

WhatsApp Analyser (WA)

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Abstract : This project provides an overview of WhatsApp Analyser (WA) where it analyses a group of discussion from WhatsApp. Nowadays, WhatsApp is one of the hot platforms for people all over the world to communicate as it allows people to conduct discussions in groups. During discussion, members can reply to messages, give comments, share ideas, and attach files on certain issues into groups. The discussion log remains in the group for a certain period. Without knowing the log contains valuable information, the user will normally clean the log to save storage. WhatsApp discussion logs can reveal information about user behavior. However, extracting the hidden knowledge from the log is difficult because it requires a user to have a programming background. In this project, we propose a system called WhatsApp Analyser (WA) to analyse log group discussion and extract hidden information. Through this system, users can select input discussion log files and extract the knowledge that is hidden in discussion messages such as the most active user, most active day, time highly active, maximum number of words, mostly used words and generate reports. As a result, this system helps users to perform analysis on the hidden knowledge generated, which may be useful in decision-making or problem-solving processes.

Keywords: Whatsapp, Social Media Analysis, Decision-Making

1. Introduction

In the era of globalization, technology is being used in many aspects of life economy such as social, politics, and education [1]. WhatsApp was developed to allow users to privately and freely send messages to each other through their smartphones [2]. Generally, WhatsApp can be viewed as a social network that allows people to access a great deal of information rapidly [3]. It is also one of the most used and efficient methods of communication in recent times, consisting of different kinds of conversations held among groups of people. WhatsApp now has over one billion users worldwide, making it the most popular instant messaging app in 2022, surpassing WeChat, Facebook Messenger, QQ, SnapChat, and Telegram [4]. The development of these modern technologies is regarded as one of humanity's greatest achievements.

In the discussion group, users can respond to messages, make comments, share ideas, and attach files on specific issues. The discussion log remains in the group for a set period of time before being cleared by the user. Without knowing that the discussion history contains valuable information, the user will typically delete the log to save storage space. In real world business, chat app users such as WhatsApp can reveal user behavior, specifically what makes them so appealing to brands, publishers, and advertisers by analyzing the discussion log. However, extracting the knowledge from the log is difficult because it requires a user to have a programming background. Hence, the aim of this project is to develop an analysis tool for WhatsApp known as WhatsApp Analyser (WA).

This system allows WhatsApp users with no programming experience to perform data analysis on a group discussion where it analyses the discussion log messages and extract hidden information using data analytic technique. Through the use of WA, the information can be extracted, and displayed to users. By performing several steps of data analysis, the WA will receive log file (*.txt) exported from WhatsApp discussion log and then it will display summarized knowledge in terms of the most active user, most active day, time highly active, maximum number of words by the user, most words which are being used in the group messages. This application also has a function to generate a report to display the total number of messages, total number of media messages, total number of links, total number of messages sent by each user from the WhatsApp group, and the total messages sent on each day of the week. In addition to that, WA is developed with an interface where users are able to perform analysis using the application even without a programming background as it is user-friendly. Thus, information can be extracted which enables WhatsApp users to perform analysis from the hidden knowledge generated.

2. Materials and Methods

This system was developed using Agile methodology. Agile methodologies stress on delivering the smallest working piece of functionality as early as possible and constantly improving it and adding additional functionality throughout the project lifecycle [5]. It also helps in minimizing the overall risks and allows the project to adapt to the changes quickly. The flow of the phases is illustrated in **Figure 1**.



Figure 1: Agile Methodology

The project begins with requirements analysis where initially the project starts by referring to the literature review, reviewing other similar or existing WhatsApp Analyser (WA) systems. Next, in the designing stage, sketches of the design will be drawn and the design will then be developed into a graphical user interface. Following that, the development stage is the implementation phase where the system will be developed by using Python. In this section, several libraries need to be downloaded before developing the analyser system. Once the program is developed, the graphical user interface will

also be developed according to the sketch drawn where buttons, icons, input and output will be included. Following that, the analyser system which has been developed will be entering the testing phase. In this phase, the testing process will determine whether the prototype is functional. Hence, a sample WhatsApp group chat file is being used as input to extract the hidden knowledge from that particular .txt file. Besides, 31 respondents have been asked regarding the functionality of the system which has been conducted through questionnaires. In the deployment stage, the system is ready to be deployed in the customer environment where ongoing support will be provided. Finally, in the review state which is also the last agile development stage, the WA will be presented to users in order to review all the previous stages that have been completed.

3. Results and Discussion

In this section, the outcome of WhatsApp Analyser is presented. Through the chats exported from WhatsApp discussion, this system extracts valuable hidden information. **Figures 2, 3, 4, 5, 6 and 7** below shows the analysis graph and report based on the exported group message in a particular WhatsApp group. This includes the system's ability to determine the most active user, the most active day, the most active time, the maximum number of words, the most frequently used words, and a report for group discussion messages. The interface is user-friendly, with interactive icons and buttons that allow users with or without programming experience to perform analysis. As a result, WhatsApp users can run the analysis without having to write detailed instructions.

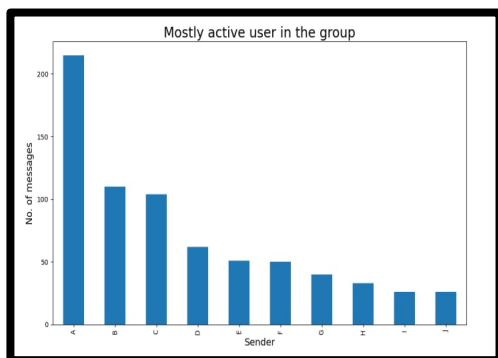


Figure 2: The Interface for Most Active User

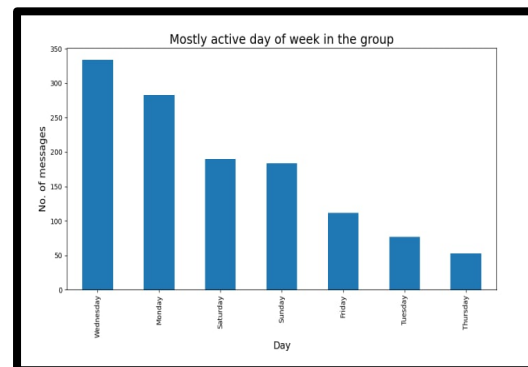


Figure 3: The Interface for Most Active Day

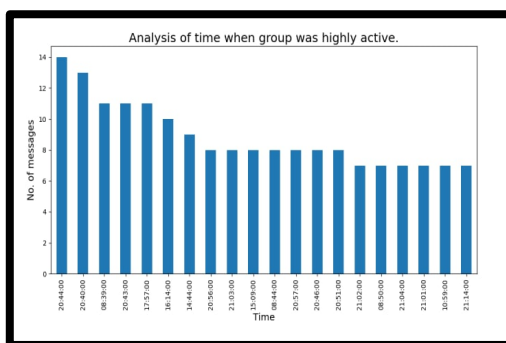


Figure 4: The Interface for Time Highly Active

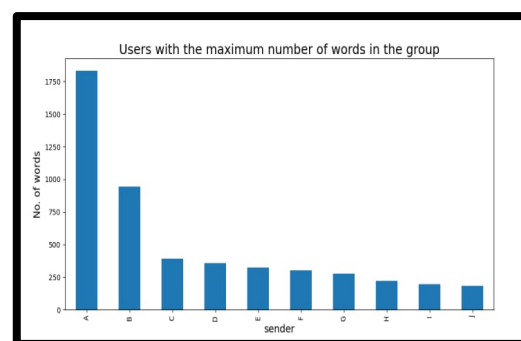


Figure 5: The Interface for Max Number of Words



Figure 6: The Interface for Mostly Used Words

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Extracting basic statistics from the dataset
Group Chatting Status :
Total Number of Messages : 1233
Total Number of Media Messages : 313
Total Number of Links : 9

TOTAL NUMBER OF MESSAGES SENT BY EACH USER
Hanee Smkak -> 215
+60 12-588 2545 -> 110
+60 11-1017 1016 -> 62
+60 19-333 6407 -> 15
+60 12-220 2185 -> 33
+60 19-349 6591 -> 25
+60 19-440 0881 -> 20
+60 11-2224 3980 -> 11
+60 19-620 0961 -> 19
+60 12-510 5149 -> 10
+60 19-382 4840 -> 2
Shapit Smkak -> 9
+60 11-1028 1979 -> 40
+60 19-574 3515 -> 11
+60 17-346 0704 -> 26
+60 10-226 5146 -> 11
+60 16-488 3584 -> 7
    
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TOTAL MESSAGES SENT ON EACH DAY OF THE WEEK
Wednesday -> 334
Saturday -> 190
Sunday -> 184
Friday -> 112
Monday -> 283
Tuesday -> 77
Thursday -> 53
    
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Figure 7: Generate Report

To assess the system's effectiveness, it was tested on 31 respondents, all of whom are WhatsApp users and all of whom are active. WhatsApp Analyser (WA) employs usability testing as an evaluation method. It works by asking respondents to export and send WhatsApp group messages to the email address provided in the Google Form. The results will be returned to the user once the analysis has been completed. The evaluation tools include a test plan, a post-task questionnaire, and files from WhatsApp group chats. Respondents will first fill out a questionnaire. Following completion of the questionnaire, they can export and send their WhatsApp chat messages to the email address provided. The procedure for carrying out the evaluation. The evaluation procedure is written as follows: (1) read the test scenarios and sign the consent form, (2) complete the post-task questionnaire, (3) export and send the WhatsApp group chats file to the email address provided, and (4) wait for the results. The evaluation result shows that the respondents is satisfied with the system.

Figure 8 shows the evaluation result in terms of the usability testing for WhatsApp Analyser (WA). Most of the respondents are male which is between the age of 23 to 27 years old. In addition to that, majority of the respondents use WhatsApp daily. As for the number of groups, more than half of the total number of respondents have 16 or more WhatsApp groups as well as all the respondents are active WhatsApp users. However, most of them have not heard about WA. Based on Figure 8, the first statement of “Overall, I am satisfied with the ease of completing this task” shows that 13 out of 31 respondents strongly agree. Other respondents recorded that 8 of them agreed, 2 of them felt neutral, 3 who felt disagreed and the remaining 5 of them who strongly disagreed with the statements. As for the second statement, “Overall, I am satisfied with the amount of time it took to complete this task”, it

shows that 16 respondents strongly agreed which is also the highest number of respondents out of 31. The remaining respondents show that 5 of them agree, 4 of them neutral, 1 disagree and 5 who strongly disagree. Hence, the usability testing for WA shows that majority of the respondents are satisfied with the analyser system which has been developed. This shows that the system is able to analyse the group discussion exported from user’s WhatsApp group. Thus, valuable hidden information can be extracted for decision-making purposes.

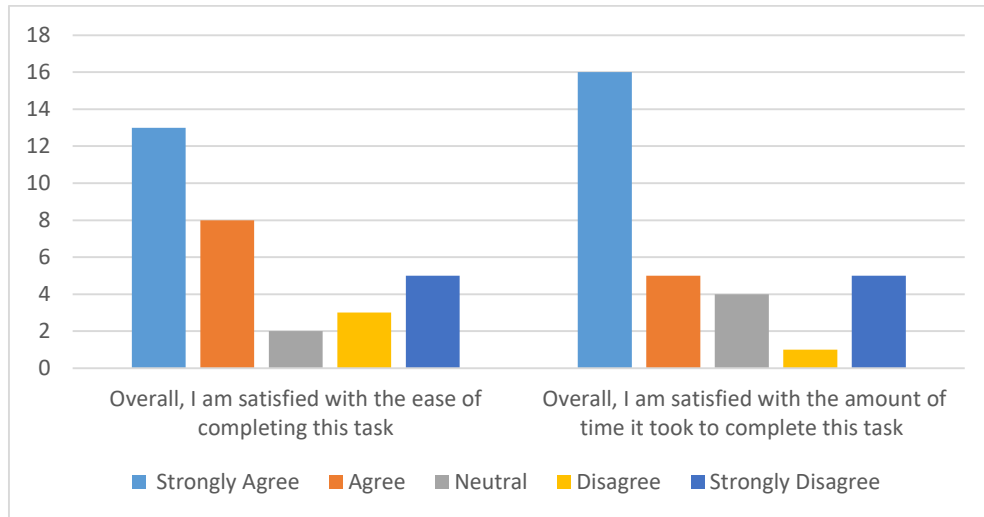


Figure 8: Bar chart of usability testing for WhatsApp Analyser

4. Conclusion

This paper presented the development of WhatsApp Analyser (WA) The analyser system, WA, is a user-friendly system that includes interactive components that allow users with or without programming experience to perform data analysis on whatsapp group discussion logs. In other words, because the system has a user-friendly graphical interface, the user does not need to deal with the programme code. As a result, analysis can be performed effectively by extracting information from exported group chats. With newer functions and features, the analyser system can be improved in the future to improve the quality and ability to analyse WhatsApp group messages more effectively. This study's findings can also be applied to real-world research in the field of technology. Thus, the findings in this project would encourage the future work that benefits the community.

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