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Whatsapp Text Analyzer

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Abstract: *The WHATSAPP TEXT ANALYZER is a data analysis project designed to extract and interpret information from WhatsApp chat data. With the increasing use of WhatsApp as a primary mode of communication, large volumes of textual data are generated daily. This project focuses on transforming that unstructured data into meaningful insights. The system accepts exported WhatsApp chat files as input and performs data cleaning and preprocessing to remove unwanted characters, timestamps, and media indicators. Various analytical techniques are applied to evaluate message frequency, user activity levels, commonly used words, and conversation trends over time. Additionally, natural language processing (NLP) methods are used to conduct sentiment analysis and visualize emotional patterns within the chat. The results are represented through charts, graphs, and word clouds for better interpretation. This project demonstrates how data analytics and text processing techniques can be applied to everyday communication data to understand user behavior, communication patterns, and social interaction dynamics.*

The analyzer employs regular expressions for accurate extraction of timestamps, sender names, and messages, followed by comprehensive preprocessing to remove noise, system messages, and formatting inconsistencies. Statistical computations are performed to determine key metrics such as total messages, word count, emoji usage, media shared, and most active participants. In addition, the system generates time-based analytics including daily, monthly, and hourly activity patterns, as well as a weekly activity heatmap. The integration of Natural Language Processing (NLP) enables the creation of a word cloud for frequently used terms, while optional sentiment analysis provides insights into the emotional tone of the conversation.

Visualization modules using Matplotlib and Seaborn produce intuitive graphical representations of chat trends, making the analysis more insightful and accessible. The system is designed to be user-friendly, efficient, and capable of handling large group chats with thousands of messages. The WhatsApp Chat Analyzer thus offers a powerful and automated approach to understanding communication behavior, supporting academic research, social analysis, and personal reflection on messaging habits.

Keywords: WhatsApp Text Analyzer, Chat Data Analysis, Text Mining, Natural Language Processing, Data Analytics, Message Statistics, Emoji Analysis, Word Frequency, Social Media Analysis, Unstructured Data

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