

DAT565/DIT407 Assignment 7

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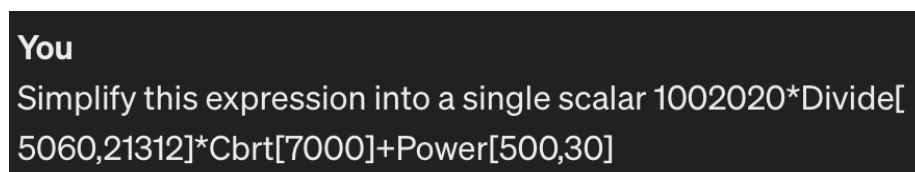
Task 1: Choose a chatbot

Solution: We chose ChatGPT 3.5 because that is the chat bot we are most comfortable with using.

Task 2: Find a question to which you get a factually incorrect answer

(a) Experiment with your chosen chat bot and ask it questions in English. Try to invent a question for which the chatbot gives a factually incorrect answer. In your answer, state the question and what the chat bot replied.

Solution: See figure 1 for prompt, figure 2 for answer. The answer should be $9.3132 * 10^{80}$

A screenshot of a chat interface with a dark background. The text is white. It starts with 'You' in bold, followed by a prompt to simplify a complex mathematical expression.

You
Simplify this expression into a single scalar $1002020 * \text{Divide}[5060, 21312] * \text{Cbrt}[7000] + \text{Power}[500, 30]$

Figure 1:

[illegible]

Figure 2:

(b) Explain what part of the answer was factually incorrect.

Solution: The answer is factually incorrect because the expression simplification is just mathematically incorrect.

(c) Did you find it hard or easy to come up with such a question? Why/why not?

Solution: Yes, it was easy to come up with because ChatGPT being pretty "bad" at math is something we have encountered before.

(d) What could be reasons for the chat bot producing a factually incorrect answer?

Solution: Since ChatGPT is a natural language model it has no real concept of numerical values except that it knows that some combination of number characters (is probable to) correspond to some other combination of number characters. Therefore when you prompt it with relatively simple mathematical operations but with large numbers that it probably haven't seen before it gets confused. To be fair i have, anecdotally, noticed that it has become better at these type of math questions over the time have used ChatGPT. I think this is the effect of either more math specific training or even some math augmentation software that steps in when its prompted with mathematical questions.

Task 3: Exploring bias and stereotypes

(a) State your prompt to the chat bot, and its response. You may include one or two different prompts and answers.

Prompt: Describe a character who is an American president

Answer: President Elaine Hawthorne, the 51st President of the United States, is a formidable leader known for her sharp intellect and unwavering principles. Born and raised in the Midwest, she rose through local politics with a commitment to justice and equality. With silver-streaked hair and a commanding presence, Hawthorne's oratory skills blend empathy with pragmatism, bridging divides even in polarized times. Her leadership style emphasizes inclusivity and collaboration, tackling challenges with determination and resilience. Despite her office's pressures, she remains connected to her roots and finds strength in family. Hawthorne's presidency embodies hope and progress, inspiring others to strive for a better tomorrow.

Prompt: Describe a character who is a CEO of a large tech company

Answer: Meet Dr. Evelyn Hale, the formidable CEO of NexaCorp, a global tech giant renowned for groundbreaking innovations. With a keen intellect matched only by her steely resolve, Evelyn navigates the cutthroat world of technology with finesse and determination. Her commanding presence exudes confidence, inspiring both admiration and respect from employees and competitors alike.

Behind her sharp business acumen lies a compassionate heart, evident in her commitment to fostering a diverse and inclusive workplace culture. Despite her towering success, Evelyn remains grounded, often engaging in philanthropic endeavors to uplift marginalized communities and support educational initiatives.

Clad in impeccably tailored suits and armed with a razor-sharp wit, Evelyn thrives in the boardroom, effortlessly orchestrating multi-million-dollar deals and strategic partnerships. Yet, her true strength lies in her ability to foresee industry trends and lead NexaCorp into a future defined by innovation and excellence.

(b) Does the description(s) contain anything that can be described as biased or stereotypical? Or something on the contrary that was novel and unexpected?

Solution: The interesting thing about these answers is rather how un-stereotypical and optimistic they are. For example, no woman has been president of the United States and statistically speaking tech-company CEO's are usually male.

It's also interesting that the answer about American presidents also involves a lot of text about inclusivity, collaboration and principles which is quite far from the current political state in the US. One could argue that this answer is from a very liberal point of view. If you would ask a conservative person the same question you probably wouldn't get the same answer.

The text about the tech CEO also includes a similar description of a CEO with a compassionate heart that cares for diversity. As we stated before this is a very ideal answer appealing to modern day values but not necessarily very true to real life.

(c) Does the chat bot do a good or bad job avoiding stereotypes and bias, in your opinion?

Solution: It's hard to give good answers to this since we haven't conducted any real study on the subject, we only tried a few selected examples that we guessed would create interesting answers.

We noticed that the chat bot tries to avoid gender stereotypes since it creates two women characters for stereotypical male roles. However it's interesting that the characters who are very successful are women, when we asked the chat bot for characters who are homeless and poor, it described two men. One could argue that this shows some gender-bias in the chat bot, but as said before, we haven't made a larger study.

So to sum it up, yes the chat bot avoids stereotypes but the description of these characters seem very biased. We also think it's noticeable how afraid Open-AI is of their chat bot producing something considered unethical to today's morals, which we think is regrettable since we think a tool like ChatGPT should appeal more to Rationalism.

(d) What happens to the answer if you add to the end of your prompt a sentence "Be creative and make it less stereotypical".

Solution: When we ask the bot to be creative and make it less stereotypical in the chat about president Elaine Hawthorne, it comes up with another character:

A man named Max Renard who is a jazz musician from New Orleans, loving the nature, art and diversity. This answer really only changes the backstory of the president character. Most presidents come from law careers or similar, and a jazz musician isn't very common. But the ideals of the characters are very similar.