Product Development of Instant Messaging Application: Gossip Hub- Analysis

Data Analysis

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About Me:

Hello! I'm Jewel Alam, and I have a wide academic background, including a bachelor's and master's degree in pharmacy. However, my passion is in the field of data analysis. This interest encouraged me to make a bold decision in my last year. I skipped the campus placement session to delve more into the topic of data analytics.

I started my journey by watching free lectures on YouTube, where I gained a basic understanding of data analytics. Eager to broaden my expertise, I enrolled in several lengthy bootcamps on Udemy, focused on Business Intelligence and Data Analytics. The courses equipped me with the knowledge and confidence required to take on real-world projects.

Over time, I've completed a few projects using tools and technologies such as Python (with a particular focus on the Pandas library), MySQL, Tableau, Statistics and Excel. Every project has served as an opportunity for me to develop my skill set and gain a better understanding of data analytics.

My long-term objective is strong and clear: to become one of the world's top data analysts. I'm primarily interested in analysis for app development, web development, and software product development. These sectors not only match my skills, but also excite me because of their potential to innovate and revolutionize industry.

Thank you for taking the time to discover more about me. I am excited to bring my experience and passion for data analytics to relevant and impactful projects.

Warm Regards

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1. <u>Introduction:</u>

In today's digital era, social media platforms have become a vital part of millions of people's everyday lives, particularly among young people. As an Analyst, my responsibility is to use data to drive better decisions and strategic efforts in the creation of creative products. This project focuses on the creation of **"Gossip Hub"** a cutting-edge social media program that is particularly meant to engage and connect young people.

This project will apply advanced analytical tools such as **Python's Pandas, SQL, and Tableau** to study and comprehend user behaviors, preferences, and trends in the social media environment. Using these technologies, we will do extensive data analysis to find important insights that will guide the design, features, and functioning of **Gossip Hub**. Our objective is to establish a platform that not only meets, but surpasses, the expectations of youthful users, while also cultivating a lively and participatory community.

The conclusions acquired from this study will help the development team make data-driven decisions, ensuring that **Gossip Hub** connects with its target audience and distinguishes out in a competitive market.
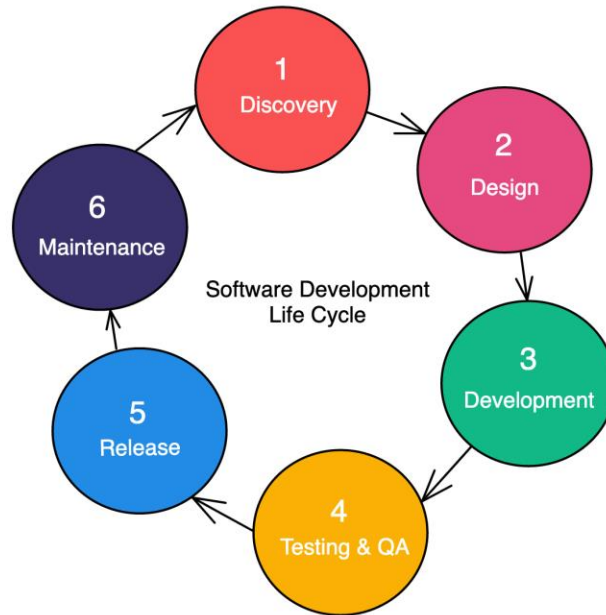
Figure 1. Illustrates each stage of the app development process in detail. (Ref:1)

Here, we will focus on analyzing the information provided by consumers at step 5 of the Whatsapp app development life cycle and using the results to create a better product than the competition.

2. **Objective:**

To analyze the user reviews of the current instant messaging app available in the market: WhatsApp.

To make strong predictions and incorporate in our strategy during the designing and development of Gossip Hub.

3. **Methodology:**

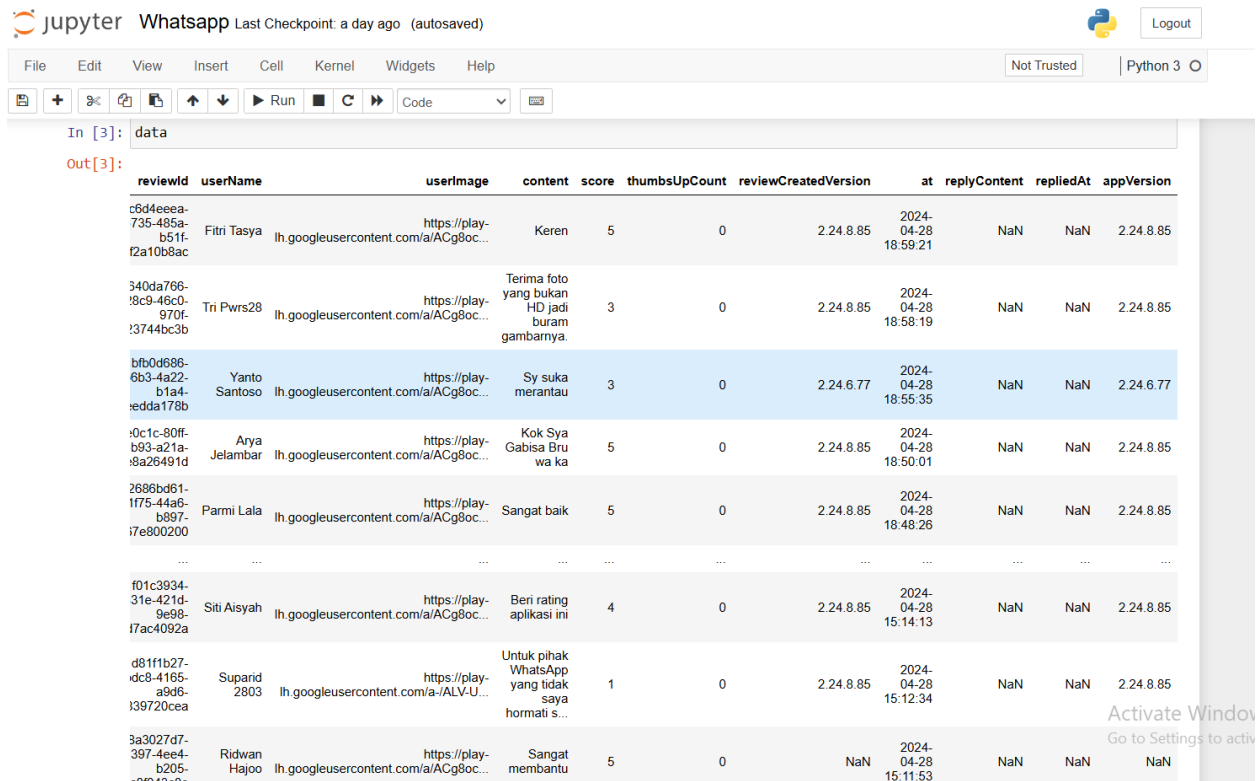### 3.1 Database:

The WhatsApp reviews database was downloaded from Kaggle database in CSV format. It contains 198 records and 11 fields.

3.2 Data cleaning by Python:

The data cleaning process was done using the panda's library of Python

3.2.1 Before preprocessing:

FIg:2. Displaying the WhatsApp review dataset image before preprocessing of the csv file

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 199 entries, 0 to 198
Data columns (total 11 columns):
 #   Column                Non-Null Count   Dtype
---  ------                --------------   -----
 0   reviewId              199 non-null     object
 1   userName              199 non-null     object
 2   userImage             199 non-null     object
 3   content               199 non-null     object
 4   score                 199 non-null     int64
 5   thumbsUpCount         199 non-null     int64
 6   reviewCreatedVersion  170 non-null     object
 7   at                    199 non-null     object
 8   replyContent          0 non-null       float64
 9   repliedAt             0 non-null       float64
 10  appVersion            170 non-null     object
dtypes: float64(2), int64(2), object(7)
memory usage: 17.2+ KB
```

Figure 3. showing the number of fields and their datatype before preprocessing .

3.2.2 After Preprocessing:

Out[234]:

	AppVersion	rating=1	rating=2	rating=3	rating=4	rating=5	thumbsUpCount
0	2.24.8.85	False	False	False	False	True	0
1	2.24.8.85	False	False	True	False	False	0
2	2.24.6.77	False	False	True	False	False	0
3	2.24.8.85	False	False	False	False	True	0
4	2.24.8.85	False	False	False	False	True	0
5	2.24.8.85	True	False	False	False	False	0
6	2.24.1.78	False	False	False	False	True	0
7	2.24.8.85	False	False	False	False	True	0
8	2.24.8.85	False	False	False	False	True	0
9	2.24.8.85	False	False	False	False	True	0
10	2.24.8.85	False	False	False	False	True	0
11	NaN	False	False	False	False	True	0
12	2.24.8.85	True	False	False	False	False	0
13	2.24.8.85	False	False	False	False	True	0
14	2.24.3.81	True	False	False	False	False	0
15	2.24.8.85	True	False	False	False	False	0
16	2.24.8.85	False	False	False	False	True	0
17	NaN	True	False	False	False	False	0
18	2.24.8.85	True	False	False	False	False	0
19	2.24.8.85	False	False	False	False	True	0
20	2.24.8.85	False	False	False	False	True	0
21	2.24.8.85	False	False	False	True	False	0
22	2.24.8.85	False	False	False	False	True	0

Fig 4. FIg:2. Displaying the whatsapp review dataset image after preprocessing of the csv file

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 199 entries, 0 to 198
Data columns (total 7 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   AppVersion    170 non-null    object
 1   rating=1      199 non-null    bool
 2   rating=2      199 non-null    bool
 3   rating=3      199 non-null    bool
 4   rating=4      199 non-null    bool
 5   rating=5      199 non-null    bool
 6   thumbsUpCount 199 non-null    int64
dtypes: bool(5), int64(1), object(1)
memory usage: 4.2+ KB
```

Figure 5. showing the number of fields and their datatype after preprocessing.

4. Results and Discussion:

The preprocessed csv file then analyzed with the help of My SQL workbench.

4.1. Insight 1: The number of people given 5-star rating to different versions of WhatsApp

- o In the race for the highest 5-star ratings among different WhatsApp versions, one version stands out far above the rest.
- o Leading the pack with an impressive 127 five-star ratings is WhatsApp version 2.24.8.85. This version has clearly won the hearts of many users, securing its spot at the top.
- o Trailing far behind, but still noteworthy, are WhatsApp version 2.24.6.77 and WhatsApp version 2.24.7.81, each garnering a modest 8 five-star ratings.
- o While these versions share the same number of top ratings, they are a distant second to the overwhelming popularity of version 2.24.8.85.

	A	B
1	AppVersion	Number_of_people_given_5_star_rating
2	2.24.8.85	127
3	2.24.6.77	8
4	2.24.7.81	8
5	2.24.2.76	5
6	2.24.3.81	4
7	2.24.5.76	4
8	2.24.9.15	2
9	2.23.3.77	2
10	2.24.8.	1
11	2.24.1.78	1
12	2.24.8.81	1
13	2.22.22.80	1
14	2.23.7.78	1
15	2.23.14.79	1
16	2.20.201.19	1
17	2.23.12.78	1
18	2.20.206.24	1
19	2.23.10.77	1
20	2.23.25.83	1
21	2.22.7.74	1
22		
23		

Figure 6. The number of peoples given the 5-star rating to the different version of whatsapp

4.2. Insight 2: The number of people given 4-star rating to different versions of WhatsApp

- o Version 2.24.8.85 takes the crown with the highest number of 4-star ratings, impressing 16 people!
- o Following far behind, both Version 2.24.9.15 and Version 2.22.7.74 have earned a respectable 4-star rating from just 1 person each.
- o It's clear that Version 2.24.8.85 has resonated well with users, standing out significantly in terms of user satisfaction with a solid number of 4-star reviews. The other versions have some catching up to do!

	A	B
1	AppVersion	Number_of_people_given_4_star_rating
2	2.24.8.85	16
3	2.24.9.15	1
4	2.22.7.74	1
5	2.24.8.	0
6	2.24.6.77	0
7	2.24.1.78	0
8	2.24.3.81	0
9	2.24.8.81	0
10	2.24.7.81	0
11	2.24.5.76	0
12	2.22.22.80	0
13	2.23.7.78	0
14	2.23.14.79	0
15	2.20.201.19	0
16	2.24.2.76	0
17	2.23.12.78	0
18	2.23.3.77	0
19	2.20.206.24	0
20	2.23.10.77	0
21	2.23.25.83	0
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Figure 7. The number of peoples given the 4-star rating to the different version of WhatsApp

4.3. Insight 3: The number of people given 1-star rating to different versions of WhatsApp

- o WhatsApp version 2.24.8.85 received a 1-star rating from 30 people.
- o WhatsApp version 2.24.7.81 received a 1-star rating from 2 people.

○ WhatsApp versions 2.24.6.77, 2.24.3.81, 2.22.22.80, 2.23.14.79, and 2.23.3.77 each received a 1-star rating from 1 person.

	A	B
	AppVersion	Number_of_people_given_1_star_rating
1	AppVersion	Number_of_people_given_1_star_rating
2	2.24.8.85	30
3	2.24.7.81	2
4	2.24.6.77	1
5	2.24.3.81	1
6	2.22.22.80	1
7	2.23.14.79	1
8	2.23.3.77	1
9	2.24.8.	0
10	2.24.1.78	0
11	2.24.8.81	0
12	2.24.5.76	0
13	2.23.7.78	0
14	2.24.9.15	0
15	2.20.201.19	0
16	2.24.2.76	0
17	2.23.12.78	0
18	2.20.206.24	0
19	2.23.10.77	0
20	2.23.25.83	0
21	2.22.7.74	0
22		
23		
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Figure 8. The number of peoples given the 1-star rating to the different version of WhatsApp

4.4. Insight 4: The number of people given 2-star rating to different versions of WhatsApp

	A	B	C
1	**AppVersion**	**Number_of_people_given_2_star_rating**	
2	2.24.8.85	5	
3	2.20.206.24	1	
4	2.24.8.	0	
5	2.24.6.77	0	
6	2.24.1.78	0	
7	2.24.3.81	0	
8	2.24.8.81	0	
9	2.24.7.81	0	
10	2.24.5.76	0	
11	2.22.22.80	0	
12	2.23.7.78	0	
13	2.23.14.79	0	
14	2.24.9.15	0	
15	2.20.201.19	0	
16	2.24.2.76	0	
17	2.23.12.78	0	
18	2.23.3.77	0	
19	2.23.10.77	0	
20	2.23.25.83	0	
21	2.22.7.74	0	
22			
23			
24			

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Workbook Statistics

Figure 9. The number of peoples given the 2-star rating to the different version of WhatsApp

- o The WhatsApp version 2.24.8.85 received a 2-star rating from 5 people.
- o The WhatsApp version 2.20.206.24 received a 2-star rating from 1 person.

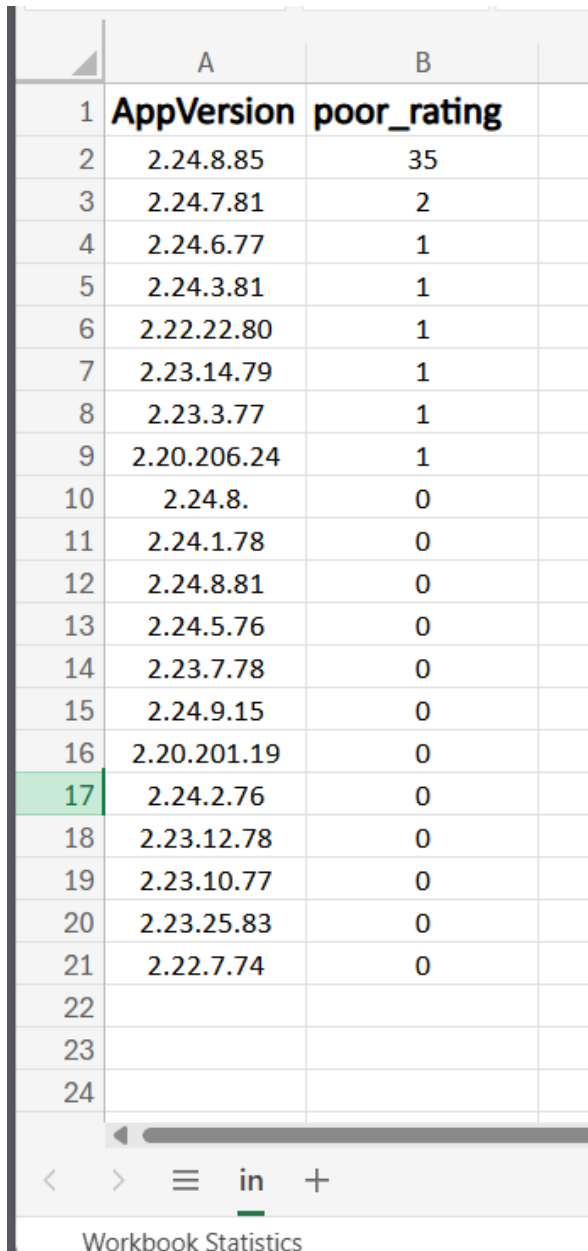## 4.5. Insight 5: The number of people given good ratings (rating 4+ rating 5) to different versions of WhatsApp

	A	B
1	**AppVersion**	**good_rating**
2	2.24.8.85	82
3	2.24.7.81	6
4	2.24.2.76	5
5	2.24.6.77	4
6	2.24.3.81	3
7	2.24.5.76	3
8	2.24.9.15	2
9	2.24.8.	1
10	2.24.1.78	1
11	2.24.8.81	1
12	2.23.3.77	1
13	2.23.10.77	1
14	2.23.25.83	1
15	2.22.7.74	1
16	2.22.22.80	0
17	2.23.7.78	0
18	2.23.14.79	0
19	2.20.201.19	0
20	2.23.12.78	0
21	2.20.206.24	0
22		
23		
24		

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Workbook Statistics

Figure 10. The number of peoples given the good ratings to the different version of WhatsApp

- o   WhatsApp version 2.24.8.85 received 82 positive ratings.
- o   WhatsApp version 2.24.7.81 received 6 positive ratings.
- o   WhatsApp version 2.24.2.76 received 5 positive ratings.
- o   WhatsApp version 2.24.6.77 received 4 positive ratings.

4.6. Business Insight 6: The number of people given poor ratings (rating 1+ rating 2) to different versions of WhatsApp

	A	B
1	AppVersion	poor_rating
2	2.24.8.85	35
3	2.24.7.81	2
4	2.24.6.77	1
5	2.24.3.81	1
6	2.22.22.80	1
7	2.23.14.79	1
8	2.23.3.77	1
9	2.20.206.24	1
10	2.24.8.	0
11	2.24.1.78	0
12	2.24.8.81	0
13	2.24.5.76	0
14	2.23.7.78	0
15	2.24.9.15	0
16	2.20.201.19	0
17	2.24.2.76	0
18	2.23.12.78	0
19	2.23.10.77	0
20	2.23.25.83	0
21	2.22.7.74	0
22		
23		
24		

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Workbook Statistics

Figure 11. The number of peoples given poor ratings to the different version of WhatsApp

4.7. Insights 7: The number of people given poor ratings, good ratings, percentage popularity, Total thumbs up to different versions of WhatsApp

	A	B	C	D	E
1	AppVersion	poor_rating	good_rating	percentage_of_popularity_of_version	total_thumbsup
2	2.24.8.85	35	82	70.0855	79
3	2.24.7.81	2	6	75	0
4	2.24.2.76	0	5	100	0
5					
6					
7					
8					
9					
10					
11					

Figure 12. The number of peoples given poor rating, good rating, percentage of popularity of each web version and total thumbs up to the different version of WhatsApp

The whatsapp version 2.24.8.85 have the nicest approval rating from the customer and the greatest number of thumbs up
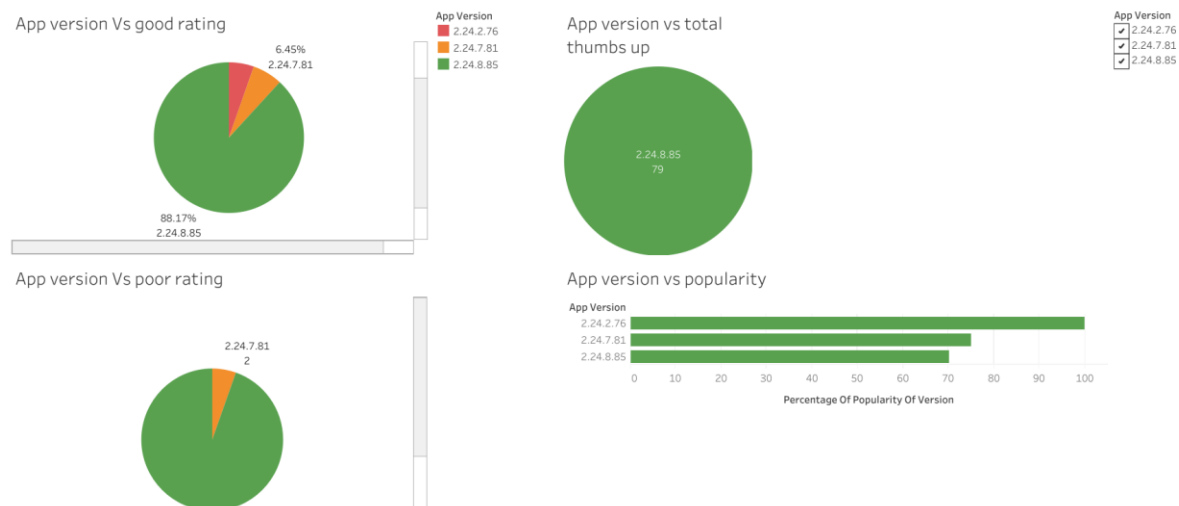
Conclusion:

Fig 13. This is a tableau visualization dashboard displaying the analyzed data and insights

- o   The WhatsApp version 2.24.8.85 have the greatest number of thumbs up
- o   Considering the rating frequency, this version is the most liked version among the Population as compared to the other versions

We can include the unique features of the WhatsApp version 2.24.8.85 in our app Gossip Hub.

The unique features are:

- o App Navigation:

   The app's navigation has been redesigned with tabs positioned at the bottom of the screen. Users can now effortlessly access Chats, Updates, Communities, and Calls by tapping these bottom tabs.

- o 2. Screen Sharing during Video Calls:

   The screen sharing during video calls, which now includes the ability to share audio. This feature enhances collaborative communication and usability during video interactions.

- o 3. Facial Unlock Feature:

   The facial unlock feature, adding an additional layer of security. This functionality is activated through necessary server-side updates, ensuring secure and seamless user authentication.

Reference:

1. Application Development Life Cycle & Management Models (couchbase.com).