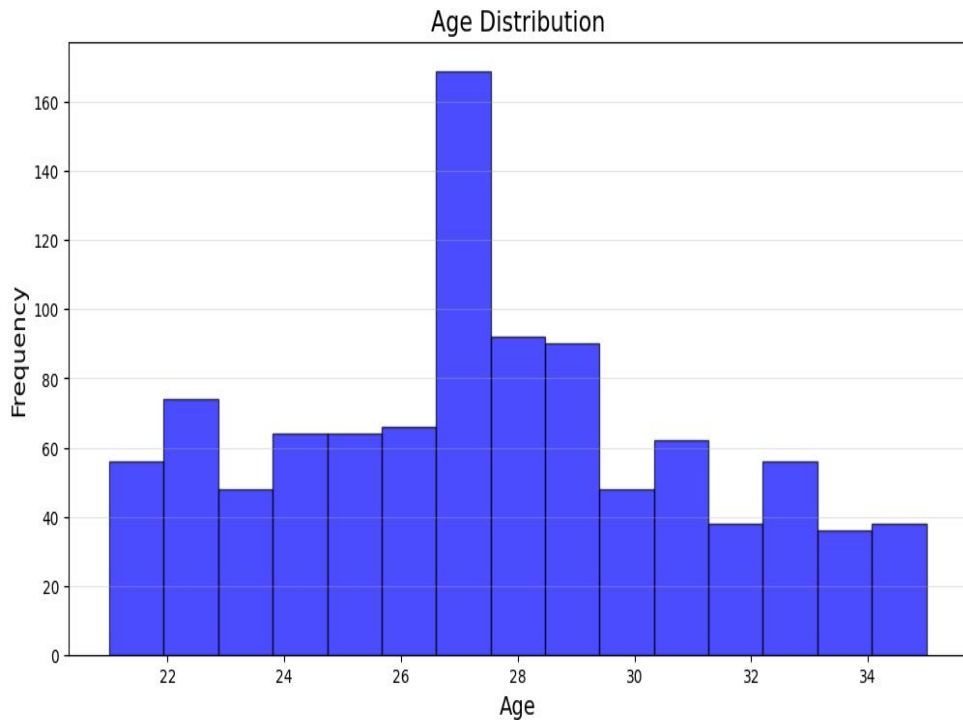




Social Media and Emotion Analysis

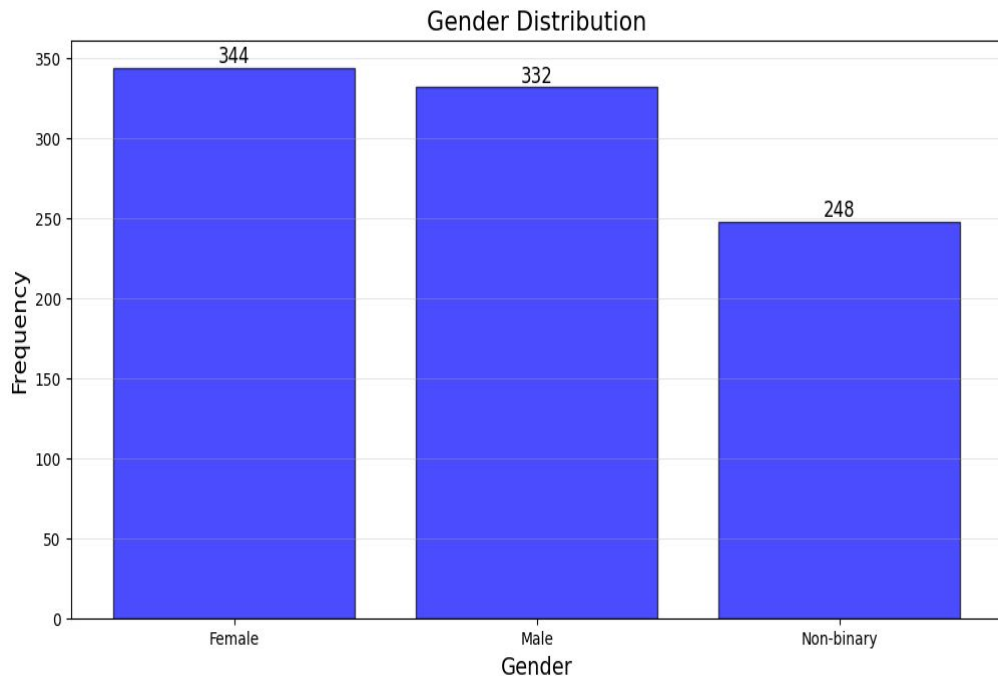
Age Distributions



1. The ages range from 21 to 34 years old.
2. The most common age in the dataset is 27

Overall, the data is centered around the late twenties, with a particularly high concentration at age 27.

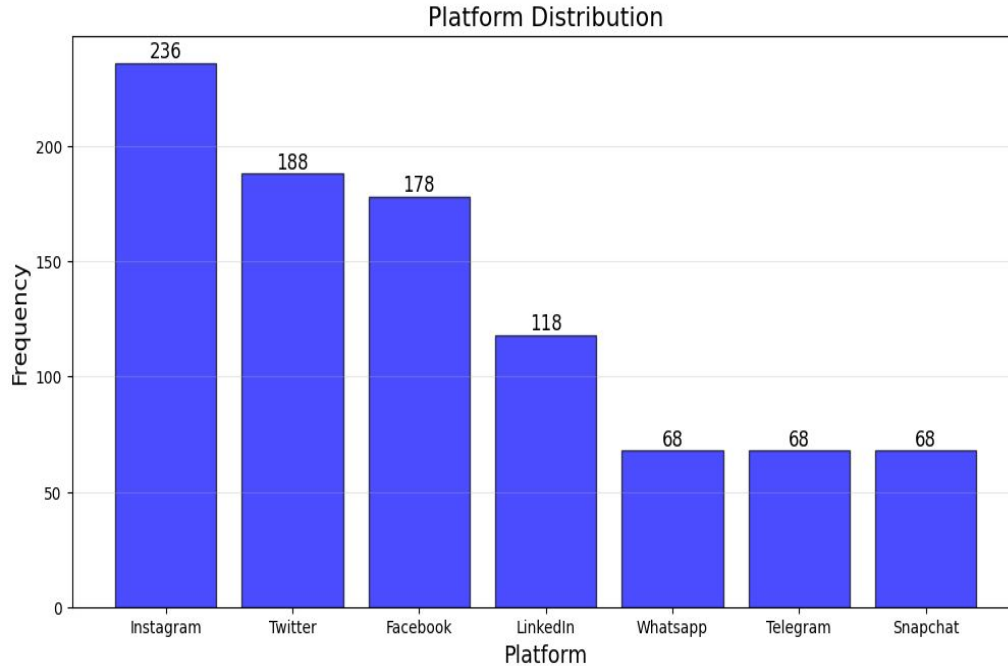
Gender Distributions



1. The dataset includes three gender categories: **Female, Male, and Non-binary.**
2. The distribution is relatively balanced between females and males, with a minor difference, while the non-binary category has a noticeably lower representation.

Overall, the chart indicates a fairly even distribution between female and male participants, with the non-binary category being less represented in the dataset.

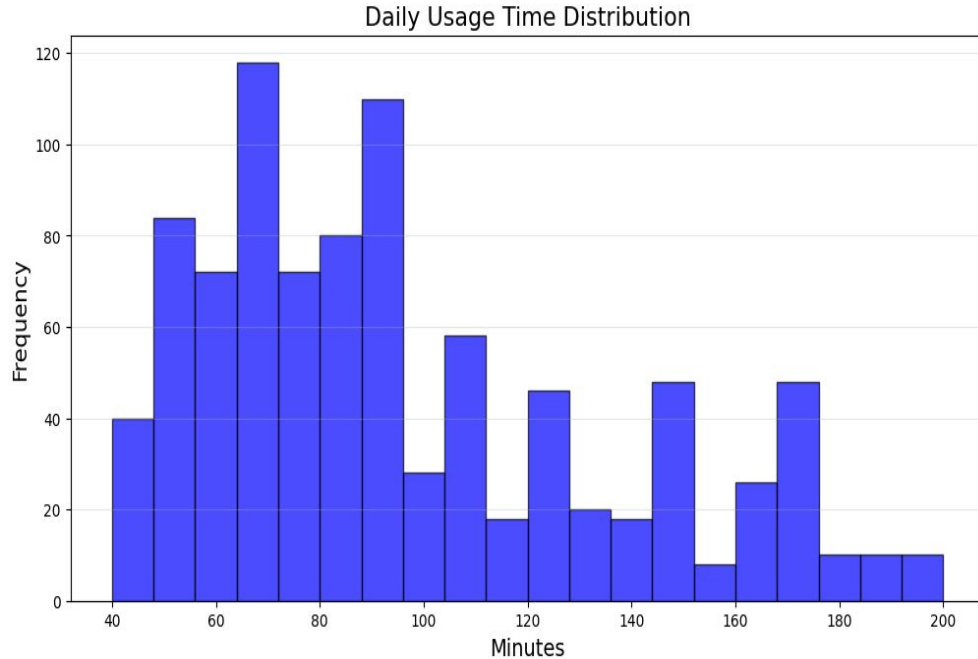
Platform Distributions



1. **Instagram** dominates the dataset, suggesting it is the most preferred platform among the users.
2. **Twitter** and **Facebook** also show significant usage, though not as high as Instagram.
3. **LinkedIn** sees moderate usage, while **WhatsApp**, **Telegram**, and **Snapchat** are equally less popular among the users.

This distribution indicates a preference for more visual and social-network-focused platforms like Instagram and Facebook, with LinkedIn serving a more professional purpose, while messaging apps like WhatsApp, Telegram, and Snapchat are less prominent in this dataset.

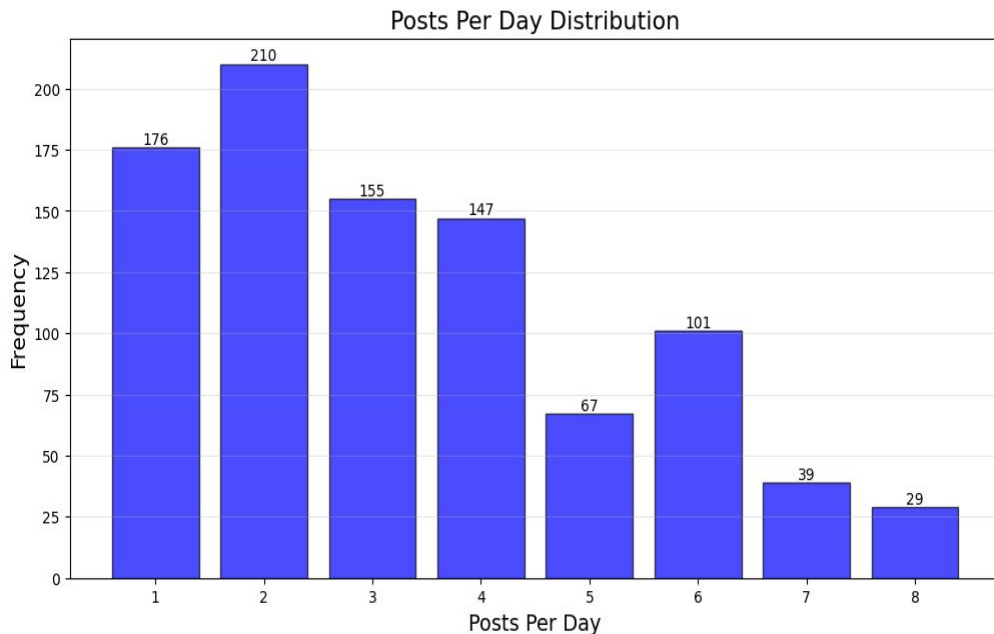
Daily Usage Time Distributions



1. **Daily Usage Time:** Ranges from 40 to 200 minutes.
2. **Peak Usage:**
 - Highest: 70-80 minutes with over 110 users.
 - Other Peaks: 50-60 minutes and 90-100 minutes, each with nearly 100 users.
3. **Usage Trend:**
 - Declines after 90 minutes.
 - Few users exceed 140 minutes daily.

Key Insight: Most users spend 60-100 minutes on social media daily, with usage dropping off significantly after 120 minutes.

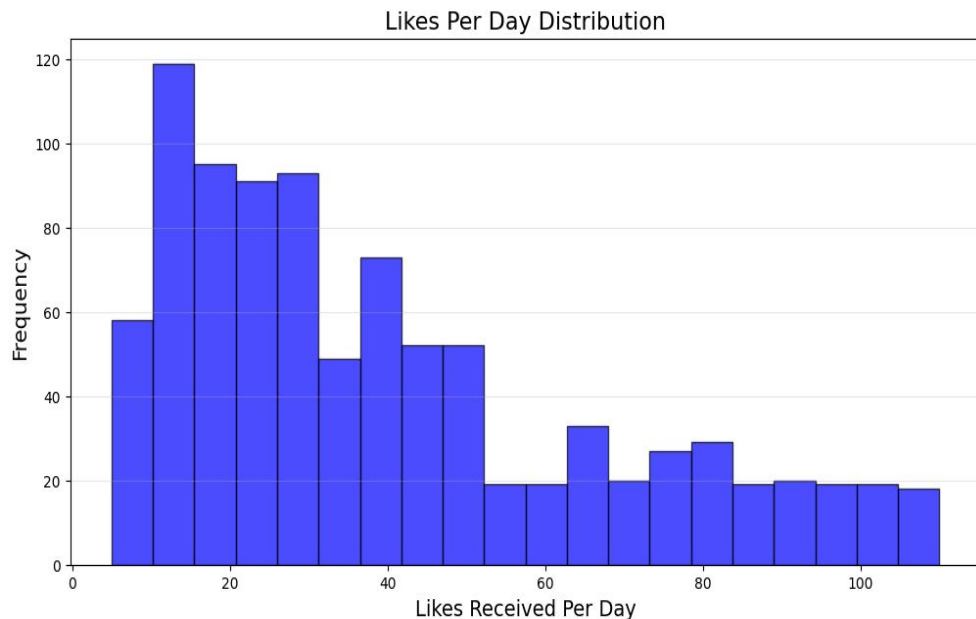
Post per Day Distributions



1. **Posting Range:** Users post between 1 to 8 times per day.
2. **Peak Posting:**
 - Highest: 2 posts/day with 210 users.
 - Other Peaks: 1 post/day (176 users) and 3 posts/day (155 users).
3. **Distribution:**
 - Posting frequency drops after 2 posts/day.
 - Significant decline after 4 posts/day.

Key Insight: Most users post 1-3 times daily, with fewer users posting more frequently. Moderate posting is the most common behavior.

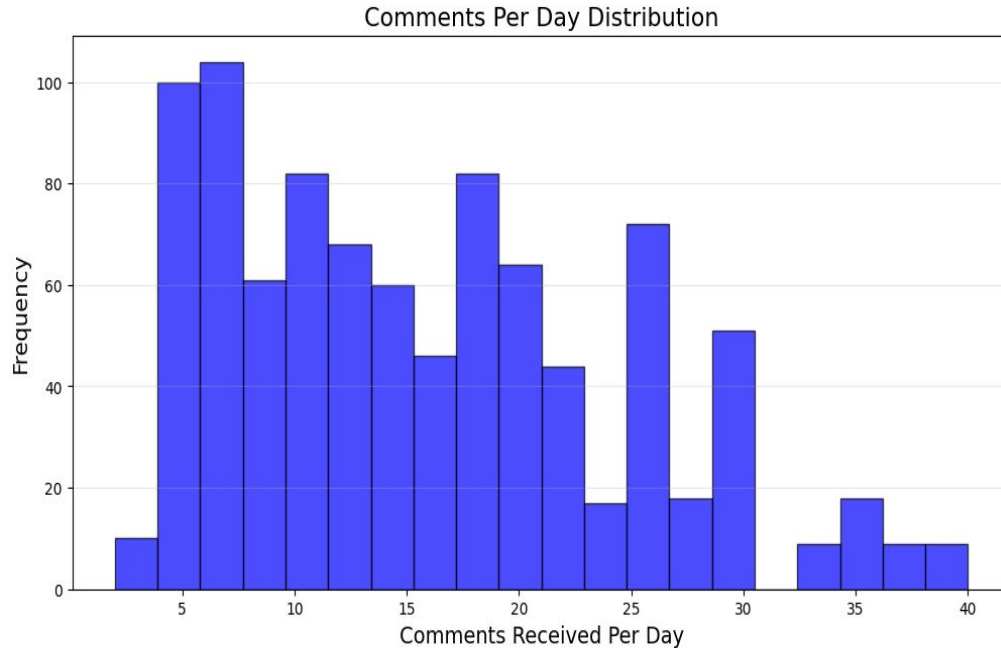
Likes per Day Distributions



1. **Likes Range:** Users receive between 0 to over 100 likes per day.
2. **Peak Likes:**
 - Highest: 10-20 likes/day with nearly 120 users.
 - Other Peaks: 20-30 and 30-40 likes/day, with high frequencies.
3. **Distribution:**
 - Most users receive 10-40 likes/day, with a concentration around 10-30 likes.
 - Frequency drops significantly after 40 likes/day.
 - Few users receive more than 60 likes/day.

Key Insight: Users typically receive a moderate number of likes, with the majority falling within the 10-40 likes/day range. High numbers of likes are less common.

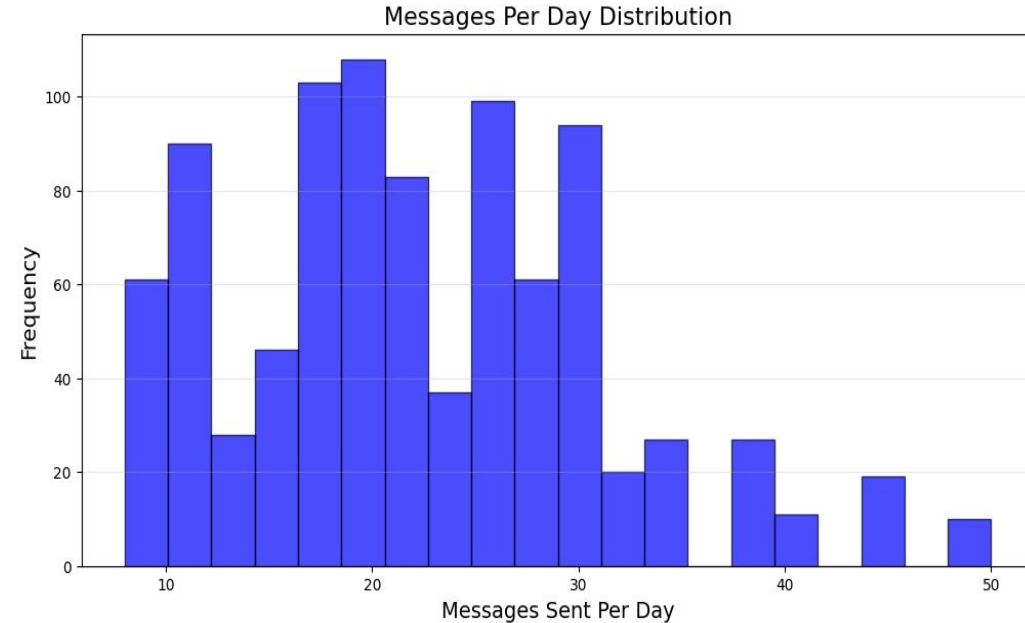
Comments per Day Distributions



1. **Comments Range:** Users receive between 0 to 40 comments per day.
2. **Peak Comments:**
 - Highest: 5-10 comments/day with over 100 users.
 - Significant: 10-15 comments/day, slightly lower frequency.
3. **Distribution:**
 - Most users receive 5-20 comments/day, peaking at 5-10 comments.
 - Frequency drops after 20 comments/day.
 - Few users receive 30-40 comments/day, making high comment volumes uncommon.

Key Insight: Users typically receive a moderate number of comments, with most falling between 5-20 per day. High comment volumes are rare.

Messages per Day Distributions

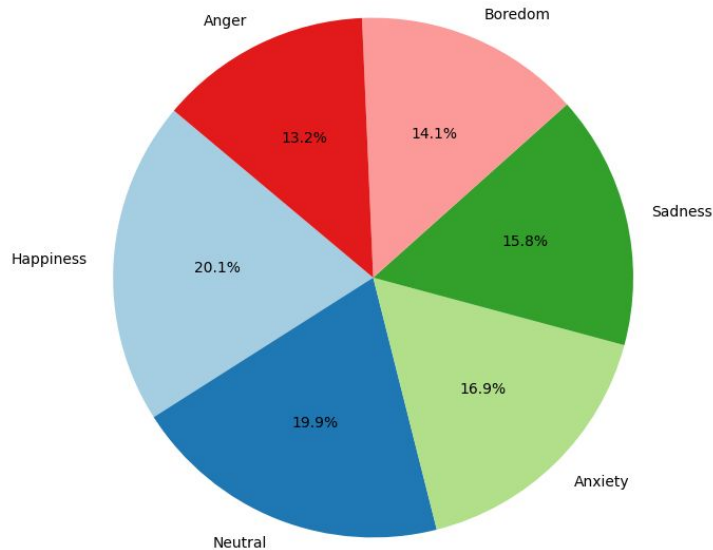


1. **Messages Range:** Users send between 0 to 50 messages per day.
2. **Peak Messaging:**
 - Highest: Around 20 messages/day with slightly over 100 users.
 - Another Peak: Around 30 messages/day, also exceeding 100 users.
3. **Distribution:**
 - Most users send 10-30 messages/day, concentrated around 20-30 messages.
 - Sharp decline beyond 30 messages/day.
 - Few users send 40-50 messages/day, making high messaging activity uncommon.

Key Insight: Users generally send a moderate number of messages, with most sending 10-30 per day. Higher messaging activity is rare.

Dominant Emotions Distributions

Dominant Emotion Distribution

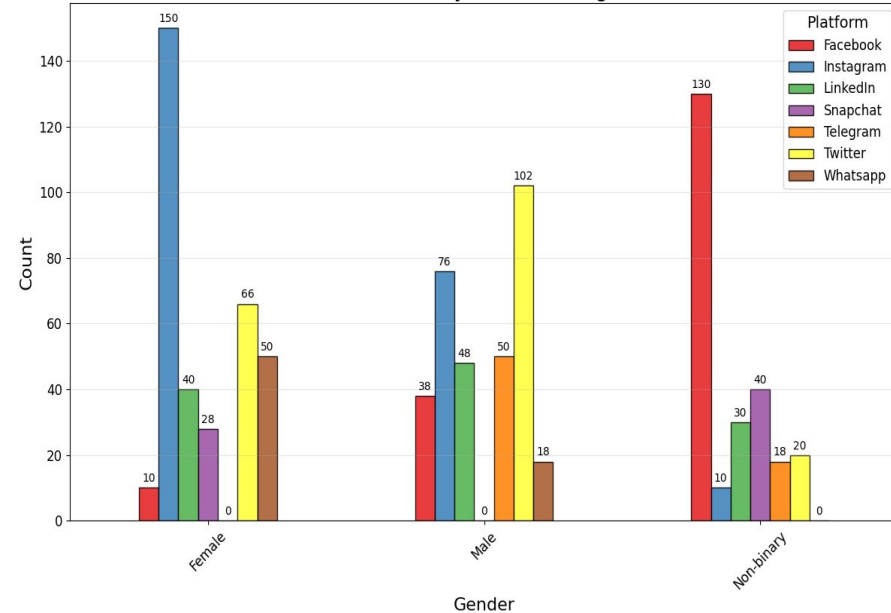


1. **Dominant Emotions:** The chart identifies six key emotions: Happiness, Neutral, Anxiety, Sadness, Boredom, and Anger.
2. **Distribution:**
 - **Happiness:** Most common emotion, 20.1% of users.
 - **Neutral:** Second most common, 19.9%.
 - **Anxiety:** 16.9% of users.
 - **Sadness:** 15.8% of users.
 - **Boredom:** 14.1% of users.
 - **Anger:** Least common, 13.2%.

Key Insight: Positive and neutral emotions (Happiness and Neutral) are the most dominant, representing nearly 40% of users. Negative emotions (Anxiety, Sadness, Boredom, Anger) are also significant, with Anxiety and Sadness being more prevalent. The emotional landscape is diverse but slightly leans towards positive or neutral states.

Gender and Platform Relationship

Platform by Gender Usage

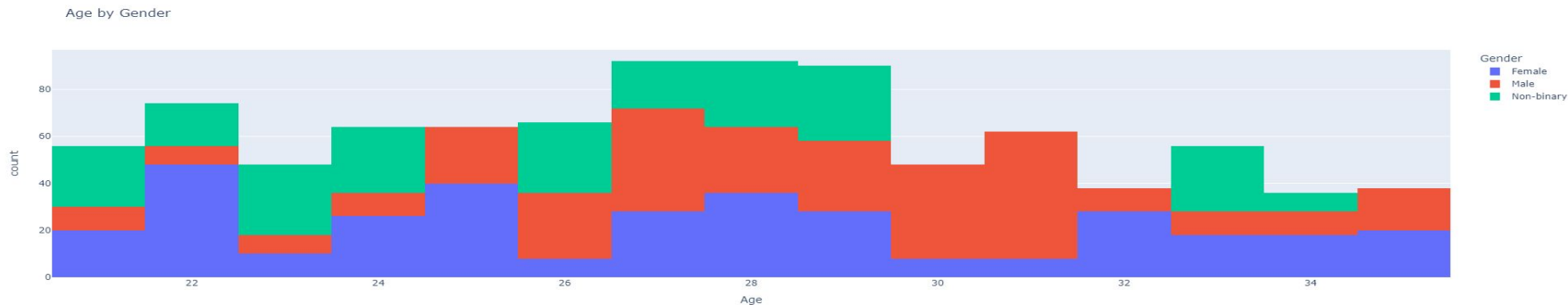


Overall Insights:

- **Instagram:** Most popular, especially among females.
- **Twitter:** Widely used, particularly among non-binary users.
- **Facebook:** Strongly preferred by non-binary users, less popular among males and females.
- **Snapchat & Telegram:** Moderately used across genders; Snapchat more popular with non-binary users.
- **WhatsApp:** Balanced usage between females and males, not used by non-binary users.

Key Insight: Platform preferences vary significantly across gender groups, with certain platforms being especially popular within specific categories.

Age and Gender Relationship



Age Range: 21 to 34 years.

Gender Peaks:

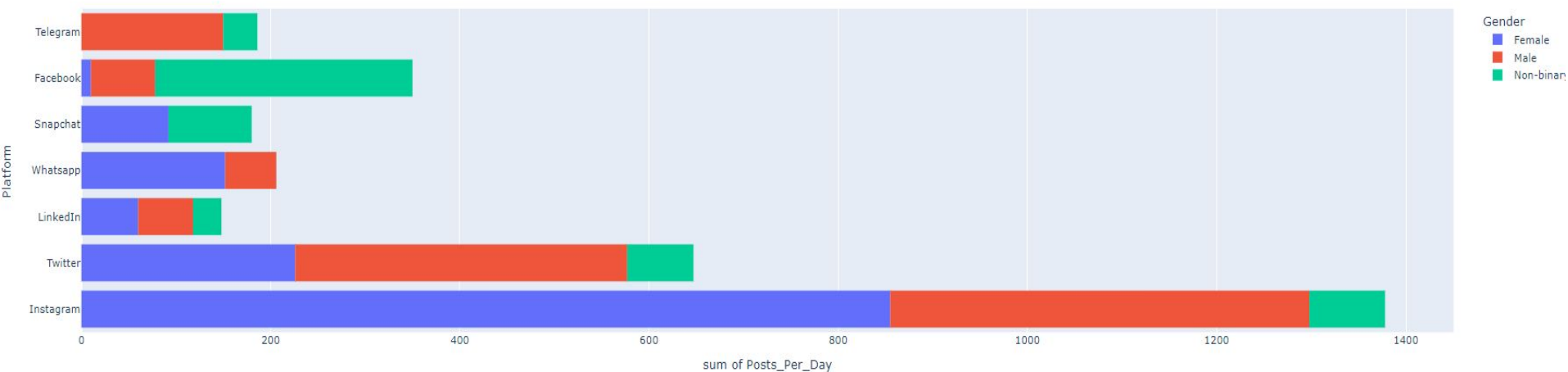
- **Females:** Peaks at 21, 22, 26, 28.
- **Males:** Peaks at 24, 28, 30.
- **Non-binary:** Peaks at 22, 28, 32.

Key Insights:

- Age 28 is the most diverse, with strong representation from all genders.
- Gender representation varies by age, with certain ages dominated by specific genders.

Gender, Platform, and Usage Relationship

Posts Per Day by Gender




Gender, Platform, and Usage Relationship

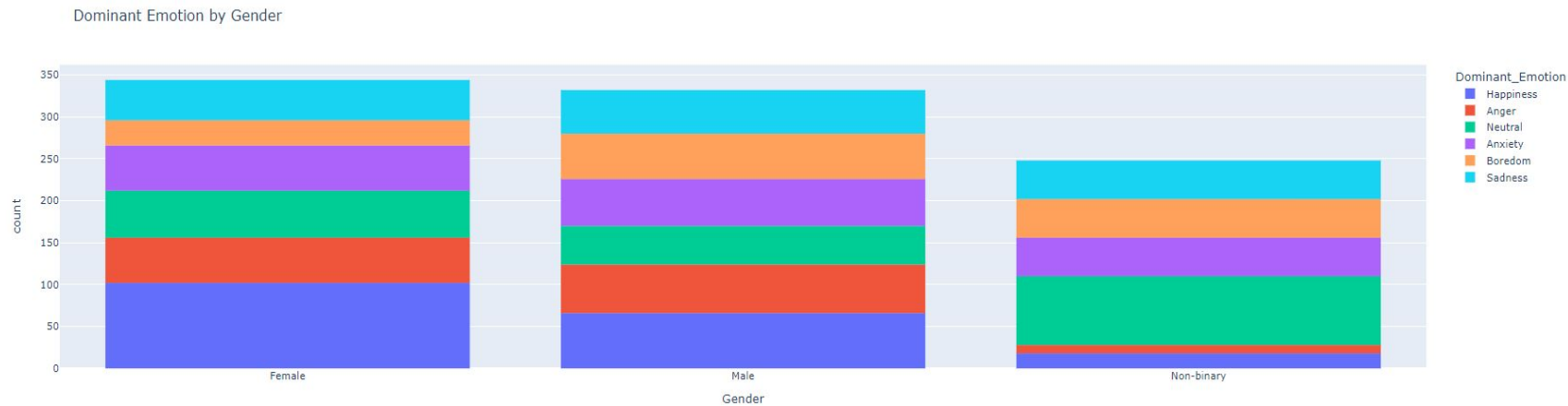


1. **Instagram:** Highest posts, led by females, followed by males; non-binary users contribute less.
2. **Twitter:** Second highest, mainly by females, with significant male and non-binary contributions.
3. **LinkedIn:** Balanced between males and non-binary; fewer posts by females.
4. **WhatsApp:** Primarily used by females and males; minimal non-binary contribution.
5. **Snapchat:** Balanced contributions across all genders.
6. **Facebook:** Dominated by non-binary users; moderate male and minimal female contributions.
7. **Telegram:** Least active; equal male and non-binary contributions, with minimal female posts.

Overall Insights:

- **Instagram** and **Twitter** are most active, driven by female users.
 - **Facebook** and **LinkedIn** are preferred by non-binary users.
 - **WhatsApp** and **Snapchat** show balanced gender appeal.
 - **Telegram** has the lowest activity, with even contributions from males and non-binary users, but minimal from females.
- 

Gender and Emotions Relationship



Gender and Emotions Relationship



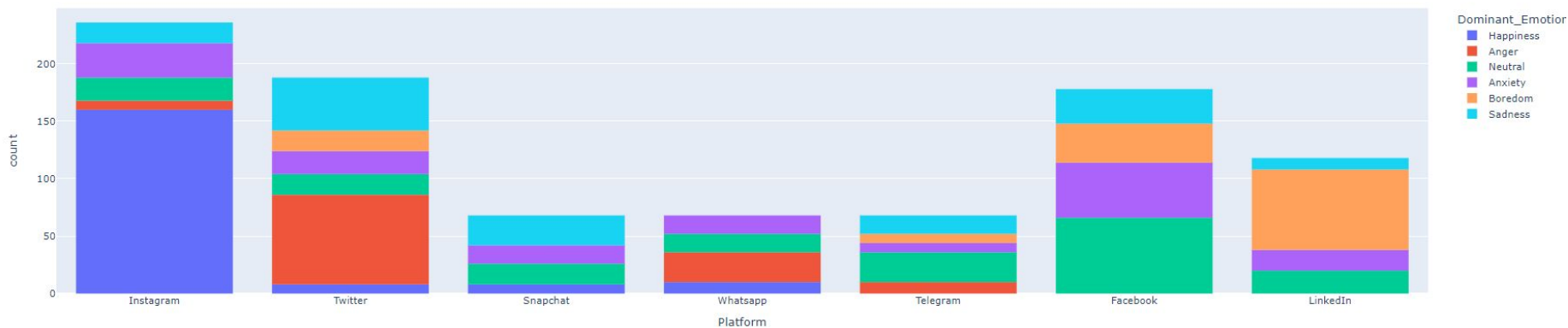
1. **Happiness** (Blue): Dominant across all genders, slightly higher among females.
2. **Anger** (Red): Evenly distributed among all genders.
3. **Neutral** (Purple): Consistently represented, slightly higher in non-binary individuals.
4. **Anxiety** (Green): Common across all genders, slightly higher in non-binary individuals.
5. **Boredom** (Orange): Even distribution, slightly higher among males.
6. **Sadness** (Cyan): Evenly spread across all genders.

Overall Insights:

- **Happiness, Neutral, Anxiety, and Sadness** are the most common emotions across all genders.
- **Boredom** and **Anger** are less prevalent but still significant.
- The emotional landscape is balanced across genders with slight variations in specific emotions like anxiety and neutrality.

Platform and Emotions Relationship

Dominant Emotion by Platform



Platform and Emotions Relationship

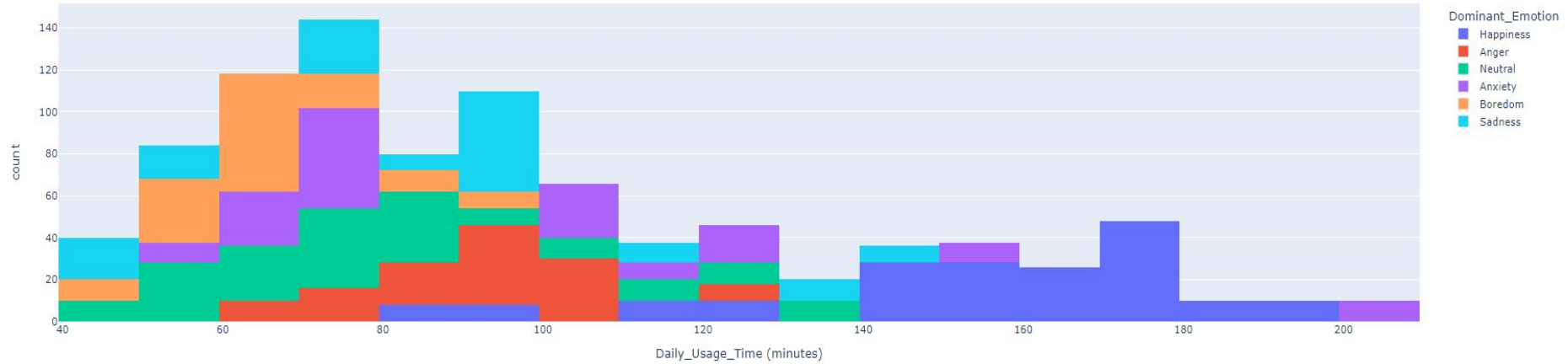
1. **Instagram**: Dominated by **Happiness**, with **Neutral** and **Sadness** also significant.
2. **Twitter**: **Sadness** is most common, followed by **Anxiety**; **Happiness** and **Anger** are less frequent.
3. **Snapchat**: Balanced emotions, with **Sadness** and **Neutral** slightly more dominant.
4. **WhatsApp**: **Neutral** and **Sadness** are most common; **Boredom** and **Anger** are least represented.
5. **Telegram**: Similar to WhatsApp, with **Neutral** and **Sadness** most prominent.
6. **Facebook**: **Sadness** and **Anxiety** dominate; **Happiness** and **Anger** are less frequent.
7. **LinkedIn**: **Boredom** and **Neutral** are most common, with **Happiness** and **Anger** least represented.

Overall Insights:

- **Instagram** shows the most positive emotional distribution, dominated by **Happiness**.
- **Twitter** and **Facebook** are more associated with **Sadness** and **Anxiety**.
- **LinkedIn** reflects high levels of **Boredom** and **Neutrality**, likely due to its professional focus.
- **Snapchat**, **WhatsApp**, and **Telegram** have balanced emotional distributions, leaning slightly towards **Neutral** and **Sadness**.

Time Usage and Emotions Relationship

Time Usage by Dominant Emotion



Time Usage and Emotions Relationship

1. **Short Usage Time (40-60 minutes):**
 - Dominated by **Boredom** and **Anxiety**.
 - **Sadness** and **Neutral** are also present, with less **Happiness** and **Anger**.
2. **Moderate Usage Time (60-100 minutes):**
 - **Boredom** remains common; **Sadness** peaks around 90 minutes.
 - **Anxiety** and **Neutral** are significant, with **Happiness** increasing towards 100 minutes.
3. **Longer Usage Time (100-140 minutes):**
 - **Sadness** is most frequent around 120 minutes.
 - **Happiness** increases, especially after 130 minutes.
4. **Extended Usage Time (140-200 minutes):**
 - **Happiness** dominates, especially around 180 minutes.
 - **Sadness** is present but less frequent; **Anger** and **Boredom** are rare.

Overall Insights:

- **Boredom** and **Sadness** are more common in shorter to moderate usage times, indicating possible negative emotions with less social media use.
- **Happiness** increases with longer usage times, particularly after 130 minutes.
- **Neutral** and **Anxiety** are consistently present, peaking during moderate usage times.

Modeling

Transformers

The Transformer algorithm is a deep learning model that is particularly effective for tasks involving sequential data, such as natural language processing. It utilizes self-attention mechanisms to weigh the importance of different parts of the input sequence when making predictions, allowing it to capture long-range dependencies more effectively than traditional models.

BiLSTM

BiLSTM is an extension of the traditional LSTM model that processes the input data in both forward and backward directions. This allows the model to capture dependencies from both past and future contexts in a sequence, making it particularly useful for tasks where the context is important.



Evaluations

	precision	recall	f1-score	support
Anger	1.00	0.79	0.88	29
Anxiety	1.00	1.00	1.00	35
Boredom	1.00	1.00	1.00	18
Happiness	1.00	1.00	1.00	43
Neutral	1.00	1.00	1.00	35
Sadness	0.81	1.00	0.89	25
accuracy			0.97	185
macro avg	0.97	0.97	0.96	185
weighted avg	0.97	0.97	0.97	185

Transformers

	precision	recall	f1-score	support
Anger	1.00	1.00	1.00	29
Anxiety	1.00	0.97	0.99	35
Boredom	1.00	1.00	1.00	18
Happiness	1.00	1.00	1.00	43
Neutral	1.00	1.00	1.00	35
Sadness	0.96	1.00	0.98	25
accuracy			0.99	185
macro avg	0.99	1.00	0.99	185
weighted avg	0.99	0.99	0.99	185

BiLSTM



Conclusions

The model's high accuracy and balanced performance across various emotions suggest it is well-optimized for the task, making it a reliable tool for understanding user sentiment on social media. The data insights reveal that emotional experiences on social media are heavily influenced by platform choice and usage patterns, with different platforms fostering distinct emotional landscapes. This understanding can be crucial for businesses, mental health professionals, and policymakers aiming to create safer, more positive online environments.

These insights can be leveraged to develop targeted strategies for improving user experiences on social media, such as content moderation, platform-specific mental health interventions, or even personalized recommendations to enhance user well-being. Additionally, understanding how time spent on social media correlates with emotional states can help in designing tools or guidelines to promote healthier social media usage habits, po





**Thank
You**