Emotion Detection

Algovengers

Agenda

Overview

Process-Flow

Dataset

Timeline

Conclusion

About us

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Meet Patel

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Overview

- Analyze customer support conversations.
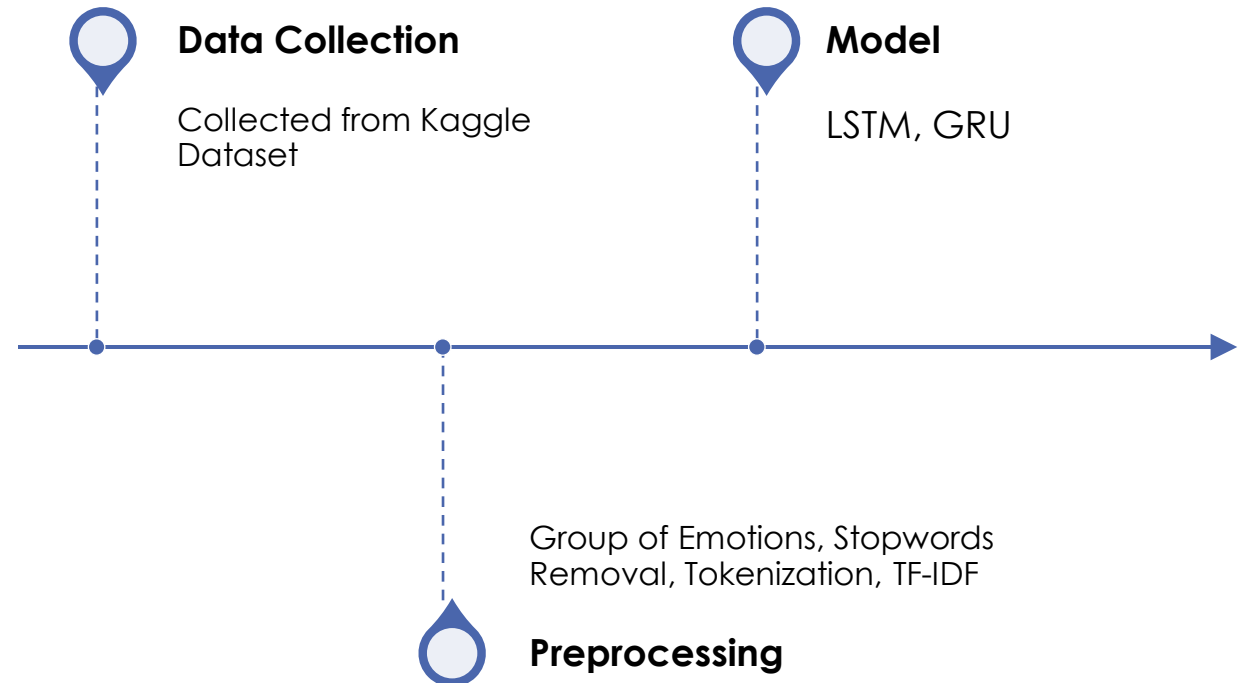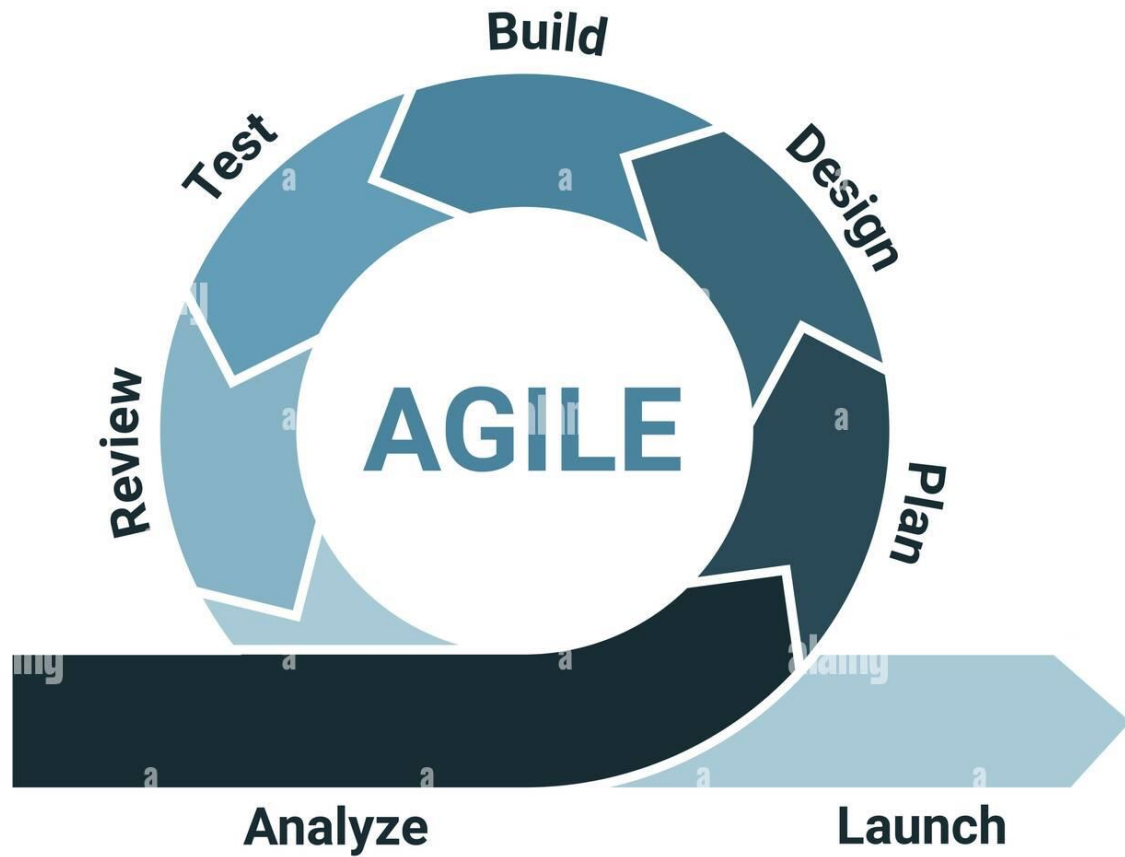
- Extract emotions and visualize patterns.

- Sentiment Analysis using NLP and DNN.

- Enhance customer satisfaction and service quality in businesses.

Process–Flow

Data Collection

Collected from Kaggle Dataset

Model

LSTM, GRU

Group of Emotions, Stopwords Removal, Tokenization, TF-IDF

Preprocessing

Dataset – 211225 x 31

| Column	Description
id	ID of record.
text	Text from comment
example_very_unclear	Is the text very unclear (True|False)
Emotions	Which Emotion? (0|1)

Emotions:
- Admiration
- Amusement
- Anger
- Annoyance
- Approval
- Caring
- Confusion
- Curiosity
- Desire
- Disappointment
- Disapproval
- Disgust
- Embarrassment
- Excitement

Emotions:
- Fear
- Gratitude
- Grief
- Joy
- Love
- Nervousness
- Optimism
- Pride
- Realization
- Relief
- Remorse
- Sadness
- Surprise
- Neutral

Dimension: 211,225 x 31

Data Visualization
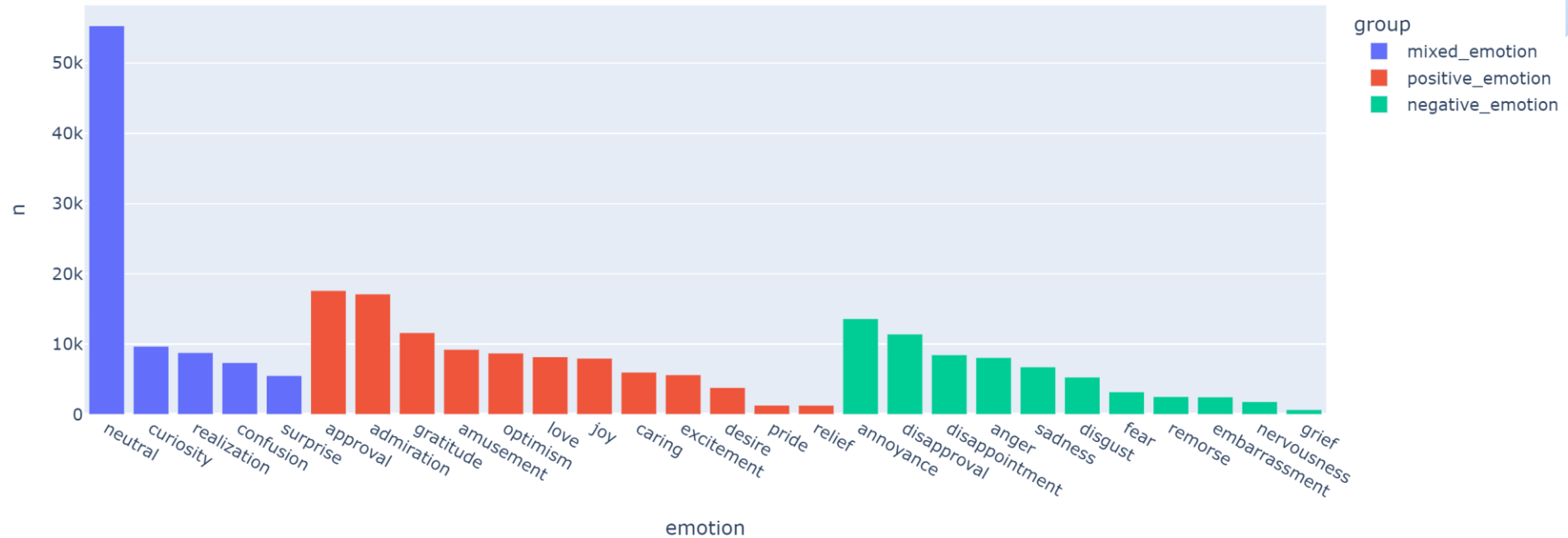
- Grouping Based on Emotions

- Most Neutral Emotions Count.

- Comparatively equal Positive and Negative emotions.

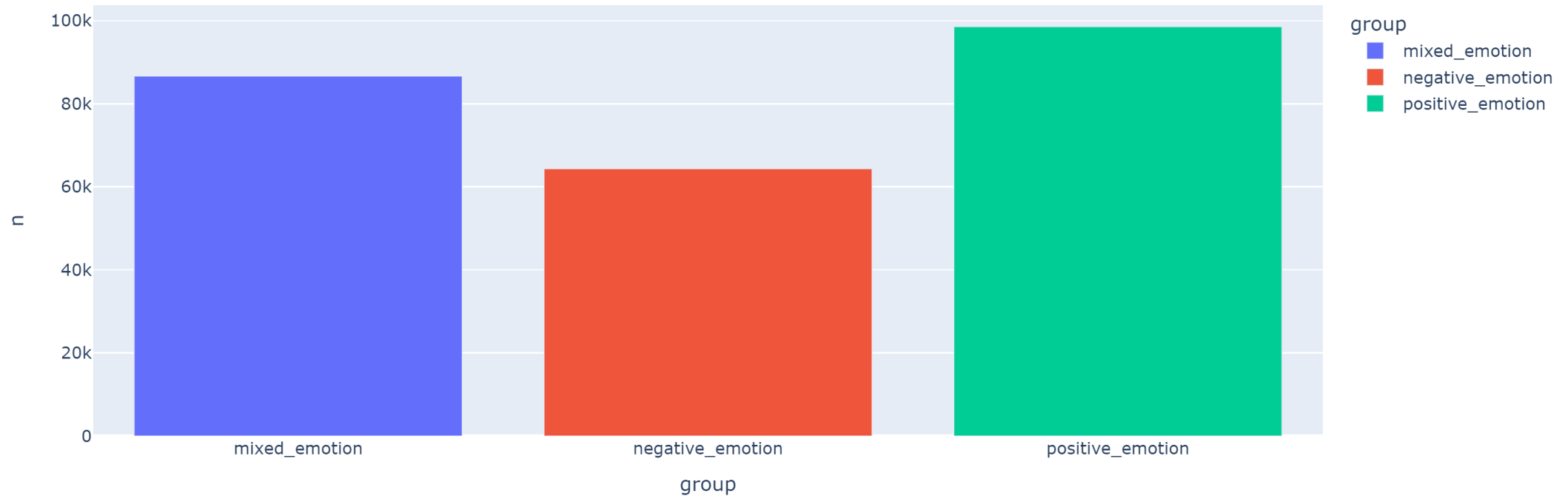# Data Visualization – CONT.

- Grouping Based on Emotions
- Better understanding of Emotions.

Data Visualization – CONT.

- Grouping Based on Emotions

- Better understanding of Emotions.

Data Preprocessing
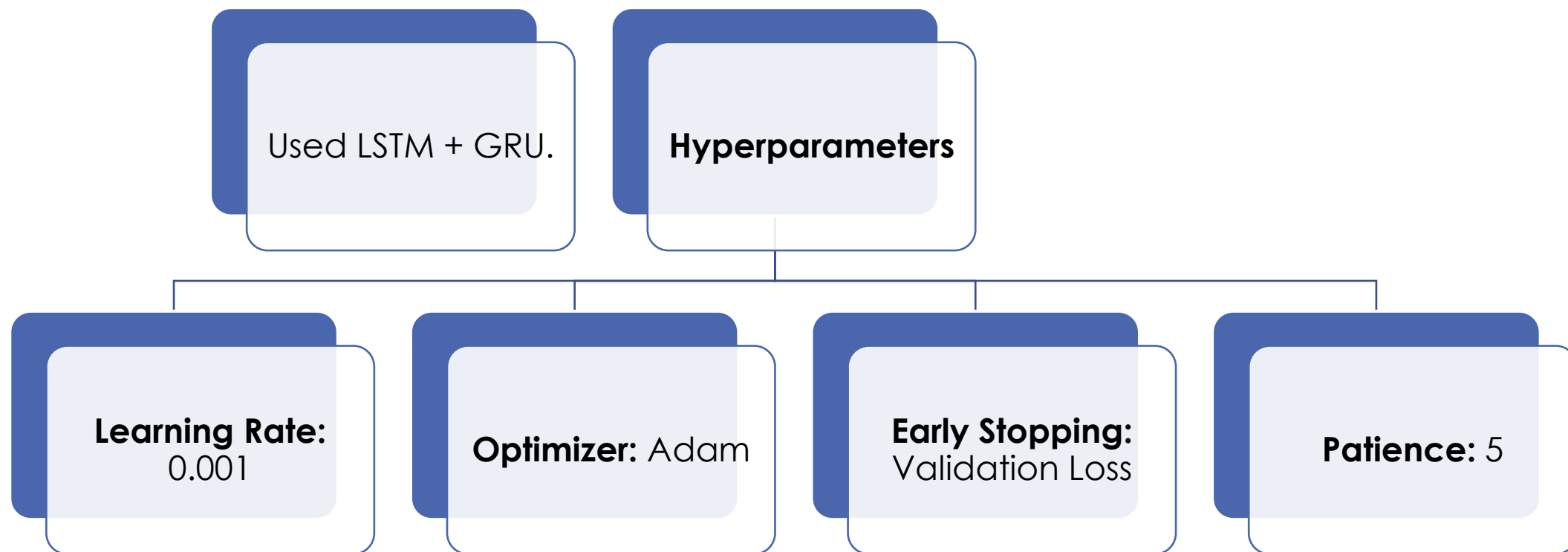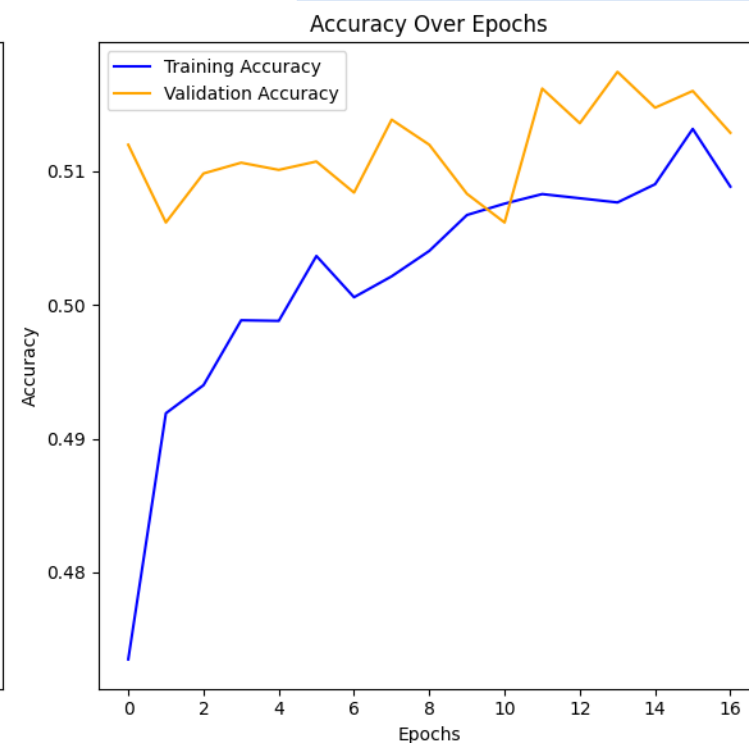
Removal of Stopwords.

TF-IDF Tokenization.

WordCloud
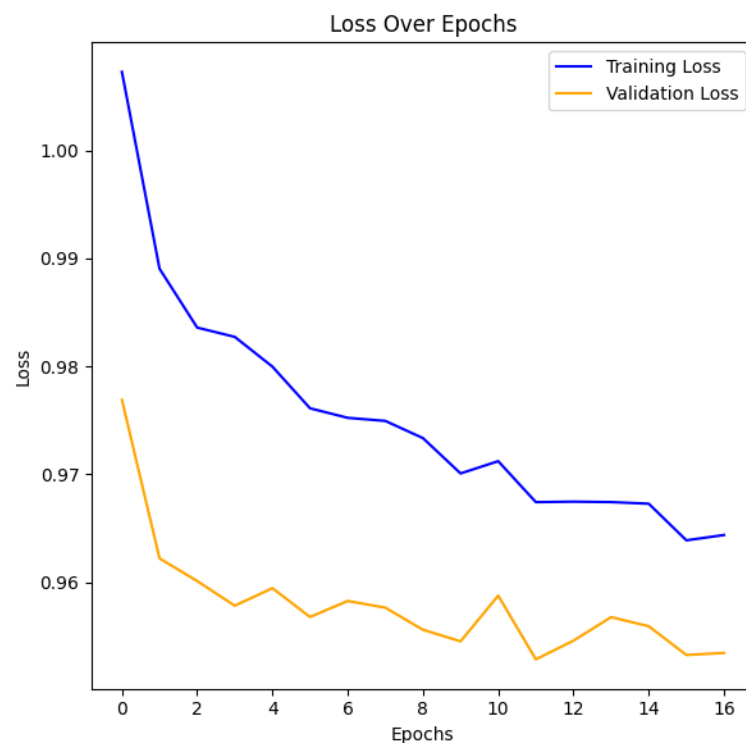

- Common words in the text.

- Most words describes neutral emotions as showed earlier.

Models

Used LSTM + GRU.

Hyperparameters

Learning Rate: 0.001

Optimizer: Adam

Early Stopping: Validation Loss
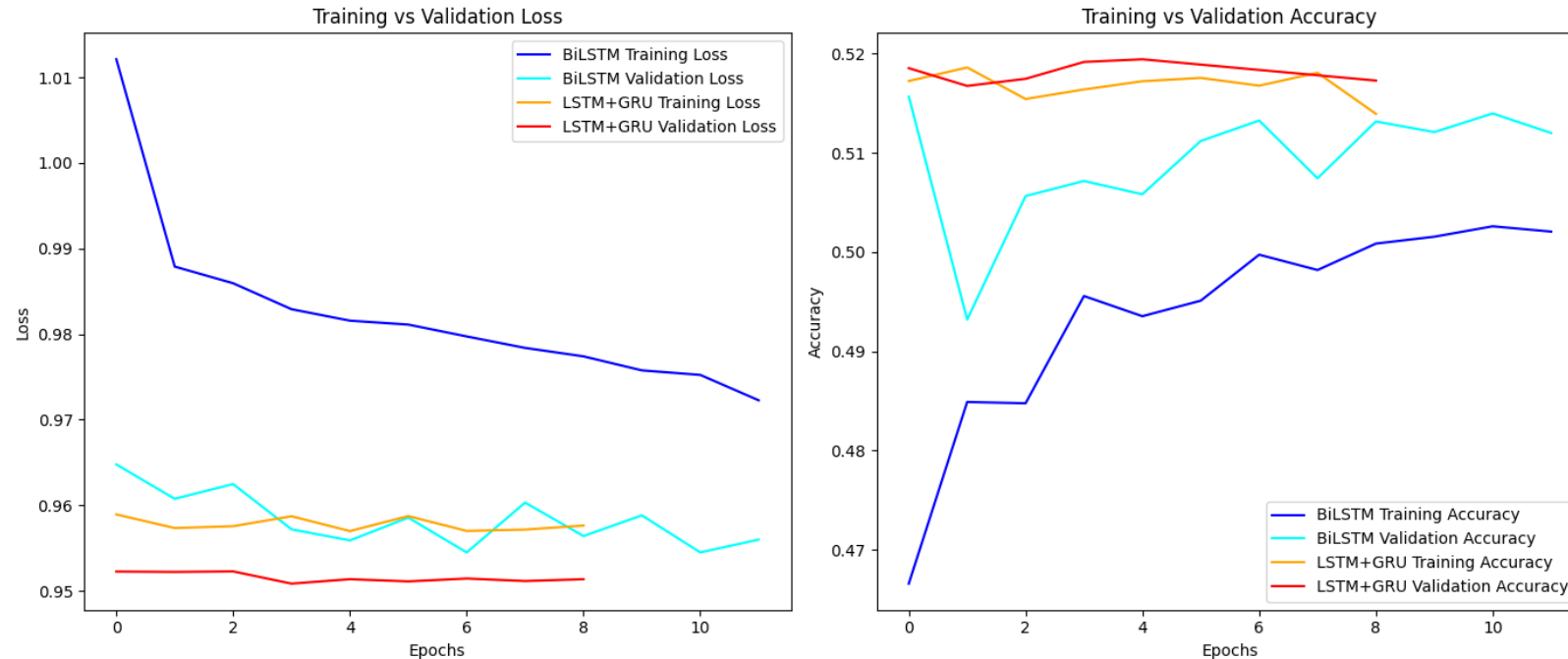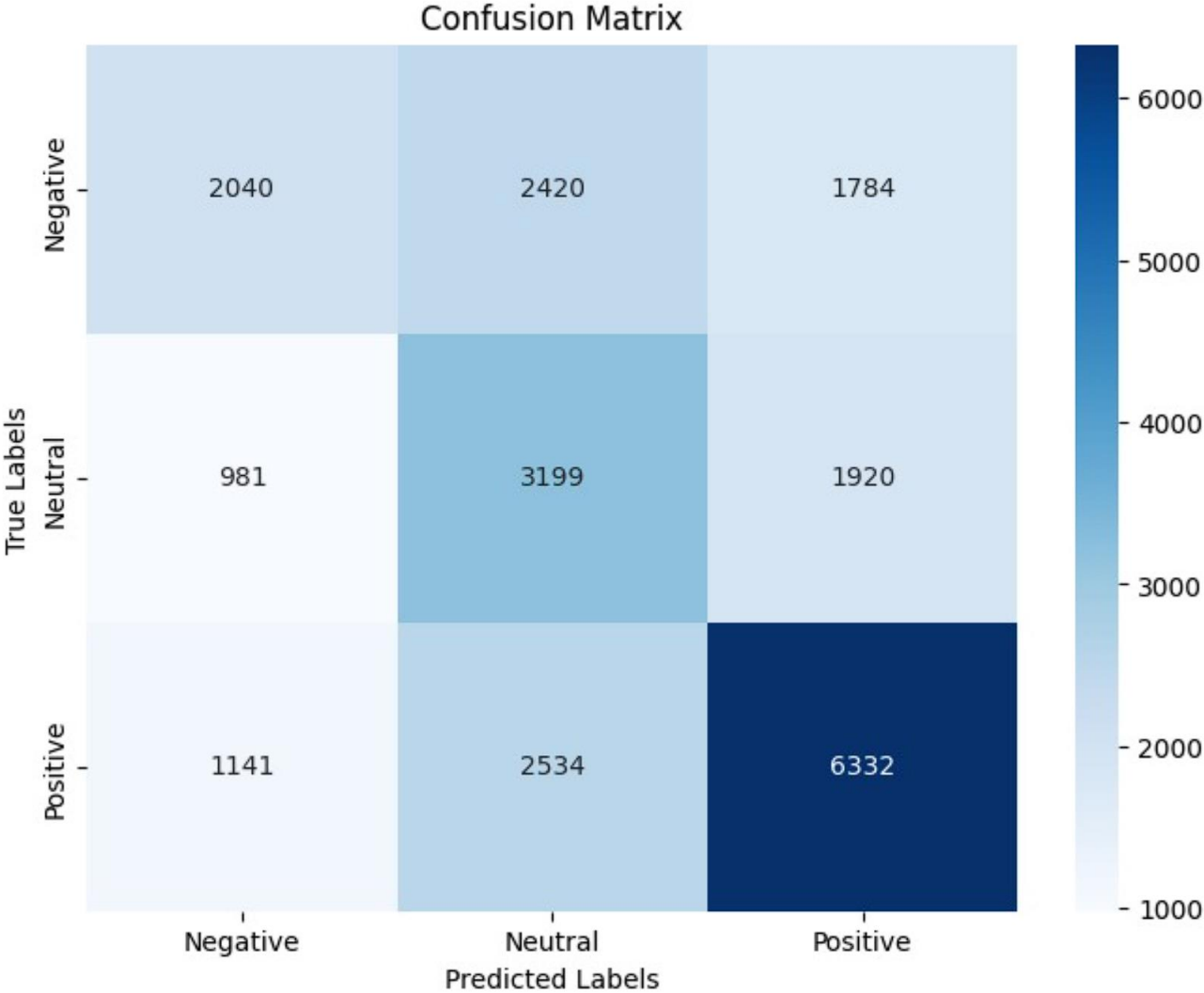
Patience: 5

LSTM

- Loss decreased around 95%.

- Accuracy was stabilized at 51%.

BiLSTM + Hyperparameter and GRU

- Accuracy increased a little after hyperparameters at 52%.

- Loss decreased and sustained at 95%.

Confusion Matrix and Classification Report

Confusion Matrix

	accuracy			0.51	11176
macro avg	0.51	0.50	0.49	11176
weighted avg	0.54	0.51	0.51	11176

- LSTM + GRU

Conclusion

Benefits: Emotion detection enhances service quality and customer satisfaction.

Key Takeaway: Emotion analysis help businesses proactively address customer needs.

Future Scope: Deployment on cloud-based web app with rich UI and perform real-time analysis with reinforcement learning.

Thank you

Emotion Detection

Team Algovengers

Project Proposal

Neural Network and Deep Learning