Weekly Assignment 1

Basics of python programming and probability

Delivery form: As a link to an ipython notebook in a binder linked to a github account of you. Commentaries explaining what you did (in terms of programming) and documentation nicely written in markup language that allow to understand your decisions are mandatory and part of the grade.
Send the link when finished (and before your questions, commentaries, etc.) to

leandrogabriel.radusky@upf.edu
or
leandro.radusky@gmail.com.

Max. delivery date: January 19th (take into account that the second weekly assignment will be released in the January 15th)

Generala

We come back to the Generala game used in the Problem 1 of the last class.

1. Write a function that list all the possible outcomes with five dice.
2. Write a function that takes a number of dices and return all the possible outcomes for that amount of dices.
3. Write functions that return, given five dice, **True** or **False** if we have Straight, Full, Poker or Generala.
4. Compute the probabilities that you already computed by hand by counting the outcomes describing each roll result in the list of all possible hands *served*.
5. Compute the probabilities that you already computed by hand by counting the outcomes describing each roll result in the list of all possible hands.
6. Write a function that simulate a roll with n fair dices.
7. Write a function that plays automatically, always looking for a Generala with a greedy strategy (always keeping the most dices of the same kind and rolling the others) that returns **True** if we get a Generala and a **False** otherwise. Which kind of distribution follow this function results? Explain your reasoning within the delivered python notebook.
8. Write a function that plays until it gets a Generala, count how many times it had to play to get it and return this number. Which kind of distribution follow this function results? Explain your reasoning within the delivered python notebook.

To do all this you can just import libraries for plotting and getting random numbers.