Assignment 4

Due Thurs. May 21

1) Add to the simple hour clock example a variable to keep track of days. Turn in: your pdf code and include in your comments the results of running a model check (number of states visited, etc.).

2) Create a specification for a traffic intersection with two directions (North-South and East-West)
   - Add a clock that always ticks
   - The light for each direction should sequence through red, green, and yellow.
   - When the clock ticks, either light may change (independent of the other light value)
   - Define an "accident" to be when the light allows both directions to be green at the same time.

   a) Run a model check that shows accidents are possible.
   b) Run a model check that shows it is possible for your system not to reach an accident for 5 clock ticks.

3) Write a simple specification for a system with 2 elevators and 4 floors (but consider how you might generalize your solution for *n* elevators and *m* floors). At any time there can be a request on any floor for the elevator. If an elevator is free, it should move to satisfy the request. Once the elevator reaches a floor, it then moves to some other (random) floor and the elevator becomes free. (Hint: start with just one elevator and two floors).