Random Text Generator Workshop   CS 480

For this workshop, you will create a Markov chain with states that are pairs of words from a source text. For example, consider the following source text:

`The quick brown fox jumped.`

The states for the Markov chain would be:

`["The quick", "quick brown", "brown fox", "fox jumped."]`

Your job is to write a program that uses a source text to create a Markov chain which randomly generates text by starting in a state that begins with a capital letter and then randomly transitions to any state that begins with the second word of the current state. It helps to have a source text that is a little repetitive since that way there are a lot of branching possibilities for the Markov chain to work with. I used the first chapter of the Book of Genesis which worked well. You can find that and some other source text options on the course website.

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1. Copy your source text as a string in your Python file.

2. Use the `.split()` method to split the string into separate words.

3. Write a function to make a list of all pairs of consecutive words in the source string.

4. Store the Markov chain as a dictionary with keys corresponding to the states (all pairs of consecutive words) and values that are lists of all the states that follow from the key state. For example, with the source string above, you get this dictionary:

   ```
   {"The quick": ["quick brown"], "quick brown": ["brown fox"], "brown fox": ["fox jumped."],
   "fox jumped.": []}
   ```

5. Then import the random library and use it to create a function that randomly generates text based on your source string by randomly moving from one state the valid next states. Here is how you can random select and element from a list.

   ```
   import random
   random.choice(["The quick","brown fox"])
   ```

6. You'll need a way to handle situations where there are no choices available. I recommend choosing a random word pair that begins with a capital letter. You can use the following command to tell if a word pair starts with a capital letter.

   ```
   wordPair[0].isupper()
   ```