**Algorithmic Thinking in Problem Solving**

**Fall 2020**

**Final Exam**

1. **Solve 4 of the following LeetCode problems.**

* <https://leetcode.com/problems/network-delay-time/>
* <https://leetcode.com/problems/evaluate-division/>
* <https://leetcode.com/problems/redundant-connection/>
* <https://leetcode.com/problems/count-servers-that-communicate/>
* <https://leetcode.com/problems/keys-and-rooms/>
* <https://leetcode.com/problems/is-graph-bipartite/>
* <https://leetcode.com/problems/regions-cut-by-slashes/>

1. **Select 1 of your solutions and create a video where do the following:**
   1. Before explaining your code, explain the main idea behind it. That is, explain the algorithm at an abstract level. Use a couple of instances of the problem (draw them) to guide you.
   2. Explain how your algorithm was translated into code. Walk us through it.
   3. Talk about edge cases and how you handled them
   4. Talk about the time and auxiliary space complexity of your solution. If your problem can be solved by brute force, compare your solution to the brute force solution.
   5. Reflect on what learnt from solving all the problems in the set. What was added to your toolbox? How are you a better problem solver?
   6. Talk about how IDEAL, Duke 7, and your personalized framework helped you tackle this problem.