WHATSAPP CHAT ANALYZER
PROJECT REPORT

ABSTRACT

The most used and efficient method of communication in recent times is an application called WhatsApp. WhatsApp Chat Analyzer is the application deployed on Heroku web which provide analysis of WhatsApp group and translates the chat in the desired language. There are various methodologies available for analysis in market but here streamlit, matplotlib, seaborn, plotly, pandas, re, emoji, deep translator libraries of python and some concept of NLP is used for pre-processing sentences and sentiment analysis. This is the combination of machine learning and NLP. This WhatsApp Chat Analyzer takes imported WhatsApp chat file from user and analyse it and give different visualizations, polarity score and translation into desired language as a result.

INTRODUCTION

In this report, I have proposed a WhatsApp Chat Analyzer. WhatsApp chats consist of various types of communications within groups and personal chats, covering a wide range of topics. These chats contain valuable data that can be leveraged for technologies like machine learning. The quality of machine learning models heavily depends on the quality and richness of the data provided for training. This application aims to offer a comprehensive analysis of WhatsApp chat data. One of the key advantages of this application is its simplicity in implementation, relying on widely-used Python libraries such as seaborn, pandas, numpy, streamlit, matplotlib and nltk. These libraries are commonly employed for creating data frames, generating various types of graphs and visualizations, finding the sentiment of the chats and translating the chats into desired language. The results of the analysis are presented on the web, accessible through a Heroku link. This means that the application can be run on a wide range of devices that support web browsers, making it accessible and user-friendly for a broad audience.

LITERATURE REVIEW

2.1 Existing System

In the current market scenario, WhatsApp chat analysis tools are available but suffer from several limitations, including low accuracy and a lack of essential features. This underscores the need to transition to an updated and more advanced model of the WhatsApp Chat Analyzer.

Disadvantages of the Existing System:

1. Limited to 24-hour time format, potentially missing valuable insights from chats.
2. Inaccurate emoji counting, failing to capture the full range of emotive expressions.
3. Focusing solely on the first line of multi-line messages, potentially overlooking critical information.
4. Inaccurate analysis results, leading to unreliable conclusions.
5. Struggles with handling both English and Hinglish (a mix of Hindi and English) stopwords effectively.
6. Lack of language translation capabilities, hindering communication across language barriers.
7. Absence of sentiment analysis, leaving users in the dark about the emotional tone of the chat.

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2.2 Proposed System

The "WhatsApp Chat Analyzer" offers users a convenient platform for online WhatsApp chat analysis via a Heroku link. With this application, users can effortlessly upload their WhatsApp chat data, typically stored in a .txt file format. Once uploaded, the WhatsApp Chat Analyzer provides a comprehensive analysis of the chat content and offers translation services based on the imported text file. Users can simply analyse and translate by clicking the "Show Analysis" button to get valuable insights and language translation services tailored to their uploaded chat data.

Advantages of WhatsApp Chat Analyzer.

- Shows Top Statistics of the chats such as Total Messages, Total Words, Docs Shared, Links Shared, Videos Shared, Images Shared, Audio Shared, Contacts Shared
- Attractive visualizations and useful data frames for Monthly Timeline, Daily Timeline, Most busy day, Most busy month, Weekly Activity Map, Most Busy Users, Word cloud chart for most commonly used words, Pie chart representation for 10 widely used emoji.
- Sentiment Analysis whether the chat is positive, negative or neutral based on polarity score
- Translation of the chats into desired language

METHODOLOGIES USING TECHNICAL THINKING

Python

Python is a versatile and widely-used programming language known for its flexibility and extensive library ecosystem. It serves as a foundational tool for various applications, offering a wide array of libraries that cater to diverse project needs. Python is particularly valuable in the fields of data science and machine learning, where it excels in predictive modelling and pattern recognition tasks.

Pandas

Pandas is a powerful open-source Python library that holds a central role in the realms of Data Science and Machine Learning. With a rich set of functionalities, Pandas serves as an indispensable tool for data manipulation, analysis, and exploration. Pandas excels in various domains, offering specialized support for tasks such as time series analysis and numerical data manipulation.

NLTK (Natural Language Toolkit)

NLTK is a comprehensive open-source library for NLP in Python. It provides a wide range of tools, resources, and libraries for tasks such as text processing, tokenization, stemming, lemmatization, part-of-speech tagging, syntax parsing, and sentiment analysis. NLTK is widely used in both academia and industry for various NLP tasks and research.

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ANALYZE METHODOLOGIES BASED UPON MEASURES OR PERFORMANCE

Matplotlib

Matplotlib is a user-friendly and powerful visualization library in Python. It is designed to facilitate the creation of captivating and informative visualizations. In the context of analysing WhatsApp chats, Matplotlib plays a pivotal role in generating insightful visualizations. These visualizations, such as bar charts, line charts, and pie charts, serve as essential tools for gaining a deeper understanding of chat data.

Seaborn

Seaborn is a Python library primarily employed for statistical data visualization. It is renowned for its capability to enhance the visual appeal of statistical plots by offering a variety of aesthetically pleasing colour palettes and default styles. In your project, Seaborn takes centre stage by providing the tools necessary for creating a heat map visualization. This heat map is designed to display a week's worth of data, spanning 24 hours each day, using a gradient of colours that represent message frequency variations.

Streamlit

Streamlit is a Python library designed for rapidly creating web applications with minimal effort. It excels in transforming data scripts into shareable web apps, making it an excellent choice for interactive data analysis and visualization projects. In your project, Streamlit serves as the foundation for presenting the results of your WhatsApp chat analysis. By leveraging Streamlit's capabilities, you can effortlessly create a user-friendly and visually appealing web interface that showcases various types of charts and visualizations derived from your chat data

Deep Translator

The deep translator library is a Python package that provides a simple and convenient way to access various machine translation services and language detection services using a unified API. This library is particularly useful for translating text between different languages and detecting the language of a given text.

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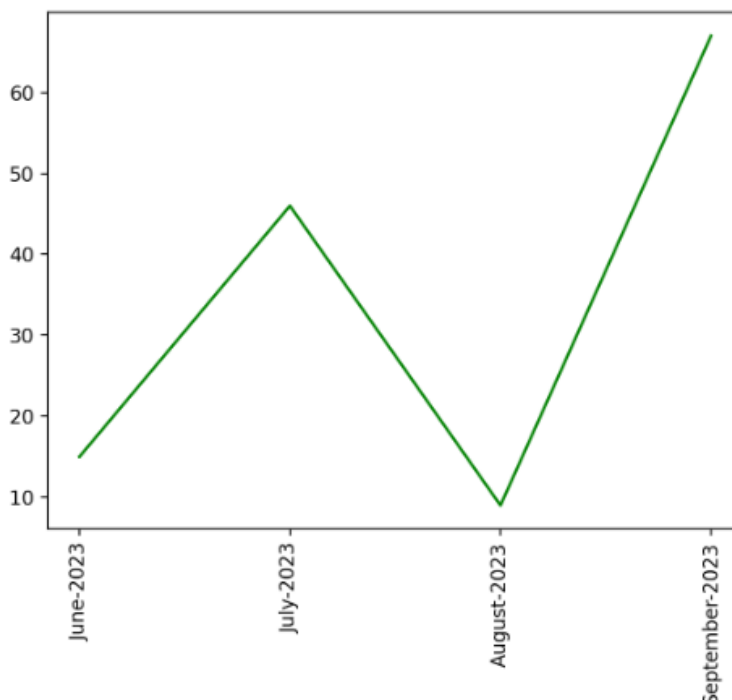
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OUTPUT

Top Statistics:

Top Statistics

Total Messages	Total Words	Docs Shared	Links Shared
137	822	4	12

Videos Shared	Images Shared	Audio Shared	Contacts Shared
6	22	0	0

Monthly Timeline:

Monthly Timeline
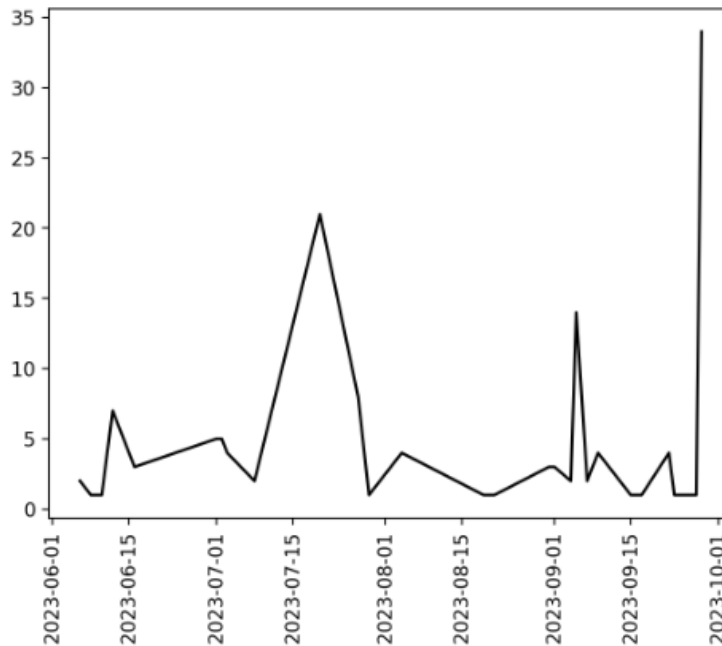
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Daily Timeline:

Activity Map:
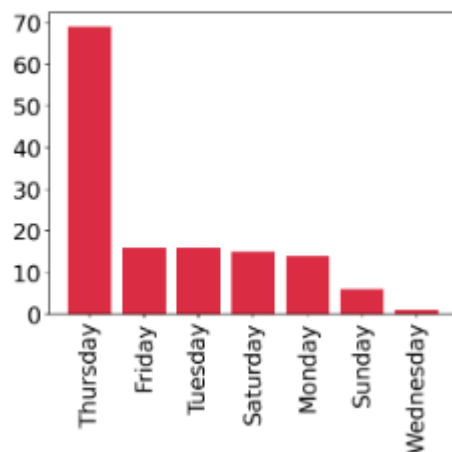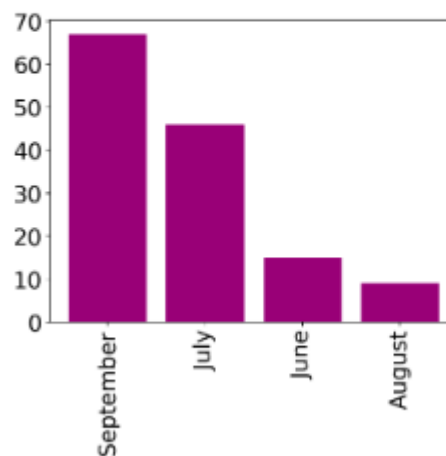
Weekly Activity:

Busy User:

	name	percent
0	Ammi🖤	71.53
1	Saad Patel	28.47
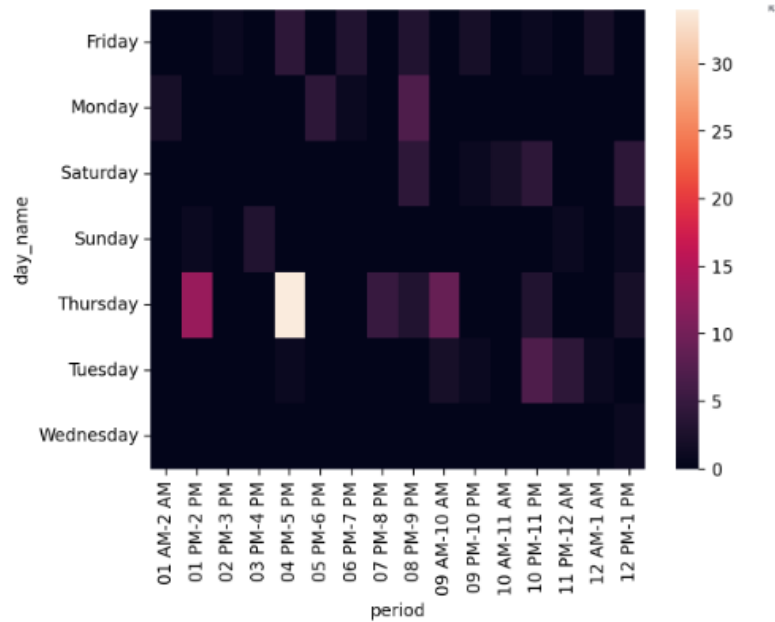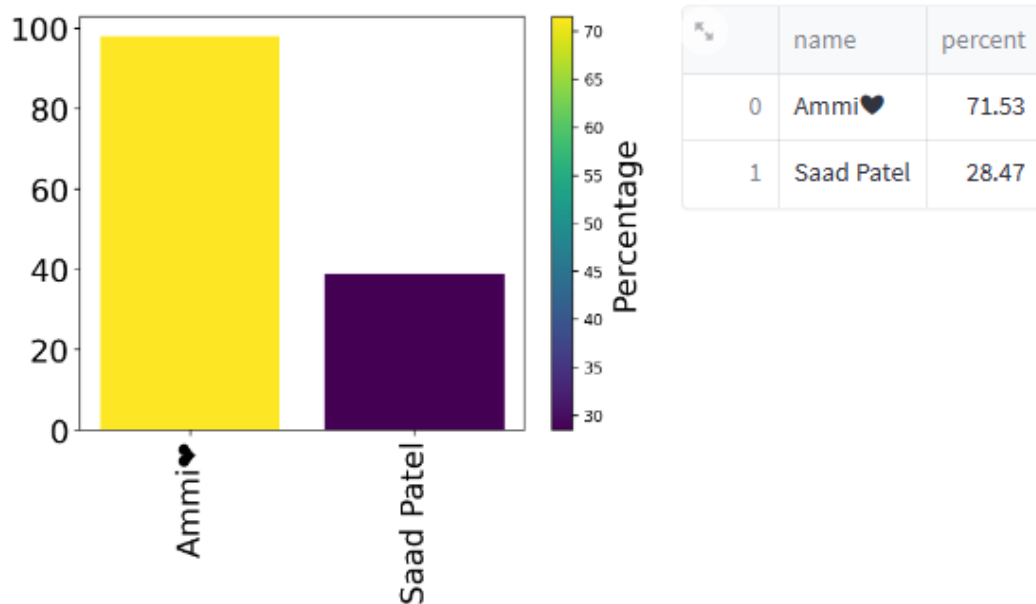
Common Words:

🔗 Wordcloud
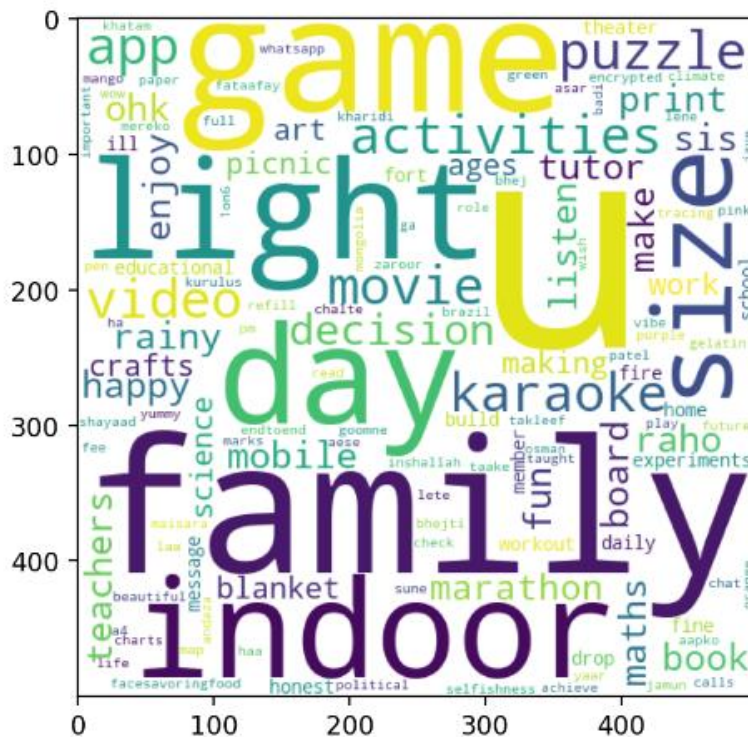
Most commmon words
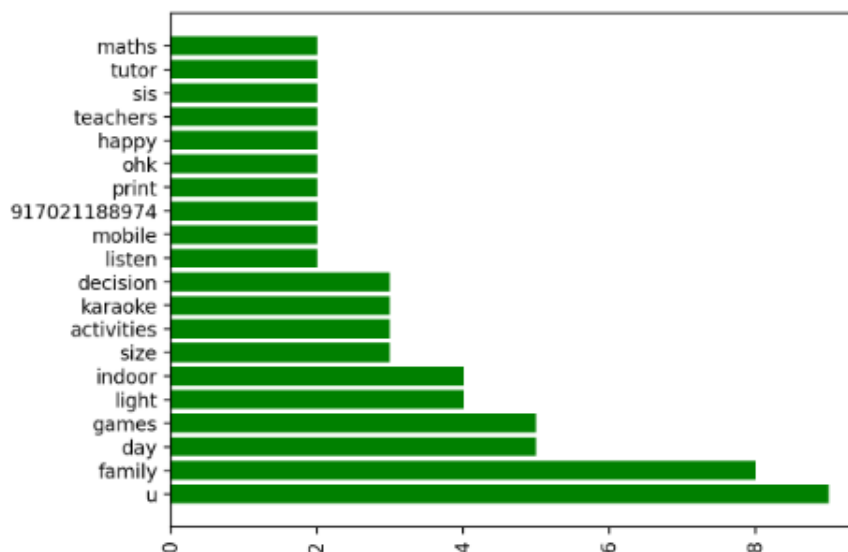
Emoji Analysis:

Emoji Analysis

	Emoji	Count
1	🥲	6
3	😅	3
6	🥳	3
17	🙆	2
2	😵	2
5	🥴	2
12	😡	1
16	✊	1
15	😡	1
14	✅	1

Top 10 used Emojis
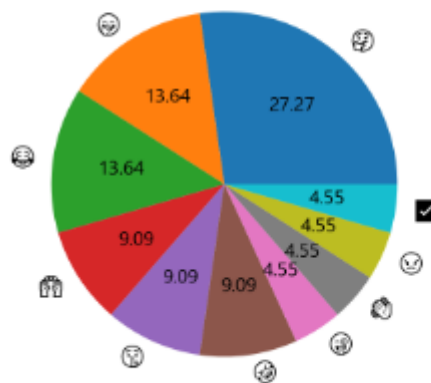
Sentiment Analysis:

🔗 Sentiment of the chat

	Sentiment	Polarity
0	Positive	0.9955

Translation of Chat:

Translation of the chats

Chats translated in Hindi:

Ammi♥: संदेश और कॉल एंड-टू-एंड एन्क्रिप्टेड हैं। इस चैट के बाहर कोई भी, यहां तक कि व्हाट्सएप भी, उन्हें पढ़ या सुन नहीं सकता है।

Saad Patel: अरे

Ammi♥: यह

Saad Patel: आप कैसे हैं?

Ammi♥: मैं ठीक हूँ। आप कैसे हैं?

Saad Patel: मैं अच्छा हूँ।

Ammi♥: क्या मुझे आपसे एक सवाल पूछने की अनुमति है?

Saad Patel: हाँ यकीनन।

Ammi♥: एक वकील के कर्तव्य क्या हैं?

Saad Patel: None

Saad Patel: वकील कानूनी प्रणाली में एक महत्वपूर्ण भूमिका निभाते हैं, और उनके कर्तव्य और जिम्मेदारियाँ उनकी विशेषज्ञता के क्षेत्र के आधार पर भिन्न हो सकती हैं। यहां वकीलों के कुछ सामान्य कर्तव्य हैं: ग्राहक प्रतिनिधित्व: वकील कानूनी मामलों में अपने ग्राहकों का प्रतिनिधित्व करते हैं। इसमें ग्राहकों को उनके अधिकारों और दायित्वों पर सलाह देना, उनके हितों की वकालत करना और कानूनी सलाह प्रदान करना शामिल है। कानूनी अनुसंधान: वकील अपने मामलों से संबंधित कानूनों, विनियमों और उदाहरणों का विश्लेषण करने के लिए व्यापक कानूनी अनुसंधान करते हैं। यह शोध उन्हें मजबूत कानूनी तर्क बनाने और सूचित निर्णय लेने में मदद करता है। मामले की तैयारी: वकील सबूत इकट्ठा करके, गवाहों का साक्षात्कार करके और अनुबंध, दलील और गति जैसे कानूनी दस्तावेजों का मसौदा तैयार करके मामले तैयार करते हैं। कोर्ट रूम वकालत: ट्रायल वकील अदालती कार्यवाही में ग्राहकों का प्रतिनिधित्व करते हैं। वे सबूत पेश करते हैं, गवाहों से सवाल करते हैं, और न्यायाधीशों और जूरी के सामने दलीलें पेश करते हैं। बातचीत: कई कानूनी मामले मुकदमेबाजी के बजाय बातचीत के माध्यम से हल किए जाते हैं। वकील अपने ग्राहकों की ओर से समझौते तक पहुंचने, विवादों को सुलझाने या समझौतों का मसौदा तैयार करने के लिए बातचीत करते हैं।

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RESULTS AND DISCUSSION

This project is created using python programming language and deployed on Heroku web.

Working of project:

1. User go to sidebar and click on browse file.
2. Select WhatsApp chat text file and import it for analysis.
3. User have choice for overall analysis or specific user analysis from whole group.
4. After selecting user, User click on "Select a language" and can select a desired language from a dropdown list.
5. After Language selection, User can click on show analysis button to show results of the imported text file

CONCLUSION

The project has successfully achieved its primary objective, as identified during the initial requirement analysis phase. After implementation, the system consistently delivers dependable and accurate results. One of the system's notable strengths is its user-friendly interface, which allows even individuals with limited computer knowledge to operate it with ease. This user-friendliness eliminates the barriers often associated with complex software. Furthermore, the system addresses the limitations of the previous manual processes, and its validation mechanisms significantly reduce the likelihood of incorrect data entry.

Key Features of the System:

- User-Friendly: The system prioritizes ease of use, ensuring a seamless experience for all users.
- Time-Saving: It efficiently processes data, saving valuable time for users.
- Cross-Device Compatibility: The system can be accessed and utilized on various devices without compatibility issues.
- Versatile WhatsApp File Analysis: It can analyse WhatsApp files imported from various sources.
- Accuracy: The system consistently provides precise and reliable results.
- Reliability: Users can depend on the system's performance and consistency.
- Ease of Use: The system is designed to be straightforward and intuitive, requiring minimal training.

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