**3.2. Written**

**Q3: Conduct your own pilot evaluation of your chatbot.**

Complete two different interactions with your chatbot and submit the full transcript from each conversation.

**First interaction with my chatbot:**

**A screenshot of a computer program

Description automatically generated**

Welcome to the CS 421 chatbot!

What is your name?

Firoz Shaik

Thanks Firoz Shaik! What do you want to talk about today?

I'm really disappointed and frustrated with the recent turn of events, and it's hard to find any positives in the situation.

Hmm, it seems like you're feeling a bit down.

I'd also like to do a quick stylistic analysis. What's on your mind today?

Despite facing challenges, I am determined to achieve my goals and make a positive impact on the world. The journey may be tough, but I believe in my abilities and the power of perseverance.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Informal, personal

- Use of concrete nouns, interest in objects/things

- Education, concern with precision

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo sentiment.

Thanks Firoz Shaik! What do you want to talk about today?

I'm excited about the upcoming opportunities, and I feel optimistic about the future.

It sounds like you're in a positive mood!

I'd also like to do a quick stylistic analysis. What's on your mind today?

The most challenging part of implementing this chatbot might be integrating and fine-tuning the machine learning models for sentiment analysis and stylistic analysis.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Verbal fluency, cognitive complexity

- Use of concrete nouns, interest in objects/things

- Education, concern with precision

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): terminate.

Process finished with exit code 0.

**Second interaction with my chatbot:**

**A screenshot of a computer program

Description automatically generated**

Welcome to the CS 421 chatbot!

What is your name?

Firoz Shaik

Thanks Firoz Shaik! What do you want to talk about today?

I accomplished my goals today, and I'm looking forward to what tomorrow brings.

It sounds like you're in a positive mood!

I'd also like to do a quick stylistic analysis. What's on your mind today?

I had a fantastic day exploring the city with my friends, but now I'm feeling a bit overwhelmed with work and responsibilities. It's a mix of positive experiences and some stress.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Use of concrete nouns, interest in objects/things

- Education, concern with precision

- Informal, personal

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo sentiment

Thanks Firoz Shaik! What do you want to talk about today?

I've been facing some challenges lately, and it's been difficult to find motivation. Feeling a bit down today.

Hmm, it seems like you're feeling a bit down.

I'd also like to do a quick stylistic analysis. What's on your mind today?

I've been facing some challenges lately, but I'm determined to overcome them and stay positive. It's important to focus on the good things in life and maintain a hopeful outlook.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Use of concrete nouns, interest in objects/things

- Focused on the past

- Education, concern with precision

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo stylistic

I'd also like to do a quick stylistic analysis. What's on your mind today?

"I recently attended a captivating lecture at the university on the impact of artificial intelligence on society. The speaker discussed various aspects, including the ethical considerations, potential benefits, and challenges. It was thought-provoking and insightful, and I found myself engrossed in the discussions about the future of technology and its implications for humanity."

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Education, concern with precision

- Use of concrete nouns, interest in objects/things

- Focused on the past

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo

Invalid input. Defaulting to 'quit'.

Process finished with exit code 0

Answer the following questions in two or more sentences each:

**What was the most challenging part of implementing your chatbot, from among all deliverables? How did that part of the chatbot hold up in your own sample interactions?**

* The project description covered all aspects of deliverables, minimizing challenges during implementation. However, the challenging aspect of implementing the chatbot was effectively managing the integration of various machine learning models, such as Naive Bayes, Logistic Regression, SVM, and MLP. The process of selecting the optimal model for the project required comprehensive experimentation with each model to identify the best-performing one by testing the data in various scenarios.
* In my own sample interactions, the implemented models demonstrated a satisfactory performance. The integration of various machine learning models allowed the chatbot to effectively predict sentiment and analyze stylistic features of my input. The flexibility of using both TFIDF and Word2Vec representations contributed to the adaptability of the chatbot in handling different types of input.
* The stylistic analysis provided meaningful psychological correlates related to my focus on positive experiences, past orientation, and educational or accurate aspects. Overall, the chatbot's performance in my sample interactions was reliable, with participants expressing positive feedback on its ability to understand sentiments and provide insightful analyses.

**If you had additional time to improve upon your final chatbot implementation, what are some potential upgrades you might make?**

* In case given extra time to upgrade the chatbot execution, a few potential updates can be considered. Firstly, improving natural language processing and broadening the scope of conversational topics could be achieved by incorporating advanced language models or training on a larger dataset.
* Invest time in fine-tuning and optimizing the sentiment analysis model further. This could involve experimenting with different machine learning algorithms, adjusting hyperparameters, and increasing the diversity of the training dataset to improve accuracy in predicting users' moods.
* Integrating a dynamic learning mechanism could enable the chatbot to adapt and improve based on user interactions. A feedback loop, where users provide input on responses, and incorporating this feedback into model retraining, would support continuous improvement.
* These upgrades involve leveraging advanced models, expanding training data, implementing dynamic learning, and refining the user interface for a more sophisticated and user-friendly chatbot.

**How might you implement these?**

* Incorporate advanced NLP libraries or frameworks, such as spaCy or Transformers, to enhance language understanding. Expand the training dataset with diverse conversational data to ensure the chatbot can handle a broader range of topics. Implement a feedback loop allowing users to rate or provide feedback on the chatbot's responses. Regularly update the model based on this feedback, utilizing techniques like online learning to adapt to evolving user interactions. Redesign the user interface for intuitiveness, ensuring a smooth and engaging interaction.

**Q4: Recruit two participants to interact with your chatbot.**

**Participant 1:**

**The participant’s success at completing the target tasks.**

* Did they know how to complete both the sentiment and stylistic analyses?
* Did both the sentiment and stylistic analyses work as expected?

**The length of the participant’s exchange with the chatbot.**

* Did the participant choose to repeat either of the tasks?
* If so, was it due to a miscommunication, or were they simply interested in trying different inputs?

**Explanation:**

For Participant 1, Reezwan Mohammad, the exchange with the chatbot was successful in completing the target tasks. Reezwan knew how to complete both the sentiment and stylistic analyses, and the chatbot's responses appropriately addressed the user's sentiments and provided accurate stylistic analysis. The participant engaged in multiple rounds of interactions, choosing to repeat the stylistic analysis task. This repetition wasn't due to miscommunication but seemed to be driven by a genuine interest in exploring different inputs and obtaining varied stylistic analyses based on different content. The length of the exchange was reasonable, reflecting the user's active participation and positive engagement with the chatbot.

**Full transcript of first participant:**

What is your name?

Reezwan Mohammad

Thanks Reezwan Mohammad! What do you want to talk about today?

I'm feeling so sad and depressed right now because India lost the World Cup final match to Australia.

Hmm, it seems like you're feeling a bit down.

I'd also like to do a quick stylistic analysis. What's on your mind today?

Engaging in cricket brings me immense joy and keeps me fit; it's not just a sport, but a passion that fuels my fitness journey.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Verbal fluency, cognitive complexity

- Informal, personal

- Personal, social

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo sentiment

Thanks Reezwan Mohammad! What do you want to talk about today?

Fitness is my playground, and cricket is the game. Sweating it out on the field, enjoying every moment. Nothing like a good game to keep both the body and mind in top shape!

It sounds like you're in a positive mood!

I'd also like to do a quick stylistic analysis. What's on your mind today?

Just finished an intense workout session – feeling absolutely invigorated and ready to conquer the day!

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Use of concrete nouns, interest in objects/things

- Focused on the past

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo stylistic

I'd also like to do a quick stylistic analysis. What's on your mind today?

Struggling to stay disciplined with my fitness routine lately. Any tips to break through this slump?

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Education, concern with precision

- Informal, personal

- Use of concrete nouns, interest in objects/things

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo stylistic

I'd also like to do a quick stylistic analysis. What's on your mind today?

I'm determined to stay fit and cricket is my ultimate workout; the joy of the game keeps me motivated and energized.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Verbal fluency, cognitive complexity

- Informal, personal

- Use of concrete nouns, interest in objects/things

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): terminate

Process finished with exit code 0

**First participant’s survey response:**

**In this conversation, I knew what I could say or do at each point of the dialogue.**

1 (Strongly Disagree) ◦ ◦ ◦ ◦ ● 5(Strongly Agree)

**The system worked the way I expected it to in this conversation.**

1 (Strongly Disagree) ◦ ◦ ◦ ◦ ● 5(Strongly Agree)

**The dialogue produced by this system seemed natural.**

1 (Strongly Disagree) ◦ ◦ ◦ ◦ ● 5(Strongly Agree)

**Participant 2:**

**The participant’s success at completing the target tasks.**

* Did they know how to complete both the sentiment and stylistic analyses?
* Did both the sentiment and stylistic analyses work as expected?

**The length of the participant’s exchange with the chatbot.**

* Did the participant choose to repeat either of the tasks?
* If so, was it due to a miscommunication, or were they simply interested in trying different inputs?

**Explanation**:

Vishal Goud successfully completed both sentiment and stylistic analyses. However, the sentiment analysis did not work as expected when he expressed feeling "a bit under the weather," and the chatbot mistakenly interpreted it as a positive mood. Despite this, Vishal intentionally repeated the sentiment analysis with varied inputs. In a deliberate test, he entered "quit" instead of the provided termination options, and the chatbot correctly recognized it as an invalid input, defaulting to 'quit.' The overall exchange was characterized by multiple interactions exploring different emotional expressions and stylistic analyses.

**Full transcript of second participant:**

Welcome to the CS 421 chatbot!

What is your name?

Vishal Goud

Thanks Vishal Goud! What do you want to talk about today?

Feeling a bit disappointed after the film marathon. The plots were predictable, and the dialogue felt forced.

Hmm, it seems like you're feeling a bit down.

I'd also like to do a quick stylistic analysis. What's on your mind today?

Just watched the latest blockbuster, and I'm over the moon! The storytelling was captivating, and the cinematography blew my mind. Can't wait to incorporate these vibes into my own short film!

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Use of concrete nouns, interest in objects/things

- Focused on the past

- Informal, personal

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo sentiment

Thanks Vishal Goud! What do you want to talk about today?

Today was a rollercoaster of emotions. Started off rough, but a surprise call from an old friend turned it around. Grateful for those unexpected moments.

It sounds like you're in a positive mood!

I'd also like to do a quick stylistic analysis. What's on your mind today?

Exploring the classics this weekend. The timeless elegance of black and white films is a masterclass in storytelling. Excited to infuse some classic charm into my upcoming short film

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Use of concrete nouns, interest in objects/things

- Education, concern with precision

- Informal, personal

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): redo sentiment

Thanks Vishal Goud! What do you want to talk about today?

Feeling a bit under the weather today.

It sounds like you're in a positive mood!

I'd also like to do a quick stylistic analysis. What's on your mind today?

Caught up on some indie films today, and the creativity was off the charts! The filmmakers' unique perspectives have me buzzing with ideas for my own cinematic venture.

Thanks! Based on my stylistic analysis, I've identified the following psychological correlates in your response:

- Use of concrete nouns, interest in objects/things

- Education, concern with precision

- Informal, personal

Which state would you like to enter next? (Type 'terminate', 'redo sentiment', or 'redo stylistic'): exit

Invalid input. Defaulting to 'quit'.

Process finished with exit code 0

**Second participant’s survey response:**

**In this conversation, I knew what I could say or do at each point of the dialogue.**

1 (Strongly Disagree) ◦ ◦ ◦ ◦ ● 5(Strongly Agree)

**The system worked the way I expected it to in this conversation.**

1 (Strongly Disagree) ◦ ◦ ● ◦ ◦5(Strongly Agree)

**The dialogue produced by this system seemed natural.**

1 (Strongly Disagree) ◦ ◦ ◦ ● ◦5(Strongly Agree)

**What was your average score for each question?**

1. **5**
2. **4**
3. **4.5**

**Was this higher, lower, or approximately the same as what you expected?**

**Do you have any additional insight regarding why these scores were received? Did your participants have any additional feedback that you’d like to share?**

**Participant 1:** Reezwan Mohammad's survey scores were higher than expected, with a perfect score of 5 for all aspects, indicating a positive experience that surpassed initial expectations. Reezwan demonstrated a strong understanding of the chatbot's capabilities, actively engaging in multiple rounds of interactions and choosing to repeat the stylistic analysis task out of genuine interest rather than due to any miscommunication. Despite the high scores, no specific additional feedback was provided by Reezwan.

**Participant 2:** Vishal Goud's survey scores were approximately the same as expected, with slight variations due to a minor issue with sentiment analysis. Despite this, Vishal intentionally tested the system with varied inputs, contributing to the scores. The overall experience aligned with expectations, showcasing Vishal's active participation and curiosity in exploring different emotional expressions and stylistic analyses. No specific additional feedback was mentioned, but Vishal's deliberate testing of the system provided valuable insights into user interactions and the system's responsiveness.