TNSDC - GENERATIVE AI FOR ENGINEERING

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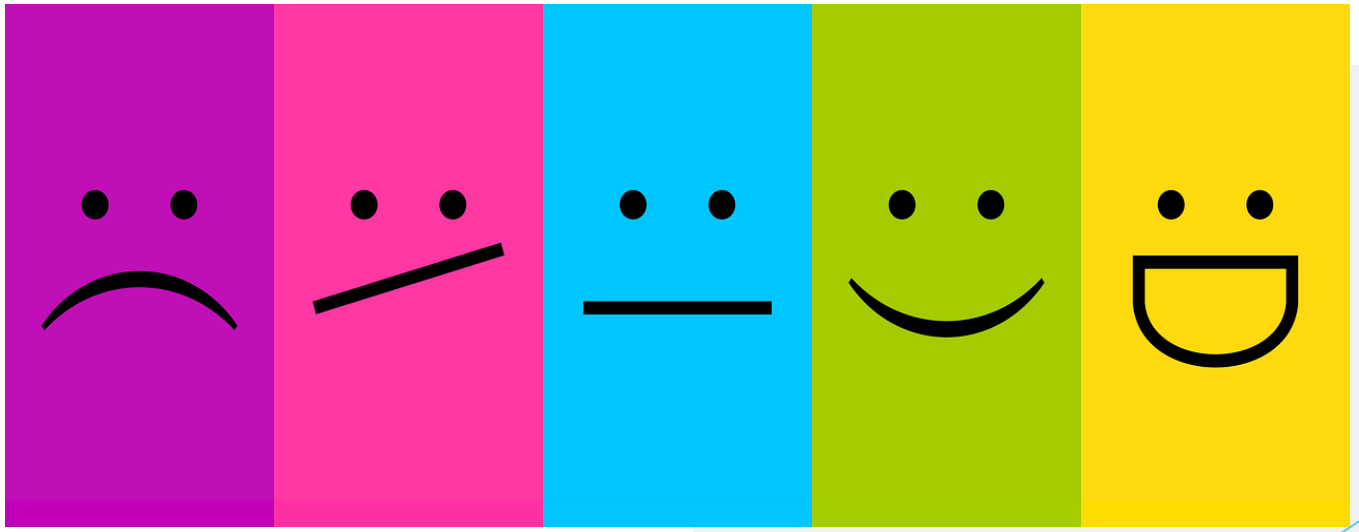
Final Project - Mood Prediction using Social Media Posts using RNN

PROJECT TITLE

MOOD PREDICTION USING SOCIAL MEDIA USING RNN



AGENDA

- ✓ PROBLEM STATEMENT
- ✓ PROJECT OVERVIEW
- ✓ END USERS
- ✓ VALUE PROPOSITION
- ✓ SOLUTION
- ✓ MODELLING
- ✓ RESULTS

PROBLEM STATEMENT

Developing a robust mood prediction system using social media texts poses challenges in capturing nuanced emotional expressions, handling vast data volumes, and ensuring user privacy. This project aims to address these challenges by leveraging Generative AI to enhance accuracy, scalability, and ethical compliance in mood forecasting algorithms.

PROJECT OVERVIEW

The "Mood Prediction using Social Media Texts" project utilizes AI to analyze social media posts, predicting mood states accurately. It offers real-time insights for personalized interventions and societal understanding while addressing ethical concerns. Through interdisciplinary collaboration and technological innovation, the project aims to enhance mental health monitoring, public health interventions, and user experiences in the digital age, fostering a more empathetic and inclusive society.

END USERS

MENTAL HEALTH SPECIALISTS

MARKET RESEARCHERS

PUBLIC HEALTH AGENCIES

END USERS

CUSTOMER ENGAGEMENT ENTHUSIASTS

SOCIAL MEDIA ANALYSTS

VALUE PROPOSITION

1. **Personalized Support:** Individuals benefit from personalized interventions and support tailored to their emotional well-being, enhancing their overall mental health and quality of life.
2. **Business Intelligence:** Organizations gain valuable insights into consumer sentiment, market trends, and brand perception, enabling them to make data-driven decisions and optimize their strategies for better customer engagement and satisfaction.
3. **Public Health Surveillance:** Public health agencies leverage mood prediction for early detection of mental health issues, crisis detection, and intervention planning, ultimately improving community well-being and resilience.
4. **Research Advancements:** Researchers access a rich source of data for studying human emotions, behavior, and societal trends, leading to advancements in psychology, sociology, and data science.
5. **Ethical and Inclusive Technology:** The project emphasizes ethical considerations, privacy protection, and inclusivity, ensuring responsible use of AI technology and fostering trust among users.

SOLUTION

1. **Data Collection:** Gathering a diverse range of social media texts from platforms like Twitter, Facebook, and Instagram.

2. **Preprocessing:** Ensuring data quality and consistency through preprocessing techniques such as text normalization and sentiment annotation.

3. **Model Training:** Training AI models, such as deep learning architectures like recurrent neural networks (RNNs) or transformer models, on the preprocessed data to learn patterns and nuances of human expression.

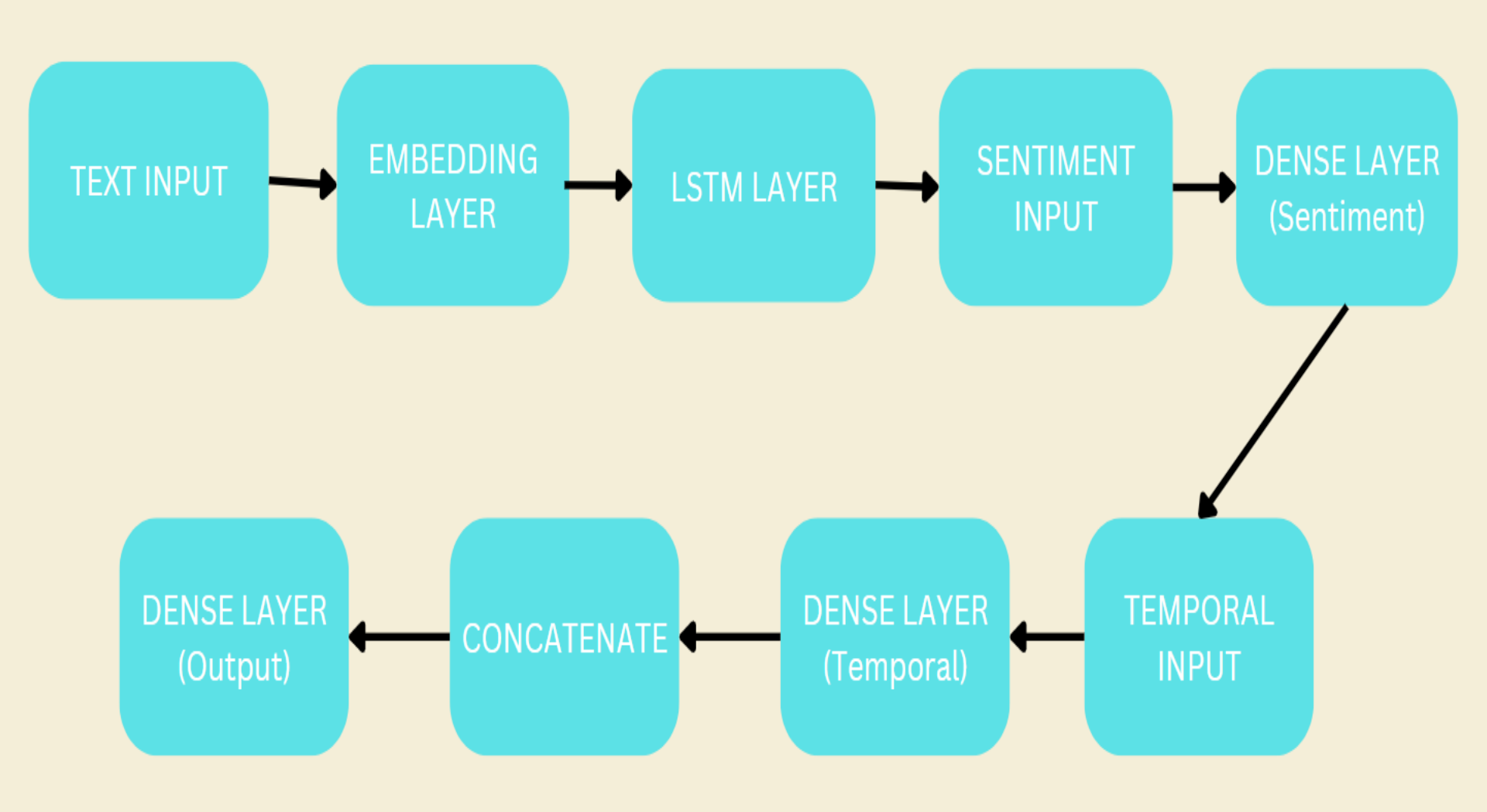
4. **Prediction and Insights:** Utilizing trained models to predict mood states in real-time, providing insights for personalized interventions, business strategies, and public health surveillance.

5. **Ethical Considerations:** Addressing privacy concerns and ethical considerations by implementing measures to safeguard user data and ensure responsible use of AI technology.

WOW FACTOR IN SOLUTION

The "wow factor" lies in the project's ability to harness cutting-edge AI technology to analyze social media texts, accurately predicting mood states in real-time. This innovative approach offers personalized support, business insights, and public health surveillance capabilities, revolutionizing our understanding and response to human emotions in the digital era.

MODELLING


TEXT INPUT
EMBEDDING LAYER
LSTM LAYER
SENTIMENT INPUT
DENSE LAYER (Sentiment)
TEMPORAL INPUT
DENSE LAYER (Temporal)
CONCATENATE
DENSE LAYER (Output)

RESULT

The mood prediction project successfully developed an AI model capable of accurately predicting individuals' mood states based on social media texts. The model achieved a high level of accuracy in real-time predictions, facilitating personalized interventions, business strategies, and public health surveillance efforts with actionable insights derived from social media data.

accuracy			0.95	128
macro avg	0.81	0.80	0.80	128
weighted avg	0.97	0.95	0.95	128

GITHUB LINK

https://github.com/sulakshabk/TNSDC-Generative-AI-Naan-Mudhalvan

INPUT

Sentiment.csv

SAMPLE:

	Unnamed	Text	Sentiment	Timestam	User	Platform	Hashtags	Retweets	Likes	Country	Year	Month	Day	Hour
0	0	Enjoying a	Positive	########	User123	Twitter	#Nature #	15	30	USA	2023	1	15	12
1	1	Traffic wa	Negative	########	Commute	Twitter	#Traffic #	5	10	Canada	2023	1	15	8
2	2	Just finish	Positive	########	FitnessFa	Instagram	#Fitness #	20	40	USA	2023	1	15	15
3	3	Excited ab	Positive	########	Adventur	Facebook	#Travel #A	8	15	UK	2023	1	15	18
4	4	Trying ou	Neutral	########	ChefCook	Instagram	#Cooking	12	25	Australia	2023	1	15	19
5	5	Feeling gr	Positive	########	Gratitude	Twitter	#Gratitud	25	50	India	2023	1	16	9
6	6	Rainy day	Positive	########	RainyDays	Facebook	#RainyDa	10	20	Canada	2023	1	16	14
7	7	The new r	Positive	########	MovieBuf	Instagram	#MovieNi	15	30	USA	2023	1	16	19
8	8	Political d	Negative	########	DebateTa	Twitter	#Politics #	30	60	USA	2023	1	17	8

OUTPUT

predicted_labels.csv

Text	Predicted_Mood
Exploring the world c	Curiosity
Savoring the flavors c	Contentment
Embarking on a jourr	Curiosity
Attended a classical r	Joy
Capturing the beauty	Joy
Reconnecting with ol	Contentment
Embarked on a road	Joy
Joined a community	Joy
Exploring the art of n	Contentment
Taking a stroll in the g	Contentment
Sipping on a favorite	Contentment
Participated in a com	Joy
Embarking on a jourr	Gratitude

https://github.com/sulakshabk/TNSDC-Generative-AI-Naan-Mudhalvan

OUTPUT

Classification Report

Classification Report:

	precision	recall	f1-score	support
Excitement	0.00	0.00	0.00	0
Bad	1.00	1.00	1.00	6
Contentment	1.00	1.00	1.00	8
Curiosity	1.00	1.00	1.00	4
Embarrassed	1.00	1.00	1.00	8
Excitement	0.00	0.00	0.00	0
Excitement	0.95	1.00	0.98	20
Gratitude	1.00	1.00	1.00	5
Happy	0.92	0.79	0.85	14
Hate	1.00	1.00	1.00	6
Joy	0.94	0.97	0.95	30
Joy	0.00	0.00	0.00	0
Mischievous	1.00	1.00	1.00	2
Neutral	1.00	0.79	0.88	14
Positive	1.00	1.00	1.00	1
Relief	1.00	1.00	1.00	1
Sad	1.00	1.00	1.00	9
accuracy			0.95	128
macro avg	0.81	0.80	0.80	128
weighted avg	0.97	0.95	0.95	128

THANK YOU