Mini Project Report

On

WhatsApp Chat Analyzer Using Machine Learning

2023-24

Submitted to:

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Session :- 2023-24

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Certificate

Certified that Mayank Chuphal(Class Roll No : 50) has Developed a Mini Project on “WhatsApp Chat Analyzer Using Machine Learning” for the CS 5th Semester Mini Project in Graphic Era Hill University , Dehradun. The Project Carried out by students is their own work as best of my knowledge.

Class Co-Ordinator

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I would like to thank particularly to our Class Co-Ordinator MS. Manisha Aeri and our Project Guide for her Patience, support and encouragement throughout the completion of this project and having faith in me.

At Last, but not the Least I greatly indebted to all other Persons who helped during this work.

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Session: 2023 – 2024

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Introduction

1.1 Introduction

In an era dominated by digital communication, WhatsApp has emerged as a powerful platform for group interactions, fostering collaboration and community building. The vast amount of data generated within these chat groups holds valuable insights into communication dynamics, user engagement, and shared interests. To unlock the potential within this data, the WhatsApp Chat Analyzer serves as a pivotal tool. This analyzer utilizes advanced analytics and visualization techniques to dissect group conversations, providing human assistants with actionable insights that significantly contribute to effective communication management and decision-making.

1.2-What is WhatsApp Chat Analyzer?

A WhatsApp Chat Analyzer is a model designed to analyze and extract insights from the chat conversations within a WhatsApp group or individual chat. The primary objective is to understand patterns, trends, and various aspects of communication within the specified WhatsApp context.

1.3-About project

The WhatsApp Chat Analyzer is made using Natural Language Processing. Natural Language Processing (NLP) is a field of artificial intelligence that focuses on the interaction between computers and humans through natural language. The ultimate objective of NLP is to enable machines to understand, interpret, and generate human language in a way that is both meaningful and contextually relevant. NLP involves a variety of challenges, ranging from simple tasks like language translation to more complex ones such as sentiment analysis and language generation.

It evaluates the daily activity of the users in the group and also the overall group. It can also analyze the chats between two people. The model gives an overall insights of total messages, total words, links shared, media shared and emoji used.
It provides monthly timeline, daily timeline and an activity map of users.
Apart from that this project also provides word cloud, most busy users and most common words data.

1.4-Objective of Project

Understanding Communication Patterns:

Analyze message frequency over time to identify peak activity periods and group engagement trends.

Identifying Key Contributors:

Determine the most active participants based on message frequency, acknowledging and appreciating their contributions.

Monitoring Trends and Interests:

Analyze shared URLs and create WordClouds to monitor prevalent topics and interests within the group.

Managing Information Overload:

Highlight important or frequently discussed topics to help prioritize critical information and prevent message overload.

Enhancing Engagement:

Analyze the emotional tone expressed through emojis to tailor responses and enhance overall engagement.

Improving Decision-Making:

Provide data-driven insights to assist in informed decision-making, whether scheduling events or addressing specific topics.

Enhancing Communication Strategy:

Understand how different types of content, including URLs and specific words, are received within the group to refine communication strategies.

Facilitating Community Building:

Recognize active participants and understand group interests to foster a stronger sense of community within the WhatsApp group.

Requirements of project

2.1-Hardware requirements

Device specifications-

Processor- 11th Gen Intel(R) Core(TM) i5-1135G7 @ 2.40GHz 2.42 GHz

Installed RAM- 8.00 GB

System type: 64-bit operating system, x64-based processor

Windows specifications

Edition-Windows 11 Home Single Language

Installed on- 9/30/2022

OS build- 22621.1105

2.2-Software requirements

These are the libraries/framework which should be installed in your system.

- You should have python (the latest version) installed.
- You should have a code editor (like vs code, eclipse, pycharm).

2.3-Jupyter Notebook

The Jupyter Notebook is the original web application for creating and sharing computational documents. It offers a simple, streamlined, document-centric experience.

2.4-Libraries Used

Libraries includes Pandas, Numpy, Matplotlib, Seaborn,Re etc. used for data analysis.

Streamlit, Pickle libraries are used in making the GUI(Graphical User Interface).

Tools used for project

3.1-Tools

1. Streamlit:
Utilized for creating an interactive web application, providing an intuitive interface for users to explore and interact with the analysis results.

2. Matplotlib and Seaborn:
Employed for data visualization, generating insightful charts and graphs to represent various aspects of the chat data.

3. Urlextract:
Used for extracting URLs from the chat messages, enabling analysis of shared links within the group.

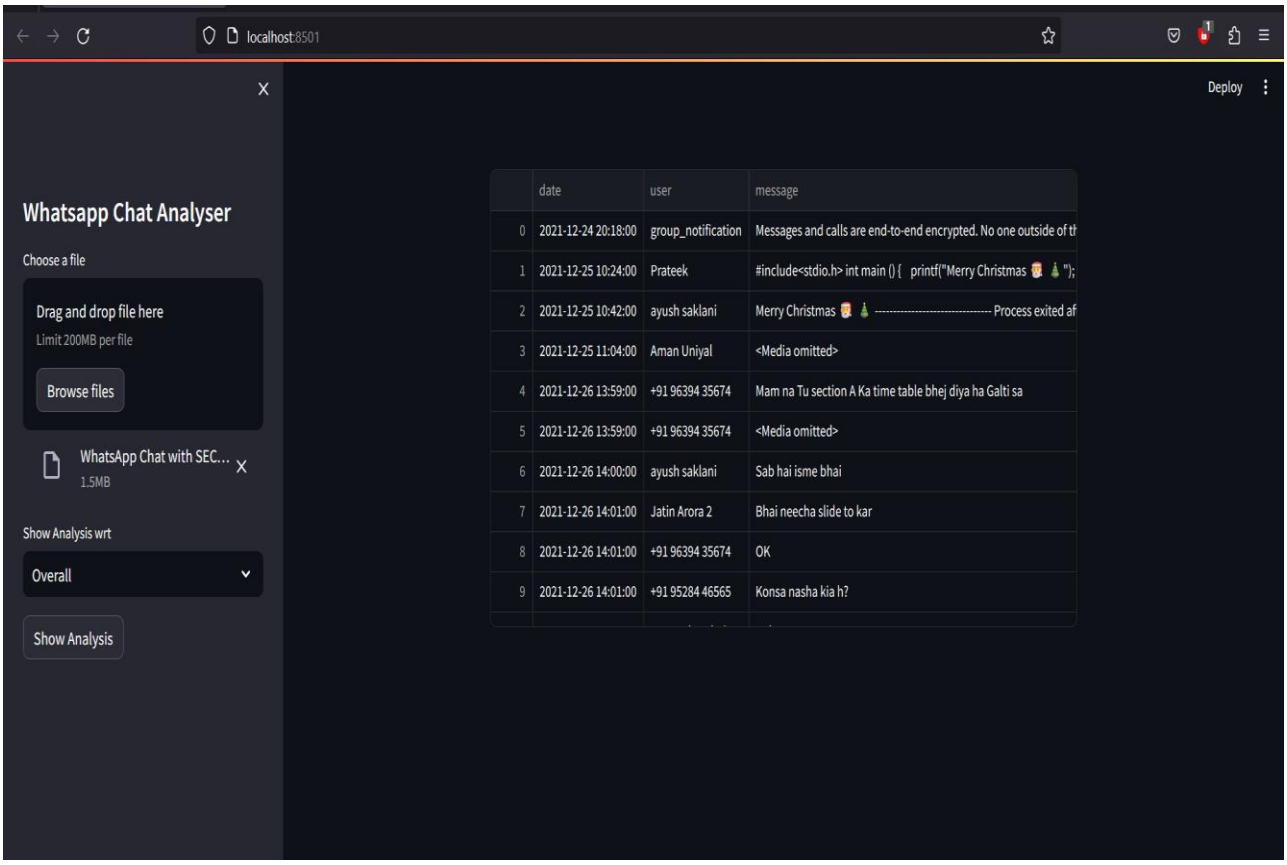
4. WordCloud:
Implemented to generate visual representations of the most frequently used words in the chat, offering a quick overview of prevalent topics.

5. Pandas:
Used for efficient data manipulation and cleaning, enabling the extraction of relevant information for analysis.

6. Emoji:
Applied for extracting and analyzing emoticons, providing insights into the emotional tone and sentiments expressed in the group conversations

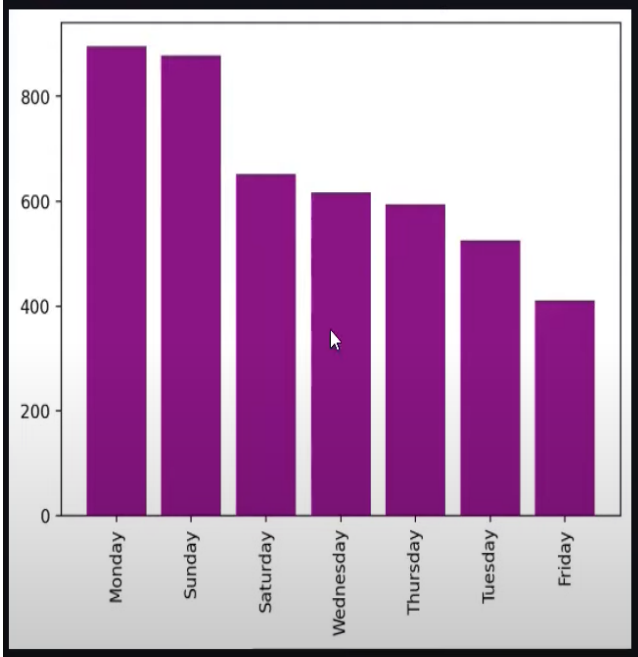
Output:

User interface:

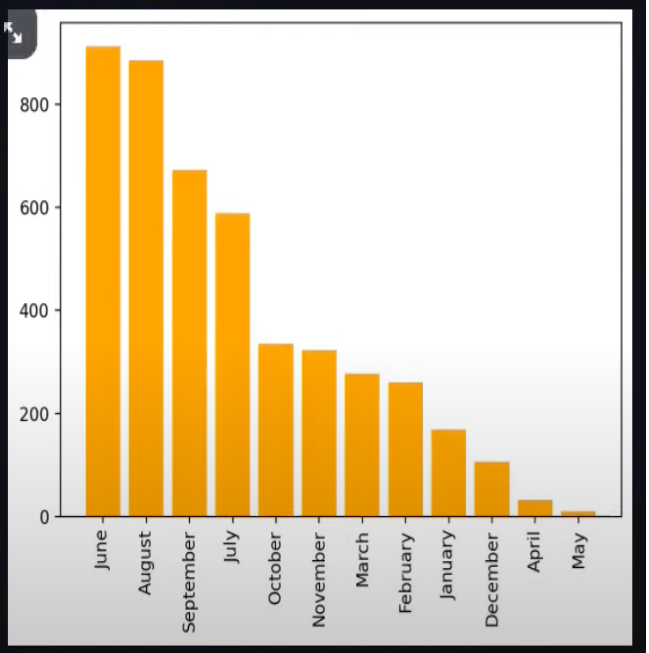


Activity Map

Most busy day

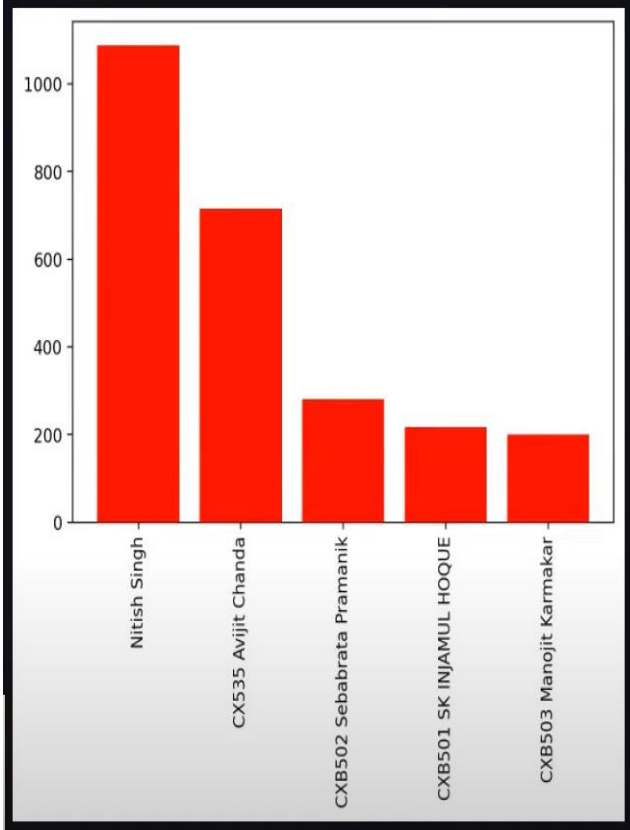


Most busy month



Weekly Activity Map

Most Busy Users



	name	percent
0	Nitish Singh	23.8000
1	CX535 Avijit Chanda	15.6400
2	CXB502 Sebabrata Pramanik	6.1500
3	CXB501 SK INJAMUL HOQUE	4.7700
4	CXB503 Manojit Karmakar	4.4000
5	CX228 Sankha Subhra Mondal	4.1800
6	CXB542 Javed	3.2400
7	CXB551 Aneesh Kar	3.0800
8	CXB526 Shubhodeep Karmakar	3.0800
9	CXB519 Sayan Roy	2.8900
10	CXB544 Balaram	2.7300

Conclusion

We have successfully developed our project on WhatsApp Chat Analyzer.

In this, we have taken use of Jupyter Notebook and Python, other machine learning algorithms model creation. In this, we us Natural Language Processing tools to analyze chats.

Goals-

- To make it more effective use of the model.

References

Youtube,campus-x,whatsapp,regex101.