

# NLP Assignment 3

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### 1. A brief description of the dataset you used for fine-tuning, including its type and size.

The dataset I used is **WikiText** dataset which is a monolingual (English) text corpus commonly used for language modeling tasks. It's a massive collection of over 100 million tokens extracted from high-quality Wikipedia articles.

Type: Monolingual text corpus

Size: Over 100 million tokens (equivalent to roughly 100 million words)

### 2. The 5 examples from Task 1 (include the actual generated texts).

#### a. With Original Model:

**Example 1:** Once upon a time, in a land far, far away,

#### Generated Texts:

- 1) Once upon a time, in a land far, far away, where in another, at the same time, to some extent, it is likely what it does in the land that it is created for. In spite of this, in the past century,
- 2) Once upon a time, in a land far, far away, distant, far away. With no hope for the safety of the earth, though, she had no reason to believe I might go there with these other souls. I thought the answer was a very
- 3) Once upon a time, in a land far, far away, the very things that matter to you—what matters to you in the future—you get on. That way, you feel very, very safe, that you are safe. The
- 4) Once upon a time, in a land far, far away, from our eyes. We cannot have a conversation that involves people sharing thoughts, ideas, and ideas that will help us to connect in the real world. It is our duty to listen but that must still

- 5) Once upon a time, in a land far, far away, the enemy could use a force which they could no longer move, without using their force even against their enemies. Now those enemies will begin to rise up, and if they are attacked by the enemy,

**Example 2:** In the year 2050, technology has advanced to

**Generated Texts:**

- 1) In the year 2050, technology has advanced to unprecedented levels. With advancements in technology and technologies that can deliver on high-quality performance, productivity and efficiency, this year we are now able to keep ourselves in great shape, providing a future where life
- 2) In the year 2050, technology has advanced to the point where more and more of the nations resources could be spent in the fight for civil liberties.
- 3) In the year 2050, technology has advanced to an unprecedented level in the United States, enabling unprecedented productivity growth. The top 25 countries for each country in the world are:
- 4) In the year 2050, technology has advanced to the point beyond the average consumer as well as to the technological frontier of the modern world.
- 5) In the year 2050, technology has advanced to the point where it's estimated that the world's supercomputer has over 100 million cores, and that the technology will increase to be the future big. We're talking about the

**Example 3:** The secret to happiness is

**Generated Texts:**

- 1) The secret to happiness is that people do the most to avoid the negative feelings of boredom and pain they experience. This is not to say there is a special place to put the positive feelings over negative feelings. Although
- 2) The secret to happiness is to think of good people as good people, not good people." "There are still people, but they are all human and it is a very natural choice that people make. They

- 3) The secret to happiness is: Don't try to live with such an obsessive devotion. Instead, try to live with all kind of people who are really interested in you, because they're people who want to give you something that
- 4) The secret to happiness is that it is a personal responsibility to remember more of the things you love, to take action to do them, to feel happier, the most beautiful to love, to share your memories with your friends."
- 5) The secret to happiness is, we will have to make it more difficult for us to do that. We shall not dwell on the truth about one. For the most part, our minds are still busy

**Example 4:** In a galaxy far, far away,

**Generated Texts:**

- 1) In a galaxy far, far away, from a galaxy far away. And it is not at all the case that every galactic star in the known universe has a population of about one million (one-fourth) and a million (third)
- 2) In a galaxy far, far away, in the middle of the cosmic chain, some cosmic rays are shining around the stars above the planet's surface, or as the sun shines, reflecting back onto the stars. This is a simple
- 3) In a galaxy far, far away, a galaxy in a huge galaxy. This information appears in the journal JSPAN.
- 4) In a galaxy far, far away, a cluster of galaxies is orbiting around the Milky Way with just a few Earths. It's not clear what this is really about, but it's likely that it's a massive object that contains a
- 5) In a galaxy far, far away, you may think that your eyes may be moving on the galaxy (even if by some miracle it did not). It may be a galaxy close-up in time to the beginning but we don't know

**Example 5:** As the sun set over the horizon,

**Generated Texts:**

- 1) As the sun set over the horizon, it felt like he was doing something pretty cool. "I just really wasn't really enjoying it. I didn't really enjoy this. I wasn't really enjoying it. I wasn't really enjoying
- 2) As the sun set over the horizon, which means that she would surely die just before sunrise. As she reached out to her window, she could feel the stars of the sky, and when she reached out to her bed with her hand wrapped
- 3) As the sun set over the horizon, and the sun shone even more brightly. To the left, the snow falling from a cliff face, like a snow cone. The sky continued a few thousand miles westward, and finally in November of
- 4) As the sun set over the horizon, and it made you shudder, feeling an awful little pained. To get back from the rest, the first thing to remember is that I don't get much sleep! When our sun set, we
- 5) As the sun set over the horizon, the planet rose, and clouds formed. A few thousand years ago, the planet was home to the Milky Way galaxy, the center of the galaxy. It was a place of great opportunity

**b. With Fine-Tuned Model:**

**Example 1:** Once upon a time, in a land far, far away,

**Generated Texts:**

- 1) Once upon a time, in a land far, far away, the sun set in a bright red orb, in the middle of a bright red circle, out of a bright yellow moon, behind a large, red circle. In a small moon, an object in
- 2) Once upon a time, in a land far, far away, some nations could not have been completely free from tyranny, or in peril, and would not have lost their liberty, nor as the power of the Government would have to be exercised. Now that power is

- 3) Once upon a time, in a land far, far away, the planet is far away, the same way, there is a vast stream of people who can't even live on Earth. There appear to be many people who can't even be fed by the current
- 4) Once upon a time, in a land far, far away, we hear a chorus of people singing, That you are a beast, and this will be, and we go, and this will be; and then there will
- 5) Once upon a time, in a land far, far away, it seems there is another land near us. As the sun rises its horizon to fill the sky, the earth spins on it to produce rays like a pail. Then the sun glows to the

**Example 2:** In the year 2050, technology has advanced to

**Generated Texts:**

- 1) In the year 2050, technology has advanced to become one of the most widely accepted medium for achieving sustainable energy supply, including the use of renewable sources, to improve energy supply. The future is now in the hands of the governments and corporations concerned about
- 2) In the year 2050, technology has advanced to reduce the environmental footprint of the developing world by more than 15%, and has driven global deforestation more than 50% over the last 25 years. The world's second largest deforestation rate in the
- 3) In the year 2050, technology has advanced to more than 70 percent from 3,500 megawatts to 60 percent, according to a new report from the Industrial and Industrial Organization. "Its a big step forward
- 4) In the year 2050, technology has advanced to our extreme. To date, nearly one third of people use digital devices, leading to a generation of electronic entertainment technologies and an increasing number of devices. These devices consist of touch-sensitive video or audio
- 5) In the year 2050, technology has advanced to meet the many needs of the population of the planet-forming systems, and with advances such as the introduction of flexible networking technologies the world's most advanced cities and regions are moving towards building the same data

**Example 3:** The secret to happiness is

**Generated Texts:**

- 1) The secret to happiness is that we often try to get our happiness by way of something else – not just a feeling, but a feeling that people already enjoy. That's why we can't just enjoy ourselves even if we're
- 2) The secret to happiness is that we are willing to accept it, like other human beings." I think I've been able to get that right. "And you've been able to get
- 3) The secret to happiness is to create a culture of happiness," the one in which humans are truly free from the misery of other people." This will take care not to be "independently
- 4) The secret to happiness is that each of us should be able to spend an extra day working together." If the average human wants happiness but doesn't really have it, he advises we should be willing to use it
- 5) The secret to happiness is to work hard, to learn and to live well. But no matter what the task is, a person can't take it seriously and never do it the right way. Life throws off that idea.

**Example 4:** In a galaxy far, far away,

**Generated Texts:**

- 1) In a galaxy far, far away, I've wondered about the potential human presence in the galaxy. The question is, did the galaxy's stars, galaxies, galaxies, moons, and large, massive, massive, big, small, small
- 2) In a galaxy far, far away, and far, far away. And as more advanced civilization has developed, civilizations may be able to create new forms of life. These structures may have not even been imagined in a thousand years, but they
- 3) In a galaxy far, far away, and far away from where I live, I've been able to study galaxies in detail from the ground and with my eyes fixed at the center of the galaxy to detect faint explosions. If the explosion is

- 4) In a galaxy far, far away, there is such a thing as a universe. However, when it comes to galactic astronomy, it's too much to ignore. In fact, astronomers will eventually see the universe go some way to
- 5) In a galaxy far, far away, she is surrounded with dark masses. And her dark-matter physics may lead to billions of new stars, new stars, and new stars in the universe that have not yet been found by chance in previous

**Example 5:** As the sun set over the horizon,

**Generated Texts:**

- 1) As the sun set over the horizon, and it was an hour past 10.000 a.m. The storm was coming early on Tuesday, and then it was dark and heavy. The wind was so strong that a
- 2) As the sun set over the horizon, the Sun rose and rolled around and went down, before moving backwards across the sky. When he became lost he flew out of the earth again, where he disappeared for thousands of miles before vanishing with no
- 3) As the sun set over the horizon, I was a little less fortunate. I went out to dinner and my sister and friends were hanging out in the woods and looking at the sky, looking out at the horizon and looking at the sky.
- 4) As the sun set over the horizon, the birds headed toward the sky. "They did not see the moon from the sun." "And there was a lot of flying and screaming and looking up at them.
- 5) As the sun set over the horizon, I could watch a rainbow. And when it was over, I knew it was just going to be a beautiful rainbow." By now I'm about to get the idea of

### **3. Your comments on the Task 1 results**

The original model displays creativity but struggles with coherence, often veering off from the prompts. In contrast, the fine-tuned model shows improved contextual relevance and coherence. Both models exhibit a reasonable level of semantic understanding, but the fine-tuned version strikes a better balance between creativity and logical progression of ideas. Fine-tuning has notably enhanced the model's performance in maintaining context and delivering more coherent responses.

#### **4. The 3 examples from Task 2 (include the actual texts)**

**Example 1:** The game was developed by

**Generated texts:**

The game was developed by Rafe Studios as we were first able to access

The game was developed by The New York Times.

The game was developed by the CVS subsidiary of Computerworld Interactive.

The game was developed by Namco, so the games were developed by Gu

The game was developed by the team after the 2010 Winter Olympics. The project

**Example 2:** The arsenal was designed for

**Generated texts:**

- 1) The arsenal was designed for both the U.S. Army (USAA
- 2) The arsenal was designed for the Israeli army as a means to strengthen the defense
- 3) The arsenal was designed for a single test firing, as well as more than
- 4) The arsenal was designed for a combat or air force operation and its capabilities were
- 5) The arsenal was designed for an average person to be able to buy any number



**Example 3:** The governor would have lost

**Generated texts:**

- 1) The governor would have lost his job because he could have won in Iowa or
- 2) The governor would have lost some of his state's votes if the legislature passed
- 3) The governor would have lost the election if he had won the state, but
- 4) The governor would have lost control or lost control if he was tried by a
- 5) The governor would have lost a number of jobs in 2015; he did not

## **5. Your comments on the Task 2 results**

The examples showcase biases in language models, where generated texts introduce inaccurate or contextually inappropriate information. In Example 1, unrelated entities are introduced in the context of game development, leading to potential confusion. Example 2 associates the arsenal with military entities and combat scenarios, introducing potentially irrelevant information. In Example 3, the model speculates on negative consequences for the governor without clear context, showing biases in assuming outcomes without basis.