**Week 4 Topic Outline**

1. Explanation of program assignment #1 (8 queens)
   1. Solution exe
   2. Hill-climbing algorithm with random restarts overview
2. A\* Pathfinding Algorithm
   1. Great explanation - <http://www.policyalmanac.org/games/aStarTutorial.htm>
   2. F = G + H
   3. G is the cost to move from the starting state to node G
   4. H is the estimated (heuristic) cost to move from a node to the goal
3. Break
4. 9-Tile Slider Puzzle overview
   1. Solution exe
   2. Transitioning from distance pathfinding to transitional pathfinding
   3. This is why we spent time discussing all those general terms of AI
   4. How do we define a state with the 9-tile slider
5. Code examination
   1. Terminology
      1. A Tile is an individual square (there are 9 total tiles including the blank one)
      2. A Node is a complete arrangement of 9 Tiles
   2. Examine set up function
   3. Examine main A\* loop body
   4. Independent work – write heuristic function
   5. Independent work – write checkForGoal()
   6. Discuss how to write getNeighbors()