

Question 1.1 Comment on how the generation differs across the range of parameters that you have selected.

```
Temperature: 0.5, Top-p: 0.8
Generated Text: It is important for all countries to try harder to reduce carbon emissions because it will reduce the amount of carbon dioxide that is released into the atmosphere and will

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 0.5, Top-p: 1.0
Generated Text: It is important for all countries to try harder to reduce carbon emissions because they are the most important driver of economic growth," said Dr. Filippo

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 0.7, Top-p: 0.8
Generated Text: It is important for all countries to try harder to reduce carbon emissions because the risk of climate change is very high. It is also important that the global

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 0.7, Top-p: 1.0
Generated Text: It is important for all countries to try harder to reduce carbon emissions because it will make a huge difference in the lives of people in low-cost and

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 1.0, Top-p: 0.8
Generated Text: It is important for all countries to try harder to reduce carbon emissions because the process will lead to a reduction in greenhouse gases that can reduce emissions even faster

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 1.0, Top-p: 1.0
Generated Text: It is important for all countries to try harder to reduce carbon emissions because these numbers can change rapidly.

To date, only 15% to 25

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 1.2, Top-p: 0.8
Generated Text: It is important for all countries to try harder to reduce carbon emissions because the benefits are long term and if we can achieve these results with a clean energy

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 1.2, Top-p: 1.0
Generated Text: It is important for all countries to try harder to reduce carbon emissions because they must cut emissions from existing power plants and meet long-established climate targets.

Setting 'pad_token_id' to 'eos_token_id':50256 for open-end generation.

Temperature: 1.5, Top-p: 0.8
Generated Text: It is important for all countries to try harder to reduce carbon emissions because countries that choose the approach to doing it tend to do so at lower emission costs

Temperature: 1.5, Top-p: 1.0
Generated Text: It is important for all countries to try harder to reduce carbon emissions because reductions may not be forthcoming," Fijians told reporters.
```

Setting temperature and top_p controls how random model generates and what range of words model choose based on the probabilities. Setting temperature and top_p low lets model choose words that have higher probabilities and let the generation be safe, deterministic and less randomized.

When Temperature = 0.5, top_p = 0.8, we observe the sentence generated the most coherent and deterministic. When Temperate = 1.5, top_p = 1.0, we observe that the sentence generated are quite creative: by adding “Gijians told reporters”, it creates the scene that the sentence is used in a news report.

Question 1.2 Provide a table that shows these probabilities, similar to Assignment 3. Comment on the probabilities.

```
Generated Text: It is important for all countries to try harder to reduce carbon emissions because the effects of climate change are already being felt in other parts of the world.
Token: the | Probability: 0.1577
Token: effects | Probability: 0.0231
Token: of | Probability: 1.0000
Token: climate | Probability: 1.0000
Token: change | Probability: 1.0000
Token: are | Probability: 0.8244
Token: already | Probability: 0.6175
Token: being | Probability: 0.9259
Token: felt | Probability: 1.0000
Token: in | Probability: 0.4840
Token: other | Probability: 0.2154
Token: parts | Probability: 1.0000
Token: of | Probability: 1.0000
Token: the | Probability: 1.0000
Token: world | Probability: 1.0000
Token: . | Probability: 0.6933
```

Use temperate=0.5, top_p =0.8 as an example, we saw the words that are the start of the generation obtains lower probability: “the”, “effect”. Then the words related to the content in prompt text gain higher probability: “climate change”, “world”.

Question 1.3 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.

```

[' because']
├── it: 0.5718349814414978
├── the: 0.1576509028673172
├── !: 0.0
├── [' effects']
├── global: 0.041224028915166855
├── of: 1.0
├── !: 0.0
├── climate: 1.0
├── !: 0.0
├── change: 1.0
├── are: 0.8243514895439148
├── already: 0.6174745559692383
├── being: 0.9258776307106018
├── !: 0.0
├── felt: 1.0
├── .: 0.3378863036632538
├── in: 0.4839702546596527
├── !: 0.0
├── [' other']
├── many: 0.4273974597454071
├── parts: 1.0
├── !: 0.0
├── of: 1.0
├── !: 0.0
├── the: 1.0
├── !: 0.0
├── world: 1.0
├── ,": 0.3066892623901367
├── .: 0.6933107376098633
├── the: 0.3571747839450836
├── happening: 0.07412238419055939
├── so: 0.13510821759700775
├── will: 0.1756485253572464
└── world: 0.7696937918663025

```

```

Generated: the in top 2
Generated: [' effects'] not in top 2!
Generated: of in top 1
Generated: climate in top 1
Generated: change in top 1
Generated: are in top 1
Generated: already in top 1
Generated: being in top 1
Generated: felt in top 1
Generated: in in top 1
Generated: [' other'] not in top 2!
Generated: parts in top 1
Generated: of in top 1
Generated: the in top 1
Generated: world in top 1
Generated: . in top 1

```

In conclusion, most of the words are generated in top 2 probabilities. By setting temperature = 0.5, top_p = 0.8, we let the model to generate a safe and deterministic sentence, which results in most of the highest probabilities being chosen in our example.

Question 4.1 Write, in your own words, a clear definition of what is means to convert a statement into a softened, non-expert version.

Converting a statement into a softened, non-expert version means make the sentence less determined, less certain, and leave room for the receiver to make the conclusion by themselves.

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.

System instructions

You are a therapeutic consultant, you do not make direct and strong statements to patients.

User

Turn the diagnostic sentence: "You dislike the fact that your health is slowly deteriorating after each cigarette." into more softened version, make the sentence less determined, less certain, and leave room for the receiver to make the conclusion by themselves. Please generate three examples.

Sentence 1 generated: "It seems that you might have some concerns about how your health could be impacted over time with each cigarette."

"It seems", "might", "could" turns the sentence less determined, change facts into possibilities.

Sentence 2 generated: "You might be feeling some unease about the potential effects on your health as time goes on with smoking."

"might", "potential" makes the sentence less certain.

Sentence 3 generated: "It's possible that you've been thinking about how your health might be changing gradually with each cigarette you smoke."

"It's possible" leaves the room to the receiver to make the conclusion by themselves.

Question 4.3 Generate a result on the second item, and explain how it meets your definition.

"It seems that you might have experienced some significant discomfort recently."

The sentence provides a possibility, its less determined, less certain. It also change word "pain" into "discomfort" to make the tone softened.

Question 4.4 Give the result on the next five examples.

"It seems that you might find some soothing qualities in nicotine."
"It seems that there may be times when you find yourself using amphetamines more frequently than you'd like. How do you feel about that?"
"It seems that the smell of cigarette smoke might not be your favorite."
"It seems like you might want to explore your thoughts or feelings around gambling. Would that be what you're considering discussing?"
"It seems that this change could potentially bring a meaningful shift in your life, and it might be interesting to explore what that could look like for you."

Question 4.5 Report your resulting success rate, and which result you think is the best, and which is the worst.

All the sentences generated seems to be softened, less determined and less certain. So I would like to mark the success rate to be 100%. I could not choose one to be the worst since all sentences converted to a softened version.

I mark the last sentence the best: "You seem low-energy.", it converts to "I've noticed you might be feeling a bit more low-energy lately. How have you been feeling about that?". This conversion not only satisfy the task to be softened, but also provide a questionnaire that encourage patient to express their feelings. This aligns with the therapeutic consultant task.

Question 5.2 Show the prompt and give the success rate across those 6 examples.

Prompt and result:

User

I will give you several sentences, please print 0 if you think it is hard, print 1 if you think it is softened. You don't need to add bulletpoint or repeat the sentence, just print 0 or 1 in order.

You dislike the fact that your health is slowly deteriorating after each cigarette.

You were in a lot of pain.

You enjoy the calming effect nicotine gives you.

It seems like you might have some concerns about how smoking could be affecting your health over time.

It seems like you may have been experiencing quite a bit of discomfort.

It seems that you might find some soothing qualities in nicotine.

Assistant

0

0

0

1

1

1

Question 5.3 Using the OpenAI API, run the remaining examples and give the success rate. Attempt to explain any incorrect results.

The success rate is 88%. OpenAI tend to consider the sentence more towards softened. For all sentences with label 1, openAI successfully labeled them as 1 and misclassified those hard sentences as “soft” sentences.

Sentence 6, 8, 9 ,28, 24, 29, 30 are misclassified as soft. Sentence 6 provide questionnaire, sentence 24 provide a hypothesis, these make openAI think it is softened.

Question 6.1 Give the transcript of this first conversation, and then offer your own commentary on how realistic it is.

Parent 1: Well Bob, let's imagine our bodies as superheroes. Superheroes need their power source to be strong and fight off the baddies, right? Now, food is like the power source for our superheroes! When superheroes don't have their power source, it's difficult for them to be all strong and mighty.

Bob: But I already feel strong. Look at my muscles! And, I'm not even hungry. Superheroes eat only when they want, right? I don't want to eat now.

Parent2: Indeed, Bob, superheroes do eat when they feel like it. But remember, these superheroes are experts in listening to their bodies. They know when their bodies need fuel. Imagine your body like a super race car or your favorite superhero's car. What happens if the car runs out of fuel? Can it still race or battle villains?

Bob: No, it can't...

Parent2: That's right, my little superhero. Without fuel, even the best cars can't perform at their best. Our bodies are like these cars. We need to fuel them with food, so they can perform at their

best. If we don't, they might run out of energy when we need it most. Just like how a superhero cannot save people if his car is out of fuel.

Bob: But I feel strong now, I don't need to recharge. I played all day without eating anything and I didn't get tired.

Parent 1: you imagine BatBob, your super-alter ego, rushing to rescue a kitty stuck in a tree, only to start feeling weak on the way because he forgot to have his dinner? Let's not let that happen, okay champ? You need your dinner to keep BatBob running at full speed.

Bob: But BatBob doesn't eat the way we do! He eats after he saves the day. And besides, the Batcar never runs out of fuel. Maybe later, I still need some Batplay time!

Parent 2: that the dinner table is your Batstation, and the food is your fuel? Even superheroes need to eat. You will not be able to perform your Bat duties without energy. That energy comes from the food we eat. Remember, even BatBob needs to refuel his super powers. So let's get some dinner and then you can resume saving the world, okay?

Bob: But what if BatBob isn't hungry yet? What if the villains attack while I'm eating?

Parent1: Oh, well, this is an important part of being a superhero! You see, it's all about time management. BatBob carefully plans his day to make sure he has enough time to fight villains and stay healthy.

Bob: But... but... BatBob has batcookies in his Batsnack box. He doesn't eat broccoli! I don't think superheroes eat greens!

Parent 2: healthy, especially eating greens, gives him the energy and strength he needs to fight those villains. And believe it or not, broccoli is a SUPER food! BatBob would absolutely include it in his diet to keep him strong and speedy. And remember Bob, real superheroes follow a balanced diet. They know that batcookies are great for a quick energy boost, but broccoli gives them

Parent 1: long-lasting power and helps sharpen their bat senses! Just imagine, by eating this broccoli, you're charging up your superpowers. Broccoli could be your secret weapon to becoming the strongest and fastest superhero ever, even surpassing BatBob! Let's have an extra bite of these emerald trees and imagine us flying high in the night sky, okay?

Bob: But I don't need more superpowers, Mama and Papa. I already have my BatBob cape. I can fly really good and superfast even without eating these icky green things. I promise, batcookies are enough for me.

Parent2: Bob, being a superhero isn't just about the flying. It's about strength and endurance too. Remember how BatBob gets his energy from nutritious food, not just batcookies? He wouldn't be able to protect Gotham City without his balanced diet. Just like him, if you want to be the fastest and strongest superhero, you need to fuel your body properly!

Comment: it's quite realistic. The parents are trying to persuade Bob to eat dinner by using the superhero story.

Question 6.2 Hand in the new conversation and comment on your success.

It seems that both parents talk are quite creative, to make them more like a “boring” adult, I adjust the creativeness of the parents by setting top_p.

Parent 1: Oh, Bob! You know, dinner is like the fuel for our little adventure called life. Just like how a car can't run without gas, or how your favorite video game can't work without batteries, our bodies need food to function properly. Now, imagine you are a superhero. Even superheroes need their strength, right? And where do they get it from?

Parent2: Exactly, Bob. And let's not forget, even superheroes need to be strong and healthy to fight against the villains. So, it's not just about having dinner, it's about having a balanced meal. It's crucial for your physical growth, brain development, and most importantly, for keeping your superhero energy levels high. Now, why don't we imagine this broccoli is a secret power booster, and these carrots are the keys to a secret lair? Can you use your superpowers to make them disappear?

Bob: But I don't see any villains here! And besides, my superpowers are already so strong. Maybe if there were real villains I'd eat more, but right now I'm not hungry.

Parent1: Even the strongest superheroes need fuel to maintain their powers. Eating a balanced meal is like recharging your superpowers. So, are you ready to embark on the mission of fueling your superpowers with this delicious dinner?

Bob: But I don't feel like having a big adventure right now. I think my superpowers are already super strong today!

Parent 2: You know how your favorite superhero always has energy to save the day? That's because they eat a good meal. Now, how about we take a trip to these fluffy mashed potato clouds and try some of that super strength grilled chicken? After all, every superhero needs a little bit of fuel for their next big mission!

Bob: But I don't want to be a superhero today... I want to be a dinosaur. And dinosaurs don't eat mashed potato clouds and super strength grilled chicken!

Parent1: I understand you want to be a dinosaur today. That's awesome! But you know, even dinosaurs need to eat well to grow big and strong. The mashed potato clouds can be a mountain for the dinosaur to climb and the grilled chicken can be its prey.

Bob: But I heard that some dinosaurs only eat plants!

Parent2: That's true, Bob. Some dinosaurs were herbivores, which means they only ate plants. But the dinosaur you're pretending to be could be an omnivore, which means they eat both plants and meat. And you know what? Mashed potato clouds can be seen as plants in the dinosaur

world! So even if you're a T-Rex, you can still enjoy your mashed potato clouds. They give you the energy and nutrients you need to grow big and strong, just like a real T-Rex!

The above conversation seems to be more realistic to me. Bob is childish creative, easily switching mind from superhero and dinosaurs. Parents are trying so hard to follow Bob and persuade Bob using superhero and dinosaurs theory.