

# WhatsApp Activity Analyzer

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**Abstract** - This study presents a WhatsApp chat analyzer tool that uses data analysis techniques to extract insights and trends from group chat data. The tool can be used to analyze conversations and identify Topics, keywords, and recognition of messages Chat Analyzer can be used to analyze group conversations of all types, including educational, business, and personal The results can be used to improve communication strategies communication and increase overall productivity. The tool is straightforward to apply and may be utilized by every body with simple pc skills. Overall, WhatsApp Chat Analyzer has the potential to provide valuable insights and facilitate effective communication.

**Key Words:** WhatsApp chat analyser, Chat data, pandas, NumPy, wordcloud, Matplotlib and Seaborn.

## 1.INTRODUCTION

One of the most generally utilized informing applications overall is WhatsApp. Group chats have become an essential tool for communication, with people using them for personal, educational, and business purposes. The amount of data generated from these group chats can be overwhelming, making it difficult to extract meaningful insights and patterns.

To overcome this challenge, we have created WhatsApp chat analyser tools that use data processing to extract valuable information from these conversations. These tools can provide insights on topics discussed, frequently used keywords, and the sentiment of messages exchanged.

The WhatsApp chat analyser can be useful in various domains, such as education, business, and social settings. In education, instructors can analyse student group chats to identify topics of interest and monitor engagement. In business, managers can analyse group chats to identify areas of improvement and evaluate team communication. In social settings, individuals can use the tool to analyse their chat history and gain insights into their communication patterns. This paper presents a comprehensive overview of the WhatsApp chat analyser tool and its applications. It provides an in-depth analysis of WhatsApp chat used to extract insights and the challenges associated with analysing WhatsApp group chats. Additionally, this paper highlights the potential benefits and limitations of using WhatsApp chat analyser tools and their impact on communication

practices. Overall, the WhatsApp chat analyser tool is a valuable resource for anyone looking to analyse group chats and extract meaningful insights from their conversations.

## 2.LITERATURE REVIEW

In the study of D. Bouhnik and M. Deshen, "WhatsApp for Schools [1]: In this research is presented to find the classroom communication between faculty and students by the high use of WhatsApp. WhatsApp groups in the relationship between teacher and student, performed by the application activities and how they generally affect learning and learning.

Analysis of the use and impact of WhatsApp Messenger based on a demo study [2]: There has been a lot of research and impact analysis of the use and impact of WhatsApp. Some of these studies investigated the impact of WhatsApp on students, while others were based on local populations. A study conducted in South India surveyed 18 to 23 year olds to explore the importance of WhatsApp among young people. From this research, we found that students spend 8 hours a day on WhatsApp and about 16 hours online. He uses WhatsApp to exchange pictures, audio and video files with his friends. In addition, it turned out that the only application that young people use while spending time on their smartphones is WhatsApp.

In the research on content analysis of whatsapp chat [3]: A research project to analyse theWhatsApp application's effectiveness in Karachi. The Study will be a crucial piece of research for exploring the possibilities of emergence of WhatsApp as the leading mobile messaging application in Pakistan. As a result of the introduction of mobile phones and the development of digital technology, Pakistan's communication landscape has undergone significant change. In Pakistan, smart phones and social networking apps are becoming more and more popular, making communication faster and simpler than ever. As a result of the changing environment, the use of quantitative and qualitative research methods has increased over time. Methods for measuring the nature and impact of communication tools on human behavior were developed.

The Impact of WhatsApp Messenger Usage o Students [4]: Analysis of WhatsApp as a communication medium in an emergency surgical team in a London hospital. According to

their findings, emergency medicine team members participating in the study used WhatsApp for 19 weeks. Compare the sender and receiver of the message and the response time and type of communication that occurs. Security events are reported. Their research shows that WhatsApp can consume students' study time. WhatsApp takes a lot of study time for students and can be frustrating while learning.

Also [5]: A comprehensive review of the evidence from published documents and information on the use of PubMed and other resources discusses the various uses of Instagram and WhatsApp for health and well-being. It also explains the main issues with using WhatsApp and Instagram. It is used in health and medicine.

WhatsApp Chat Analysis with R [6]: WhatsApp group chat data used for analysis is 1 year old (May 2015-May 2016), totaling 55563 file texts and sometimes users. WhatsApp group chat is based on age of usage, length of usage days, Response levels, types of messages sent by each person in the group (smiley, text, multiplayer), reusable age groups, etc. The main characteristics given in this analysis are the types of messages sent, year/month/week/day. /time, time (am/pm), sender's age, gender (male/female).

### 3.PROPOSED WORK

This section includes the problem statement & proposed system architecture.

#### 3.1. PROBLEM STATEMENT

Analyzing WhatsApp chat data can be a time-consuming task, especially for large groups or long conversations. There is a need for a tool that can quickly and accurately analyze WhatsApp chat data to provide insights into the conversation's topics discussed. The tool should also provide visualizations to help users better understand the data and draw conclusions about the conversation's underlying meaning. The solution should be easy to use, accessible, and scalable to handle large amounts of data.

#### 3.2. PROPOSED SYSTEM ARCHITECTURE

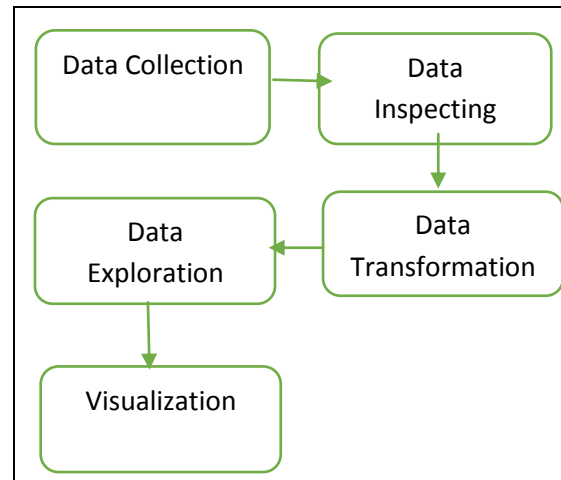


Figure 1 -architecture diagram

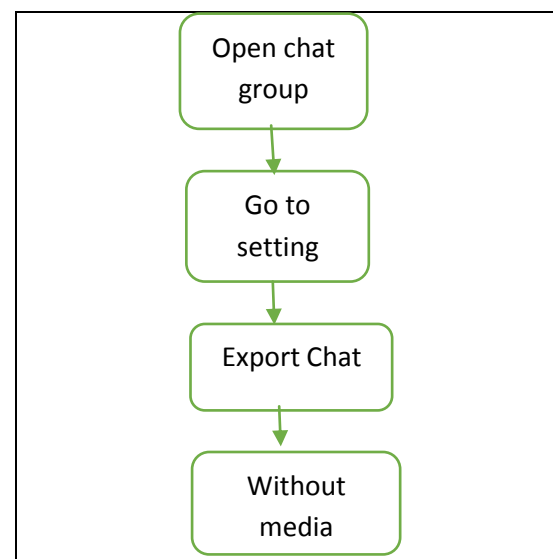


Figure 2 – Steps involved in data collection

#### Module 1 : Data collection

The first step is to collect data from WhatsApp chats. This can be done by exporting the chat history as a text file from the WhatsApp application.

#### Module 2 : Data pre-processing

Once data is collected, it needs to be preprocessed so that it can be used for analysis. This involves tasks such as removing unnecessary characters, converting the text to lowercase, and removing stop words.

### Module 3 : Data Transformation

The raw string has to be spilled into date, time, user & messages (using regular expression) and be arranged in the tabular form (using Pandas) this data frame will use as the database.

### Module 3 : Data Exploration

Here the collected data is read and processed to train a classification model. Then the model is evaluated and serialized.

- Top Statistics: Shows all messages, total words and links to shared media.
- Monthly timeline: The chat frequency for a given month is shown in this graph.
- The daily timeline: the number of messages during the day is shown on this graph.
- Activity Map: provides a monthly breakdown of your busiest days and lowest workdays.
- Weekly Activity Map: Shows the most active time in chat.
- Words cloud: the word that's very common and often used.
- Most Busy Users
- Analysis of emoji usage: The most frequently used emojis.

### Module 4 : Data Visualization

This analyzed data will be then displayed in on the screen in the form of graph for e.g.: line graph, bar graph, heat graph & so on.

## 4. RESULT & DISCUSSION

Following are the results obtained from experiment:

This displays various metrics related to group messaging activity

Top Statistics			
Total Messages	Total Words	Media Shared	Links Shared
5927	51506	899	552

Figure 3 – Top Statistics

In Top Statistics, including the total number of messages, words, media, and links shared.

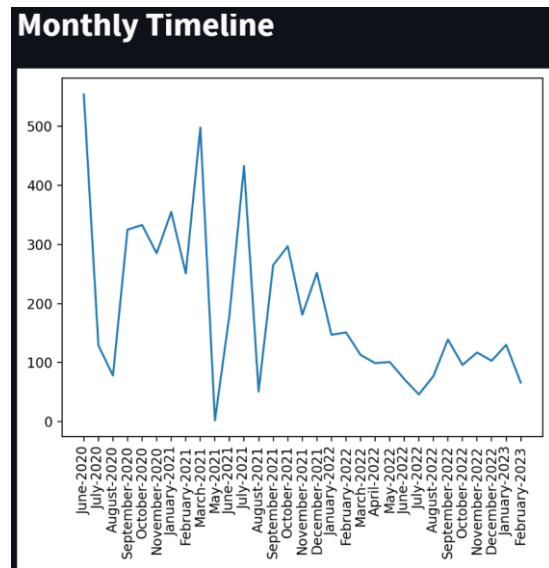


Figure 4 -Monthly Timeline

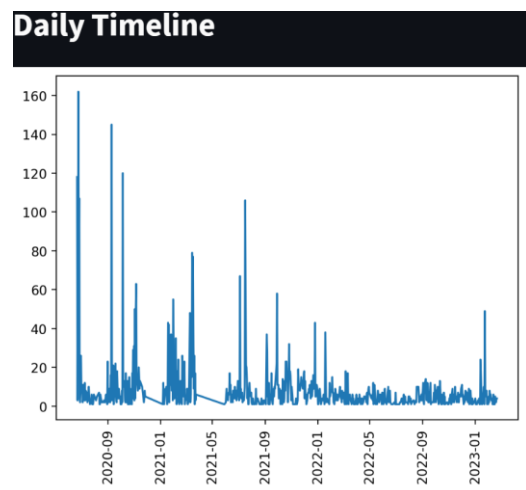


Figure 5- Daily Timeline

Users can view frequency of messages over time using line charts that show monthly and daily timelines.

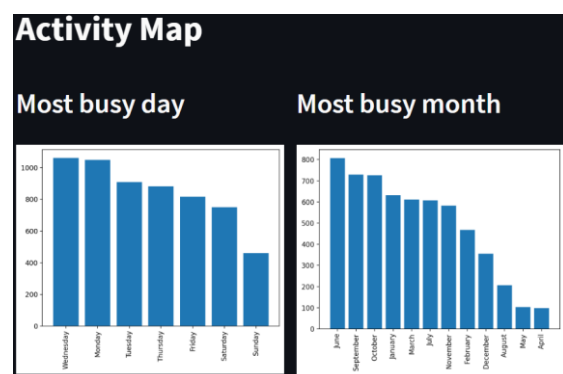


Figure 6 – Activity Map



This pie chart is used to display the top five most frequently used emojis as a percentage of overall emoji usage.

## 5. CONCLUSION

In conclusion, a WhatsApp chat analyzer can be a powerful tool for gaining insights into group conversations. By analyzing the messages, we can gain information about the frequency of communication, the topics that are most commonly discussed, and the overall sentiment of the group. With this information, we can identify patterns and trends that can help us to better understand the dynamics of the group, and to make more informed decisions about how to communicate effectively.

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