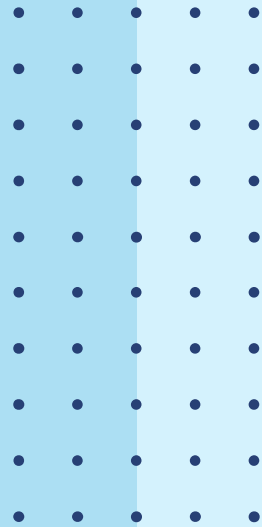


# **Textual & temporal trends in Roblox reviews based on sentiment, common language, and ratings**

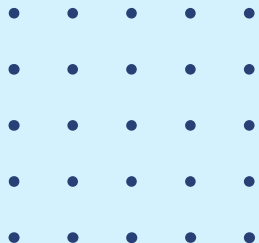
Lily Kemp

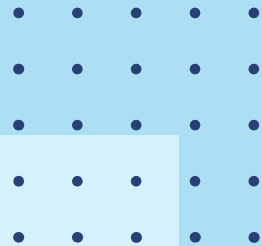


# 01.

## About the Data

A brief introduction to the dataset used in the analysis

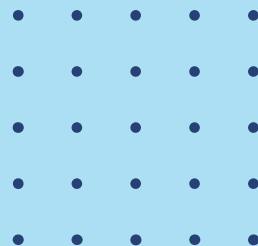




## Question

What are users' perceptions of the Roblox mobile app, and how do they change over time?

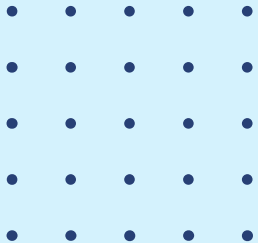
# About the Data



1. Why did I choose this dataset?
  - a. I recently started enjoying video games, and am curious about the influence of a game as popular as Roblox.
2. The data is in the public domain.
  - a. Found on Kaggle
  - b. Google mobile app reviews
  - c. Contains 425,279 reviews
  - d. Spans from May 31, 2023, to November 18, 2023
  - e. Contains censored author info, review text, rating, timestamp
3. Assumptions:
  - a. The sample is representative of Roblox users in 2023.
  - b. Users are leaving honest reviews.
  - c. Users rate consistently (5 stars means similar sentiment)

# 02. Cleaning

Overview of how the data was  
cleaned prior to analysis



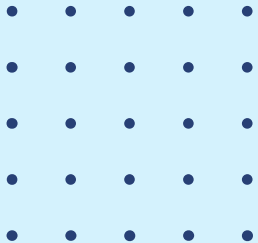
# Cleaning

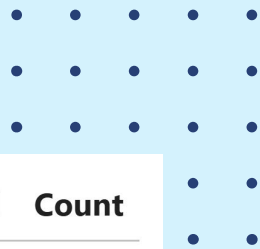
- Filling in missing values
  - Some reviews had no text. I replaced “NaN” with an empty string.
- Format & extract info from the timestamp
  - Convert timestamp to pandas datetime
  - Make new column for hour of day
- Clean the review text
  - Change to lowercase
  - Remove punctuation
  - Lemmatize
  - Remove NLTK stopwords & custom stopwords

# 03.

## Analysis

Questions explored and their results

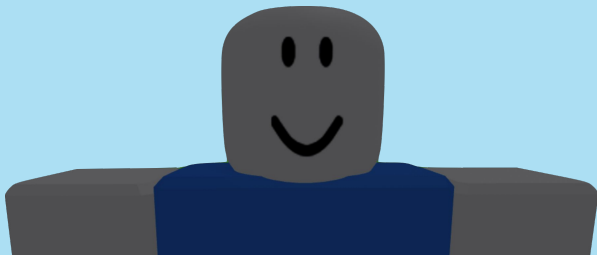




# Most common words in the reviews

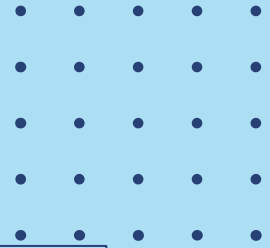
- Top 10 - positive, with the exception of “fix” and “robux”
- Top 30 - several negative words
  - #14 “update”
  - #17 “problem”
  - #22 “bug”
  - #23 “bad”
  - #26 “banned”
  - #27 “lag”

	Word	Count
0	good	82,978
1	love	77,203
2	fun	63,122
3	like	56,989
4	best	47,679
5	friend	25,827
6	robux	22,811
7	fix	22,061
8	nice	21,333
9	amazing	20,286





# Sentiment analysis of common words based on connotation



-

#23. "Bad"

sent_simple	counts
Negative	8,093
Neutral	569
Positive	1,700

#24. "Banned"

sent_simple	counts
Negative	3,566
Neutral	1,529
Positive	2,705

=

#7 "Robux"

sent_simple	counts
Negative	4,351
Neutral	3,176
Positive	10,829

#8 "Fix"

sent_simple	counts
Negative	8,895
Neutral	3,041
Positive	9,597

+

#1 "Good"

sent_simple	counts
Negative	7,629
Neutral	1,702
Positive	68,322

#6 "Friend"

sent_simple	counts
Negative	6,152
Neutral	1,546
Positive	19,065



# Most common words in the top 100 most-liked reviews

- Very similar to the top 10 most common words in all reviews
- Many of these most-liked reviews are related to issues with the game.
  - Users are saying they like the game, but also describing problems they're having.

simpler_review	count
screen	63
like	57
problem	55
fix	48
sometimes	46
move	35
bug	33
it	32
ha	29
fun	28



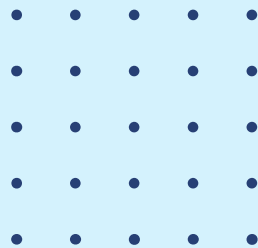
# Relationship between length of review and rating



- Running a one-way ANOVA test concludes that there is a relationship between the length of a review and its rating.
- Users that give the game a high rating tend to write shorter reviews.
- Users that give the game a mediocre rating tend to write longer reviews
  - Taking the time to describe what they like about the game, and listing grievances?

review_rating	avg_rvw_len
1	92.491482
2	124.873450
3	127.269277
4	115.187960
5	57.084618

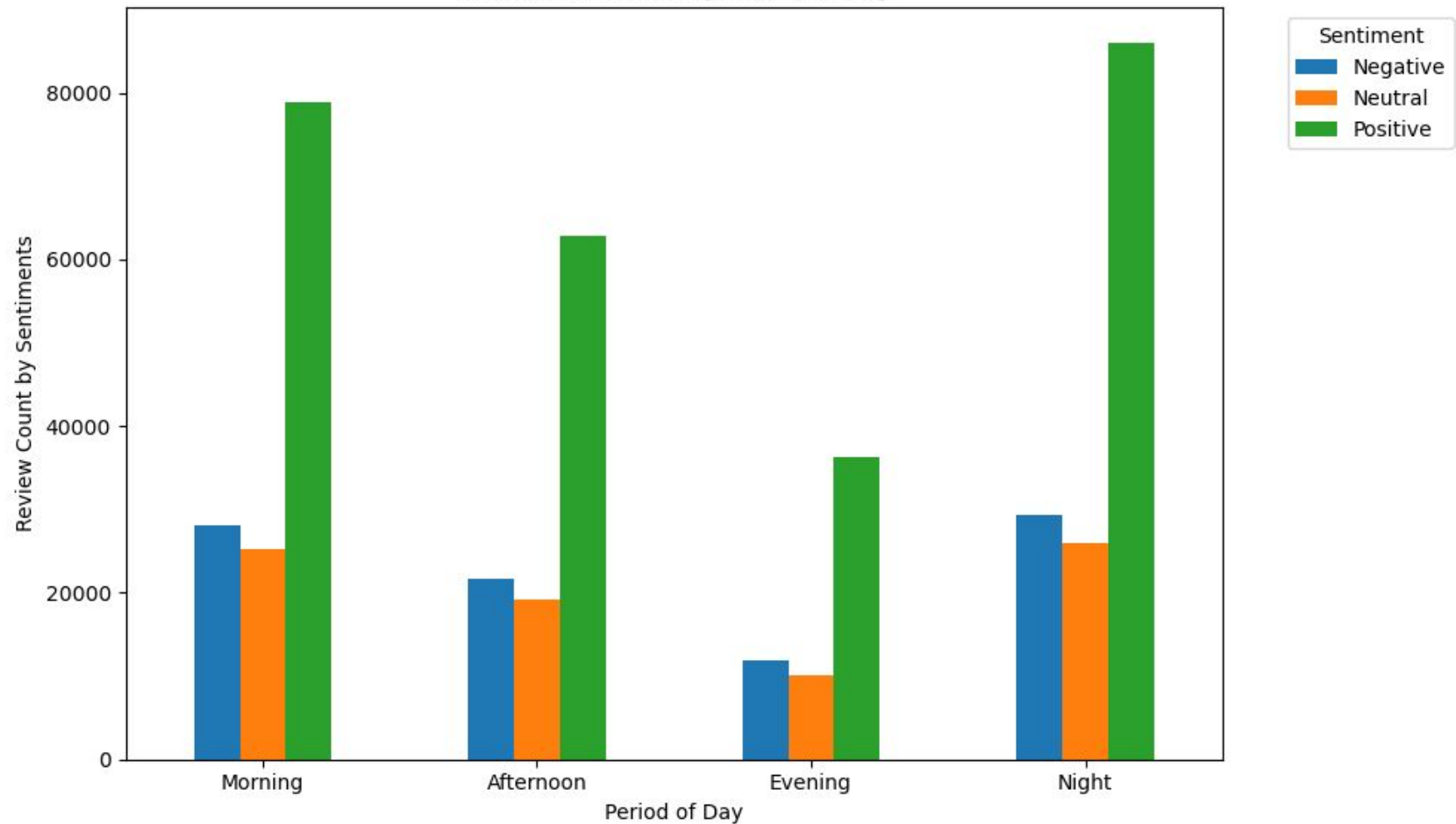
# Relationship between time of day and sentiment

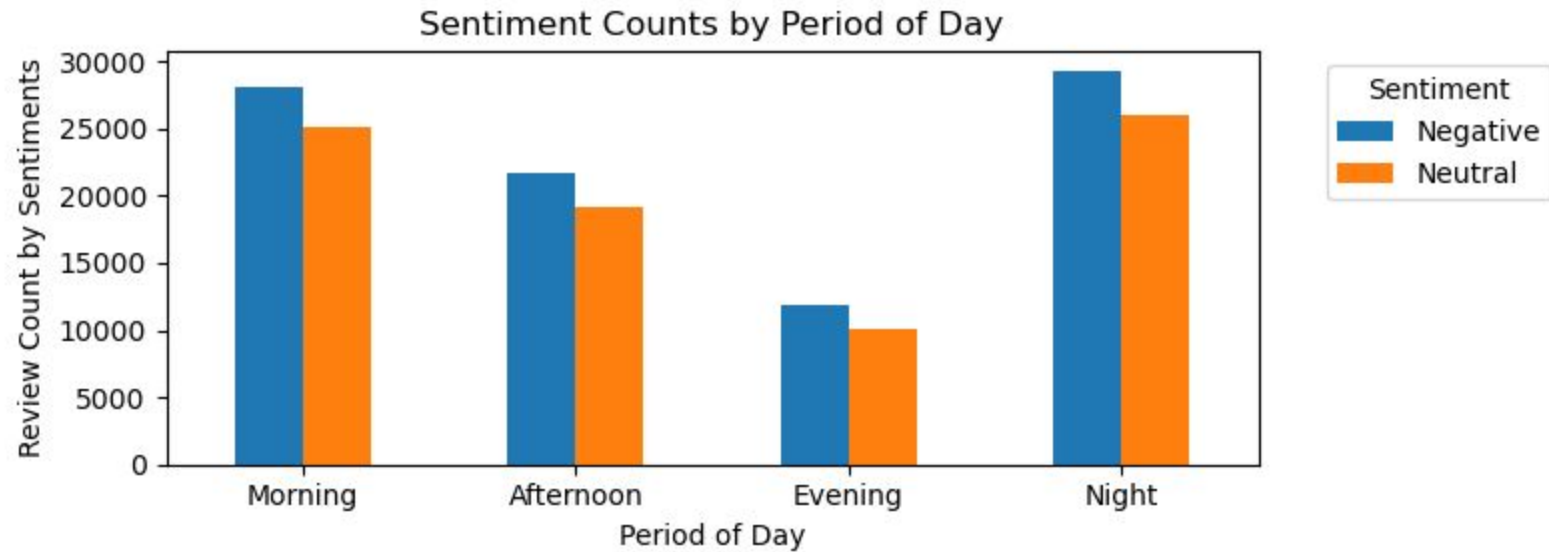


- 5:00am - 11:59am = morning
  - 12:00pm - 4:59pm = afternoon
  - 17:00pm - 8:59pm = evening
  - 21:00pm - 4:59am = night
- 
- The sentiment of the reviews do not seem to change depending on the time of day.
  - Even when excluding positive reviews to account for washing out data, there is not much difference.
  - The time of day does seem to influence how many reviews are posted.

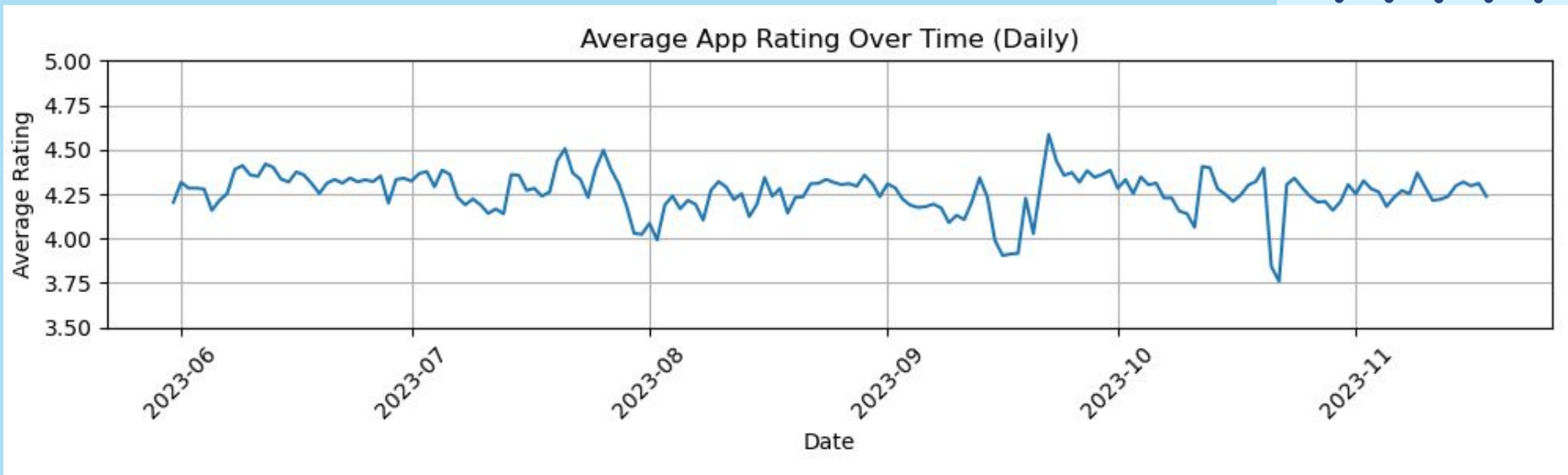


Sentiment Counts by Period of Day

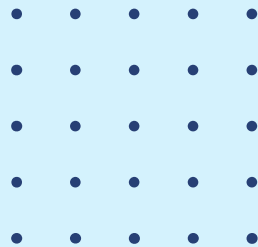




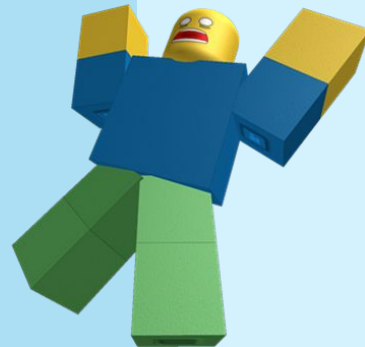
# Ratings over time



# Potential reasons for drops in rating

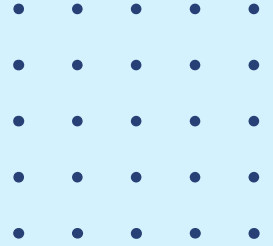


- July 2023
  - Data breach leaks 4,000 users' information
  - Major outage that resulted in 0 users online
- September 2023
  - Roblox had several hours of outages
- October 2023
  - Users that had been banned & unbanned were banned again
  - Sporadic and persistent outages
  - Ban wave targeted exploiters
- November 2023
  - Increase of prices on character customizations



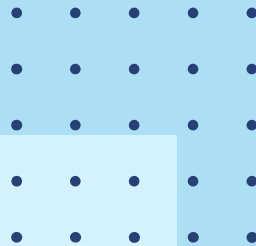


# Potential reasons for spikes in rating



- July 2023
  - New default avatars released
- August 2023
  - Roblox Studio adds Aerodynamics
- October 2023
  - Roblox is available on PlayStation





## Sources

- Aerodynamics Studio Update - Roblox Devforum
- Timeline of Roblox History 2023 - Fandom.com
- Roblox Mobile App Reviews - Kaggle

**Thank you!**

