OMIS 30 - Fall 2018 - Project 2

Logistics:

Assigned: Thursday, October 11, 2018
Due: Thursday, October 25, 2018 by beginning of class

Objective:

You have two choices:

1. Start with the blackjack program template below, and add one creative element to make it your own.
2. Your own self-chosen topic, which must be approved by the instructors.

The requirements for the blackjack program are:

- Build a deck of cards
- Use a 6 deck game
- 'Bet' before the deal
- Deal the initial hands
- Ask the user to hit/stand
- Play out the dealer hand based off the rules
- Keep track of winnings

Double, split, surrender, and insurance and splitting are not necessary.

The one creative element:

If you choose the blackjack option, you must add at least one creative element to make it your own. Here's some ideas:

- Make the game visually appealing in the terminal window (or go crazy and build a GUI)
- Incorporate doubling, splitting, surrendering, and insurance into the rules. All or nothing - just adding one is not enough.
- Count cards plus/minus style https://www.888casino.com/blog/card-counting-trainer and recommend a bet to the user
- Use functions and objects to massively simplify the code

Resources:

https://www.bicyclecards.com/how-to-play/blackjack/
https://wizardofodds.com/games/blackjack/basics/
The 2008 movie "21" was loosely about/inspired-by the MIT Black Jack team (though the second half of the movie is just a bad, b-rated Hollywood drama). But, if you'd like to meet a

real-life person that was involved with the MIT black-jack team, visit Professor Phil Kesten in the Physics Department. He will inevitably have some great stories to share!

Self-chosen topic guidelines:

Your self-chosen topic should be on par with the difficulty of the blackjack program above. Here are some tips. They aren't binding - more of a guideline:

- Choose a problem which involves repetitive tasks, that can use loops
- Choose a problem with interactivity, that can use an input and perform different options based off user interactions
- Choose a problem with external influence, structure, or constraints.

Collaboration:

You will work in a group on the assignment. You must have at least one other group member.

Proposal:

You need to submit a proposal via Camino for what you intend to do. If you choose blackjack, explain your creative element. If you choose a self-chosen topic, explain what you intend to do.

Everyone in your group must submit a proposal via Camino. Include your group members in the proposal.

Submission:

- Name your final file <your_username>_project2_fall2018.py (mine would look like mdavis2_project2_fall2018.py). One person in your group must submit the assignment.
- Do not create this as a Jupyter Notebook! It must be a stand-alone Python script.
- Make sure it runs completely and correctly on your computer
- Submit it via Camino
- (We will run your program on our computer to test your answers)

Grading Rubric:

Section	**Grade**	**Criteria**
Deck of cards & Deal	10%	Randomness, 6 decks, order
Betting & Hit/Stand inputs	10%	User inputs, error validation
Dealer play	10%	Following dealer rules, determine winner
Tracking winnings	10%	Chip stack vs bet
Creative element	20%	TBD

Ease of use	20%	Prompts well defined; Error handling done Visually appealing Speed
Use of comments & Readability	20%	Documentation of author & dates; Explanation of steps Use of whitespace; Use of new lines; Naming convention of variables

Bonuses:

- Keep count of all cards played, and suggest to the user whether to hit or stand.
- Keep count of all cards played, and vary your bet, and develop an optimal betting strategy.