Question 1.1

Comment on how the generation differs across the range of parameters that you have selected.

I set repetition_penalty to 1.1 and varied temperature and top_p. A lower temperature gives more consistent results, and a higher temperature gives more diverse results. Meanwhile the value of top_p governs performance and the quality of the generated text. High top_p means high quality and low top_p means faster generation. Low top_p also restricts the extent by which the output may vary.

Question 1.2

Provide a table that shows these probabilities, similar to Assignment 3. Comment on the probabilities.

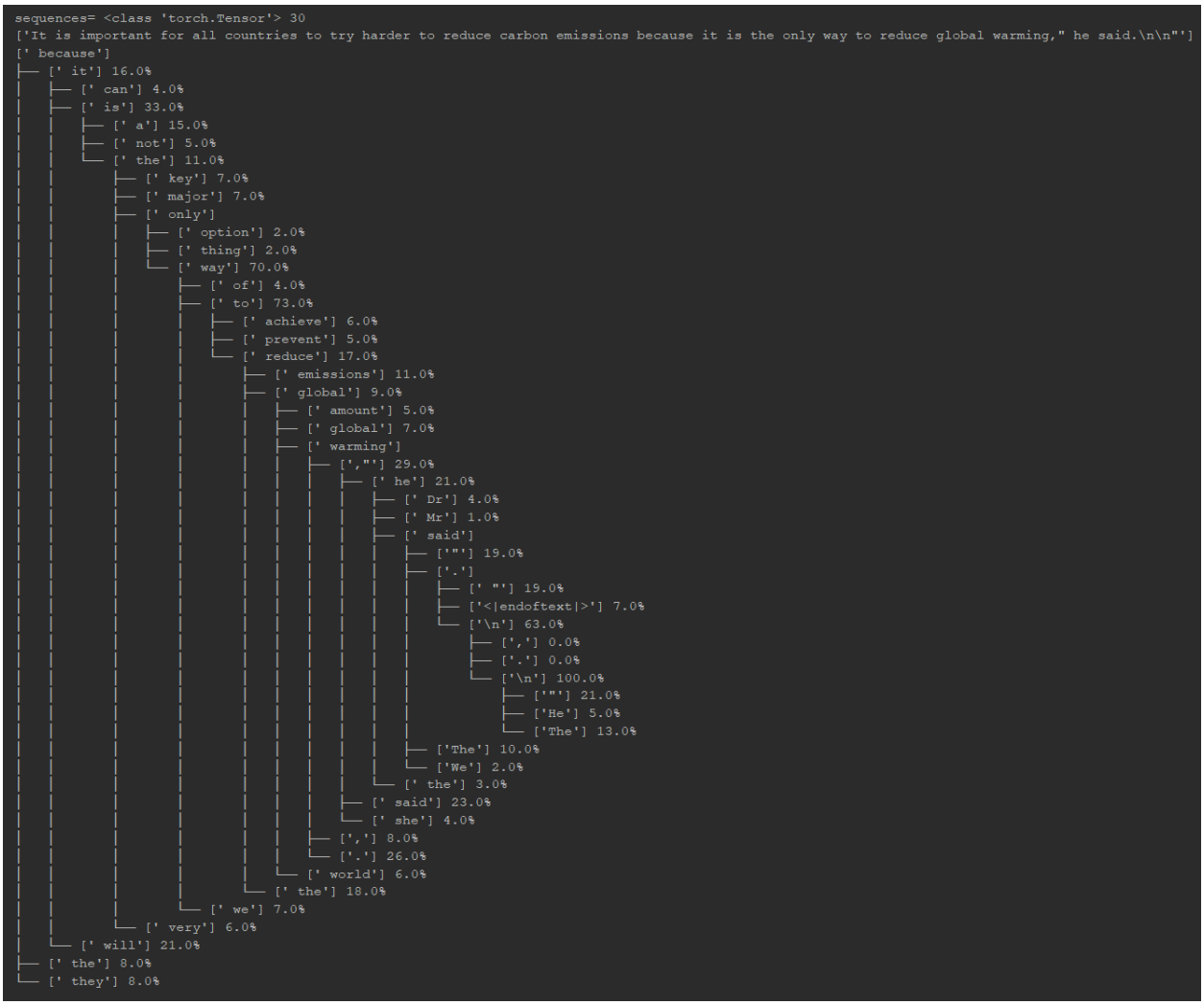
16 rows | 16 rows × 3 columns pd.DataFrame

	token	string	probability(%)
0	tensor(340)	it	16.150859
1	tensor(318)	is	33.391905
2	tensor(257)	a	15.054569
3	tensor(1994)	key	6.984391
4	tensor(636)	part	15.045089
5	tensor(286)	of	98.910081
6	tensor(262)	the	26.422513
7	tensor(3298)	global	11.689099
8	tensor(3773)	economy	19.673710
9	tensor(13)	.	33.241472
10	tensor(198)	\n	21.853313
11	tensor(198)	\n	99.950582
12	tensor(1)	"	28.311592
13	tensor(1135)	We	14.028271
14	tensor(761)	need	23.630184
15	tensor(284)	to	78.723419

These probabilities make sense. “Part of speech” tokens have high probabilities, such as “is”, “of”, “the”, “\n” and “too”, while adjectives or nouns that may be replaced by other words have lower probability.

Question 1.3

Generate the tree for the above sequence as input, providing the top 3 probabilities for each word position, as far as is practical to see, and submit that as part of the answer to this question. Comment on the what you see in the tree. Is the tree affected by the top p parameter or the temperature parameter? Why or why not?



This tree shows how the generated word is not always the top probability word. Sometimes not even the top 3.

The tree will be affected by the top_p but since we are only using the top 3 probabilities here, the effect is minimal, and in the case of this particular tree I would say there's no

effect. Temperature shall have an effect on the words of the nodes of the tree, but not so much on the shape.

Question 4.1

Write, in your own words (not those above), a clear definition of what it means to convert a statement into a softened, non-expert version.

To convert a statement into a softened, non-expert version means to make a statement not authoritative and not sound super certain to leave space for debate.

Question 4.2

Report the prompt that you arrived at in step 4. Produce three different softened versions of the first example, and say for each why it meets your definition.

```
sys_prom="You are a kind therapist, skilled in explaining cold matter in a warm way."
usr_prom="Turn the sentence \"You dislike the fact that your health is slowly deteriorating after each cigarette.\" into one that's softened, and non-expert so that it doesn't sound as authoritative nor certain. Generate 3 samples"
```

```
1. It seems like you're not fully enjoying the way your wellbeing gently changes with every cigarette.

2. It might be that you're noticing a shift in your overall wellness, seemingly connected with each smoke?

3. It seems like you might be feeling a little concerned that smoking could be gradually affecting your wellbeing.
```

The first one meets the definition since it converts the sentence into possibilities instead of facts.

The second one meets the definition since it is converted to a question rather than a statement of fact.

The third one meets the definition since the use of “seems like” suggests that the patient knows himself better than the therapist.

Question 4.3

Generate a result on the second item (row 2), and explain how it meets your definition.

It seemed like you were going through a tough time.

This meets the definition since it’s neither authoritative nor a statement of facts, but suggesting a possibility instead.

Question 4.4

Give the resulting on the next five (rows 3-7), and any changes you make to the prompt to make them all succeed.

It seems like you might find some comfort in the soothing sensation that nicotine seems to provide you.

It seems like you might be reaching for the amphetamines a bit more than is usually suggested.

It seems like the scent of cigarette smoke might not be your favorite.

So, you've come today to share a bit about your experiences with gambling, haven't you?

You're beginning to see that by tweaking a few things, there could be some pretty significant shifts in your everyday world, and that's got you feeling a tad bit excited about all the possibilities, doesn't it?

Question 4.5

Report your resulting success rate, and which result you think is the best, and which is the worst.

My success rate is 100%.

No. 17 is the best, and No. 19 is the worst as it’s simply rephrasing everything in the input, including the terminologies that doesn’t need to be rephrased.

Question 5.2

Show the prompt and give the success rate across those 6 examples.

```
sys_prom="You are a kind therapist, skilled in explaining cold matter in a warm way."
usr_prom=("You will be given a fen sentences and classify them based on softness. If a sentence is hard, print 0, and if it's soft, print 1. Here are the sentences: You dislike that others know that you smoke.\nYou want to stop smoking cigars altogether.\nYou seem low-energy.\nIt seems like you might be feeling a little concerned that smoking could be gradually affecting your wellbeing.\nIt seemed like you were going through a tough time.\nIt seems like you might find some comfort in the soothing sensation that nicotine seems to provide you.")
```

100% success.

Question 5.3

91.7% success. Example 6, 9, 19, 24, 30 are misclassified as “soft” sentences. Example 6 is a question, and example 24, 30 is expressing a possibility, which could explain why they are classified as soft sentences.

Question 6.1

Report what your prompt is.

```
sys_prom="You are a kind therapist, skilled in explaining cold matter in a warm way."
usr_prom=("You will be given a few sentences and classify them based on softness. Here softness refers to whether a sentence is authoritative and direct, stating some facts in an unquestionable manner; or is expressed as a gentle suggestion for possibility or a question where the person speaking sounds as if they do not know the other party better than the other party themselves. Also keep in mind that just because a sentence is a question etc. doesn't mean it's soft. The subtlety of the question on sensitive topics e.g. wellbeing, social relations, self-confidence etc. must also be taken into consideration. For each sentence, explain why is it a soft/hard sentence instead of the other. If a sentence is hard, print 0, and if it's soft, print 1. Here are the sentences:\n")
```

Question 6.2

Report on the accuracy, and state whether it is different from the accuracy you achieved in Section 5. Choose the best

explanation you see across your dataset, and the worst one. Report each of these, and say what is good/bad about each.

The accuracy is 93.3%, higher than section 5 because example 30 didn’t get misclassified.

The best explanation is “56. 1 - This sentence softly suggests that the listener might be drinking more when alone, encouraging them to reflect on that.” This explanation states the type of the sentence – whether it’s a suggesting a possibility or enlightening the listener, and how it leaves room for debate and discussion.

The worst explanation is “9. 1 - This sentence is soft as it points towards a person's beliefs and is left open to interpretation or correction.” Which is bad because it is making a statement about something that the listener believes in, which only the listener could know.