

Honors Project - Are You the One?

Overview

Design a simulator of MTV's reality show *Are You the One*. The rules of this game are:

- 16 contestants get paired into 8 pairs of "perfect matches"
- Each week:
 - contestants pair up with who they think their perfect match is
 - one pair gets sent to the "truth booth," where it is revealed if that perfect match is correct or not
 - the remaining pairs are told the total number of perfect pairs among them (e.g. how many of the 7 non truth booth pairs are correct), but not which pairs are correct

The goal is to find all perfect pairs as quickly as possible. In season 8, bisexual, pansexual, and gender queer contestants were chosen such that any contestant could be the perfect match of any other. This is also what we will simulate: you do not need to account for the gender or sexuality of contestants.

Requirements

Your simulator must do the following:

- Create 16 contestants and randomly select the 8 perfect matches
- Simulate the weekly pair->truth booth->remaining groups steps

Additionally, your simulator must do at least one of the following:

- Use a GUI visualize the process step-by-step
- Compare three or more game playing algorithms. Some things you can compare:
 - number of rounds necessary for ~50% win chance
 - win percentage after 5, 10, 15, ... rounds
 - running time (big-O limit and actual)

Schedule

The schedule below is designed to keep you on track. Feel free to go faster if you would like. We will meet Fridays at 11:00 AM

- Feb 5 - Intro meeting
- Feb 19 - Students present block diagram of proposed program. Include all necessary functions, classes, and modules, complete with expected inputs and outputs.
- Apr 2 - Students demo (mostly) functioning program
- Apr 23 - Students demo fully functioning program

Deliverables

You will be primarily graded based on your demo on April 23rd - low effort or minimally functional programs will not receive honors credit.