

AI-based Poetry (Sonnet) Generation

Team Size: 2

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Overview

- The hackathon is to develop solution to generate Poetry.
- Sonnet is a fourteen-line poem with a fixed rhyme scheme.
- Characteristics of Sonnet:
 - 1)First three stanza contains 4 lines each
 - 2)Last stanza contains 2 lines
 - 3)Iambic Pentameter



Technologies/API used

Framework:

Bentoml -Deploying Trained model with UI visualization

Python libraries and modules:

1.Tensorflow

2.Keras

3.Adam

4.Sequential

5.LSTM

6.Bidirectional



Solution Architecture:

1. The dataset is first broken into individual sentences and stored in a list
2. This list is then tokenized to get word index + a zero token (which means null)
3. For each line (sentence) in the input list-> create a sequence for every word such that it has the token of itself + previous words token in that sentence
so for a sentence containing n words there will be a nxn matrix for each sentence containing 1 word to n words -
[0 0 0 0 token_first_word]
[0 0 0 token_first_words token_second_word] ...

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4. This is done in order to train the neural network so that it predicts the next likely word based on the input sequence of previous word -
 5. So the last value can be treated as the output and the rest of the list as input. in this manner success words are generated based on previous outcome.
 6. Perform one hot encoding on the last column (value to be predicted)



Building the model -

Simple model - sequential +embedding (dimension = 240 due to lot of variations as input is a language) + bidirectional LSTM + dense layer with softmax activation function + categorical loss function

Now train the model epochs = 100 (due to presence of unstructured data)

UI Visualization:

Bentoml :

BentoML is an open-source platform for high-performance ML model serving. It makes building production API endpoint for your ML model easy.



Thank you!

