

HollyBot: Creating a Generative AI Chatbot with Personality



Katie House, Deepshikha Adhikari, Evan Moore, Guandong Yang
University of Massachusetts at Amherst, CICS

GOAL

Create a textual chatbot based on movie dialogue that is entertaining for users to interact with due to its unique personality and responses

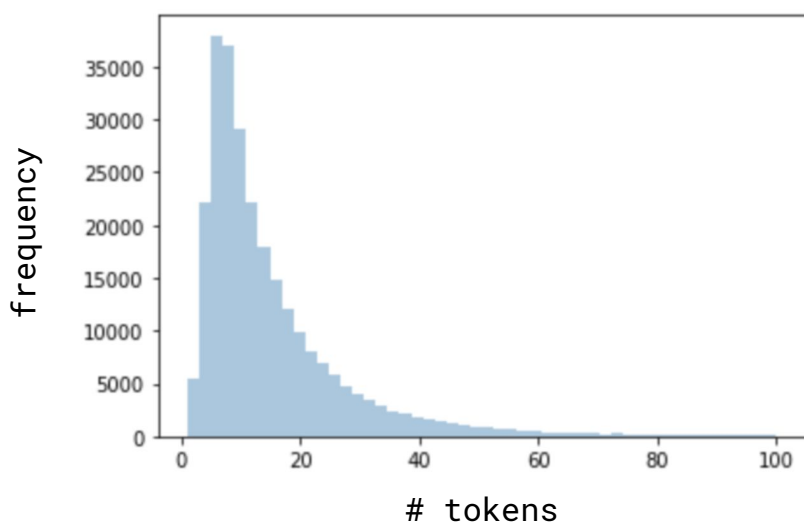
THE DATA

220,579 exchanges
9035 individuals
617 movies
22 genres

Sample from The Data

KAT : You're not okay.
PATRICK : I just need to lie down for awhile.
KAT : Uh, uh. You lie down and you'll go to sleep
PATRICK : I know, just let me sleep
KAT : What if you have a concussion? My dog went to sleep with a concussion and woke up a vegetable. Not that I could tell the difference..

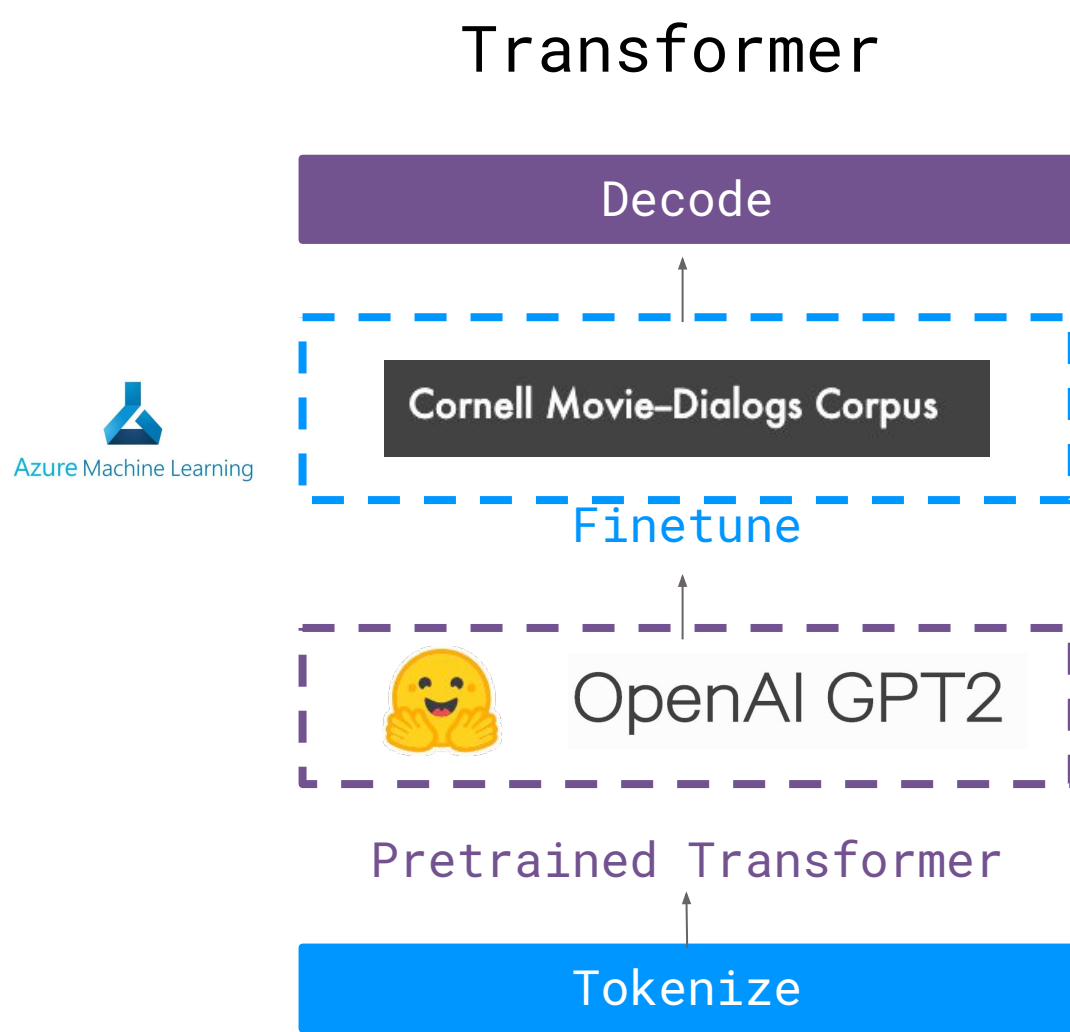
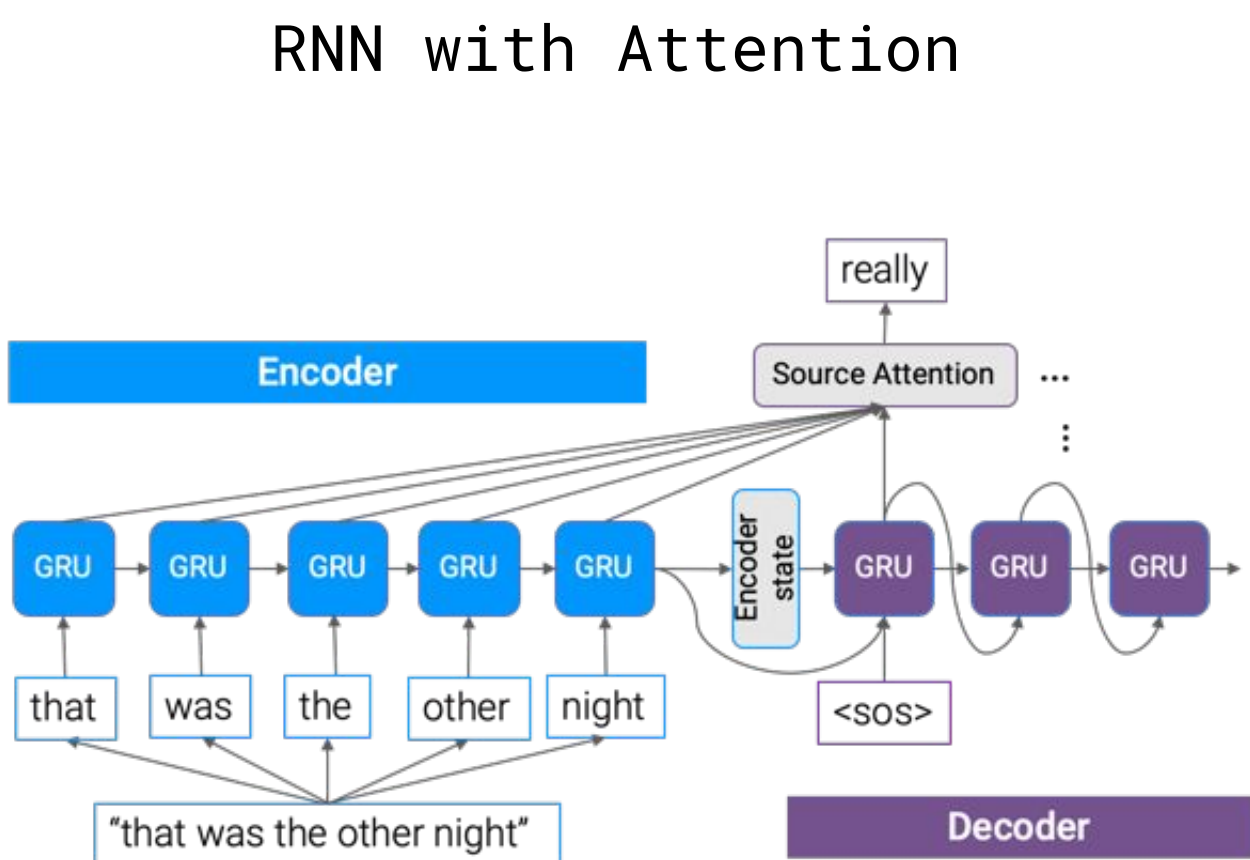
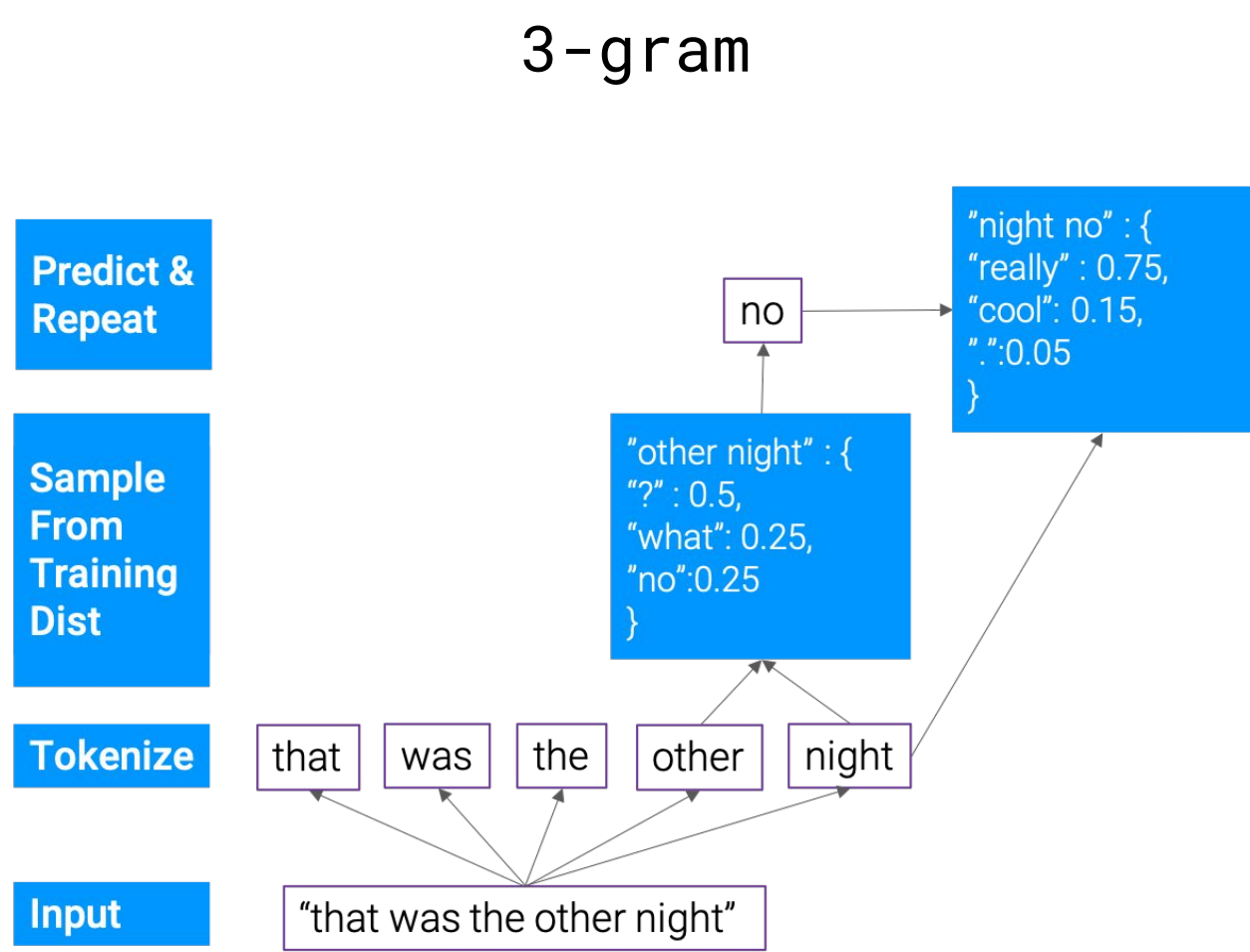
Token Length of Unique Sentences



Tokenization Method

- process metadata
- tag conversation with movie genre
- normalize sentences
- clean, tokenize and remove rare words
- trim lengths
- 5 <= sentence length <= 20
- 101,735 exchanges
- 80/20 train/validation split

OUR MODELS



MODEL EVALUATION

3-gram

User input:

What is up?

Response:

no i was going through the door ? even if he does have an idea .

Perplexity:

86.23

RNN with Attention

User input:

What is up?

Response:

You know what I mean.

Perplexity:

66.43

Transformer

User input:

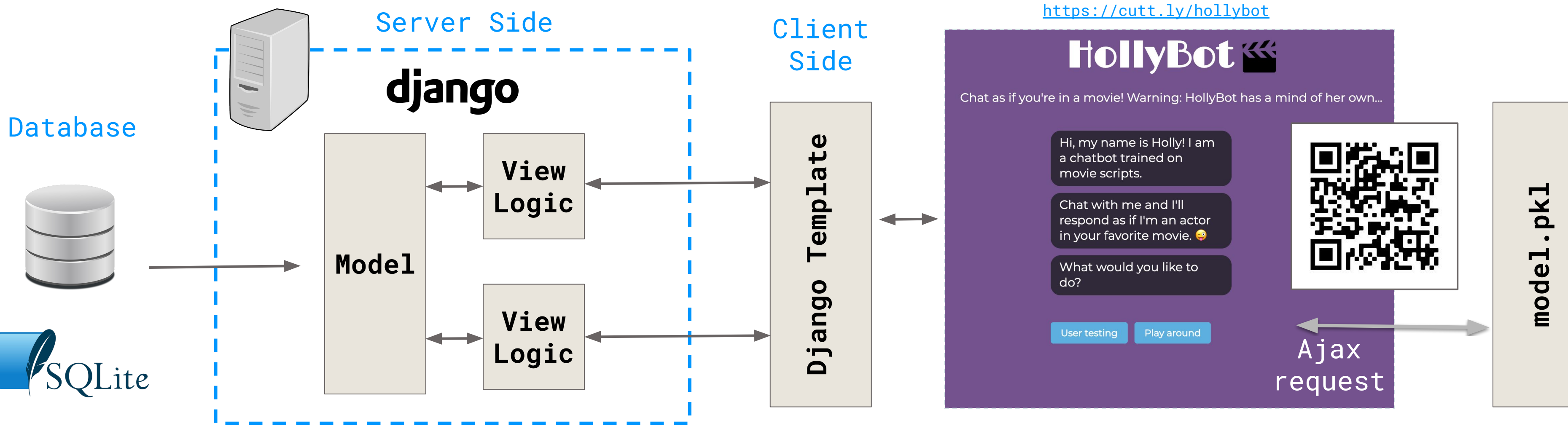
What is up?

Response:

i...

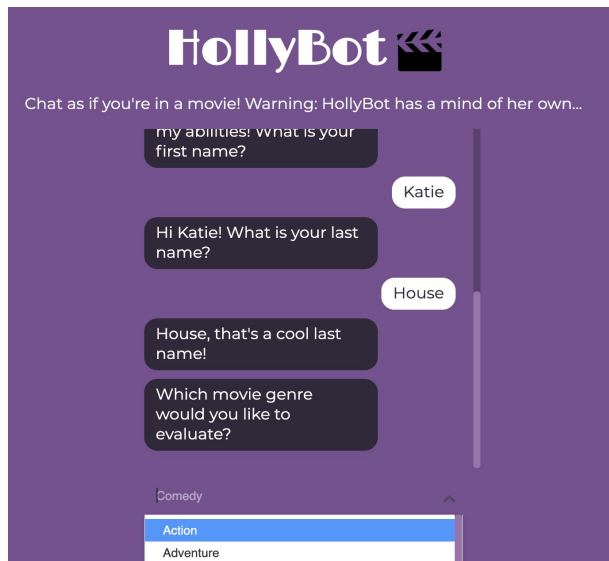
Perplexity:

MODEL DEPLOYMENT AND WEB APP



USER TESTING AND FUTURE WORK

User testing experiment



Future steps

- Improve transformer model (tokenization and hyperparameter tuning)
- Incorporate "Play Mode" in Web app
- Perform user testing on all models and genres
- Include BLEU score and transformer perplexity