CAPSTONE PROJECT

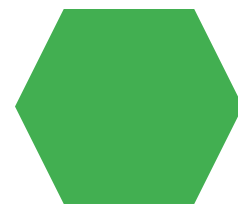## Text Generation Using RNN

Final Project

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PROJECT TITLE

Text Generatio using Recurrent Neural Networks

AGENDA

1. Problem Statement
2. Project Overview
3. End Users
4. Solution and Value Proposition
5. The Wow Factor in Your Solution
6. Modelling
7. Results

PROBLEM STATEMENT

- Create a text generation model based on RNNs to generate comprehensible and pertinent text for the given context.

- Take on the task of producing prose that is as coherent and fluid in meaning as natural language.

- To teach the model the complex patterns and structures seen in natural language, use a sizable corpus of text data.

PROJECT OVERVIEW

- Recurrent Neural Networks (RNNs) can be used to manage sequential data and extract complex linguistic patterns, which helps to overcome the difficulty of producing text that is logical and appropriate for the context.

- The text generation system can enhance its comprehension and replication of human writing styles and linguistic subtleties by training the model on a variety of text corpora and use preprocessing approaches to maximize learning.

- Creating a sophisticated text generation model not only improves natural language processing capabilities but also creates opportunities for uses like content creation, writing support, and personalized chatbots, which further advances AI-driven language technologies.

WHO ARE THE END USERS?

- Numerous businesses, such as agriculture, events, energy, emergency response, and urban planning, rely on our temperature forecasting model.
- Farmers, event planners, energy suppliers, first responders, and urban planners are examples of stakeholders. For them to properly manage risks and make well-informed decisions, accurate temperature projections are essential.

YOUR SOLUTION AND ITS VALUE PROPOSITION

- Users may easily generate high-quality writing using our cutting-edge text production system, which is driven by Recurrent Neural Networks (RNNs), thus speeding content generation processes.

- Our approach ensures that professional writing standards are followed, resulting in content that coherently and contextually relevantly conveys the intended message.

- This solution supports a wide range of user needs, such as chatbot building, content production, and creative writing assistance. Furthermore, it contributes significantly to the advancement of several NLP fields, providing priceless support for a wide range of applications and businesses

THE WOW IN YOUR SOLUTION

- Text produced by our method has the same coherence and fluidity as content created by humans.

- Users may produce excellent writing quickly, streamlining their workflows for content generation and saving valuable time.

- Our solution meets a wide range of user needs, from content generation to chatbot building, with applications across multiple businesses and fields.

- Utilizing state-of-the-art Recurrent Neural Networks (RNNs), our technology produces results that are unmatched and highlight the most recent advancements in natural language processing.

MODELLING

- Recurrent neural networks (RNNs) in RNN architecture efficiently capture the sequential dependencies in text data, enabling the production of coherent text.

- Dense word embeddings are used to capture word semantic associations, which improves the model's ability to understand subtleties in language.

- In order to forecast the next word in a series, the model is trained using various text datasets. Iterative learning procedures help the model improve its text production capabilities.

- The model's performance is maximized by the use of regularization approaches and hyperparameter fine-tuning, guaranteeing reliable and excellent text creation outcomes.

RESULTS

```
Epoch 1/20
31/31 [==============================] - 119s 4s/step - loss: 7.5491
Epoch 2/20
31/31 [==============================] - 109s 4s/step - loss: 6.8368
Epoch 3/20
31/31 [==============================] - 113s 4s/step - loss: 6.8139
Epoch 4/20
31/31 [==============================] - 116s 4s/step - loss: 6.8114
Epoch 5/20
31/31 [==============================] - 108s 3s/step - loss: 6.8082
Epoch 6/20
31/31 [==============================] - 109s 3s/step - loss: 6.8025
Epoch 7/20
31/31 [==============================] - 107s 3s/step - loss: 6.7876
Epoch 8/20
31/31 [==============================] - 107s 3s/step - loss: 6.7686
Epoch 9/20
31/31 [==============================] - 111s 4s/step - loss: 6.7472
Epoch 10/20
31/31 [==============================] - 110s 4s/step - loss: 6.7218
Epoch 11/20
31/31 [==============================] - 112s 4s/step - loss: 6.6976
Epoch 12/20
31/31 [==============================] - 110s 4s/step - loss: 6.6708
Epoch 13/20
31/31 [==============================] - 119s 4s/step - loss: 6.6414
Epoch 14/20
31/31 [==============================] - 110s 4s/step - loss: 6.6078
Epoch 15/20
31/31 [==============================] - 109s 3s/step - loss: 6.5824
Epoch 16/20
31/31 [==============================] - 113s 4s/step - loss: 6.5499
Epoch 17/20
31/31 [==============================] - 109s 3s/step - loss: 6.5215
Epoch 18/20
31/31 [==============================] - 111s 4s/step - loss: 6.4985
Epoch 19/20
31/31 [==============================] - 111s 4s/step - loss: 6.4747
Epoch 20/20
31/31 [==============================] - 113s 4s/step - loss: 6.4508
romeourging plantagenet poor mast and fellow beat to to supper him therefore have made vengeance and 's the truth of it shall 'tis like too blest and had my won first round might himself gloucester be change rather here go at mother haste makes

Enter starting string (or type 'quit' to exit): beautiful
Generated text:
beautifulprocess guile resolute is in i are up romeo speak done juliet and i years dispute bear it it whatsoe'er all let stand and she your more for reverend if the thy thou art what
Enter starting string (or type 'quit' to exit): quit
Exiting...
```

Demo Link