Week 3 Project: Monte Carlo Simulation of Poker Hands

Introduction

This week you are going to be putting everything together to do a larger project. In particular, you will be writing a Monte Carlo simulation of poker hands—figuring out what the chances are of each hand winning by doing many random draws. If you aren't familiar with Monte Carlo simulations and/or poker, that is ok. We will teach you what you need to know. The next video introduces you to the project.

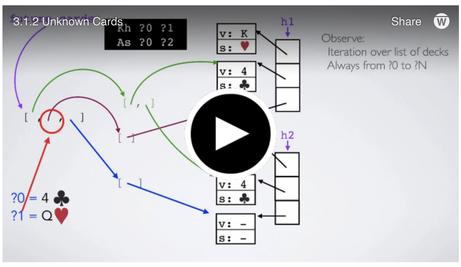
Even though all of this is on one page in Sakai, this project is intended for the entire week. We recommend the following pace:

- **Monday:** Assignments 25_poker_card and 26_poker_deck
- **Tuesday:** 27_poker_future and 28_poker_input
- **Wednesday:** 29_poker_tests and 30_poker_eval
- **Thursday:** 31_poker_finish
- **Friday:** Catch up if you are behind!

Day 11, Part 1

Now it is time to do **25_poker_card** and **26_poker_deck** on the Mastery Learning Platform. Login to the course server, go to assignment **25_poker_card** in your git repository on the MLP and read the README for directions. After you've completed that assignment, then complete **26_poker_deck** on the Mastery Learning Platform. When you have passed those assignments, return to Sakai and continue with the content here.

Unknown Cards



Day 12, Part 1

Now it is time to do **27_poker_future** and **28_poker_input** on the Mastery Learning Platform. Login to the course server, go to assignment **27_poker_future** in your git repository on the MLP and read the README for directions. After you've completed that assignment, then complete **28_poker_input** on the Mastery Learning Platform. When you have passed those assignments, return to Sakai and continue with the content here.

Writing Test Cases for Hand Evaluation

For this next section, you'll need to know the rules of poker. We've attached a reading on the rules of poker that you'll need to read for this project. Don't worry if the pdf takes a while to load, it's a large file.

As you read through this, think about things that can be tricky in writing the code to do hand evaluation. If you read a description of some aspect of the rules and think "Oh, that sounds complicated. I bet it will be hard to get right", take a moment to think about why it sounds hard and write test cases to check that those things are right.

Rules of Poker

Day 13, Part 1

Now it is time to do **29_poker_tests** and **30_poker_eval** on the Mastery Learning Platform. Login to the course server, go to assignment **29_poker_tests** in your git repository on the MLP and read the README for directions. After you've completed that assignment, then complete **30_poker_eval** on the Mastery Learning Platform. When you have passed those assignments, return to Sakai and continue with the content here.

Wrap Up

Almost done! You have all the pieces and just need to put them together now. The last assignment combines everything you already wrote to do the Monte Carlo simulation. It will read a description of the hands (which you did in the input assignment), shuffle and draw from the remaining deck (using your deck + future cards work) and then evaluate the hands to see who won (using your work from the evaluation assignment). As you go you'll count up the wins for each hand, and then print the results when you are done.

Day 14, Part 1

Now it is time to do **31_poker_finish** on the Mastery Learning Platform. Login to the course server, go to assignment **31_poker_finish** in your git repository on the MLP and read the README for directions. When you have passed that assignment, congratulations, you've completed your poker project!

Hope you've enjoyed the first half of the Duke Summer Computing Institute! There is one wrap up video for this part of the course (below), and then we encourage you to go to the Module 2 Intro and get set up for next week.