and 2 are green first**

**Which ones (1-8) will become green next? And then?**

**3 and 4 would become green next, then 5 and 6 and, finally ending with 7 and 8, then back to 1 and 2. The directions change when the flow of traffic in the current direction starts to slow down or after 45 seconds whichever comes first. For instance if traffic is flowing North/South direction and the sensors detect that the traffic is minimal it will switch to the East/West direction or if North/South has been going for more than 45 seconds it will switch. It will continue to cycle through the different directions based on those same conditions.**

**For your algorithm, when is it safe for pedestrians to cross?**

**Pedestrians can cross parallel to the flow of traffic. So if traffic is flowing in a North/South fashion pedestrians can cross in North/South, and if traffic is flowing East/West the pedestrians can cross East/West. For safety reasons they can’t cross at any other time.**

**State why you decided to take this approach – i.e. the goal such as less wait time, etc.:**

**Less wait time and fair distribution of time. Also it’s safer for pedestrians.**

**State problems or disadvantages:**

**Longer waits for pedestrians**