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Final Project :

SENTIMENT ANALYSIS AND TEXT GENERATION USING LONG SHORT TERM MEMORY(LSTM)

PROJECT TITLE: SENTIMENT ANALYSIS AND TEXT GENERATION USING LONG SHORT TERM MEMORY (LSTM)

1.Understanding Sentiment: Dive into the intricate world of sentiment analysis, the nuances of emotions embedded within text data.Explore how LSTM (Long Short-Term Memory) networks decode the sentiment behind words, enabling profound insights into user opinions and attitudes.

2.Creative Text Generation: Witness the power of LSTM networks as they transcend traditional text generation methods.Experience how these neural networks learn and replicate the intricate patterns of language, opening doors to innovative applications in creative writing, chatbots, and personalized content generation.

AGENDA :

1. PROBLEM STATEMENT
2. PROJECT OVERVIEW
3. WHO ARE THE END USERS?
4. YOUR SOLUTION AND ITS VALUE PROPOSITION
5. THE WOW IN THE SOLUTION
6. MODELLING
7. RESULTS

PROBLEM STATEMENT :

Analyzing airline reviews poses a significant challenge due to the complex nature of customer sentiments expressed in textual data. This project aims to leverage LSTM-based sentiment analysis and text generation techniques to extract insights and generate coherent summaries from airline reviews, thereby facilitating airlines in understanding customer feedback effectively and improving service quality.

PROJECT OVERVIEW :

1. This project utilizes LSTM networks to analyze sentiment in airline reviews, categorizing them as positive, negative, or neutral.This analysis provides airlines with insights to enhance service quality and meet customer expectations.

2. Leveraging LSTM models trained on airline reviews, this project generates concise summaries to highlight prevalent themes and customer sentiments.

WHO ARE THE END USERS?

1. Airlines & Industry Professionals:

i.) Utilize analysis for service enhancement.

2. Passengers & Travelers:

i.) Provide feedback for analysis.

3. Data Analysts & Researchers:

i.) Drive analysis and algorithm development.

YOUR SOLUTION AND ITS VALUE PROPOSITION

Solution:

i.) Utilizing LSTM networks for sentiment analysis and text generation based on airline reviews.

ii.) LSTM models categorize reviews into sentiments and generate concisesummaries highlighting prevalent themes.

Value Proposition:

i.) Deep Insights: Understand customer sentiments to enhance service quality.

ii.) Personalized Experiences: Offer tailored services for increased satisfaction.

iii.) Data-Driven Decisions: Make informed decisions and innovate in customer service.

THE WOW IN YOUR SOLUTION:

Our solution revolutionizes the way airlines interpret and utilize customer feedback. By harnessing the power of LSTM networks, we not only decode sentiments buried within reviews but also distill complex data into actionable insights with unprecedented accuracy and efficiency. This innovative approach empowers airlines to not only understand customer sentiments but also anticipate their needs, paving the way for truly personalized and exceptional travel experiences.
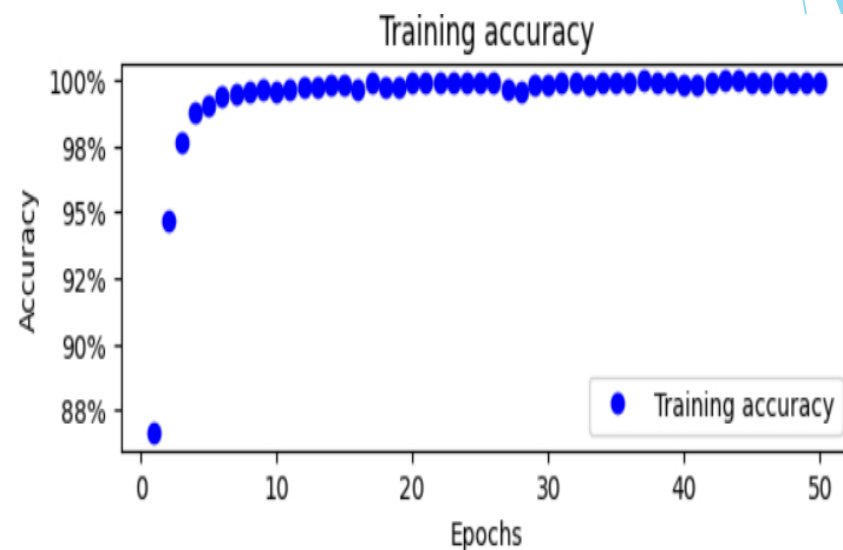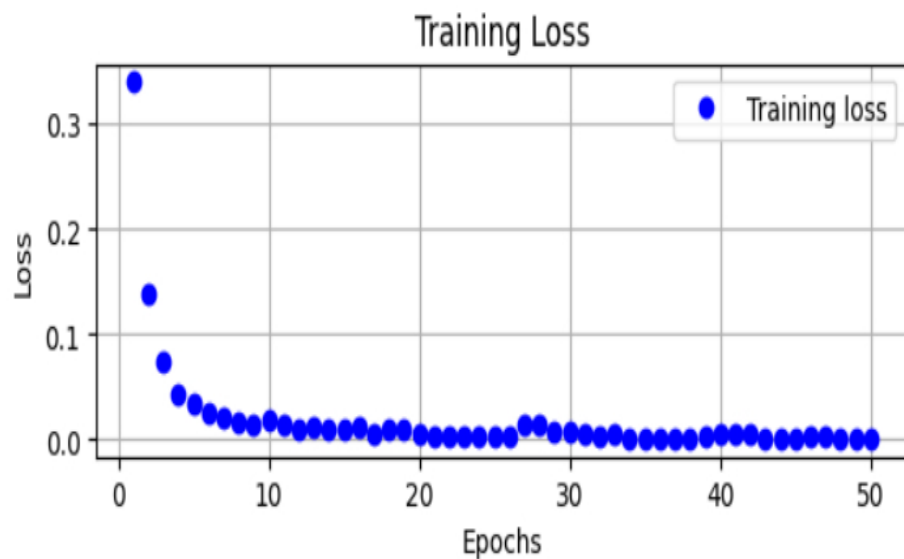
MODELLING

```
Model: "sequential"

_____
 Layer (type)                 Output Shape              Param #
=================================================================
 embedding (Embedding)        (None, 26, 32)            401056

 lstm (LSTM)                  (None, 26, 40)            11680

 lstm_1 (LSTM)                (None, 40)                12960

 dense (Dense)                (None, 2)                 82

=================================================================
Total params: 425778 (1.62 MB)
Trainable params: 425778 (1.62 MB)
Non-trainable params: 0 (0.00 Byte)
_____

None
```


Training accuracy

Training Loss

```
Model: "sequential_3"

_____
 Layer (type)                 Output Shape              Param #
=================================================================
 lstm_2 (LSTM)                (None, 128)               2958336

 dense_1 (Dense)              (None, 5649)              728721

=================================================================
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Trainable params: 3687057 (14.07 MB)
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RESULTS :

LSTM-based sentiment analysis and text generation offer promising results for understanding and generating airline reviews.Further improvements could involve fine-tuning the model architecture and incorporating additional features for better accuracy and diversity in generated text.

Future Directions:

1. Explore advanced neural network architectures.

Demo Link : https://github.com/Emmanual182/IBM_Skillsbuild_ Naan_Mudhalvaan_GenAI_project