

WhatsApp chat Exploratory Data Analysis



Goal of Project :

The objective of this project is to perform in-depth exploratory data analysis (EDA) on WhatsApp group chat data. By analyzing the dataset, we aim to uncover valuable insights into the dynamics of communication within the group. This includes identifying patterns in message frequency, understanding peak activity times, determining popular discussion topics, and assessing member engagement levels. The findings from this analysis will provide a comprehensive understanding of the group's interactions, facilitating better decision-making and fostering a deeper understanding of group dynamics.

Source of Data :

The process entails following specific steps to extract chat data from any WhatsApp group and save it into a text file

Step 1: Access WhatsApp group chat data:

- Open WhatsApp and navigate to the group chat whose data you want to extract.
- Tap on the group name to open the group info.
- Scroll down and select "Export Chat."
- Choose whether to include media files (images, videos, etc.) or export without media.
- Select your desired method for exporting the chat (via email, cloud storage, etc.).

Step 2: Export chat as text file:

- Once the export process is complete, locate the exported chat file.
- If exported via email, download the attachment from your email inbox.
- If exported to cloud storage, download the file from the cloud storage platform.
- The chat data will typically be exported as a text file (with a .txt extension).

Step 3: Save the text file locally:

- Transfer the exported text file to your device if necessary.
- Save the text file to a location on your device where you can easily access it for further analysis.

Now, We have successfully extracted the chat data of the WhatsApp group into a text file, ready for further analysis using exploratory data analysis techniques.

Work Flow :

- Step 1 : Importing the required libraries
- Step 2 : Extracting and Reading Whatsapp Group Chat Data
- Step 3 : Basic Understanding of Data
- Step 4 : Data Cleaning
- Step 5 : Preview of Clean Data
- Step 6 : Feature Engineering Columns Extraction
- Step 7 : Analysis and Insights

Step 1 : Importing the required libraries

In [97]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import re
from urlextract import URLExtract
from collections import Counter
```

```
from wordcloud import WordCloud  
pd.set_option('display.max_rows',None)  
pd.set_option('display.max_columns',None)
```

Step 2 : Extracting and Reading WhatsApp Group Chat Data

```
In [2]: f=open("C:\\\\Users\\\\Rahul\\\\Desktop\\\\Download_desktop\\\\WhatsApp Chat with Btech CSE
```

```
In [3]: data=f.read()
```

```
In [4]: data
```

Out[4]:

'21/08/2019, 10:13\u202fam - Messages and calls are end-to-end encrypted. No one outside of this chat, not even WhatsApp, can read or listen to them. Tap to learn more.\n20/08/2018, 11:14\u202fam - ~\u202fMohammad Imran created group "Btech CSE Sec B 2018-22"\n21/08/2019, 10:13\u202fam - Ansab Jh added you\n21/08/2019, 10:35 \u202fam - +91 89541 07151: kha pa\n21/08/2019, 10:36\u202fam - +91 94314 50020: Mam Aayi Bhai\n21/08/2019, 10:43\u202fam - Ansab Jh: <Media omitted>\n21/08/2019, 12:39\u202fpm - Ansab Jh: <Media omitted>\n21/08/2019, 12:43\u202fpm - Nitesh Jh: 4 Marks extra for Good Handwriting 😊\n21/08/2019, 12:56\u202fpm - Noman Jh: Kar ra\n21/08/2019, 12:56\u202fpm - Noman Jh: Bhai ye zaroor larki hogi\n21/08/2019, 12:56\u202fpm - Noman Jh: 🎉🎉\n21/08/2019, 1:56\u202fpm - +91 82992 81137: class strt ho gyi\n21/08/2019, 1:57\u202fpm - Nitesh Jh: Haan\n21/08/2019, 2:03\u202fpm - +91 82992 81137: kha pe\n21/08/2019, 2:03\u202fpm - Nitesh Jh: 402\n21/08/2019, 2:44\u202fpm - Ansab Jh: No DSA for today.\nTheory of DSA will be tomorrow at 10:05\n21/08/2019, 6:58\u202fpm - +91 85275 03782: <Media omitted>\n21/08/2019, 7:00\u202fpm - +91 85275 03782: This is an internship opportunity from swiggy. Interested students may register. Share it in your class group (as per directions from the placement cell)\n21/08/2019, 7:05\u202fpm - +91 85275 03782: For any queries contact Shiv bhaiya - +917678490617\n21/08/2019, 7:13\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 7:13\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 7:13\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 7:14\u202fpm - Noman Jh: Massive crowd with rods in hands going towards Ravidas mandir...stay safe everyone... situation is very sensitive here\n21/08/2019, 7:18\u202fpm - Tabish Jh: Roads are all locked with traffic and protesters coming from the Mathura Road/Ashram side, going towards Tughlakabad.\n21/08/2019, 8:21\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 8:27\u202fpm - +91 95282 13030: <Media omitted>\n21/08/2019, 9:15\u202fpm - Safeer Jh: Add him new student\n21/08/2019, 9:15\u202fpm - Safeer Jh: Hassan Bhai New.vcf (file attached)\n21/08/2019, 9:17\u202fpm - Ansab Jh added Hassan Jh\n21/08/2019, 9:43\u202fpm - Hassan Jh: Hi guys!\nMy name is Hassan,\nI've taken admission in your class through lateral entry programme and wants to have some tips from you.\nKindly help.\n21/08/2019, 9:44\u202fpm - Hassan Jh: Does class starts at exact 8:30?\n21/08/2019, 9:44\u202fpm - Zuhaib Jh: Depends on the teacher\n21/08/2019, 9:45\u202fpm - Hassan Jh: What's about tomorrow then?\n21/08/2019, 9:45\u202fpm - Noman Jh: I advice no one to come Tomorrow\n21/08/2019, 9:46\u202fpm - +91 78408 50503: That's what i am thinking after watching those videos\n21/08/2019, 9:46\u202fpm - +91 80773 62125: +1\n21/08/2019, 9:46\u202fpm - Zuhaib Jh: +1\n21/08/2019, 9:46\u202fpm - Noman Jh: Dude !.. m exactly here\n21/08/2019, 9:46\u202fpm - Noman Jh: I know the conditions\n21/08/2019, 9:48\u202fpm - Hassan Jh: What videos bhai?\n21/08/2019, 9:48\u202fpm - +91 78408 50503: <Media omitted>\n21/08/2019, 9:48\u202fpm - +91 78408 50503: <Media omitted>\n21/08/2019, 9:48\u202fpm - +91 78408 50503: These videos bro\n21/08/2019, 9:50\u202fpm - Hassan Jh: Is it about the ravidas mandir demolished?\n21/08/2019, 9:50\u202fpm - Ansab Jh: Yes.\n21/08/2019, 9:50\u202fpm - +91 78408 50503: Yup\n21/08/2019, 9:51\u202fpm - Hassan Jh: +1\n21/08/2019, 9:54\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 9:54\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 9:55\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 9:55\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 10:01\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 10:01\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 10:01\u202fpm - Noman Jh: <Media omitted>\n21/08/2019, 10:03\u202fpm - +91 84475 88282: Ye photo to CP ke pas ka hai\n21/08/2019, 10:16\u202fpm - Noman Jh: <Media omitted>\n22/08/2019, 11:43\u202fam - Noman Jh: Can you help me out by signing this petition to bring back spiderman to mcu?\nhttp://chng.it/LXJNh6sv\n22/08/2019, 12:04\u202fpm - Nida Iftekhar Ma'am: Section B\n22/08/2019, 12:04\u202fpm - Nida Iftekhar Ma'am: Are u present?\n22/08/2019, 12:08\u202fpm - Muazzam: No mam\n22/08/2019, 12:23\u202fpm - +91 94312 02971: <Media omitted>\n22/08/2019, 12:23\u202fpm - +91 94312 02971: This message was deleted\n22/08/2019, 12:23\u202fpm - +91 94312 02971: Can anybody find its pdf online\n22/08/2019, 12:51\u202fpm - +91 94312 02971: <Media omitted>\n22/08/2019, 1:26\u202fpm - +91 94312 02971: Good news guys 😊\nToday 1st year BTCSE section-B class was on 402... as their induction program is over\n22/08/2019, 1:29\u202fpm - +91 94312 02971: Finally, it seems we will have our classes in LT.\n22/08/2019, 1:30\u202fpm - Muazzam: Saari classes??\n22/08/2019, 1:31\u202fpm - +91 94312 02971: That's what I am hoping for!!!\n22/08/2019, 1:34\u202fpm - Ansab Jh: <Media omitted>\n22/08/2019, 1:35\u202fpm - Ansab Jh: 🔥🔥👉👉 Finally.\n22/08/2019, 2:26\u202fpm - Tabish Jh: Sabr kitni bdi cheez hai. 😊\n22/08/2019, 2:26\u202fpm - +91 81788 46270: yr

trepreneurs.com/\n\nUrgent requirement\n07/12/2022, 4:58\u202fpm - Safeer Jh: *Greetings from the Placement Cell, Jamia Hamdard.*\n\nThis Google form is for those who are not placed from the Batch of 2022 or do not hold any offer from the company.\n\nLink: <https://forms.gle/AvbLNnfN1NcgFenH8>\n\nNote: Those who got offers but joining are delayed or cancelled due to recession can apply here.\n\nFor any queries, Feel free to contact:\nZuhair Abbas:+91 70113 06929\nFahad Rafique: 767843 5005\n24/12/2022, 4:44\u202fpm - +91 99113 95512: <https://youtu.be/hyHYLIr3Lrk>\n16/02/2023, 11:18\u202fam - Ansab Jh: This message was deleted\n17/02/2023, 10:51 \u202fpm - +91 82798 84980: null\n17/02/2023, 10:52\u202fpm - Tayseer Jh: This message was deleted\n22/04/2023, 6:08\u202fam - Muazzam: <Media omitted>\n22/04/2023, 8:45\u202fam - +91 90159 79886: Eid Mubarak\n22/04/2023, 8:46\u202fam - +91 93 153 08399: <Media omitted>\n22/04/2023, 9:07\u202fam - Safeer Jh: <Media omitted>\n22/04/2023, 9:07\u202fam - Zuhair Jh: Send eidi\n22/04/2023, 9:07\u202fam - Safeer Jh: Send a cancelled cheque\n22/04/2023, 9:08\u202fam - Zuhair Jh: Blank cheque bhej dunga tumhare lie toh meri jaan\n22/04/2023, 9:08\u202fam - Safeer Jh: <Media omitted>\n22/04/2023, 9:16\u202fam - Noman Jh: Bhej do koi eidi\n22/04/2023, 12:12\u202fpm - +91 80773 62125: Eid Mubarak to you and your beloved ones\n27/04/2023, 9:18\u202fam - Saqib Jh: This message was deleted\n29/06/2023, 2:12\u202fpm - +91 94312 02971: <Media omitted>\n29/06/2023, 2:14\u202fpm - +91 99113 95512: Eid Mubarak Sbhi Ko 🌟🌟\n29/07/2023, 9:39\u202fam - Sania changed their phone number to a new number. Tap to message or add the new number.\n29/07/2023, 9:58\u202fam - Sania New changed their phone number to a new number. Tap to message or add the new number.\n29/07/2023, 10:05\u202fam - Sania changed their phone number to a new number. Tap to message or add the new number.\n18/08/2023, 12:10\u202fpm - +91 99585 35142: <Media omitted>\n18/08/2023, 12:10\u202fpm - +91 99585 35142: Data for 1st April 22- 31st March 2023\n18/08/2023, 12:10\u202fpm - +91 99585 35142: Outside university anyone participated. Send details\n24/08/2023, 12:30\u202fpm - Muazzam: Kisi kai pass Dr Suraiya Parveen ma'am ka number hai toh please bh j do.\nThanks\n24/08/2023, 12:31\u202fpm - +91 84475 88282: Suraiyya Parveen Mam. vcf (file attached)\n24/08/2023, 12:31\u202fpm - Muazzam: Shukriya Bhai 😊👍\n👍\n01/09/2023, 8:25\u202fpm - Muazzam: <Media omitted>\n01/09/2023, 8:26\u202fpm - Muazzam: 1700 kaha submit karna hai?\n01/09/2023, 8:40\u202fpm - +91 76785 24 057: Website pr chale jao jamia hamdard ki\n01/09/2023, 8:41\u202fpm - +91 76785 24057: Online portal\n01/09/2023, 8:42\u202fpm - +91 78276 64348: Boht jldi horhi hai bhai 😅😅\n01/09/2023, 8:43\u202fpm - +91 99581 48292: Link send kardo\n01/09/2023, 8:44\u202fpm - +91 76785 24057: Website pr jao upper online payment option hota hai select hai\n01/09/2023, 8:44\u202fpm - +91 76785 24057: Kro aahe ka krle na\n01/09/2023, 9:43\u202fpm - Ansab Jh: Bhai mujhe dedo 25 saal m double kr k du ga.\n01/09/2023, 9:48\u202fpm - Muazzam: Tu apni salary mujhe dedai, mai ek din Mai he double krdunga 😊\n01/09/2023, 10:05\u202fpm - Noman Jh: What about double in a minute??\n02/09/2023, 9:53\u202fam - +91 81788 46270: Where to get that provisional certificate as mentioned in notes?\n07/09/2023, 11:23\u202fpm - +91 99113 95512: Hello there,\nConvocation me kon kon aa rha hai?\n07/09/2023, 11:40\u202fpm - Tayseer Jh: Mai nahi aa raha.\n08/09/2023, 12:07\u202fam - Noman Jh: Aa jao\n22/02/2024, 4:59\u202fpm - Tayseer Jh added Hassan Jh\nTayseer Jh added Hassan Jh

Step 3 : Basic Understanding of Data

In [5]: `type(data)`

Out[5]: `str`

Observation : Type of data is string

```
In [6]: print(data)
```

21/08/2019, 10:13 am - Messages and calls are end-to-end encrypted. No one outside of this chat, not even WhatsApp, can read or listen to them. Tap to learn more.

20/08/2018, 11:14 am - ~ Mohammad Imran created group "Btech CSE Sec B 2018-22"

21/08/2019, 10:13 am - Ansab Jh added you

21/08/2019, 10:35 am - +91 89541 07151: kha pa

21/08/2019, 10:36 am - +91 94314 50020: Mam Aayi Bhai

21/08/2019, 10:43 am - Ansab Jh: <Media omitted>

21/08/2019, 12:39 pm - Ansab Jh: <Media omitted>

21/08/2019, 12:43 pm - Nitesh Jh: 4 Marks extra for Good Handwriting 😊

21/08/2019, 12:56 pm - Noman Jh: Karra

21/08/2019, 12:56 pm - Noman Jh: Bhai ye zaroor larki hogi

21/08/2019, 12:56 pm - Noman Jh: 🎉🎉

21/08/2019, 1:56 pm - +91 82992 81137: class strt ho gyi

21/08/2019, 1:57 pm - Nitesh Jh: Haan

21/08/2019, 2:03 pm - +91 82992 81137: kha pe

21/08/2019, 2:03 pm - Nitesh Jh: 402

21/08/2019, 2:44 pm - Ansab Jh: No DSA for today.
Theory of DSA will be tomorrow at 10:05

21/08/2019, 6:58 pm - +91 85275 03782: <Media omitted>

21/08/2019, 7:00 pm - +91 85275 03782: This is an internship opportunity from swiggy. Interested students may register. Share it in your class group (as per directions from the placement cell)

21/08/2019, 7:05 pm - +91 85275 03782: For any queries contact Shiv bhaiya - +917678490617

21/08/2019, 7:13 pm - Noman Jh: <Media omitted>

21/08/2019, 7:14 pm - Noman Jh: Massive crowd with rods in hands going towards Ravidas mandir...stay safe everyone... situation is very sensitive here

21/08/2019, 7:18 pm - Tabish Jh: Roads are all locked with traffic and protesters coming from the Mathura Road/Ashram side, going towards Tughlakabad.

21/08/2019, 8:21 pm - Noman Jh: <Media omitted>

21/08/2019, 8:27 pm - +91 95282 13030: <Media omitted>

21/08/2019, 9:15 pm - Safeer Jh: Add him new student

21/08/2019, 9:15 pm - Safeer Jh: Hassan Bhai New.vcf (file attached)

21/08/2019, 9:17 pm - Ansab Jh added Hassan Jh

21/08/2019, 9:43 pm - Hassan Jh: Hi guys!

My name is Hassan,
I've taken admission in your class through lateral entry programme and wants to have some tips from you.
Kindly help.

21/08/2019, 9:44 pm - Hassan Jh: Does class starts at exact 8:30?

21/08/2019, 9:44 pm - Zuhair Jh: Depends on the teacher

21/08/2019, 9:45 pm - Hassan Jh: What's about tomorrow then?

21/08/2019, 9:45 pm - Noman Jh: I advice no one to come Tomorrow

21/08/2019, 9:46 pm - +91 78408 50503: That's what i am thinking after watching those videos

21/08/2019, 9:46 pm - +91 80773 62125: +1

21/08/2019, 9:46 pm - Zuhair Jh: +1

21/08/2019, 9:46 pm - Noman Jh: Dude !!.. m exactly here

21/08/2019, 9:46 pm - Noman Jh: I know the conditions

21/08/2019, 9:48 pm - Hassan Jh: What videos bhai?

21/08/2019, 9:48 pm - +91 78408 50503: <Media omitted>

21/08/2019, 9:48 pm - +91 78408 50503: <Media omitted>

21/08/2019, 9:48 pm - +91 78408 50503: These videos bro

21/08/2019, 9:50 pm - Hassan Jh: Is it about the ravidas mandir demolished?

21/08/2019, 9:50 pm - Ansab Jh: Yes.

21/08/2019, 9:50 pm - +91 78408 50503: Yup

21/08/2019, 9:51 pm - Hassan Jh: +1

21/08/2019, 9:54 pm - Noman Jh: <Media omitted>

21/08/2019, 9:54 pm - Noman Jh: <Media omitted>

21/08/2019, 9:55 pm - Noman Jh: <Media omitted>

21/08/2019, 9:55 pm - Noman Jh: <Media omitted>

21/08/2019, 10:01 pm - Noman Jh: <Media omitted>
21/08/2019, 10:01 pm - Noman Jh: <Media omitted>
21/08/2019, 10:01 pm - Noman Jh: <Media omitted>
21/08/2019, 10:03 pm - +91 84475 88282: Ye photo to CP ke pas ka hai
21/08/2019, 10:16 pm - Noman Jh: <Media omitted>
22/08/2019, 11:43 am - Noman Jh: Can you help me out by signing this petition to bring back spiderman to mcu?
<http://chng.it/LXJNh6sv>
22/08/2019, 12:04 pm - Nida Iftekhar Ma'am: Section B
22/08/2019, 12:04 pm - Nida Iftekhar Ma'am: Are u present?
22/08/2019, 12:08 pm - Muazzam: No mam
22/08/2019, 12:23 pm - +91 94312 02971: <Media omitted>
22/08/2019, 12:23 pm - +91 94312 02971: This message was deleted
22/08/2019, 12:23 pm - +91 94312 02971: Can anybody find its pdf online
22/08/2019, 12:51 pm - +91 94312 02971: <Media omitted>
22/08/2019, 1:26 pm - +91 94312 02971: Good news guys 😊
Today 1st year BTCSE section-B class was on 402... as their induction program is over
22/08/2019, 1:29 pm - +91 94312 02971: Finally, it seems we will have our classes in LT.
22/08/2019, 1:30 pm - Muazzam: Saari classes??
22/08/2019, 1:31 pm - +91 94312 02971: That's what I am hoping for!!!
22/08/2019, 1:34 pm - Ansab Jh: <Media omitted>
22/08/2019, 1:35 pm - Ansab Jh: 🔥🔥👉👉 Finally.
22/08/2019, 2:26 pm - Tabish Jh: Sabr kitni bdi cheez hai. 😊
22/08/2019, 2:26 pm - +91 81788 46270: yr huyi na baat bhai aap ke muun men ghee shakkar 😊
22/08/2019, 2:28 pm - +91 94312 02971: Truethat
22/08/2019, 2:35 pm - +91 81307 22606: Allah ham sabko sabr ata farmaye
22/08/2019, 2:35 pm - +91 81307 22606: Ameen
22/08/2019, 8:08 pm - +91 76785 24057: <Media omitted>
22/08/2019, 8:10 pm - Noman Jh: This message was deleted
22/08/2019, 8:10 pm - Noman Jh: Fake!
22/08/2019, 8:11 pm - Noman Jh: Kl ka ni h
22/08/2019, 8:11 pm - +91 76785 24057: Nope
22/08/2019, 8:11 pm - +91 76785 24057: Aj ka hai
22/08/2019, 8:11 pm - Noman Jh: Ni h bhai
22/08/2019, 8:11 pm - Noman Jh: Bht phle ki. H
22/08/2019, 8:11 pm - +91 76785 24057: Really?
22/08/2019, 8:19 pm - Hassan Jh: Bht pehle ki h
22/08/2019, 8:19 pm - +91 82992 81137: ye video yha ki ni hai
22/08/2019, 8:19 pm - +91 76785 24057: Hn sry ye kasmir ka hai i think
22/08/2019, 8:20 pm - Noman Jh: This message was deleted
22/08/2019, 8:20 pm - Noman Jh: Nii
22/08/2019, 8:20 pm - Noman Jh: Yhi ki h
22/08/2019, 8:21 pm - +91 76785 24057: Delhi k
22/08/2019, 8:21 pm - +91 76785 24057: ?
22/08/2019, 8:22 pm - Noman Jh: Hn
22/08/2019, 8:24 pm - +91 76785 24057: Hamdrd side k hai?
22/08/2019, 8:24 pm - +91 81307 22606: <https://www.altnews.in/article-370-old-moc-k-drill-video-from-jharkhand-viral-as-30-kashmiris-shot-dead/>
22/08/2019, 8:24 pm - +91 77039 91535: Nopes
22/08/2019, 8:24 pm - +91 77039 91535: It's from Kashmir
22/08/2019, 8:26 pm - +91 81307 22606: <Media omitted>
22/08/2019, 8:27 pm - Noman Jh: Kashmiri kh rha hai ke ni h .. tum alag neta ban jao
22/08/2019, 8:38 pm - +91 77039 91535: Tum hi bta do kahan ki hai
22/08/2019, 8:41 pm - Noman Jh: Jaha ki bhi ho .. kashmir ki ni hai...
22/08/2019, 8:43 pm - Noman Jh: End the debate .. 🙏
22/08/2019, 8:50 pm - +91 80773 62125: Kal college kon kon aaega
22/08/2019, 9:02 pm - +91 87007 82883: 🙌
22/08/2019, 9:02 pm - Hassan Jh: +1
22/08/2019, 9:05 pm - Ansab Jh: 🙌
22/08/2019, 10:29 pm - +91 97186 74770: Bhai Kashmir me kha ke ho me jammu se hu

22/08/2019, 10:30 pm - Sahal: Rampur se hai ye 😊
 22/08/2019, 10:30 pm - Sahal: UP
 22/08/2019, 10:34 pm - +91 97186 74770: Accha
 22/08/2019, 10:35 pm - +91 97186 74770: Bhai Sakib Kashmir ki nahi hai
 23/08/2019, 9:12 am - Ansab Jh: Sir aagye h. Class k lye.
 23/08/2019, 9:21 am - Tabish Jh: Baat toh LT ki hui thi shayad
 23/08/2019, 9:22 am - +91 89541 07151: kha pa ha class
 23/08/2019, 9:23 am - Tabish Jh: Wahin jahan achi khaasi disappointment milti ha i. 😢
 23/08/2019, 9:23 am - Sahal: :'(

23/08/2019, 9:24 am - Zuhai Jh: 😢😢 sad life
 23/08/2019, 10:18 am - +91 94312 02971: Tabish,did u bring the letter?
 23/08/2019, 11:23 am - Tabish Jh: .
 23/08/2019, 2:05 pm - Ansab Jh: IT lab on 4th floor
 23/08/2019, 2:08 pm - Ansab Jh: <Media omitted>
 23/08/2019, 2:57 pm - Ansab Jh: *Note*
 On next friday all have to bring hard copy of todays code. Sir will sign the paper.
 23/08/2019, 3:02 pm - +91 78276 64348: Bhai next class hai kya
 23/08/2019, 3:02 pm - +91 78276 64348: Ye bata jldi
 23/08/2019, 3:05 pm - Ansab Jh: Ptanh bhai.
 23/08/2019, 3:07 pm - Muazzam: Dsa hai kya?
 23/08/2019, 3:07 pm - Muazzam: Lab
 23/08/2019, 3:12 pm - +91 94312 02971: Nida mam is on leave...so, no lab today
 23/08/2019, 10:49 pm - Ansab Jh: <Media omitted>
 24/08/2019, 1:04 pm - +91 81788 46270: https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.news18.com/amp/news/india/arun-jaitley-former-finance-minister-and-bjp-veteran-passes-away-at-66-2282071.html&ved=2ahUKEwiY5Jij_5rkAhWLr48KHfeBB2oQiJQBMAN6BAgEEAM&usg=A0vVaw1FdfZ3GqaHCPXS0ybneXW&cf=1
 24/08/2019, 1:24 pm - Ansab Jh: <Media omitted>
 24/08/2019, 1:24 pm - Ansab Jh: <Media omitted>
 24/08/2019, 1:28 pm - Noman Jh: 😊
 24/08/2019, 1:28 pm - Noman Jh: Koi b dede
 24/08/2019, 1:29 pm - Ansab Jh: *Notice for Analog lab Group1*
 Students are requested to form a group of not more than 5 students in each group. After making their group they can submit their names to me.

Group1

All students should complete their lab file by monday, with reading. Those who have not complete their readings in lab they have to write only theory (no need of readings) . Mam will show the experiment one more time to them.

All are required to bring their lab rough copy.

😊😊😊😊😊😊

24/08/2019, 1:29 pm - Noman Jh: Mohammad haris
 24/08/2019, 1:30 pm - Ansab Jh: Okay. Done.
 24/08/2019, 1:31 pm - Noman Jh: Lab file mai kya krna h
 24/08/2019, 1:31 pm - Noman Jh: Samaan de
 24/08/2019, 1:44 pm - +91 82992 81137: who is remaining?
 24/08/2019, 1:45 pm - +91 82992 81137: This message was deleted
 24/08/2019, 1:51 pm - +91 81788 46270: me
 24/08/2019, 1:52 pm - +91 83681 83612: Owais
 24/08/2019, 2:08 pm - Saqib Jh: Saqib
 24/08/2019, 2:08 pm - +91 82992 81137: aur koi hai?
 24/08/2019, 2:09 pm - +91 80773 62125: Hasan
 24/08/2019, 2:30 pm - +91 83184 52621: Yusuf
 24/08/2019, 2:40 pm - +91 96434 61873: This message was deleted
 24/08/2019, 2:40 pm - +91 96434 61873: This message was deleted
 24/08/2019, 3:23 pm - +91 78276 64348: Faiz
 Atyab
 24/08/2019, 3:24 pm - +91 78276 64348: Bhai humara to grp 1 m naam daal diya m a'am n

24/08/2019, 3:25 pm - +91 88009 52071: This message was deleted
 24/08/2019, 3:25 pm - +91 88009 52071: Shahab
 24/08/2019, 3:42 pm - +91 84475 88282: Mohammad Saad
 24/08/2019, 3:57 pm - Ansab Jh: Bhai pure grp ka name prsnl m bata..
 24/08/2019, 3:58 pm - +91 81307 22606: Wo group change ho gya
 24/08/2019, 4:10 pm - +91 78276 64348: Accha
 24/08/2019, 4:50 pm - +91 78276 64348: .ye wale ki bol raha hu nain
 24/08/2019, 5:19 pm - +91 84475 88282: Mohammad Saad
 Yusuf

Aur koi ho to is grp me add ho jana
 24/08/2019, 5:20 pm - +91 83681 83612: Owais
 24/08/2019, 5:25 pm - +91 89238 88197: Sarim
 24/08/2019, 5:31 pm - +91 78276 64348: Faiz atyab
 24/08/2019, 5:53 pm - +91 82992 81137: Saadaan
 24/08/2019, 6:06 pm - +91 94314 50020: Mohammed Saad Alam
 Mohd Salman
 24/08/2019, 6:06 pm - +91 78276 64348: Full hogaya grp bhai
 24/08/2019, 6:06 pm - +91 78276 64348: Naya bana le
 24/08/2019, 7:11 pm - Ansab Jh: Those who have formed new groups. Send me the names of all members.
 24/08/2019, 7:33 pm - Muazzam: Add me too moazzam
 24/08/2019, 7:33 pm - Noman Jh: Moazzam where are you 🇮🇳
 24/08/2019, 7:34 pm - Muazzam: In peace
 24/08/2019, 7:34 pm - Noman Jh: Rest*
 24/08/2019, 8:43 pm - Hassan Jh: Hassan.
 24/08/2019, 9:03 pm - +91 96434 61873: 🙏
 24/08/2019, 9:04 pm - +91 90506 90674: Bhai group h toh humara
 24/08/2019, 9:16 pm - +91 88009 52071: Mohammad shahab
 24/08/2019, 10:12 pm - +91 97186 74770: Mohsin Kirmani
 Mohammad Talib
 25/08/2019, 7:36 am - Muazzam: Achaa
 26/08/2019, 8:45 am - +91 82992 81137: class kitne bje hai?
 26/08/2019, 8:48 am - Ansab Jh: Bhai sir aagye h.
 26/08/2019, 8:48 am - Ansab Jh: This message was deleted
 26/08/2019, 10:49 am - Noman Jh: <Media omitted>
 26/08/2019, 10:49 am - Noman Jh: <Media omitted>
 26/08/2019, 10:49 am - Noman Jh: <Media omitted>
 26/08/2019, 11:20 am - +91 94314 50020: <Media omitted>
 26/08/2019, 11:20 am - +91 94314 50020: <Media omitted>
 26/08/2019, 11:20 am - +91 94314 50020: <Media omitted>
 26/08/2019, 11:20 am - +91 94314 50020: <Media omitted>
 26/08/2019, 1:35 pm - Muazzam: Class hai ?
 26/08/2019, 1:48 pm - +91 87007 82883: Start ho gyi
 26/08/2019, 1:48 pm - +91 96434 61873: Ansab chli aa class ho rhi ha
 26/08/2019, 1:49 pm - +91 96434 61873: 🙄
 26/08/2019, 1:52 pm - +91 87007 82883: <Media omitted>
 26/08/2019, 1:59 pm - Nida Iftekhar Ma'am: Unnat Bharat Abhiyan is inspired by the vision of transformational change in rural development processes by leveraging knowledge institutions to help build the architecture of an Inclusive India. Dept. of CSE, Jamia Hamdard, New Delhi is enlisted as one of the Participatory Institution within NCR to implement the objectives under UBA, who will be, mutually running the impact operations with Reaching Sky Foundation (Voluntary Organisation).

In order to move towards holistic development of villages, we (Dept. of CSE, Jamia Hamdard, New Delhi & Reaching Sky Foundation) need volunteers to intervene in major domains of Human Development which includes ITC, Health, Education, Values & Skills.

Volunteers will be expected to:-

- understand the objectives of the project.
- explore the needs of people in selected villages.
- provide inputs in preparing an action plan in coordination with core team & stakeholders.

<https://www.authorityentrepreneurs.com/>

Urgent requirement

07/12/2022, 4:58 pm - Safeer Jh: *Greetings from the Placement Cell, Jamia Hamdard.*

This Google form is for those who are not placed from the Batch of 2022 or do not hold any offer from the company.

Link: <https://forms.gle/AvbLNnfN1NcgFenH8>

Note: Those who got offers but joining are delayed or cancelled due to recession can apply here.

For any queries, Feel free to contact:

Zuhair Abbas:+91 70113 06929

Fahad Rafique: 7678435005

24/12/2022, 4:44 pm - +91 99113 95512: <https://youtu.be/hyHYLIr3Lrk>

16/02/2023, 11:18 am - Ansab Jh: This message was deleted

17/02/2023, 10:51 pm - +91 82798 84980: null

17/02/2023, 10:52 pm - Tayseer Jh: This message was deleted

22/04/2023, 6:08 am - Muazzam: <Media omitted>

22/04/2023, 8:45 am - +91 90159 79886: Eid Mubarak

22/04/2023, 8:46 am - +91 93153 08399: <Media omitted>

22/04/2023, 9:07 am - Safeer Jh: <Media omitted>

22/04/2023, 9:07 am - Zuhaiib Jh: Send eidi

22/04/2023, 9:07 am - Safeer Jh: Send a cancelled cheque

22/04/2023, 9:08 am - Zuhaiib Jh: Blank cheque bhej dunga tumhare lie toh meri jaan

n

22/04/2023, 9:08 am - Safeer Jh: <Media omitted>

22/04/2023, 9:16 am - Noman Jh: Bhej do koi eidi

22/04/2023, 12:12 pm - +91 80773 62125: Eid Mubarak to you and your beloved ones

27/04/2023, 9:18 am - Saqib Jh: This message was deleted

29/06/2023, 2:12 pm - +91 94312 02971: <Media omitted>

29/06/2023, 2:14 pm - +91 99113 95512: Eid Mubarak Sbhi Ko 🌟⚡️🌟

29/07/2023, 9:39 am - Sania changed their phone number to a new number. Tap to message or add the new number.

29/07/2023, 9:58 am - Sania New changed their phone number to a new number. Tap to message or add the new number.

29/07/2023, 10:05 am - Sania changed their phone number to a new number. Tap to message or add the new number.

18/08/2023, 12:10 pm - +91 99585 35142: <Media omitted>

18/08/2023, 12:10 pm - +91 99585 35142: Data for 1st April 22- 31st March 2023

18/08/2023, 12:10 pm - +91 99585 35142: Outside university anyone participated. Send details

24/08/2023, 12:30 pm - Muazzam: Kisi kai pass Dr Suraiya Parveen ma'am ka number hai toh please bhj do.

Thanks

24/08/2023, 12:31 pm - +91 84475 88282: Suraiyya Parveen Mam.vcf (file attached)

24/08/2023, 12:31 pm - Muazzam: Shukriya Bhai 😊👍👍👍

01/09/2023, 8:25 pm - Muazzam: <Media omitted>

01/09/2023, 8:26 pm - Muazzam: 1700 kaha submit karna hai?

01/09/2023, 8:40 pm - +91 76785 24057: Website pr chale jao jamia hamdard ki

01/09/2023, 8:41 pm - +91 76785 24057: Online portal

01/09/2023, 8:42 pm - +91 78276 64348: Boht jldi horhi hai bhai 😊😊

01/09/2023, 8:43 pm - +91 99581 48292: Link send kardo

01/09/2023, 8:44 pm - +91 76785 24057: Website pr jao uper online payment option hota hai select hai

01/09/2023, 8:44 pm - +91 76785 24057: Kro aahe ka krlena

01/09/2023, 9:43 pm - Ansab Jh: Bhai mujhe dedo 25 saal m double kr k duga.

01/09/2023, 9:48 pm - Muazzam: Tu apni salary mujhe dedai, mai ek din Mai he doubt le krdunga 😊

01/09/2023, 10:05 pm - Noman Jh: What about double in a minute??

02/09/2023, 9:53 am - +91 81788 46270: Where to get that provisional certificate

```
as mentioned in notes?  
07/09/2023, 11:23 pm - +91 99113 95512: Hello there,  
Convocation me kon kon aa rha hai?  
07/09/2023, 11:40 pm - Tayseer Jh: Mai nahi aa raha.  
08/09/2023, 12:07 am - Noman Jh: Aa jao  
22/02/2024, 4:59 pm - Tayseer Jh added Hassan Jh
```

Observation : In the dataset, the structure typically consists of data type indicators, followed by usernames, and then the actual messages sent by users. Our task involves extracting these columns for analysis. To achieve this, we'll employ Regular Expressions (RegEx) to define **patterns** matching this data structure, enabling us to create separate columns accordingly.

Step 4 : Data Cleaning

Making pattern

```
In [7]: pattern='\d{2}/\d{2}/\d{4},\s\d{1,2}:\d{2}\s[a,p]{1}\s-\s'
```

We can utilize the 'split' function to separate the message content and username into one column, while the date and time information can be parsed into another column

```
In [8]: messages=re.split(pattern,data)  
messages
```

Out[8]: [',
'Messages and calls are end-to-end encrypted. No one outside of this chat, not even WhatsApp, can read or listen to them. Tap to learn more.\n',
'~\u202fMohammad Imran created group "Btech CSE Sec B 2018-22"\n',
'Ansab Jh added you\n',
'+91 89541 07151: kha pa\n',
'+91 94314 50020: Mam Aayi Bhai\n',
'Ansab Jh: <Media omitted>\n',
'Ansab Jh: <Media omitted>\n',
'Nitesh Jh: 4 Marks extra for Good Handwriting 😊\n',
'Noman Jh: Karra\n',
'Noman Jh: Bhai ye zaroor larki hogi\n',
'Noman Jh: 🎉🎉\n',
'+91 82992 81137: class strt ho gyi\n',
'Nitesh Jh: Haan\n',
'+91 82992 81137: kha pe\n',
'Nitesh Jh: 402\n',
'Ansab Jh: No DSA for today.\nTheory of DSA will be tomorrow at 10:05\n',
'+91 85275 03782: <Media omitted>\n',
'+91 85275 03782: This is an internship opportunity from swiggy. Interested students may register. Share it in your class group (as per directions from the placement cell)\n',
'+91 85275 03782: For any queries contact Shiv bhaiya - +917678490617\n',
'Noman Jh: <Media omitted>\n',
'Noman Jh: <Media omitted>\n',
'Noman Jh: <Media omitted>\n',
'Noman Jh: <Media omitted>\n',
'Noman Jh: Massive crowd with rods in hands going towards Ravidas mandir...stay safe everyone... situation is very sensitive here\n',
'Tabish Jh: Roads are all locked with traffic and protesters coming from the Matura Road/Ashram side, going towards Tughlakabad.\n',
'Noman Jh: <Media omitted>\n',
'+91 95282 13030: <Media omitted>\n',
'Safeer Jh: Add him new student\n',
'Safeer Jh: Hassan Bhai New.vcf (file attached)\n',
'Ansab Jh added Hassan Jh\n',
"Hassan Jh: Hi guys!\nMy name is Hassan,\nI've taken admission in your class through lateral entry programme and wants to have some tips from you.\nKindly help.\n",
'Hassan Jh: Does class starts at exact 8:30?\n',
'Zuhaib Jh: Depends on the teacher\n',
"Hassan Jh: What's about tomorrow then?\n",
'Noman Jh: I advice no one to come Tomorrow\n',
'+91 78408 50503: That's what i am thinking after watching those videos\n',
'+91 80773 62125: +1\n',
'Zuhaib Jh: +1\n',
'Noman Jh: Dude !!.. m exactly here\n',
'Noman Jh: I know the conditions\n',
'Hassan Jh: What videos bhai?\n',
'+91 78408 50503: <Media omitted>\n',
'+91 78408 50503: <Media omitted>\n',
'+91 78408 50503: These videos bro\n',
'Hassan Jh: Is it about the ravidas mandir demolished?\n',
'Ansab Jh: Yes.\n',
'+91 78408 50503: Yup\n',
'Hassan Jh: +1\n',
'Noman Jh: <Media omitted>\n',
'+91 84475 88282: Ye photo to CP ke pas ka hai\n',

'Noman Jh: <Media omitted>\n',
'Noman Jh: Can you help me out by signing this petition to bring back spiderman to mcu?\nhttp://chng.it/LXJNh6sv\n',
"Nida Iftekhar Ma'am: Section B\n",
"Nida Iftekhar Ma'am: Are u present?\n",
'Muazzam: No mam\n',
'+91 94312 02971: <Media omitted>\n',
'+91 94312 02971: This message was deleted\n',
'+91 94312 02971: Can anybody find its pdf online\n',
'+91 94312 02971: <Media omitted>\n',
'+91 94312 02971: Good news guys 😊\nToday 1st year BTCSE section-B class was on 402... as their induction program is over\n',
'+91 94312 02971: Finally, it seems we will have our classes in LT.\n',
'Muazzam: Saari classes??\n',
"+91 94312 02971: That's what I am hoping for!!!\n",
'Ansab Jh: <Media omitted>\n',
'Ansab Jh: 🔥🔥👉👉 Finally.\n',
'Tabish Jh: Sabr kitni bdi cheez hai. 😊\n',
'+91 81788 46270: yr huyi na baat bhai aap ke muun men ghee shakkar 😊\n',
'+91 94312 02971: Truethat\n',
'+91 81307 22606: Allah ham sabko sabr ata farmaye\n',
'+91 81307 22606: Ameen\n',
'+91 76785 24057: <Media omitted>\n',
'Noman Jh: This message was deleted\n',
'Noman Jh: Fake!\n',
'Noman Jh: Kl ka ni h\n',
'+91 76785 24057: Nope\n',
'+91 76785 24057: Aj ka hai\n',
'Noman Jh: Ni h bhai\n',
'Noman Jh: Bht phle ki. H\n',
'+91 76785 24057: Really?\n',
'Hassan Jh: Bht pehle ki h\n',
'+91 82992 81137: ye video yha ki ni hai\n',
'+91 76785 24057: Hn sry ye kasmir ka hai i think\n',
'Noman Jh: This message was deleted\n',
'Noman Jh: Nii\n',
'Noman Jh: Yhi ki h\n',
'+91 76785 24057: Delhi k\n',
'+91 76785 24057: ?\n',
'Noman Jh: Hn\n',
'+91 76785 24057: Hamdrd side k hai?\n',
'+91 81307 22606: https://www.altnews.in/article-370-old-mock-drill-video-from-jharkhand-viral-as-30-kashmiris-shot-dead/\n',
'+91 77039 91535: Nopes\n',
"+91 77039 91535: It's from Kashmir\n",
'+91 81307 22606: <Media omitted>\n',
'Noman Jh: Kashmiri kh rha hai ke ni h .. tum alag neta ban jao\n',
'+91 77039 91535: Tum hi bta do kahan ki hai\n',
'Noman Jh: Jaha ki bhi ho .. kashmir ki ni hai...\n',
'Noman Jh: End the debate .. 🤷\n',
'+91 80773 62125: Kal college kon kon aaega\n',
'+91 87007 82883: 🤝\n',
'Hassan Jh: +1\n',
'Ansab Jh: 🙌\n',
'+91 97186 74770: Bhai Kashmir me kha ke ho me jammu se hu\n',
'Sahal: Rampur se hai ye 😊\n',
'Sahal: UP\n',
'+91 97186 74770: Accha\n',
'+91 97186 74770: Bhai Sakib Kashmir ki nahi hai\n',
'Ansab Jh: Sir aagye h. Class k lye.\n',
'Tabish Jh: Baat toh LT ki hui thi shayad\n',
'+91 89541 07151: kha pa ha class\n',
'Tabish Jh: Wahin jahan achi khaasi disappointment milti hai. 😢\n',
"Sahal: :(\n",

'Zuhaib Jh: 😢😢 sad life\n',
'+91 94312 02971: Tabish,did u bring the letter?\n',
'Tabish Jh: .\n',
'Ansab Jh: IT lab on 4th floor\n',
'Ansab Jh: <Media omitted>\n',
'Ansab Jh: *Note*\nOn next friday all have to bring hard copy of todays code. Sir will sign the paper.\n',
'+91 78276 64348: Bhai next class hai kya\n',
'+91 78276 64348: Ye bata jldi\n',
'Ansab Jh: Ptanh bhai.\n',
'Muazzam: Dsa hai kya?\n',
'Muazzam: Lab\n',
'+91 94312 02971: Nida mam is on leave...so, no lab today\n',
'Ansab Jh: <Media omitted>\n',
'+91 81788 46270: https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.news18.com/amp/news/india/arun-jaitley-former-finance-minister-and-bjp-veteran-passes-away-at-66-2282071.html&ved=2ahUKEwiY5Jij_5rkAhWLr48KHfeBB2oQijQBMAN6BAgEAM&usg=A0vVaw1FdfZ3GqaHCPXS0yqbneXW&cf=1\n',
'Ansab Jh: <Media omitted>\n',
'Ansab Jh: <Media omitted>\n',
'Noman Jh: 😊\n',
'Noman Jh: Koi b dede\n',
'Ansab Jh: *Notice for Analog lab Group1*\nStudents are requested to form a group of not more than 5 students in each group.\nAfter making their group they can submit their names to me.\n-----\n*Group1*\nAll students should complete their lab file by monday, with reading.\nThose who have not complete their readings in lab they have to write only theory (no need of readings) . Mam will show the experiment one more time to them.\n\nAll are required to bring their lab rough copy.\n😊😊😊😊😊😊😊\n',
'Noman Jh: Mohammad haris\n',
'Ansab Jh: Okay. Done.\n',
'Noman Jh: Lab file mai kya krna h\n',
'Noman Jh: Samaan de\n',
'+91 82992 81137: who is remaining?\n',
'+91 82992 81137: This message was deleted\n',
'+91 81788 46270: me\n',
'+91 83681 83612: Owais\n',
'Saqib Jh: Saqib\n',
'+91 82992 81137: aur koi hai?\n',
'+91 80773 62125: Hasan\n',
'+91 83184 52621: Yusuf\n',
'+91 96434 61873: This message was deleted\n',
'+91 96434 61873: This message was deleted\n',
'+91 78276 64348: Faiz \nAtyab\n',
"+91 78276 64348: Bhai humara to grp 1 m naam daal diya ma'am n\n",
'+91 88009 52071: This message was deleted\n',
'+91 88009 52071: Shahab\n',
'+91 84475 88282: Mohammad Saad\n',
'Ansab Jh: Bhai pure grp ka name prsnl m bata..\n',
'+91 81307 22606: Wo group change ho gya\n',
'+91 78276 64348: Accha\n',
'+91 78276 64348: .ye wale ki bol raha hu nain\n',
'+91 84475 88282: Mohammad Saad\nYusuf \n\nAur koi ho to is grp me add ho jana\n',
'+91 83681 83612: Owais\n',
'+91 89238 88197: Sarim\n',
'+91 78276 64348: Faiz atyab\n',
'+91 82992 81137: Saadaan\n',
'+91 94314 50020: Mohammed Saad Alam\nMohd Salman\n',
'+91 78276 64348: Full hogaya grp bhai\n',
'+91 78276 64348: Naya bana le\n',
'Ansab Jh: Those who have formed new groups. Send me the names of all members.\n',
'Muazzam: Add me too moazzam\n',

'Noman Jh: Moazzam where are you 🚶\n',
 'Muazzam: In peace\n',
 'Noman Jh: Rest*\n',
 'Hassan Jh: Hassan.\n',
 '+91 96434 61873: 📲\u200dd\n',
 '+91 90506 90674: Bhai group h toh humara\n',
 '+91 88009 52071: Mohammad shahab\n',
 '+91 97186 74770: Mohsin Kirmani\nMohammad Talib\n',
 'Muazzam: Achaa\n',
 '+91 82992 81137: class kitne bje hai?\n',
 'Ansab Jh: Bhai sir aagye h.\n',
 'Ansab Jh: This message was deleted\n',
 'Noman Jh: <Media omitted>\n',
 'Noman Jh: <Media omitted>\n',
 'Noman Jh: <Media omitted>\n',
 '+91 94314 50020: <Media omitted>\n',
 'Muazzam: Class hai ?\n',
 '+91 87007 82883: Start ho gyi\n',
 '+91 96434 61873: Ansab chli aa class ho rhi ha\n',
 '+91 96434 61873: 🤔\n',
 '+91 87007 82883: <Media omitted>\n',
 "Nida Iftekhar Ma'am: Unnat Bharat Abhiyan is inspired by the vision of transformational change in rural development processes by leveraging knowledge institutions to help build the architecture of an Inclusive India. Dept. of CSE, Jamia Hamdard , New Delhi is enlisted as one of the Participatory Institution within NCR to implement the objectives under UBA, who will be, mutually running the impact operations with Reaching Sky Foundation (Voluntary Organisation). \n\nIn order to move towards holistic development of villages, we (Dept. of CSE, Jamia Hamdard, New Delhi & Reaching Sky Foundation) need volunteers to intervene in major domains of Human Development which includes ITC, Health, Education, Values & Skills.\nVolunteers will be expected to:-\n- understand the objectives of the project.\n- explore the needs of people in selected villages.\n- provide inputs in preparing an action plan in coordination with core team & stakeholders.\n- implement the action plan as per the developed timeline (facilitation for weekend activities).\n- assist in monitoring & reporting of the project's progress & updates.\n- provide leadership in awareness generation & social mobilization of targeted communities. \n\nVolunteers, in lieu of their active participation, will benefit through:-\n- new skills & social leadership experience.\n- youth networking.\n- advocacy training & certifications.\n\nTo learn more & show your interest & availability. Fill in the Form Below!\nForm Link - http://bit.ly/RSFVolunteerRegForm_UBA\n",
 "Nida Iftekhar Ma'am: Circulate the above information to Section A as well\n",
 'Ansab Jh: Mam aagai h.\n',
 '+91 96434 61873: Lelo class fir agar koi ha to\n',
 '+91 94312 02971: <Media omitted>\n',
 "+91 94312 02971: Nida mam's data structure class from 10am to 11am.\nSleep tight!!!! 🎃🎃🎃\n",
 'Noman Jh: Oh my god🎉🎉🎉\n',
 '+91 87007 82883: 🙌🙌\n',
 'Ansab Jh added +91 70489 49625\n',
 'Noman Jh: <Media omitted>\n',
 'Noman Jh: <Media omitted>\n',
 '+91 85275 03782: <Media omitted>\n',
 '+91 85275 03782: <Media omitted>\n',
 'Hassan Jh: Class ho ri h?\n',
 '+91 98185 82518: Class ho rhi h ???\n',
 '+91 98185 82518: English ki\n',
 'Safeer Jh: Yes Lt11\n',
 'Tabish Jh: LT17*\n',
 'Safeer Jh: 🙏\n',
 'Ansab Jh: <Media omitted>\n',

```

'+91 94312 02971: <Media omitted>\n',
'+91 94312 02971: DSA notes\n',
'Ansab Jh: Humanities class in Lt 11\n',
'+91 98185 82518: Lab start hui\n',
'+91 94314 50020: haan bhai\n',
'Ansab Jh: <Media omitted>\n',
'+91 76785 24057: Arey 1 sem ke koi maths k notes dedeo\n',
'+91 85275 03782: Class start ho gayi ?\n',
'+91 90506 90674: No\n',
'+91 85275 03782: Class kaha ho rahi hai\n',
'Nitesh Jh: 402\n',
'+91 85275 03782: 402 me toh pata nahi kon baitha hai\n',
'Nitesh Jh: Aake dekhle kon baitha hai\n',
'+91 85275 03782: Achha aa raha hu\n',
'+91 85275 03782: Class ho rahi hai\n',
'+91 88591 71050: Analog ki lab ho rhi h, come to 2nd floor\n',
'Nitesh Jh: <Media omitted>\n',
'Ansab Jh: For analog lab exp no 9 circuits.\n',
'Ansab Jh: Analog class on 2nd floor\n',
'+91 85275 03782: Class start Hui?\n',
'Noman Jh: 402 mai aao\n',
'Ansab Jh: Class of DSA in in 402\n',
'Ansab Jh: IT lab on 1st floor.\n',
'Safeer Jh: I request everyone please inform kardiya karo jab class ho rahi ho,
aakele class karke kya milega\n',
'Safeer Jh: 402, analog theory class\n',
'Safeer Jh: Now\n',
'Noman Jh: Thnkx bhai\n',
'Safeer Jh: Ds class in 402\n',
'Nameera: Abhi?\n',
'+91 78384 88250: Started\n',
'Safeer Jh: Yes start hogayi\n',
'Safeer Jh: This message was deleted\n',
'Ansab Jh: This message was deleted\n',
'Ansab Jh: Digital class is canclled.\n',
'+91 96317 34730: Class h aaj\n',
'+91 96317 34730: ???\n',
'+91 93193 31181: Nhi ghar ja\n',
'+91 78408 50503: Yes\n',
'+91 88591 71050: Naved Sir ki class ho rhi h kya ?\n',
'Nitesh Jh: Haan\n',
'+91 96508 41012: Hn\n',
'+91 88591 71050: 🙏\n',
'Ansab Jh: IT lab on 4th floor\n',
'Areeb Jh: Lab nhi ho rhi kya ??\n',
'+91 85275 03782: Pata nahi\n',
'+91 87007 82883: Happy deepawali everyone 🎈🎇🎆\n',
'Muazzam: Happy Diwali to Everyone!\n',
...
]
```

In [10]: `dates=re.findall(pattern,data)`
`dates`

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```

In the 'dates' variable, we notice the presence of "\u202f" characters that need removal. We can accomplish this using a map lambda function.

```
In [11]: date=list(map(lambda x:x.replace("\u202f",""),dates))  
date
```

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'23/08/2019, 9:24am - ',
'23/08/2019, 10:18am - ',
'23/08/2019, 11:23am - ',
'23/08/2019, 2:05pm - ',
'23/08/2019, 2:08pm - ',
'23/08/2019, 2:57pm - ',
'23/08/2019, 3:02pm - ',
'23/08/2019, 3:02pm - ',
'23/08/2019, 3:05pm - ',
'23/08/2019, 3:07pm - ',
'23/08/2019, 3:07pm - ',

'23/08/2019, 3:12pm - ',
'23/08/2019, 10:49pm - ',
'24/08/2019, 1:04pm - ',
'24/08/2019, 1:24pm - ',
'24/08/2019, 1:24pm - ',
'24/08/2019, 1:28pm - ',
'24/08/2019, 1:28pm - ',
'24/08/2019, 1:29pm - ',
'24/08/2019, 1:30pm - ',
'24/08/2019, 1:31pm - ',
'24/08/2019, 1:31pm - ',
'24/08/2019, 1:44pm - ',
'24/08/2019, 1:45pm - ',
'24/08/2019, 1:51pm - ',
'24/08/2019, 1:52pm - ',
'24/08/2019, 2:08pm - ',
'24/08/2019, 2:08pm - ',
'24/08/2019, 2:09pm - ',
'24/08/2019, 2:30pm - ',
'24/08/2019, 2:40pm - ',
'24/08/2019, 2:40pm - ',
'24/08/2019, 3:23pm - ',
'24/08/2019, 3:24pm - ',
'24/08/2019, 3:25pm - ',
'24/08/2019, 3:25pm - ',
'24/08/2019, 3:42pm - ',
'24/08/2019, 3:57pm - ',
'24/08/2019, 3:58pm - ',
'24/08/2019, 4:10pm - ',
'24/08/2019, 4:50pm - ',
'24/08/2019, 5:19pm - ',
'24/08/2019, 5:20pm - ',
'24/08/2019, 5:25pm - ',
'24/08/2019, 5:31pm - ',
'24/08/2019, 5:53pm - ',
'24/08/2019, 6:06pm - ',
'24/08/2019, 6:06pm - ',
'24/08/2019, 6:06pm - ',
'24/08/2019, 7:11pm - ',
'24/08/2019, 7:33pm - ',
'24/08/2019, 7:33pm - ',
'24/08/2019, 7:34pm - ',
'24/08/2019, 7:34pm - ',
'24/08/2019, 8:43pm - ',
'24/08/2019, 9:03pm - ',
'24/08/2019, 9:04pm - ',
'24/08/2019, 9:16pm - ',
'24/08/2019, 10:12pm - ',
'25/08/2019, 7:36am - ',
'26/08/2019, 8:45am - ',
'26/08/2019, 8:48am - ',
'26/08/2019, 8:48am - ',
'26/08/2019, 10:49am - ',
'26/08/2019, 10:49am - ',
'26/08/2019, 10:49am - ',
'26/08/2019, 11:20am - ',
'26/08/2019, 11:20am - ',
'26/08/2019, 11:20am - ',
'26/08/2019, 11:20am - ',
'26/08/2019, 1:35pm - ',
'26/08/2019, 1:48pm - ',
'26/08/2019, 1:48pm - ',
'26/08/2019, 1:49pm - ',

'18/10/2019, 9:32am - ',
'18/10/2019, 9:32am - ',
'18/10/2019, 9:55am - ',
'18/10/2019, 10:12am - ',
'18/10/2019, 10:30am - ',
'18/10/2019, 11:26am - ',
'18/10/2019, 11:42am - ',
'18/10/2019, 11:54am - ',
'18/10/2019, 2:16pm - ',
'18/10/2019, 2:16pm - ',
'18/10/2019, 2:18pm - ',
'18/10/2019, 2:32pm - ',
'18/10/2019, 2:32pm - ',
'18/10/2019, 2:32pm - ',
'18/10/2019, 2:34pm - ',
'20/10/2019, 9:24pm - ',
'21/10/2019, 9:24am - ',
'21/10/2019, 9:26am - ',
'21/10/2019, 10:50am - ',
'21/10/2019, 11:02am - ',
'21/10/2019, 11:25am - ',
'21/10/2019, 11:26am - ',
'21/10/2019, 11:51am - ',
'21/10/2019, 11:58am - ',
'21/10/2019, 11:58am - ',
'21/10/2019, 11:59am - ',
'21/10/2019, 12:04pm - ',
'21/10/2019, 12:04pm - ',
'21/10/2019, 1:56pm - ',
'21/10/2019, 1:57pm - ',
'21/10/2019, 2:01pm - ',
'21/10/2019, 11:28pm - ',
'21/10/2019, 11:28pm - ',
'22/10/2019, 9:09am - ',
'22/10/2019, 9:31am - ',
'22/10/2019, 9:31am - ',
'22/10/2019, 10:22am - ',
'22/10/2019, 10:22am - ',
'22/10/2019, 10:23am - ',
'22/10/2019, 10:24am - ',
'22/10/2019, 10:24am - ',
'22/10/2019, 11:23am - ',
'22/10/2019, 2:05pm - ',
'22/10/2019, 2:05pm - ',
'22/10/2019, 2:21pm - ',
'22/10/2019, 3:26pm - ',
'22/10/2019, 3:42pm - ',
'22/10/2019, 9:17pm - ',
'22/10/2019, 9:17pm - ',
'23/10/2019, 12:05am - ',
'23/10/2019, 12:05am - ',
'23/10/2019, 12:06am - ',
'23/10/2019, 12:06am - ',
'23/10/2019, 12:22am - ',
'23/10/2019, 12:38am - ',
'23/10/2019, 9:23am - ',
'23/10/2019, 9:24am - ',
'23/10/2019, 9:59am - ',

```
'23/10/2019, 9:59am - ',  
'23/10/2019, 10:00am - ',  
'23/10/2019, 10:00am - ',  
'23/10/2019, 10:01am - ',  
'23/10/2019, 10:05am - ',  
'23/10/2019, 10:23am - ',  
'23/10/2019, 10:58am - ',  
'23/10/2019, 11:04am - ',  
'23/10/2019, 11:04am - ',  
'23/10/2019, 11:04am - ',  
'23/10/2019, 11:04am - ',  
'23/10/2019, 1:30pm - ',  
'23/10/2019, 2:49pm - ',  
'23/10/2019, 2:59pm - ',  
'23/10/2019, 3:00pm - ',  
'24/10/2019, 9:23am - ',  
'24/10/2019, 11:28am - ',  
'24/10/2019, 11:29am - ',  
'24/10/2019, 11:29am - ',  
'24/10/2019, 11:40am - ',  
'24/10/2019, 12:23pm - ',  
'24/10/2019, 12:24pm - ',  
'24/10/2019, 12:26pm - ',  
'24/10/2019, 12:27pm - ',  
'24/10/2019, 12:28pm - ',  
'24/10/2019, 2:09pm - ',  
'24/10/2019, 2:09pm - ',  
'25/10/2019, 9:10am - ',  
'25/10/2019, 9:11am - ',  
'25/10/2019, 9:18am - ',  
'25/10/2019, 9:31am - ',  
'25/10/2019, 9:47am - ',  
'25/10/2019, 9:47am - ',  
'25/10/2019, 9:47am - ',  
'25/10/2019, 9:48am - ',  
'25/10/2019, 12:07pm - ',  
'25/10/2019, 2:17pm - ',  
'25/10/2019, 2:17pm - ',  
'27/10/2019, 8:35am - ',  
'27/10/2019, 9:07am - ',  
...]
```

We need to verify the accuracy of our extraction process by counting the lengths of both the 'dates' and 'messages' variables using the len() function.

```
In [12]: print("length of date is :",len(date))  
print("length of messages is :",len(messages))
```



```
length of date is : 6591  
length of messages is : 6591
```

We need to construct a DataFrame using the 'date' and 'messages' variables as columns.

```
In [13]: df=pd.DataFrame({"user_message":messages,"message_date":date})  
df
```

Out[13]:

		user_message	message_date
0	Messages and calls are end-to-end encrypted. N...	21/08/2019, 10:13am -	
1	~ Mohammad Imran created group "Btech CSE Sec ...	20/08/2018, 11:14am -	
2	Ansab Jh added you\n	21/08/2019, 10:13am -	
3	+91 89541 07151: kha pa\n	21/08/2019, 10:35am -	
4	+91 94314 50020: Mam Aayi Bhai\n	21/08/2019, 10:36am -	
...
6586	+91 81788 46270: Where to get that provisional...	02/09/2023, 9:53am -	
6587	+91 99113 95512: Hello there,\nConvocation me ...	07/09/2023, 11:23pm -	
6588	Tayseer Jh: Mai nahi aa raha.\n	07/09/2023, 11:40pm -	
6589	Noman Jh: Aa jao\n	08/09/2023, 12:07am -	
6590	Tayseer Jh added Hassan Jh\n	22/02/2024, 4:59pm -	

6591 rows × 2 columns

Step 5 : Preview of Clean Data

How Big is your chat

In [14]: df.shape

Out[14]: (6591, 2)

Observation: The Data has 6591 rows and 2 columns

Basic Info

In [15]: df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6591 entries, 0 to 6590
Data columns (total 2 columns):
 #   Column      Non-Null Count  Dtype  
---  --  
 0   user_message  6591 non-null   object 
 1   message_date  6591 non-null   object 
dtypes: object(2)
memory usage: 103.1+ KB
```

Observation: the Dtype of message_date is object instead of dateTime

In [16]: df

Out[16]:

		user_message	message_date
0	Messages and calls are end-to-end encrypted. N...	21/08/2019, 10:13am -	
1	~ Mohammad Imran created group "Btech CSE Sec ...	20/08/2018, 11:14am -	
2	Ansab Jh added you\n	21/08/2019, 10:13am -	
3	+91 89541 07151: kha pa\n	21/08/2019, 10:35am -	
4	+91 94314 50020: Mam Aayi Bhai\n	21/08/2019, 10:36am -	
...
6586	+91 81788 46270: Where to get that provisional...	02/09/2023, 9:53am -	
6587	+91 99113 95512: Hello there,\nConvocation me ...	07/09/2023, 11:23pm -	
6588	Tayseer Jh: Mai nahi aa raha.\n	07/09/2023, 11:40pm -	
6589	Noman Jh: Aa jao\n	08/09/2023, 12:07am -	
6590	Tayseer Jh added Hassan Jh\n	22/02/2024, 4:59pm -	

6591 rows × 2 columns

We need to convert the 'message_date' column from object type to datetime type. To achieve this, we'll first extract the date and time components using a specific format.

In [17]: df["message_date"] = pd.to_datetime(df["message_date"], format='%d/%m/%Y, %I:%M%p -

In [18]: df["message_date"]

```
Out[18]: 0    2019-08-21 10:13:00
1    2018-08-20 11:14:00
2    2019-08-21 10:13:00
3    2019-08-21 10:35:00
4    2019-08-21 10:36:00
...
6586   2023-09-02 09:53:00
6587   2023-09-07 23:23:00
6588   2023-09-07 23:40:00
6589   2023-09-08 00:07:00
6590   2024-02-22 16:59:00
Name: message_date, Length: 6591, dtype: datetime64[ns]
```

Step 6 : Feature Engineering Columns Extraction

```
In [19]: df["year"] = df["message_date"].dt.year
df["month"] = df["message_date"].dt.month_name()
df["day"] = df["message_date"].dt.day
df["hour"] = df["message_date"].dt.hour
```

```
df["month"] = df["message_date"].dt.month
df["day_name"] = df["message_date"].dt.day_name()
df["Date"] = df["message_date"].dt.date
df["minute"] = df["message_date"].dt.minute
df.sample(6)
```

Out[19]:

		user_message	message_date	year	month	day	hour	day_name	Date	minute
73		+91 94312 02971: Truethat\n	2019-08-22 14:28:00	2019	8	22	14	Thursday	2019-08-22	28
6307		+91 99585 35142: ok put today at 12.45\n	2022-03-28 12:20:00	2022	3	28	12	Monday	2022-03-28	20
6531		Nimra Jh left\n	2022-07-04 21:28:00	2022	7	4	21	Monday	2022-07-04	28
3410		+91 85275 03782: Ok mam\n	2020-06-07 14:56:00	2020	6	7	14	Sunday	2020-06-07	56
3216		Ansab Jh: bhai those who have not joined.\n	2020-05-11 23:29:00	2020	5	11	23	Monday	2020-05-11	29
3816		Ansab Jh: Those who have registered for the we...	2020-08-09 13:59:00	2020	8	9	13	Sunday	2020-08-09	59

We've successfully extracted various components such as year, date, month, month name, day, day name, hour, and minute from the 'message_date' column.

Now, we'll proceed to extract the user and their corresponding messages into separate columns from the 'user_message' column.

In [20]:

```
users_1=[]
messages_1=[]
for i in df["user_message"]:
    if (("created group" in i) | ("changed the group" in i)):
        li=[]
        li.append(i)
        #print(li)
    elif ("created group" not in i) | ("changed the group" not in i) :
        if ":" in i:
            li=i.split(":",maxsplit=1)
            #print(li)
        else:
            li=[]
            li.append(i)
    if len(li)>1:
        users_1.append(li[0])
        messages_1.append(li[1])
    else:
        users_1.append("group_notification")
        messages_1.append(li[0])
```

In [21]:

```
print(len(users_1))
print(len(messages_1))
```

```
6591
6591
```

```
In [22]: df["user_name"] = users_1
df["message"] = messages_1
```

```
In [23]: df.sample(2)
```

```
Out[23]: user_message message_date year month day hour day_name Date minute user_na
```

2845	Ansab Jh: All students please check if they ar...	2020-04-10 12:12:00	2020	4	10	12	Friday	2020-04-10	12	Ansab
------	--	------------------------	------	---	----	----	--------	------------	----	-------

3544	Ansab Jh: **Amateurs sit and wait for inspirat...	2020-06-23 13:17:00	2020	6	23	13	Tuesday	2020-06-23	17	Ansab
------	--	------------------------	------	---	----	----	---------	------------	----	-------

Having successfully extracted the usernames and their respective messages, the next step is to drop the 'user_message' column

```
In [24]: df.drop(columns=["user_message"], inplace=True)
```

```
In [25]: df.sample(2)
```

```
Out[25]: message_date year month day hour day_name Date minute user_name
```

6378	2022-04-11 09:52:00	2022	4	11	9	Monday	2022-04-11	52	Safeer Jh
5258	2021-04-07 12:40:00	2021	4	7	12	Wednesday	2021-04-07	40	Ansab Jh https://me...fh...

```
In [26]: df
```

Out[26]:

	message_date	year	month	day	hour	day_name	Date	minute	user_name
0	2019-08-21 10:13:00	2019		8	21	10	Wednesday	2019-08-21	M group_notification
1	2018-08-20 11:14:00	2018		8	20	11	Monday	2018-08-20	group_notification
2	2019-08-21 10:13:00	2019		8	21	10	Wednesday	2019-08-21	group_notification
3	2019-08-21 10:35:00	2019		8	21	10	Wednesday	2019-08-21	+91 89541 07151
4	2019-08-21 10:36:00	2019		8	21	10	Wednesday	2019-08-21	+91 94314 50020
...
6586	2023-09-02 09:53:00	2023		9	2	9	Saturday	2023-09-02	53 +91 81788 46270
6587	2023-09-07 23:23:00	2023		9	7	23	Thursday	2023-09-07	23 +91 99113 95512 then
6588	2023-09-07 23:40:00	2023		9	7	23	Thursday	2023-09-07	40 Tayseer Jh M
6589	2023-09-08 00:07:00	2023		9	8	0	Friday	2023-09-08	7 Noman Jh
6590	2024-02-22 16:59:00	2024		2	22	16	Thursday	2024-02-22	59 group_notification

6591 rows × 10 columns

In [27]: df["user_name"].unique()

```
Out[27]: array(['group_notification', '+91 89541 07151', '+91 94314 50020',  
   'Ansab Jh', 'Nitesh Jh', 'Noman Jh', '+91 82992 81137',  
   '+91 85275 03782', 'Tabish Jh', '+91 95282 13030', 'Safeer Jh',  
   'Hassan Jh', 'Zuhaib Jh', '+91 78408 50503', '+91 80773 62125',  
   '+91 84475 88282', "Nida Iftekhar Ma'am", 'Muazzam',  
   '+91 94312 02971', '+91 81788 46270', '+91 81307 22606',  
   '+91 76785 24057', '+91 77039 91535', '+91 87007 82883',  
   '+91 97186 74770', 'Sahal', '+91 78276 64348', '+91 83681 83612',  
   'Saqib Jh', '+91 83184 52621', '+91 96434 61873',  
   '+91 88009 52071', '+91 89238 88197', '+91 90506 90674',  
   '+91 98185 82518', '+91 78384 88250', '+91 88591 71050', 'Sania',  
   'Amir Hamza Jh', 'Tayseer Jh', '+91 82658 13965',  
   '+91 97185 75958', '+91 93193 31181', '+91 79067 75817',  
   '+91 90159 79886', '+91 99581 48292', 'Sahar Jh',  
   '+91 82679 93841', '+91 72508 00178', '+91 96508 41012',  
   '+91 98703 34388', 'Zubair Jh', '+91 95826 04777', 'Sadia',  
   'Nameera', '+91 96317 34730', 'Areeb Jh', 'Nimra Jh',  
   '+91 92052 48342', '+91 82798 84980', '+91 98184 36934',  
   '+91 99113 95512', '+91 92053 25114', '+91 74084 85420',  
   '+91 88266 27692', '+91 70110 73181', 'Aisha Hussain',  
   '+91 98719 68707', '+91 80900 59533', '+91 89203 77567',  
   '+91 90690 77505', '+91 97181 29289', '+91 82184 83489',  
   '+91 96252 52885', '+91 89791 10848', '+91 89290 36380',  
   '+91 87440 59939', '+91 84485 36053', '+91 78359 11064',  
   '+91 99585 35142', '+91 98961 50674', '+91 70489 49625',  
   '+91 93153 08399', '+91 96504 70211'], dtype=object)
```

```
In [28]: df.shape
```

```
Out[28]: (6591, 10)
```

```
In [ ]:
```

Step 7 : Analysis and Insights

How many chat messages in the chat

```
In [29]: chat=df[df["user_name"]!="group_notification"]  
chat
```

Out[29]:

	message_date	year	month	day	hour	day_name	Date	minute	user_name
3	2019-08-21 10:35:00	2019	8	21	10	Wednesday	2019-08-21	35	+91 89541 07151
4	2019-08-21 10:36:00	2019	8	21	10	Wednesday	2019-08-21	36	+91 94314 50020 Mam A
5	2019-08-21 10:43:00	2019	8	21	10	Wednesday	2019-08-21	43	Ansab Jh <Media o
6	2019-08-21 12:39:00	2019	8	21	12	Wednesday	2019-08-21	39	Ansab Jh <Media o
7	2019-08-21 12:43:00	2019	8	21	12	Wednesday	2019-08-21	43	Nitesh Jh 4 Mark Good H
...
6585	2023-09-01 22:05:00	2023	9	1	22	Friday	2023-09-01	5	Noman Jh What abo in a r
6586	2023-09-02 09:53:00	2023	9	2	9	Saturday	2023-09-02	53	+91 81788 46270 Where F certi
6587	2023-09-07 23:23:00	2023	9	7	23	Thursday	2023-09-07	23	+91 99113 95512 there,\nCc me kon
6588	2023-09-07 23:40:00	2023	9	7	23	Thursday	2023-09-07	40	Tayseer Jh Mai nahi
6589	2023-09-08 00:07:00	2023	9	8	0	Friday	2023-09-08	7	Noman Jh

6496 rows × 10 columns



In [30]:	len(chat)
Out[30]:	6496

Observation : There are 6,496 messages in the chat.

How many group notification

In [31]: gn_chat=df[df["user_name"]=="group_notification"]
gn_chat

Out[31]:

	message_date	year	month	day	hour	day_name	Date	minute	user_name
0	2019-08-21 10:13:00	2019	8	21	10	Wednesday	2019-08-21	13	group_notification
1	2018-08-20 11:14:00	2018	8	20	11	Monday	2018-08-20	14	group_notification
2	2019-08-21 10:13:00	2019	8	21	10	Wednesday	2019-08-21	13	group_notification
29	2019-08-21 21:17:00	2019	8	21	21	Wednesday	2019-08-21	17	group_notification
201	2019-08-27 11:09:00	2019	8	27	11	Tuesday	2019-08-27	9	group_notification
...
6542	2022-07-14 01:11:00	2022	7	14	1	Thursday	2022-07-14	11	group_notification
6566	2023-07-29 09:39:00	2023	7	29	9	Saturday	2023-07-29	39	group_notification
6567	2023-07-29 09:58:00	2023	7	29	9	Saturday	2023-07-29	58	group_notification
6568	2023-07-29 10:05:00	2023	7	29	10	Saturday	2023-07-29	5	group_notification
6590	2024-02-22 16:59:00	2024	2	22	16	Thursday	2024-02-22	59	group_notification

95 rows × 10 columns

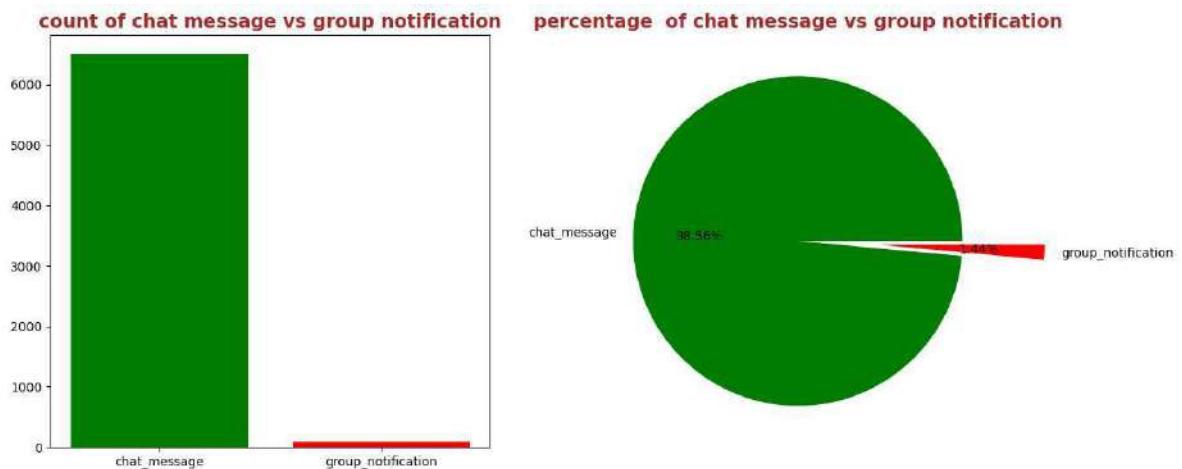


In [32]:	len(gn_chat)
Out[32]:	95

Observation : There are only 95 group notification in the chat.

Comparison Between Group Notifications and Chat Messages

```
In [33]: l=[len(chat),len(gn_chat)]
plt.figure(figsize=(14,6))
plt.subplot(1,2,1)
plt.bar(["chat_message","group_notification"],l,color=["green","red"])
plt.title("count of chat message vs group notification",fontsize=15,fontweight="bold")
plt.subplot(1,2,2)
plt.pie(l,labels=["chat_message","group_notification"],autopct=".2f%%",explode=[0,0])
plt.title("percentage of chat message vs group notification",fontsize=15,fontweight="bold")
```



Observation : The number of chat messages is significantly higher compared to group notifications.

```
In [34]: df["message"].sample(10)
```

```
Out[34]: 2402           Neha mam ki class hogi bhai???\n      Got it\n
5818
4142           moazzammattu1@gmail.com\n
2476           This message was deleted\n
1279           <Media omitted>\n
4462           Waiting!\n
5378   https://meet.google.com/xmm-xpfw-yyn\n\nCompi...
3625           Send by tomorrow morning 11 am\n
5011           And when\n
2465           This message was deleted\n
Name: message, dtype: object
```

How many media in my chat

```
In [35]: len(df[df["message"]==" <Media omitted>\n"])
```

```
Out[35]: 743
```

Observation : There are 743 media omitted messages in the chat.

How many URL in my chat

```
In [36]: from urlextract import URLExtract
```

```
In [37]: count=0
extractor=URLExtract()
for i in df["message"]:
    if len(extractor.find_urls(i))==1:
        count=count+1
print("total url present in my chat is ",count)
```

total url present in my chat is 338

Observation : There are 338 URL in the chat.

How many user in my group chat

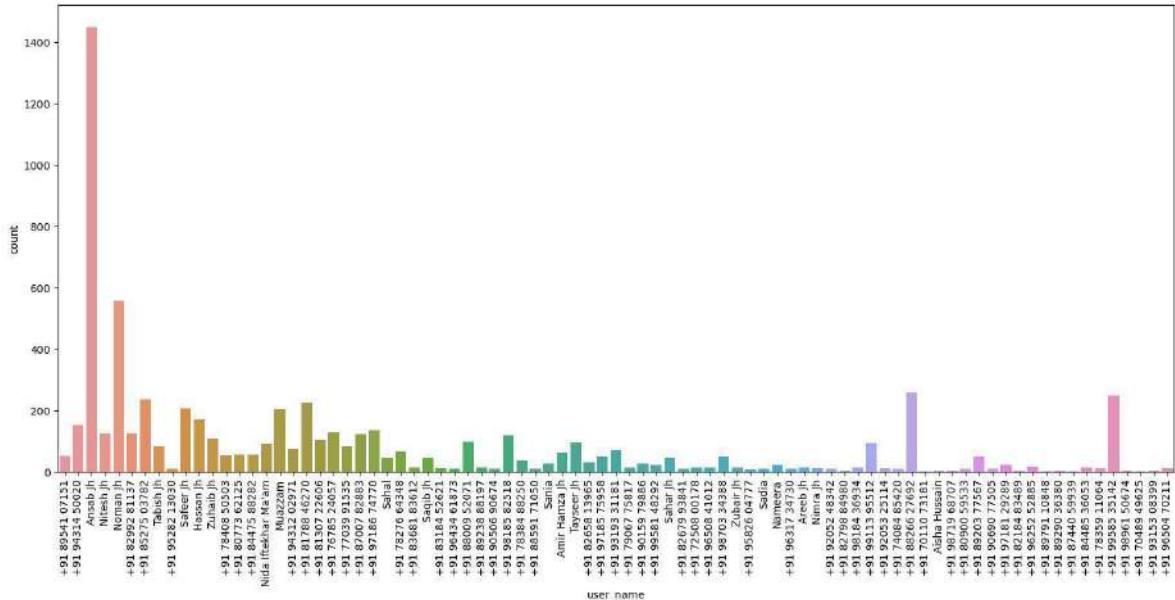
```
In [38]: chat["user_name"].nunique()
```

```
Out[38]: 83
```

Observation : There are 83 users in the Group chat.

Who is active user ?

```
In [39]: plt.figure(figsize=(19,8))
sns.countplot(x="user_name",data=chat)
plt.xticks(rotation=90);
```



```
In [40]: top_3=chat["user_name"].value_counts().head(3)
bottom_3=chat["user_name"].value_counts().tail(3)
```

```
In [41]: top_3
```

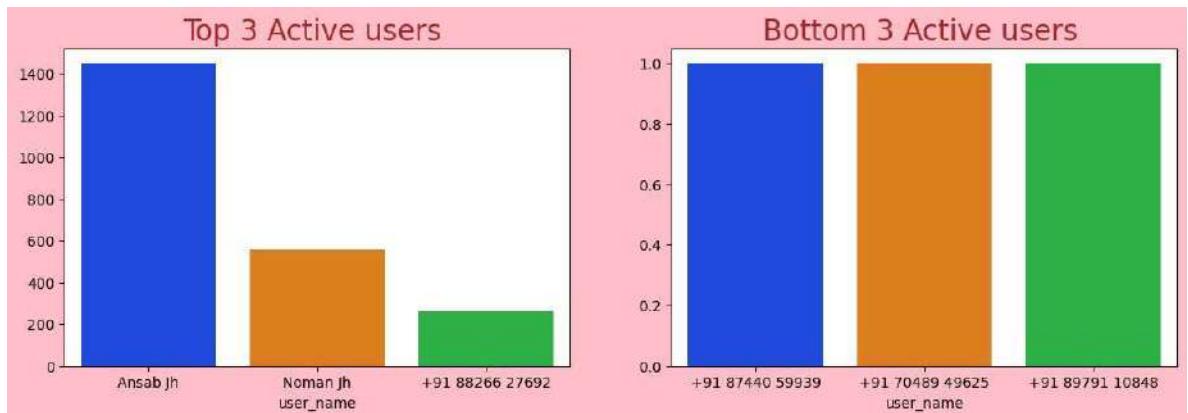
```
Out[41]: user_name
Ansab Jh          1449
Noman Jh          558
+91 88266 27692   258
Name: count, dtype: int64
```

```
In [42]: bottom_3
```

```
Out[42]: user_name
+91 87440 59939    1
+91 70489 49625    1
+91 89791 10848    1
Name: count, dtype: int64
```

```
In [43]: plt.figure(figsize=(14,4),facecolor="pink")
plt.subplot(1,2,1)
sns.barplot(x=top_3.index,y=top_3.values,palette="bright")
plt.title("Top 3 Active users ",color="brown",fontsize=20)
plt.subplot(1,2,2)
sns.barplot(x=bottom_3.index,y=bottom_3.values,palette="bright")
plt.title("Bottom 3 Active users ",color="brown",fontsize=20)
```

```
Out[43]: Text(0.5, 1.0, 'Bottom 3 Active users ')
```



Observation :

- There are 83 users in the group chat. With numerous values on the x-axis of the count plot, comparing them becomes challenging. To address this issue, we've created two separate count plots:
 - One for the top three active users.
 - Another for the bottom three (least) active users.
- The **most active users are Ansab Jh, Noman Jh, and +91 88266 27692**. Conversely, the **least active users are +91 87440 59939, +91 70489 49625, and +91 89791 10848**.

Total words in the chat

```
In [44]: chat["message"].unique()
```

```
Out[44]: array([' kha pa\n', ' Mam Aayi Bhai\n', '<Media omitted>\n', ...,
   ' Hello there,\nConvocation me kon kon aa rha hai?\n',
   ' Mai nahi aa raha.\n', ' Aa jao\n'], dtype=object)
```

```
In [45]: chat["message"].values
```

```
Out[45]: array([' kha pa\n', ' Mam Aayi Bhai\n', '<Media omitted>\n', ...,
   ' Hello there,\nConvocation me kon kon aa rha hai?\n',
   ' Mai nahi aa raha.\n', ' Aa jao\n'], dtype=object)
```

```
In [46]: # removing \n from all the messages
```

```
In [47]: chat1=list(map(lambda x: x.replace("\n",""),chat["message"].values))
chat1
```

```
Out[47]: ['kha pa',
 'Mam Aayi Bhai',
 '<Media omitted>',
 '<Media omitted>',
 '4 Marks extra for Good Handwriting 😊',
 'Karra',
 'Bhai ye zaroor larki hogi',
 '🤣🤣',
 'class strt ho gyi',
 'Haan',
 'kha pe',
 '402',
 'No DSA for today.Theory of DSA will be tomorrow at 10:05',
 '<Media omitted>',
 'This is an internship opportunity from swiggy. Interested students may register it in your class group (as per directions from the placement cell)',
 'For any queries contact Shiv bhaiya - +917678490617',
 '<Media omitted>',
 '<Media omitted>',
 '<Media omitted>',
 '<Media omitted>',
 'Massive crowd with rods in hands going towards Ravidas mandir...stay safe everyone... situation is very sensitive here',
 'Roads are all locked with traffic and protesters coming from the Mathura Road/Ashram side, going towards Tughlakabad.',
 '<Media omitted>',
 '<Media omitted>',
 'Add him new student',
 'Hassan Bhai New.vcf (file attached)',
 "Hi guys!My name is Hassan,I've taken admission in your class through lateral entry programme and wants to have some tips from you.Kindly help.",
 'Does class starts at exact 8:30?',
 'Depends on the teacher',
 "What's about tomorrow then?",
 'I advice no one to come Tomorrow',
 "That's what i am thinking after watching those videos",
 '+1',
 '+1',
 'Dude !!! m exactly here',
 'I know the conditions',
 'What videos bhai?',
 '<Media omitted>',
 '<Media omitted>',
 'These videos bro',
 'Is it about the ravidas mandir demolished?',
 'Yes.',
 'Yup',
 '+1',
 '<Media omitted>',
 'Ye photo to CP ke pas ka hai',
 '<Media omitted>',
 'Can you help me out by signing this petition to bring back spiderman to mcu?https://chng.it/LXJNh6sv',
 'Section B',
 'Are u present?',
 'No mam',
 '<Media omitted>',
 'This message was deleted',
```

' Can anybody find its pdf online',
' <Media omitted>',
' Good news guys 😊 Today 1st year BTCSE section-B class was on 402... as their induction program is over',
' Finally, it seems we will have our classes in LT.',
' Saari classes??',
" That's what I am hoping for!!!",
' <Media omitted>',
' 🔥👉👉 Finally.',
' Sabr kitni bdi cheez hai. 😊',
' yr huyi na baat bhai aap ke muun men ghee shakkar 😊 ',
' Truethat',
' Allah ham sabko sabr ata farmaye',
' Ameen',
' <Media omitted>',
' This message was deleted',
' Fake!',
' Kl ka ni h',
' Nope',
' Aj ka hai',
' Ni h bhai',
' Bht phle ki. H',
' Really?',
' Bht pehle ki h',
' ye video yha ki ni hai',
' Hn sry ye kasmir ka hai i think',
' This message was deleted',
' Nii',
' Yhi ki h',
' Delhi k',
' ?',
' Hn',
' Hamdrd side k hai?',
' <https://www.altnews.in/article-370-old-mock-drill-video-from-jharkhand-viral-as-30-kashmiris-shot-dead/>',
' Nopes',
" It's from Kashmir",
' <Media omitted>',
' Kashmiri kh rha hai ke ni h .. tum alag neta ban jao',
' Tum hi bta do kahan ki hai',
' Jaha ki bhi ho .. kashmir ki ni hai...',
' End the debate .. 🤷',
' Kal college kon kon aaega',
' 🙏',
' +1',
' 🙌',
' Bhai Kashmir me kha ke ho me jammu se hu',
' Rampur se hai ye 😂',
' UP',
' Accha',
' Bhai Sakib Kashmir ki nahi hai',
' Sir aagye h. Class k lye.',
' Baat toh LT ki hui thi shayad',
' kha pa ha class',
' Wahin jahan achi khaasi disappointment milti hai. 😊',
" :'(",
' 😢😢 sad life',
' Tabish,did u bring the letter?',
' .',
' IT lab on 4th floor',
' <Media omitted>',
' *Note*On next friday all have to bring hard copy of todays code. Sir will sign the paper.',
' Bhai next class hai kya',

on for Carrier Development" in association with the prominent training Institute *"QA LABTECH"* on *1st* *November, 2019* from *10:00am - 12:00pm in *LT-5.*So make yourself ready to acquire streams of knowledge about the field of your carrier. Be sure to not miss this great opportunity.*For further queries contact-Rahul prasad(98107 24531)Mohd arafat(9818726197)Sikander ali(74090 22737)*Do fill the given form for registration<https://forms.gle/trXp2Ldd4kifDzNS7>,

' <Media omitted>',
' Class start huv kiya',
' ?',
' Nhi bhai nhi hui',
' Hui kya',
' ??',
' This message was deleted',
' This message was deleted',
' This message was deleted',
' Analog lab started Come in lab',
' <Media omitted>',
' DSA notes',
' Humanities class in Lt 11',
' Lab start hui',
' haan bhai',
' <Media omitted>',
' Arey 1 sem ke koi maths k notes dedeo',
' Class start ho gayi ?',
' No',
' Class kaha ho rahi hai',
' 402',
' 402 me toh pata nahi kon baitha hai',
' Aake dekhle kon baitha hai',
' Achha aa raha hu',
' Class ho rahi hai',
' Analog ki lab ho rhi h, come to 2nd floor',
' <Media omitted>',
' <Media omitted>',
' <Media omitted>',
' <Media omitted>',
' For analog lab exp no 9 circuits.',
' Analog class on 2nd floor',
' Class start Hui?',
' 402 mai aao',
' Class of DSA in in 402',
' IT lab on 1st floor.',
' I request everyone please inform kardiya karo jab class ho rahi ho, aakele class karke kya milega',
' 402, analog theory class',
' Now',
' Thnkx bhai',
' Ds class in 402',
' Abhi?',
' Started',
' Yes start hogayi',
' This message was deleted',
' This message was deleted',
' Digital class is canceled.',
' Class h aaj',
' ???',
' Nhi ghar ja',
' Yes',

```
' Naved Sir ki class ho rhi h kya ?',
' Haan',
' Hn',
' 👍',
' IT lab on 4th floor',
' Lab nhi ho rhi kya ??',
' Pata nahi',
' Happy deepawali everyone 🎉🎉🎉',
' Happy Diwali to Everyone!',
' <Media omitted>',
' Happy diwali ! 🎉',
' Happyy diwali guys🎉',
' Happy diwali everyone 🎉',
' Happy Diwali :)',
' Happy Diwali.',
' Happy diwali everyone 🎉',
' Happy diwali',
' <Media omitted>',
' <Media omitted>',
' Humanities class has been canceled for today',
' Sach m 😊😊',
' Haan bhai',
' ...']
```

```
In [48]: t_words=[]
for m in chat1:
    words=m.split()
    t_words.extend(words)
print(len(t_words))
```

50049

since total words in my chat are 50049 but it includes media and urls so we filter out the words exclusively out of urls and medias

```
In [49]: chat["message"] = chat1
chat
```

C:\Users\Rahul\AppData\Local\Temp\ipykernel_12532\2330524916.py:1: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy

chat["message"] = chat1

Out[49]:

	message_date	year	month	day	hour	day_name	Date	minute	user_name	r
3	2019-08-21 10:35:00	2019		8	21	10	Wednesday	2019-08-21	35	+91 89541 07151
4	2019-08-21 10:36:00	2019		8	21	10	Wednesday	2019-08-21	36	+91 94314 50020 Mam A
5	2019-08-21 10:43:00	2019		8	21	10	Wednesday	2019-08-21	43	Ansab Jh <Media o
6	2019-08-21 12:39:00	2019		8	21	12	Wednesday	2019-08-21	39	Ansab Jh <Media o
7	2019-08-21 12:43:00	2019		8	21	12	Wednesday	2019-08-21	43	Nitesh Jh 4 Marks Handwr
...
6585	2023-09-01 22:05:00	2023		9	1	22	Friday	2023-09-01	5	Noman Jh Wh do r
6586	2023-09-02 09:53:00	2023		9	2	9	Saturday	2023-09-02	53	+91 81788 46270 Where to pro certific
6587	2023-09-07 23:23:00	2023		9	7	23	Thursday	2023-09-07	23	+91 99113 95512 there,Com me koi
6588	2023-09-07 23:40:00	2023		9	7	23	Thursday	2023-09-07	40	Tayseer Jh Mai nahi
6589	2023-09-08 00:07:00	2023		9	8	0	Friday	2023-09-08	7	Noman Jh

6496 rows x 10 columns

In [50]: chat_m=chat[chat["message"]!=" <Media omitted>"]
chat_m

Out[50]:		message_date	year	month	day	hour	day_name	Date	minute	user_name	r
3	2019-08-21 10:35:00	2019		8	21	10	Wednesday	2019-08-21	35	+91 89541 07151	
4	2019-08-21 10:36:00	2019		8	21	10	Wednesday	2019-08-21	36	+91 94314 50020	Mam A
7	2019-08-21 12:43:00	2019		8	21	12	Wednesday	2019-08-21	43	Nitesh Jh	4 Marks Handwr
8	2019-08-21 12:56:00	2019		8	21	12	Wednesday	2019-08-21	56	Noman Jh	
9	2019-08-21 12:56:00	2019		8	21	12	Wednesday	2019-08-21	56	Noman Jh	Bhai y ka
...	
6585	2023-09-01 22:05:00	2023		9	1	22	Friday	2023-09-01	5	Noman Jh	Wh do r
6586	2023-09-02 09:53:00	2023		9	2	9	Saturday	2023-09-02	53	+91 81788 46270	Where to pro certific
6587	2023-09-07 23:23:00	2023		9	7	23	Thursday	2023-09-07	23	+91 99113 95512	there,Com me koi
6588	2023-09-07 23:40:00	2023		9	7	23	Thursday	2023-09-07	40	Tayseer Jh	Mai nahi
6589	2023-09-08 00:07:00	2023		9	8	0	Friday	2023-09-08	7	Noman Jh	

5753 rows × 10 columns



In [51]: chat_m.shape

Out[51]: (5753, 10)

```
In [52]: extractor=URLExtract()
t_words=[]
for i in chat_m["message"]:
    #print(i)
    if len(extractor.find_urls(i))==0:
        words=i.split()
        t_words.extend(words)
print(len(t_words))
```

33360

Observation : The total number of words in the chat is 33360

The frequency of each word

In [53]: total_words=list(map(lambda x:x.lower(),t_words))

```
In [54]: from collections import Counter
```

```
In [55]: Counter(total_words)
```

```
Out[55]: Counter({'to': 627,
                  'the': 621,
                  'class': 578,
                  'this': 551,
                  'message': 440,
                  'was': 436,
                  'deleted': 422,
                  'in': 355,
                  'is': 339,
                  'bhai': 333,
                  'of': 329,
                  'for': 323,
                  'and': 323,
                  'hai': 264,
                  'h': 237,
                  'at': 233,
                  'mam': 227,
                  'will': 213,
                  'on': 209,
                  'have': 205,
                  'you': 188,
                  'be': 180,
                  '+1': 180,
                  'students': 179,
                  'lab': 162,
                  'it': 157,
                  'a': 154,
                  'are': 150,
                  'sir': 150,
                  'not': 148,
                  'join': 142,
                  'ho': 140,
                  'please': 139,
                  'all': 136,
                  'your': 135,
                  'ok': 130,
                  'i': 128,
                  'no': 125,
                  '2': 124,
                  'we': 109,
                  'me': 102,
                  'se': 102,
                  'from': 100,
                  'can': 100,
                  'nhi': 99,
                  'ki': 96,
                  'kya': 91,
                  'ka': 89,
                  'link': 86,
                  'submit': 85,
                  '?': 84,
                  'or': 82,
                  'by': 81,
                  'ye': 80,
                  'that': 77,
                  'who': 74,
                  'if': 73,
                  '😒': 72,
                  'ni': 72,
                  'tomorrow': 71,
                  'with': 71,
                  'yes': 70,
                  '1': 69,
                  "ma'am": 69,
```

```
'accept': 69,
'-' : 68,
'any': 67,
'do': 64,
'now': 64,
'ke': 62,
'.' : 62,
'bhi': 61,
'koi': 61,
'send': 61,
'come': 60,
'as': 58,
'their': 58,
'k': 58,
'google': 58,
'm': 57,
'group': 56,
'lt': 56,
'assignment': 56,
'hi': 55,
'request': 55,
'rha': 52,
'nahi': 52,
'today': 51,
'start': 51,
'3': 51,
'email': 51,

```

```
'hai?': 34,  
'rhi': 34,  
'btcse': 33,  
'raha': 33,  
'??': 33,  
'2nd': 33,  
'submitted': 33,  
'syllabus': 33,  
'12': 33,  
'f': 33,  
'mohd': 33,  
'name': 32,  
'hard': 32,  
'tha': 32,  
'but': 32,  
'us': 32,  
'working': 32,  
'let': 32,  
'402': 31,  
'college': 31,  
'aur': 31,  
'abhi': 31,  
'paper': 31,  
'dsa': 30,  
'hn': 30,  
'they': 30,  
'should': 30,  
'dear': 30,  
'kr': 30,  
'viva': 30,  
'design': 30,  
'hogi': 29,  
'some': 29,  
'ya': 29,  
'digital': 29,  
'haan': 28,  
'about': 28,  
'online': 28,  
'complete': 28,  
'check': 28,  
'started': 28,  
'room': 28,  
'last': 28,  
'before': 28,  
'network': 28,  
'he': 27,  
'fill': 27,  
'number': 27,  
'ek': 27,  
'aaj': 27,  
'which': 27,  
'11': 27,  
'may': 26,  
'one': 26,  
'classes': 26,  
'baat': 26,  
"it's": 26,  
'grp': 26,  
'ask': 26,  
'okay': 26,  
'algorithm': 26,  
'eid': 26,  
'hu': 25,  
'4th': 25,
```

```
'problem': 5,  
'posted': 5,  
'week': 5,  
'mam,'': 5,  
'covid-19': 5,  
'dr': 5,  
'another': 5,  
'mailed': 5,  
'person': 5,  
'me.': 5,  
'hope': 5,  
'individual': 5,  
'net': 5,  
'different': 5,  
'assignment.': 5,  
'diye': 5,  
'april': 5,  
'attached': 5,  
'tech': 5,  
'apply': 5,  
'answers': 5,  
'4.': 5,  
'remaining': 5,  
'invitation': 5,  
'quiz.': 5,  
'provide': 5,  
'am.': 5,  
'uploaded': 5,  
'enrollment': 5,  
'payment': 5,  
'table': 5,  
'functions': 5,  
'advanced': 5,  
'(is,'': 5,  
'are)': 5,  
'failed': 5,  
'otherwise': 5,  
'urgently': 5,  
'link??': 5,  
'hand': 5,  
'2021': 5,  
'2021.': 5,  
'ece': 5,  
'upload': 5,  
'technology': 5,  
'software': 5,  
"won't": 5,  
'turned': 5,  
'secure': 5,  
'security': 5,  
'strt': 4,  
'internship': 4,  
'placement': 4,  
'(file': 4,  
'attached)': 4,  
'admission': 4,  
'wants': 4,  
"what's": 4,  
'pas': 4,  
'find': 4,  
'kashmir': 4,  
'hai...': 4,  
'aagye': 4,  
'😊': 4,
```

```
'code.': 4,
'each': 4,
'monday,' : 4,
'owais': 4,
'naam': 4,
'daal': 4,
'saad': 4,
'sarim': 4,
'saadaan': 4,
'salman': 4,
'bana': 4,
'groups.': 4,
'lelo': 4,
'10am': 4,
'letter': 4,
'diyo': 4,
"haven't": 4,
'great': 4,
'kya??': 4,
'cloud': 4,
'provided': 4,
'🔥 ': 4,
'hamza': 4,
'phone': 4,
'kn': 4,
'neha': 4,
'areeb': 4,
'mile': 4,
'tutorial': 4,
'certificate': 4,
'format': 4,
'screen': 4,
'uska': 4,
'bhejdo': 4,
'kra': 4,
'chalta': 4,
'/': 4,
'15th': 4,
'hamare': 4,
'gai': 4,
...})
```

Top 5 ACTIVE CHATTING WORD

```
In [56]: d=Counter(total_words)
sorted(d.items(),key=lambda x:x[1],reverse=True)[0:5]
```

```
Out[56]: [('to', 627), ('the', 621), ('class', 578), ('this', 551), ('message', 440)]
```

Observation : The top 5 most frequently used words in the chat are: 'to', 'the', 'class', 'this', and 'message'.

least 5 ACTIVE CHATTING WORD

```
In [57]: d=Counter(total_words)
sorted(d.items(),key=lambda x:x[1],reverse=False)[0:5]
```

```
Out[57]: [('handwriting', 1),  
          ('larki', 1),  
          ('today.theory', 1),  
          ('10:05', 1),  
          ('swiggy.', 1)]
```

Observation : The least 5 used words in the chat are handwriting,larki,today.theory,10:05, and swiggy.

Word cloud chart

```
In [58]: from wordcloud import WordCloud
```

```
In [59]: total_words
```

```
Out[59]: ['kha',
  'pa',
  'mam',
  'aayi',
  'bhai',
  '4',
  'marks',
  'extra',
  'for',
  'good',
  'handwriting',
  '😊',
  'karra',
  'bhai',
  'ye',
  'zaroor',
  'larki',
  'hogi',
  '👉',
  'class',
  'strt',
  'ho',
  'gyi',
  'haan',
  'kha',
  'pe',
  '402',
  'no',
  'dsa',
  'for',
  'today.theory',
  'of',
  'dsa',
  'will',
  'be',
  'tomorrow',
  'at',
  '10:05',
  'this',
  'is',
  'an',
  'internship',
  'opportunity',
  'from',
  'swiggy.',
  'interested',
  'students',
  'may',
  'register.',
  'share',
  'it',
  'in',
  'your',
  'class',
  'group',
  '(as',
  'per',
  'directions',
  'from',
  'the',
  'placement',
  'cell)',
  'for',
  'any',
```

```
'queries',
'contact',
'shiv',
'bhaiya',
'_',
'+917678490617',
'massive',
'crowd',
'with',
'rods',
'in',
'hands',
'going',
'towards',
'ravidas',
'mandir...stay',
'safe',
'everyone...',
'situation',
'is',
'very',
'sensitive',
'here',
'roads',
'are',
'all',
'locked',
'with',
'traffic',
'and',
'protesters',
'coming',
'from',
'the',
'mathura',
'road/ashram',
'side,',
'going',
'towards',
'tughlakabad.',
'add',
'him',
'new',
'student',
'hassan',
'bhai',
'new.vcf',
'(file',
'attached)',
'hi',
'guys!my',
'name',
'is',
"hassan,i've",
'taken',
'admission',
'in',
'your',
'class',
'through',
'lateral',
'entry',
'programme',
'and',
```

'wants',
'to',
'have',
'some',
'tips',
'from',
'you.kindly',
'help.',
'does',
'class',
'starts',
'at',
'exact',
'8:30?',
'depends',
'on',
'the',
'teacher',
"what's",
'about',
'tomorrow',
'then?',
'i',
'advice',
'no',
'one',
'to',
'come',
'tomorrow',
"that's",
'what',
'i',
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```
In [60]: text = ' '.join(total_words)
text
```

Out[60]:

'kha pa mam aayi bhai 4 marks extra for good handwriting 😊 karra bhai ye zaroor larki hogi 🎉🎉 class strt ho gyi haan kha pe 402 no dsa for today.theory of dsa will be tomorrow at 10:05 this is an internship opportunity from swiggy. interested students may register. share it in your class group (as per directions from the placement cell) for any queries contact shiv bhaiya - +917678490617 massive crowd with rods in hands going towards ravidas mandir...stay safe everyone... situation is very sensitive here roads are all locked with traffic and protesters coming from the mathura road/ashram side, going towards tughlakabad. add him new student hassan bhai new.vcf (file attached) hi guys!my name is hassan,i've taken admission in your class through lateral entry programme and wants to have some tips from you.kindly help. does class starts at exact 8:30? depends on the teacher what \s about tomorrow then? i advice no one to come tomorrow that\s what i am thinking after watching those videos +1 +1 dude !!.. m exactly here i know the conditions what videos bhai? these videos bro is it about the ravidas mandir demolished? yes. yup +1 ye photo to cp ke pas ka hai can you help me out by signing this petition to bring back spiderman to mcu?http://chng.it/lxjnh6sv section b are u present? no mam this message was deleted can anybody find its pdf online good news guy s😊 today 1st year btcse section-b class was on 402... as their induction program is over finally, it seems we will have our classes in lt. saari classes?? that\s what i am hoping for!!! 🔥🔥👉👉 finally. sabr kitni bdi cheez hai. 😊 yr huy i na baat bhai aap ke muun men ghee shakkar😊 truethat allah ham sabko sabr ata farmaye ameen this message was deleted fake! k1 ka ni h nope aj ka hai ni h bhai bht phle ki. h really? bht pehle ki h ye video yha ki ni hai hn sry ye kasmir ka hai i think this message was deleted nii yhi ki h delhi k ? hn hamdrd side k hai? nopes it's from kashmir kashmiri kh rha hai ke ni h .. tum alag neta ban jao tum hi bta do kahan ki hai jaha ki bhi ho .. kashmir ki ni hai... end the debate ..

⚠️ kal college kon kon aaega 🙌 +1 🙌 bhai kashmir me kha ke ho me jammu se hampur se hai ye 😅 up accha bhai sakib kashmir ki nahi hai sir aagye h. class k lye. baat toh lt ki hui thi shayad kha pa ha class wahan jahan achi khaasi disappointment milti hai. 😞 :\'(😅😅 sad life tabish,did u bring the letter? . it lab on 4th floor *note*on next friday all have to bring hard copy of todays code. sir will sign the paper. bhai next class hai kya ye bata jldi ptanh bhai. dsa ha i kya? lab nida mam is on leave...so, no lab today 😊 koi b dede *notice for analog lab group1*students are requested to form a group of not more than 5 students in each group.after making their group they can submit their names to me-----
-----*group1*all students should complete their lab file by monday, with reading.those who have not complete their readings in lab they have to write only theory (no need of readings) . mam will show the experiment one more time to them.all are required to bring their lab rough copy. 😊😊😊😊😊😊 mohammad hari s okay. done. lab file mai kya krna h samaan de who is remaining? this message was deleted me owais saqib aur koi hai? hasan yusuf this message was deleted this message was deleted faiz atyab bhai humara to grp 1 m naam daal diya ma'am n this message was deleted shahab mohammad saad bhai pure grp ka name prsnl m bata.. wo group change ho gya accha .ye wale ki bol raha hu nain mohammad saadyusuf aur koi ho to is grp me add ho jana owais sarim faiz atyab saadaan mohammed saad alammohd salman full hogaya grp bhai naya bana le those who have formed new groups. send me the names of all members. add me too moazzam moazzam where are you 🕊 in peace rest* hassan. 🚨\u200dd bhai group h toh humara mohammad shahab mohsin kirmanimo hammad talib achaa class kitne bje hai? bhai sir aagye h. this message was deleted class hai ? start ho gyi ansab chli aa class ho rhi ha 📢 circulate the above information to section a as well mam aagai h. lelo class fir agar koi ha to nida mam's data structure class from 10am to 11am.sleep tight!!!!!! 😱😱😱😱 oh my god 😱😱😱😱 class ho ri h? class ho rhi h ??? english ki yes lt11 lt17* 📢 memo s. memos tabish bring the letter for change in classroom to lt is section b free in slot 1:30-3?? no mam i ws informed that you are free anyways i'l take class to morrow wch slot is free fr ur class? 10:15 to 11:05 mam. i'l take a class in that slot class hai kya haan kb hai bata diyo bhai zara shuru ho gyi 402 dsa lab on 4t h floor at 3 for everyone. start hogy ?? if you haven't registered yet for the * csi workshop on programming languages and their future aspects in collaboration* with *coding ninjas*, you are missing out on this great opportunity.registration is free!tiny.cc/workshop-csi-cnperks- • certificates• goodies heads up everyone, kaspersky just revealed camscanner has embedded malware in it quick heal ka btaos afe h ya nhi 😊😊 overpriced it lab on 4th floor. data structure class on 403 now ok class in 402 now * a small change in schedule. the orientation will be conduct

ed at *12:30pm* in *lt -12*. do attend it as its gonna be an important one. *~ te am airs* ok class hai kya?? this message was deleted haan kb abhi 402 type "+1" if you miss waseem sir and the physics he taught. hahahaaaa :) +1 +1 +1 waseem sir 🎉🎊 lob ❤️ +1 +1 😞 +1 +100 tomorrow. *important*sincere apologies from *ie ee jhsb* as there is a change of venue for tomorrow's workshop on *"google cloud study jam"*. the venue has been changed to *convention center, hall -1* instead of *lt-5.*timings will remain tha same2:00 pm ,30th august,2019.the inconvenience is regretted.for queries contact :- 9810724531(rahul) and certificates from google will be provided .. and laptops are mandatory .. 💔💔😔😔😔😔 faraz sir will not take theory but will take lab. this message was deleted lab at 2pm 2 bje workshop ha par *important*sincere apologies from *ieee jhsb* as there is a change of venue for tomorrow's workshop on *"google cloud study jam"*. the venue has been changed to *convention center, hall -1* instead of *lt-5.*timings will remain tha same2:00 pm ,30th august,2019.the inconvenience is regretted.for queries cont act :- 9810724531(rahul) reminder for workshop must juoin the workshop! join* basically i need to watch sacred games first to continue. true. same. nida mam will take lab on 1st floor. those who want to take lab can go and those who want to attended the workshop can attend.all those who are attending workshop please meet me after workshop for attendance. those who are attending the workshop can show their program on monday.i'l check the program based upon your attendance in the workshop. *all the emotions come together when we game 🎮🎮*_losing helps us to get better. but what if you are the best in the game? _ what if you are the true champion? 🤴🔥 _show your skills by competing against the best of jamia hamdard and becoming the ultimate champion of fifa,tekken and many more_ 🔥 gamers don't die, they respawn\` 100*do fill the form,your feedback is really appreciated*https://docs.google.com/forms/d/e/1faipqlsdqrvjbepp892tbpdnB3nimgagjq3gshc3aj-hj1zdvid1q/viewform?usp=sf_link 🔥 hi guys amir hamza my new phone number is 9599395162 😞 class ho rhi h kya? ho rahi hai section b are you free from lab?have a class with you stillin lab bhai analog ke experiments bhi bhej do nida mam is taking class. everyone come in class btcs306 class at 3:30 knsa sub h humanities dsa class from 10. dsa class started analogue electronics ki lab mai mera grp mai kn kn h 😊😊 ?? humanities class for today is canceled. come to digital lab. neha mam will take class. add this number name areeb farooqui lateral entry number: +91 87448 14668 new admission 👍👍👍 mera kolij badal rha hai... aage badh rha hai. nay a hamdard 😊 don't tell me that we got lt rooms 😊 we didn't t 😊 we lose mr. stark lt mile ya na mile mr. stark hme wapas chahiye@919675761699 mr. stark ko wapas lao sir is calling everyone for lab on 4th floor. this message was deleted hello everyone.nida mam is asking if someone received an email regarding *spoken tutorial*please answer. no no how many of you have registered for spoken tutorial iit b?? this message was deleted mam is calling for class come to 404 coming! this message was deleted 👍👍 ja beth ja 😊 sir is calling for class room no 402 register for spoken tutorial you will be getting a certificate in the format sent above it'l be beneficial for you sab gae mam ! you have to register test will be conducted on monday ok thankx mam registration link. register on student dashboard faraz sir will take lab instead of theory at 10:15.all students are required to bring the print of questions done in last lt labs by faraz sir. only questions? ya jo screen shot tha uska print screenshot ka lab on 1st floor. come now clss? this message was deleted what about second group? send bylaws???? anyone digital electronic k experiment bhejdo koi ab clss ka kya clss hogi ki ni ???! *notice*those who were present and didn't got the attendance of it workshop lab on friday because they were not having prints of the questions, they will get their missing attendance on next friday lab only if they show the prints of all the 3 questions.

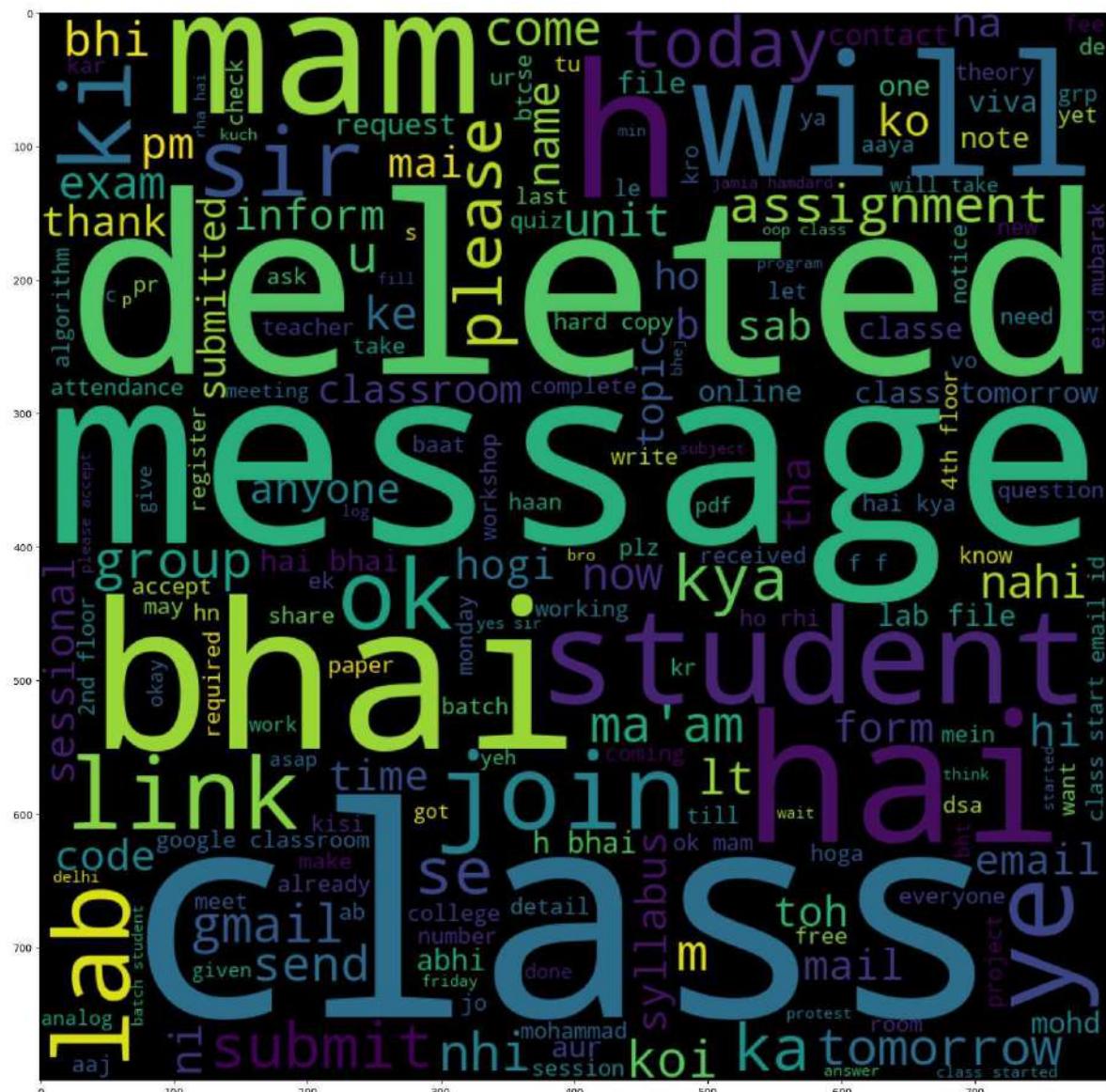
👉 ye bta ? ok class start hui? 🤜 han bhai bhai protest ho rha y raste band h k ya ho rha ? collage aana hai ya nai\\ ?? college ana hai bhai ya nahi?? saalo ek baar m final kra kro na ya shaam tk yahi chalta rhy ga nhi aana kyu bhai rasta band h band kyu h bhai protest accha ok hmm naaa bhai 3 no gate khula h okk protect himsar ki building k paas ho rha h gate no 6 open hai kya yrrr ye nhi ptam to 3 n o gate se aaya hu abhi nahi bhai university ke andar hai kya ye saab ok haaaaa rally ho rhi hai bhai bhai attack ho rha h protest is a diff thing 😊 kis baat ko l ekar sab ghr pr rhi kis baat ko lekar ho rahi hai rally fees jayda kardi kya ha n aa bhai lt ki maang ho rhi hai teri fees zada h na ansab is ded! 🎉🎊 harry pottter we miss uh nonsense this message was deleted ha bhai bhai class kha ho rhi h cena baitha toh hai. *note*how many of you have registered for spoken tutorial. ye har jagah kaise pahuch jata h dsa ki class ho rhi ahi h.. aajao class m humanit

ies class at 3 this message was deleted *dear mba aspirant*, career launcher brings to you an opportunity to know everything about mba under one roof..! come and attend a session to be addressed by *mr. arks srinivas (ceo - mba group, career launcher & iim-c alumnus)**the session will include* :-*discussion on the topic mba in india / abroad.*upcoming trends in mba - ml / ai concepts.*career guidance by iim alumni.*post mba trajectory.*entrance exams decoded.*one to one counselling sessions by cl experts.venue: constitution club of india time: 15th sept. @ 10:45 am*to register**follow the link*<https://forms.gle/p3zvvxptnwkpzm1h6> analog lab - files check hogi aaj (maria mam) mam is calling for dsa lab, which floor 4th floor analog electronics book for numericals (page 81) lab strated khy. ?? lab on 1st floor. started analog class at 11 on second floor. near maria mam cabin. 404 analog class sir is taking class come in 402 . dsa class now on 1st floor. both the groups. lab kabb h,?? now <-> 34 it lab now on 4th floor digital electronics ka 2nd experiment bhejna koi class start huv come to lab naved sir is calling this message was deleted ok chemistry class ho rhi h 402 m 😊 this message was deleted those who have registered for spoken tutorial come to lab on 1st floor. 1st grp come in analog lab humanities class in lt 11 at 1:35 hamare nitesh bhai ki scooty ki chabi khai gai h.scooty: tvsheight 2.5inchcolour blackkeyring white (lubi company) jis ko mile vo @919667485952 ko dede. chabi dene wale ko aaj apne ghar tak free ride milegi nitesh ki scooty par. this message was deleted milgyi aaja gol ch kkr p class start hogayi?? haaa bhai class start hogayi?? nhi bhai this message was deleted chemistry class ho rhi h 402 m ok all the lateral entry students plz meet gautami ma'am right now afshar sir is calling all lateral entry students mam where? this message was deleted bhai lt ki baat karna dean sir se. all lateral entry students please give your e-mail id in the office all lateral entry student come 4 floor tu cr h bc yes...👉 pg number - 90 ex: 6.14 pg number - 91 ex 6.15 pg number - 95 ex 6.16 pg number - 96 ex 6.18 pg number - 97 ex 6.19 pg number - 98 ex 6.20, 6.21 unsolved pg number :1236,8,9,10,11,12,13 solve following questions from v k mehta as assignment need to be submitted after first sessional exams. date will be conveyed subject to bata de? analog electronics are yrrr lab k lye aajao 1st floor. dsa lab 4th come to 4th floor lab in delhi kyu yrr bhai kl college kisa ay ga due to increase in the fine as per the amendment motor vehicle act lab on 1st floor class start hui ? ni analog class started 402 m ok hogi syllabus for first sessional of analog electronics circuits (btcse-301) is first unit. theory and numerical. thanks class start ho gyi hai 402 matlab questions syllabus bata do sessional ka harr subject ka +1 syllabus for data structure is unit 1 & 2 mam time complexity and big o notation is also coming? no sir aagye h. 402 m dsa lab on 1st floor. furst sessional test kon sa hai ?? first* gudd question awaiting for a nswer.. dekh ke btao sbko analog 25th ko hai - lt 5chemsadigitalmatlabhumanities abb koyi syllabus de do harr subject ka chemistry ke kitne unit aa rahe hai sessional me? unit 1 aur analog me? 1 matlab mai abhi tk jo padaya wo aarha h haan thaks to harshita harshita ki jai❤️ jai dear friends as i informed you all that i have started a ngo called mrida - micro research and integrated development association, registered under society registration act xxi, 1860. in that we are supporting needy children. we are helping them in their education and working on their personality development and communication skills. we are trying and providing them a good environment. and number of students are increasing so we need your support. please support us through your precious donations. that would be really helpful 🙏🙏🙏 your little amount can change someone's life. there is no particular limit of your donation, you can donate whatever amount you want. and you will get full details of your amount, where it has been used. to support us please donate through 🙏🙏🙏 paypal googlepay phonepay paytm 9958539519, 9717475211 thank you so much hope to receive your response soon.👉 faraz sir ke class shuru hue kya? nhii bhai aagye bhai this message was deleted 75% attendance se kam hone pe exam nhii dene denge naved sir unse kal mil lena jinki attendance short hai this message was deleted chemistry class in 402 now. chemistry important topics humanities ki class 1:30 pm pr h 402 me jiski out of 12 me se 5 attendance nhi vo sessional me nhi beth sakta taqdees mam is comming to class for 5 minutes. all requested to be present in class. following students are having zero attendance in btcse- 301 in the month of august and september 2019. 1. mohammad saanie khan2. shabab anwar matlab attendance. zener diode aaara hai ya nahi? aa raha hai notes men to hai nai par these students will not be allowed to sit in sessional i bhai ab bss kr 🎉🎉 bhai m apni taraf se thodi likhrha hu.. mam ne kaha h bhai konsi pdf aari hai chem ki 4 pdf hain total this message was deleted becoz we study in hamdard its volt

4. @919958535142 mamwhat is the time to today(29 march) class 1.30 at 2 will take online class tomorrow and today?? postpone. okay ma\'am is today class is postponed mam ? yes crm class in lt 17 @919958535142 mam what is the timing of the class today? richa mam will not be able to take class today as she is busy in an event crm class in lt17 any classes today? +1 +1 no this message was deleted any class today? if u r free , i will take at 11 not 11 12? ok is it confirm because we are fasting and travelling is hard +1 yes but then u have to arrange for class room else tomorrow u have class at 11 decide among urself for today class and let me know okey mam what ok? kal le lie class i need confirmation from all tomorrow is fine yes ma\'am +1 +1 +1 +1 tomorrow ma\'am aj class hogi ? @919958535142 mam what is the class timing for today? ask everyone who did not fill this form by today. ~sameena ma\'am. come in 405. 11 am this message was deleted where r u guys? immediately come in 405 come fast everyone accepted today class timings also informed yesterday topics covered- trapdoor one way function, modular arithmetic, multiplicative inverse. rsa 2nd sessional unit 2 complete next class topic- diffie hellman, elgamal when will be the class monday 11 am 405 okay ma\'am any class today?? . confirm to be held?? of course class is there right. where? aajao sab room no? 403 cryptography classmonday 11 amtuesday 1:30 pm fill this form asap. assemble in 410 this message was deleted respected ma\'am, what\'s the date for the second sessional exam? informed about sessional in the class. ur class do not pay attention and since then ur class is either calling or pmng me. this message was deleted this message was deleted mam will first finish unit 3 and then will take sessional mam told this in last class thanks for the clarification thank u sameer. atleast someone paying attention *update*classroom:monday room no. 405tuesday room no. 410 67, 69, 70,71, 72,73,81-84,92,93,96-100,102-109,111-114,117,120,122-125 these all have to fill it -sameena ma\'am bhai 3 baar submit kr chuke hai class hogi aaj? . class start ho gaye class has started come fast to 405 lt 17 coming in 5 min crypto class at 1:30. *notice*crypto session on monday from 12 to 1.syllabus is unit 2. sessional* *notice*rular tech sessional on tuesday from 11:30.sessional will be in viva form.syllabus : all the topics that are covered in the class. bhai koi repeat mat puchna... monday or tuesday dono din sessional hai ok 401 m a aajao sab. this message was deleted ios intern stipend 10 k after six month 3-5 lacks please dm look for class and inform me 403 is empty ok in 403 2 ko to monday hai kal ka last din bacha h mostly bacche abhi ghar h bhai eid baad hi ho payega ab to 70 tarha ke faltu google forms to yahi ghumte rehte hai har grp me.... aur ye wala notice ekbar b nhi bheja kisi ne b upr se ye fine alg lga diya hai alvida jummah, office closed pakka? most probably chutti to h sarkari? hamdard ki office dekh lena agr open ho,ya kisi teacher se confirm krlo close hai office aaj confirmed baat hai ye ? hn "by 2nd may" means 2nd may is included, isn\'t it? 😊 we can it it by monday, isn\'t it? 2nd may is eid probably ohh 😊 sorry i felt that it \'s on 3rd 😊 office closed today besides all notices were on various notice boards of department. y u guys did not c class tomorrow at 12 this message was deleted offline class please don\'t repeat this question ma\'am told us to take the class online yes offline class hai respected ma\'am tomorrow is the last day of ramadan please kindly take the class online since many of the student are not present in delhi. +1 yes mam is it possible to have online class tomorrow +1 +1 +1 +1 please +1 ok thank you ma\'am thank you mam +1 happy eid to all my students and their families. same to you ma\'am thank you ma\'am! same to you mam thank you ma\'am eid mubarak to all❤️❤️💯💯 eid mubarak 💚 khayr mubarak ma\'am ❤️ thank you mam thank you ma\'am please urgently circulate this in all class groups:all students who have received certificates from internshala please send on my personal window dr.sherin zafar sherin.zafar@jamiahmdard.ac.in 9953252202 project ka viva k ab hogा @919958535142 ma\'am class in 405 403* class 405 405 sab aajao cryptography class tomorrow at 12. can someone send bye-laws of btech ece rural technology and advancement viva 2 on thursday time? unit? contact tabish sir for further queries 😊 ok sir. class will be in which room? 402 now class in 402 anyone missed any of 2sessional will give to my at 11. offline unit 5 sessional is tomorrow friday ok mam thank you sessional in 403 admit card kab milega anyone has any idea? 18th ko uploading assignment on gcl. following students will do 1 and 2 assignment. sahar fatimaahmad zarraronkarnaushermohammad ekramsadaan maqsoodmoh ammad saqibfollowing students will upload all assignment. Zubair saiftabish mati nyusuf khansankalpshabab anwarthis is final attempt for getting internal. should be submitted hand written by tomorrow positively else internals would be send without ur marks adhere to instructions okay will do it, thank you this message was

deleted exams kha h group 2 k who r teachers there tabrej ahmad khan ok group 1 k a kaha h? 66 t0 100 lt 6 group 1 anyone who is not having the admit card please w rite a application and get it signed by the hod office else those students will n ot be allowed software developer job ctc 16lakh eid mubarak everyone♥♥ khair mub rak ❤ eid mubarak everyone♥ eid mubarak eid mubarak... eid mubarak to all ❤️❤️ ❤️ eid mubarak to all eid mubarak everyone 🌟🌟 eid mubarak eid mubarak to all of you notice regarding supplementary exam for 2022 passout students.kindly circu late to all courses students who have given final year exam in 2022. this message was deleted null this message was deleted eid mubarak send eidi send a cancelled cheque blank cheque bhej dunga tumhare lie toh meri jaan bhej do koi eidi eid mub arak to you and your beloved ones this message was deleted eid mubarak sbhi ko 🌟 🌟 data for 1st april 22- 31st march 2023 outside university anyone participat ed. send details kisi kai pass dr suraiya parveen ma\am ka number hai toh please bhj do.thanks suraiyya parveen mam.vcf (file attached) shukriya bhai 😊👍👍👍 1 700 kaha submit karna hai? website pr chale jao jamia hamdard ki online portal bo ht jldi horhi hai bhai 😅😅 link send kardo website pr jao uper online payment op tion hota hai select hai kro aahe ka krlena bhai mujhe dedo 25 saal m double kr k duga. tu apni salary mujhe dedai, mai ek din mai he double krdunga 😊 what about double in a minute?? where to get that provisional certificate as mentioned in no tes? hello there,convocation me kon kon aa rha hai? mai nahi aa raha. aa jao'

```
In [61]: wordcloud = WordCloud(width=800, height=800, background_color='black').generate(text)
plt.figure(figsize=(15,15), facecolor=None)
plt.imshow(wordcloud)
plt.tight_layout(pad=0)
plt.show()
```



here , we have use the argument stopwords

```
In [62]: wordcloud = WordCloud(width=800, height=800, background_color='white',stopwords=[  
    plt.figure(figsize=(10,10), facecolor=None)  
    plt.imshow(wordcloud)  
    #plt.axis("off")  
    plt.tight_layout(pad=0)  
  
    plt.show()
```

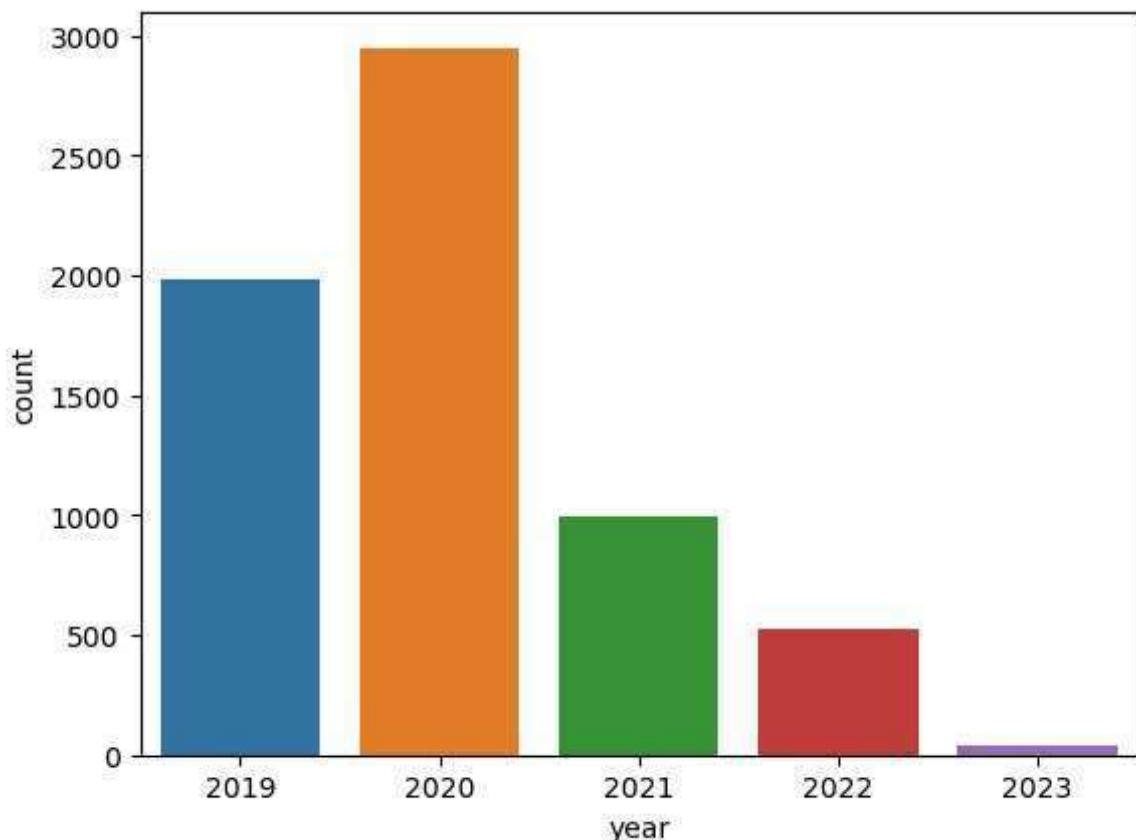


Observation : We've utilized a word cloud chart solely for visualizing the frequency of words.

which was the most chatting year

```
In [94]: sns.countplot(x="year", data=chat)
```

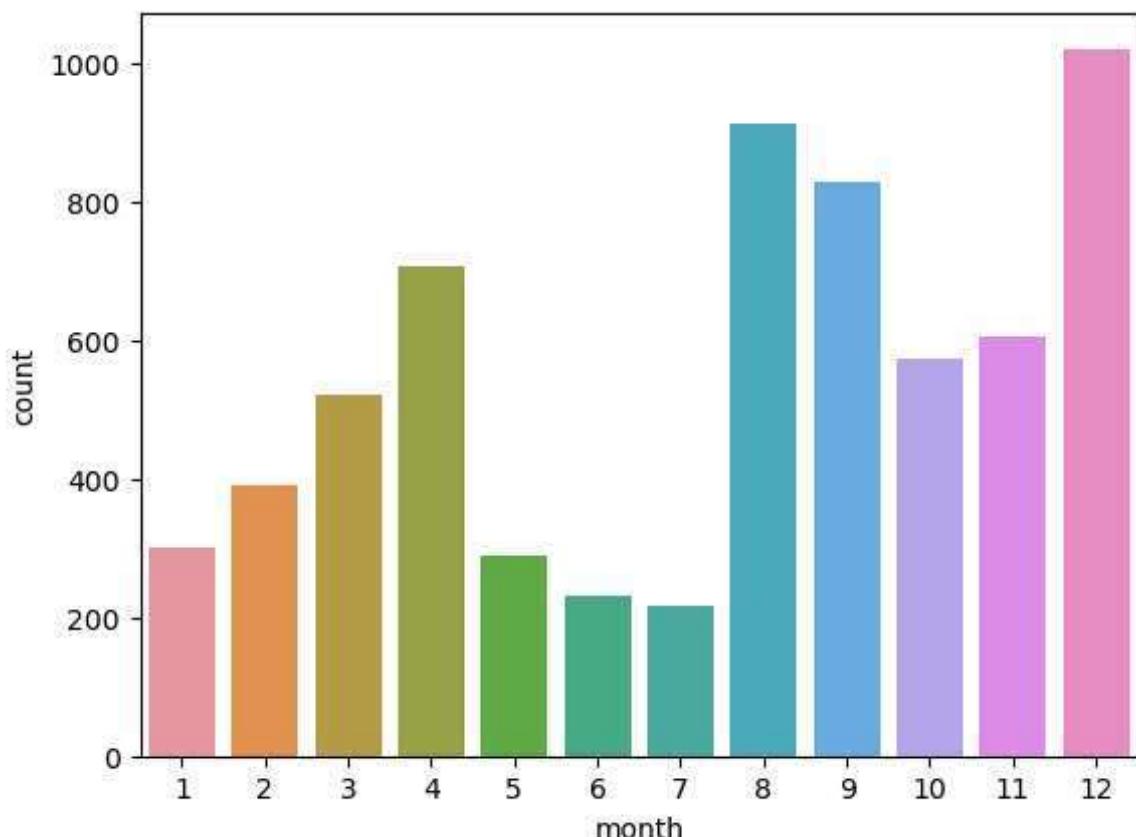
```
Out[94]: <Axes: xlabel='year', ylabel='count'>
```



Observation : The year with the highest amount of chatting is 2020.

which was the most chatting month

```
In [64]: sns.countplot(x="month", data=df);
# plt.xticks(rotation=90);
```



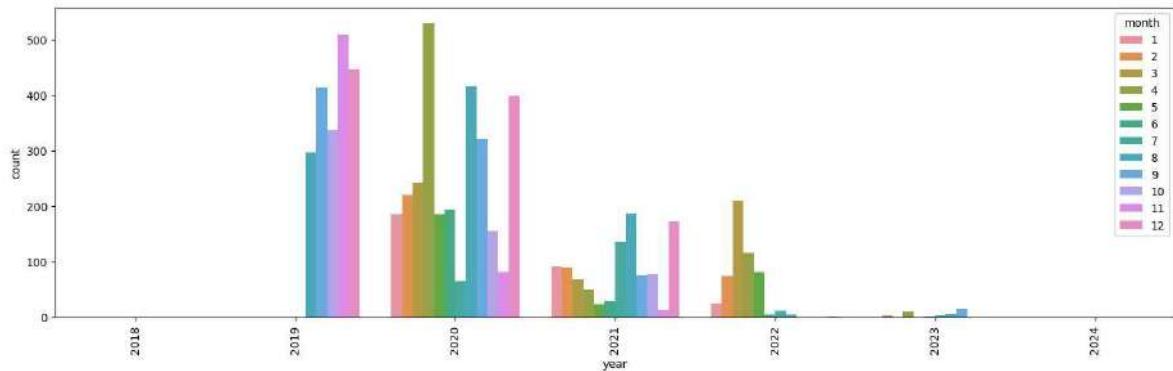
Observation : The most active chatting month is December, which corresponds to the 12th month of the year

Most chatting month of each year

```
In [98]: s1=chat.groupby(["year","month"])["message"].count().to_frame().reset_index()
s1.T
```

	0	1	2	3	4	5	6	7	8	9	10	11	12	13
year	2019	2019	2019	2019	2019	2020	2020	2020	2020	2020	2020	2020	2020	2020
month	8	9	10	11	12	1	2	3	4	5	6	7	8	9
message	292	408	337	506	443	171	217	236	525	184	195	64	407	318

```
In [65]: plt.figure(figsize=(18,5))
sns.countplot(x="year",hue="month",data=df);
plt.xticks(rotation=90);
```



Observation : It represents the most active chatting months on a yearly basis, visually organized by each month.

Which was the most chatting day

```
In [78]: s=chat.groupby(["Date"])["message"].count()
a=s.to_frame()
```

```
In [85]: a['message'].max()
```

```
Out[85]: 130
```

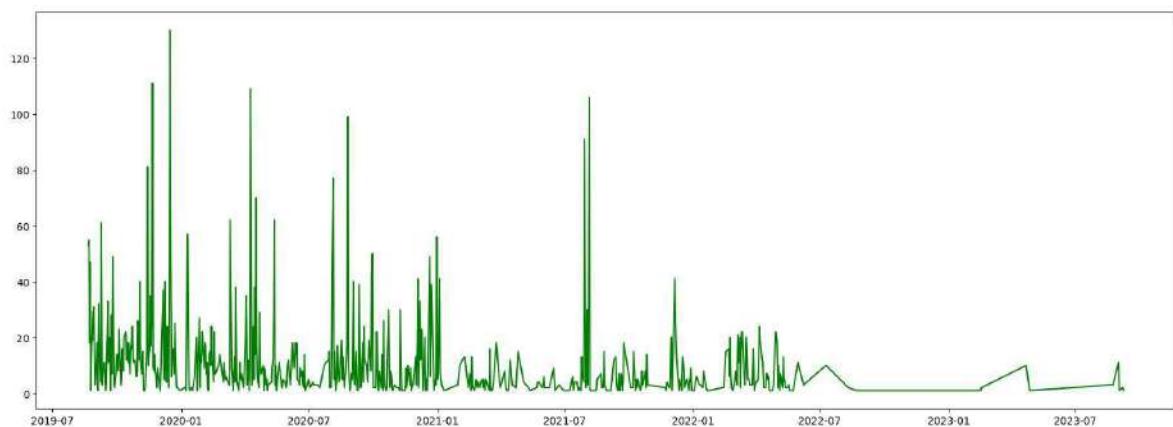
```
In [90]: a[a['message']==a['message'].max()]
```

```
Out[90]:
```

Date	message
2019-12-16	130

```
In [92]: plt.figure(figsize=(20,7))
plt.plot(s.index,s.values,color="green")
```

```
Out[92]: [<matplotlib.lines.Line2D at 0x2e0b28b5f10>]
```



Observation : On December 16th, 2019, the day with the highest amount of chatting, there were 130 messages exchanged.

Month-wise Chat Activity Trends for Each Year

```
In [99]: s1["mom"] = s1["year"].astype(str) + "-" + s1["month"].astype(str)
```

```
In [105...]: s1
```

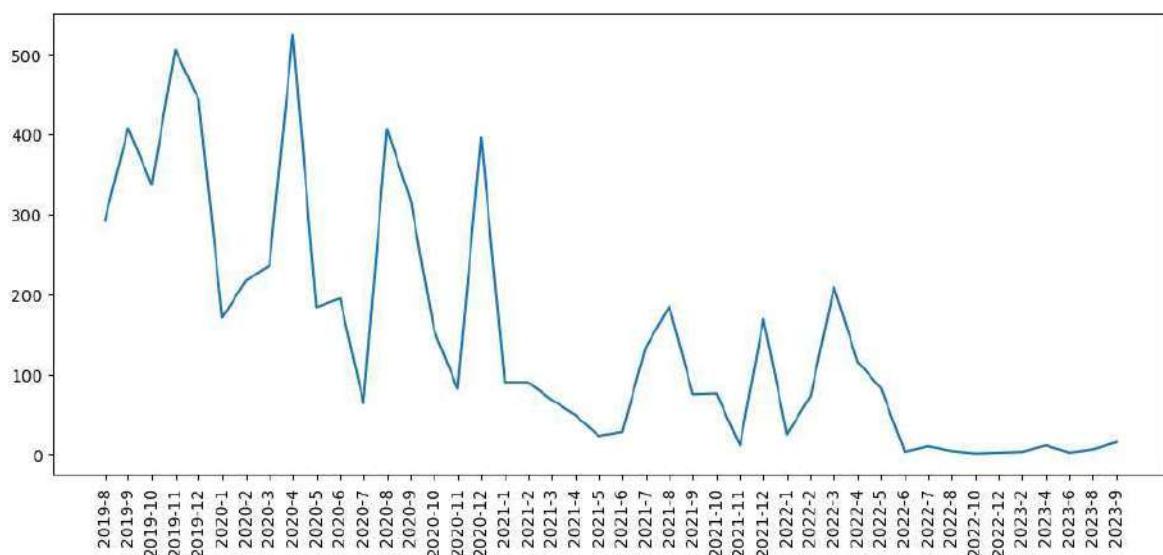
Out[105]:

	year	month	message	mom
0	2019	8	292	2019-8
1	2019	9	408	2019-9
2	2019	10	337	2019-10
3	2019	11	506	2019-11
4	2019	12	443	2019-12
5	2020	1	171	2020-1
6	2020	2	217	2020-2
7	2020	3	236	2020-3
8	2020	4	525	2020-4
9	2020	5	184	2020-5
10	2020	6	195	2020-6
11	2020	7	64	2020-7
12	2020	8	407	2020-8
13	2020	9	318	2020-9
14	2020	10	155	2020-10
15	2020	11	82	2020-11
16	2020	12	396	2020-12
17	2021	1	90	2021-1
18	2021	2	90	2021-2
19	2021	3	68	2021-3
20	2021	4	49	2021-4
21	2021	5	23	2021-5
22	2021	6	28	2021-6
23	2021	7	134	2021-7
24	2021	8	185	2021-8
25	2021	9	75	2021-9
26	2021	10	76	2021-10
27	2021	11	11	2021-11
28	2021	12	169	2021-12
29	2022	1	25	2022-1
30	2022	2	73	2022-2
31	2022	3	209	2022-3
32	2022	4	116	2022-4
33	2022	5	82	2022-5
34	2022	6	3	2022-6
35	2022	7	10	2022-7

	year	month	message	mom
36	2022	8	4	2022-8
37	2022	10	1	2022-10
38	2022	12	2	2022-12
39	2023	2	3	2023-2
40	2023	4	11	2023-4
41	2023	6	2	2023-6
42	2023	8	6	2023-8
43	2023	9	15	2023-9

In [104...]

```
plt.figure(figsize=(12,5))
plt.plot(s1["mom"],s1["message"])
plt.xticks(rotation=90);
```



Most active Day

In [111...]

```
df.groupby("day_name")["day_name"].value_counts()
```

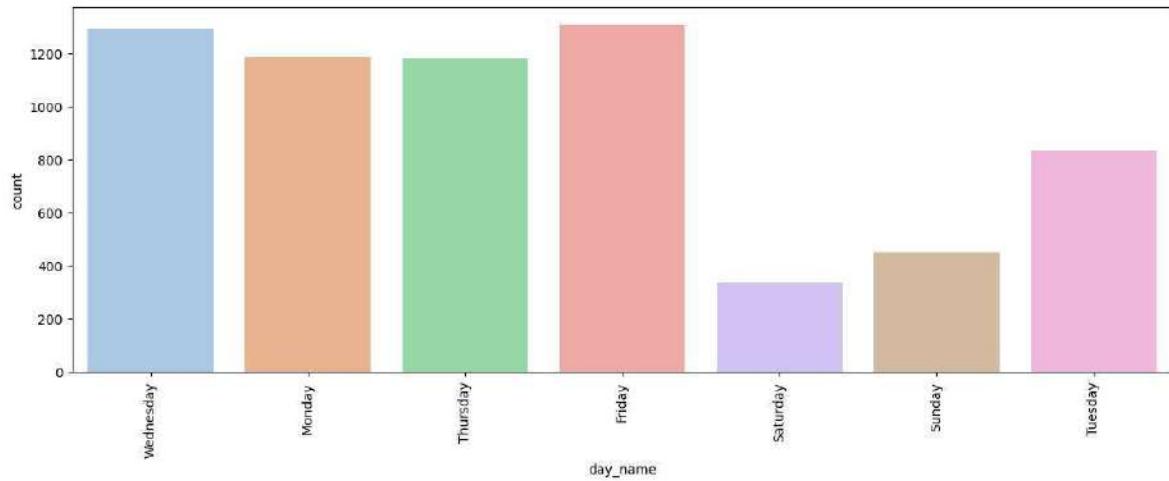
Out[111]:

day_name	
Friday	1309
Monday	1186
Saturday	336
Sunday	451
Thursday	1181
Tuesday	835
Wednesday	1293

Name: count, dtype: int64

In [107...]

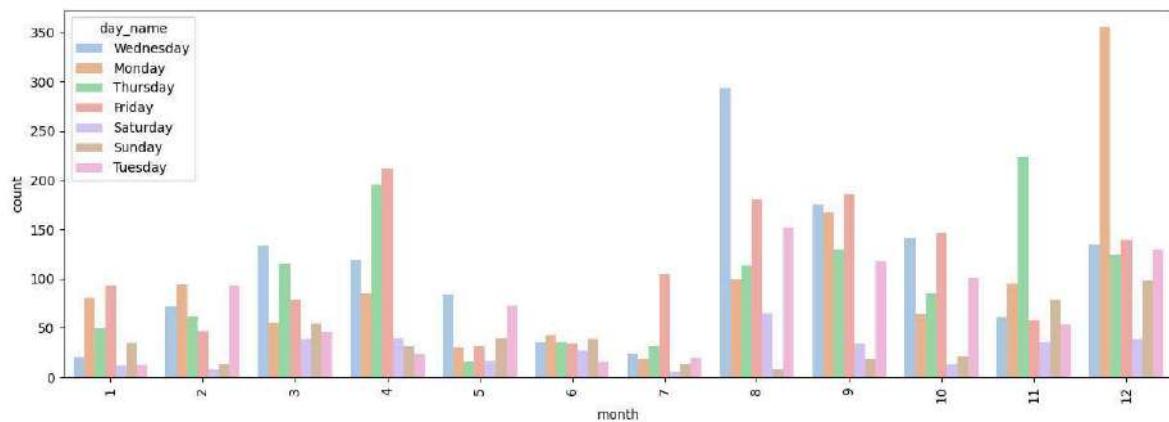
```
plt.figure(figsize=(15,5))
sns.countplot(x="day_name",data=df,palette="pastel");
plt.xticks(rotation=90);
```



Observation : Friday emerges as the most active day with 1309 messages, while Saturday records the lowest activity with 336 messages.

Monthwise Most Active Days

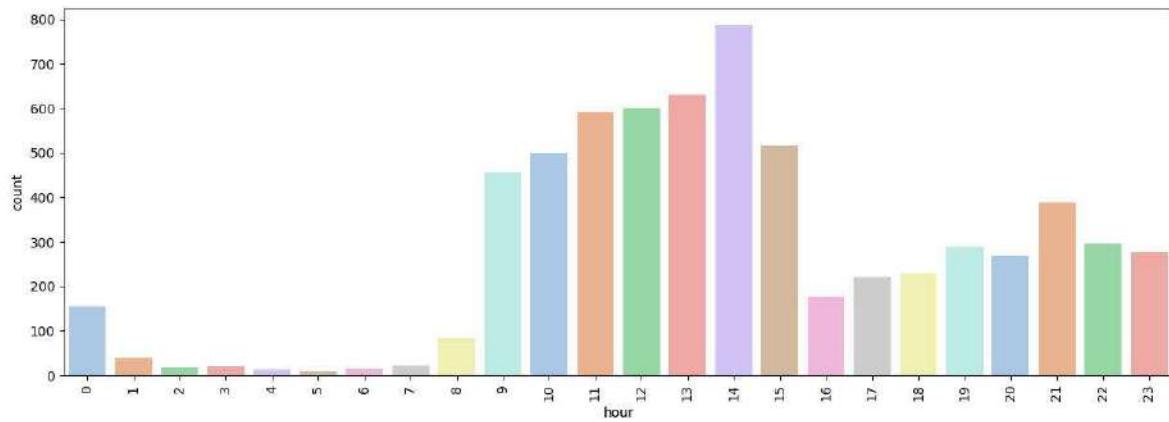
```
In [113...]: plt.figure(figsize=(15,5))
sns.countplot(x="month", hue="day_name", data=df, palette="pastel");
plt.xticks(rotation=90);
```



Observation : Monday is the most active day of the month of December.

Most active hour of chatting

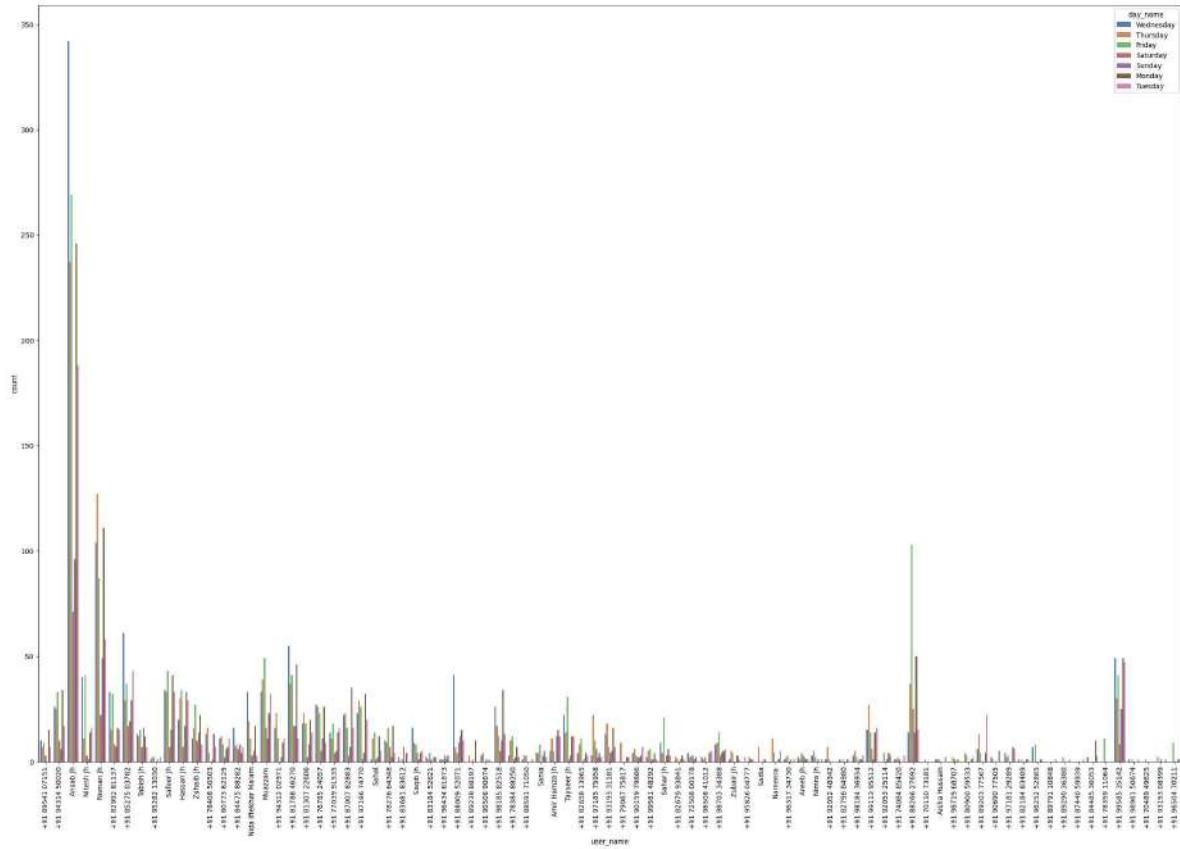
```
In [116...]: plt.figure(figsize=(15,5))
sns.countplot(x="hour", data=df, palette="pastel");
plt.xticks(rotation=90);
```



Observation : The most active hour for chatting is 2 PM.

Most active day of each user

```
In [120...]: plt.figure(figsize=(30,20))
sns.countplot(x="user_name", hue="day_name", data=chat, palette="muted");
plt.xticks(rotation=90);
```



Since it is quite hard to visualize the activity of each user in a single plot, we have created dedicated timeline reports for each user. To generate a report, simply provide the name of the user as input.

Timeline Report of each user

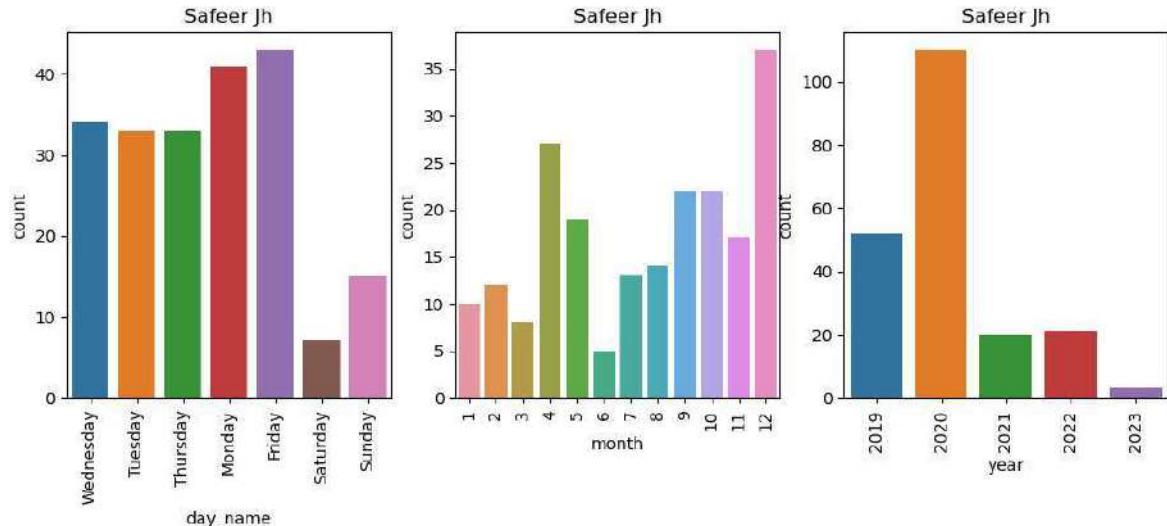
```
In [126...]: for i in chat["user_name"].unique():
    print(i, ",end="")
```

```

user=input("kindly pick the user for which u want to see his/her activeness with
user_df=chat[chat["user_name"]==user]
timeline=["day_name","month","year"]
pos=1
plt.figure(figsize=(12,4))
for i in timeline:
    plt.subplot(1,3,pos)
    sns.countplot(x=i,data=user_df)
    plt.xticks(rotation=90)
    plt.xlabel(i)
    plt.title(user)
    pos=pos+1

```

+91 89541 07151 +91 94314 50020 Ansab Jh Nitesh Jh Noman Jh +91 82992 8
1137 +91 85275 03782 Tabish Jh +91 95282 13030 Safeer Jh Hassan Jh Zu
haib Jh +91 78408 50503 +91 80773 62125 +91 84475 88282 Nida Iftekhar M
a'am Muazzam +91 94312 02971 +91 81788 46270 +91 81307 22606 +91 76785
24057 +91 77039 91535 +91 87007 82883 +91 97186 74770 Sahal +91 78276 6
4348 +91 83681 83612 Saqib Jh +91 83184 52621 +91 96434 61873 +91 88009
52071 +91 89238 88197 +91 90506 90674 +91 98185 82518 +91 78384 88250 +
91 88591 71050 Sania Amir Hamza Jh Tayseer Jh +91 82658 13965 +91 97185
75958 +91 93193 31181 +91 79067 75817 +91 90159 79886 +91 99581 48292 S
ahar Jh +91 82679 93841 +91 72508 00178 +91 96508 41012 +91 98703 34388
Zubair Jh +91 95826 04777 Sadia Nameera +91 96317 34730 Areeb Jh Nimr
a Jh +91 92052 48342 +91 82798 84980 +91 98184 36934 +91 99113 95512 +9
1 92053 25114 +91 74084 85420 +91 88266 27692 +91 70110 73181 Aisha Hussa
in +91 98719 68707 +91 80900 59533 +91 89203 77567 +91 90690 77505 +91
97181 29289 +91 82184 83489 +91 96252 52885 +91 89791 10848 +91 89290 363
80 +91 87440 59939 +91 84485 36053 +91 78359 11064 +91 99585 35142 +91
98961 50674 +91 70489 49625 +91 93153 08399 +91 96504 70211 kindly pick t
he user for which u want to see his/her activeness with respect to day,month and
yearSafeer Jh



In []: