1. Name, Contact info: Beth Birhanu (bbirhanu@regis.edu)
2. Title of the project: Automated Chat Response System Using "topical\_chat.csv"
3. High level description of the project: what question or problem are you addressing?

The project efforts to develop an automated chat response system capable of generating contextually appropriate replies in a chat environment. The focus is on usage of NLP techniques to analyze and learn from the "topical\_chat.csv" dataset, aiming to facilitate seamless and efficient communication in digital platforms.

1. What type of data science task is it? (some example answers but not limited to)

* Predictive analysis to predicted the context and appropriateness of responses.
* Natural language understanding for interpreting chat messages.
* Sequence-to-sequence models for generating chat responses.

1. Data: Brief description of data. How big do you expect the data will be? Is amount of your data too big or too small? If you're web-scraping or collecting data, how long do you expect to collect the data?

Description: The "topical\_chat.csv" dataset contains conversations with diverse topics, structured as messages and replies.

Size: The dataset contains over 180,000 messages within 8,000 conversations, offering a substantial volume for deep learning.

1. How will you analyze the data? What machine learning methods do you plan to use, and/or what business intelligence aspect do you plan on incorporating?

* Use sequence-to-sequence models, particularly focusing on LSTM or Transformer architectures, to generate replies based on input messages.
* Use TensorFlow and Keras for model development, with Python libraries (Pandas, NumPy) for data preprocessing.

1. Describe any anticipated difficulties and problems. Discuss how you may overcome the problems.

* Model Training: The difficulties of sequence-to-sequence models may require significant computational resources and tuning.

1. Suggest a timeline for the project.  This should be a weekly breakdown of what you plan on doing each week.

* Week 6-8: Plan to refine model training, conduct vast testing, and finalize the project documentation.