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# COMPETING IN THE MENTAL WELLNESS IOS APP MARKET

Natural Language Sentiment Analysis

# BACKGROUND

- COVID-19 lockdowns and restrictions have impacted anxiety and depression rates
- 93% increase in anxiety screens from Jan-Sept 2020, compared to total number in 2019
- 62% increase in depression screens
- Difficult for patients to seek assistance from health professionals face-to-face
- Mobile apps can provide an alternative solution



# 4 MILLION

**FIRST-TIME DOWNLOADS OF TOP 20 MENTAL WELLNESS APPS IN THE U.S. IN APRIL 2020**

**MENTAL HEALTH APP MARKET TO SEE A COMPOUND ANNUAL GROWTH RATE OF 20.5% FROM 2021 THROUGH 2027 TO REACH \$3.3B BY 2027**

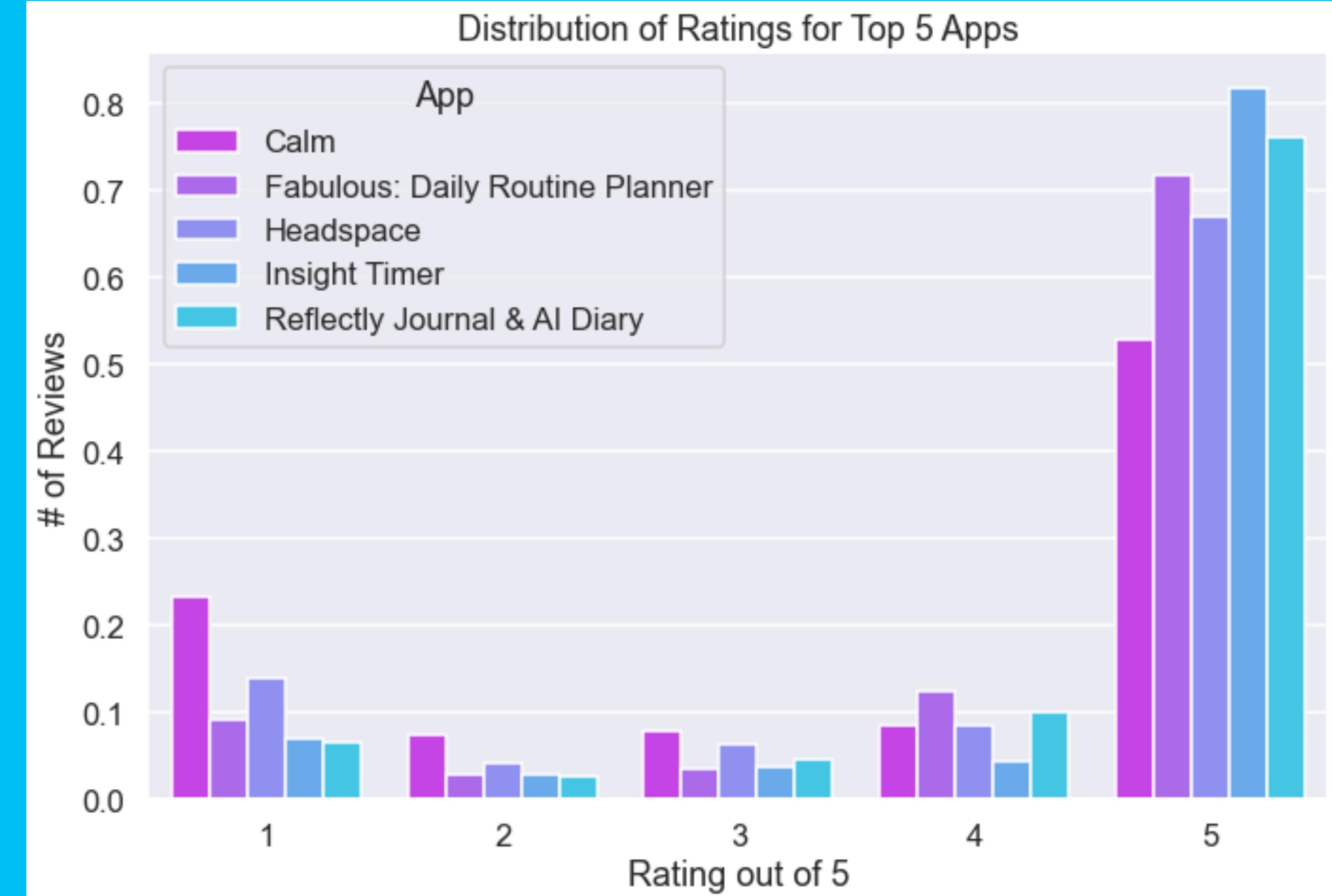
**- MARKET WATCH**

# BUSINESS PROBLEM

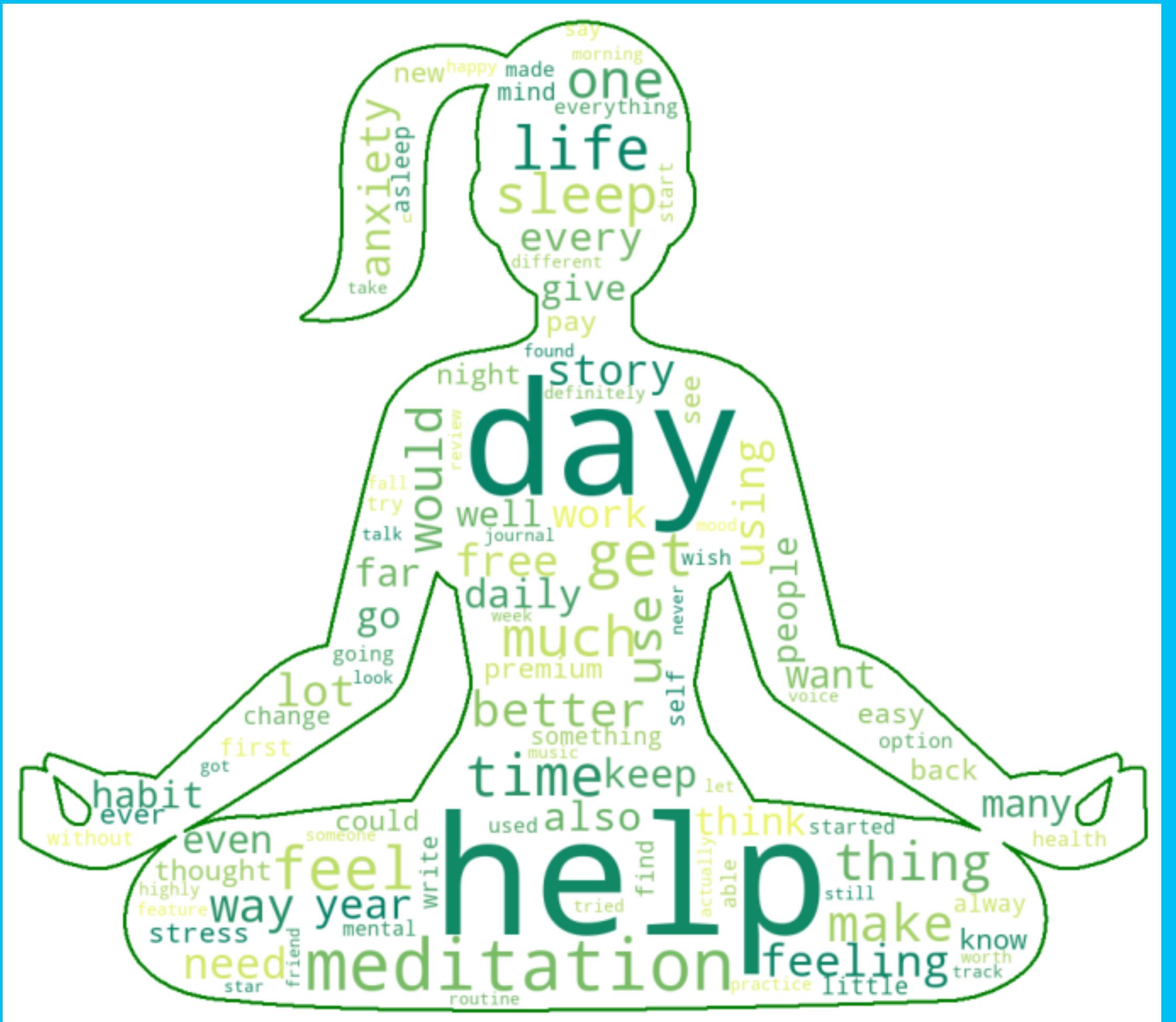
- The mental wellness app market is highly competitive with over 300K health apps available worldwide
- Evaluate what users enjoy or dislike most about mental wellness apps currently on the market
- Develop a strategy to build a new mental wellness app to compete with existing top performers

# DATA OVERVIEW

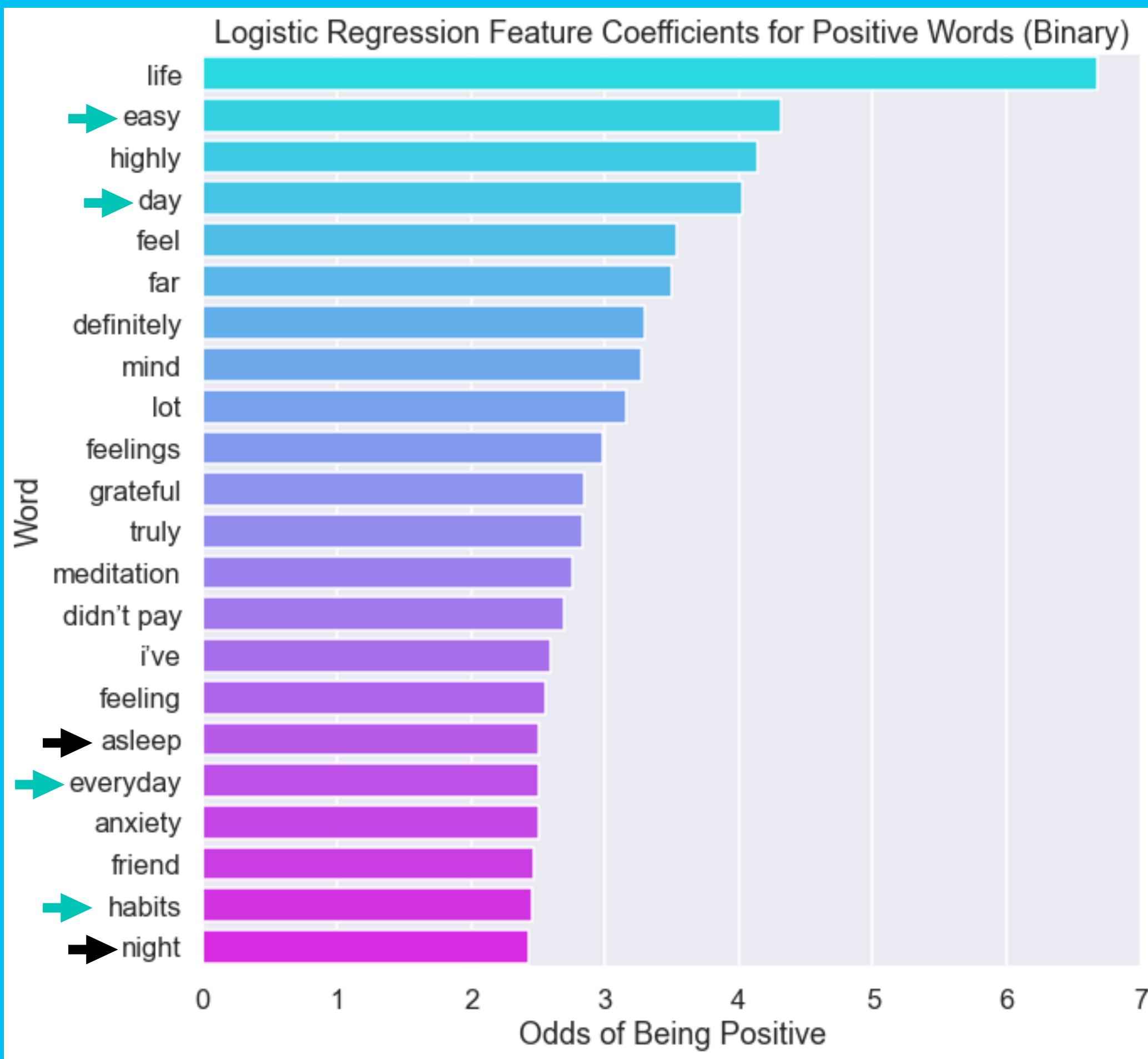
- **44,698 total text reviews and ratings obtained from iOS US App Store**
- **Includes reviews written for 31 popular mental wellness apps recommended by multiple blogs**
- **All reviews were written after January 1, 2020**
- **Overall sentiment indicated by rating:**
  - **1-3 Stars: Negative**
  - **4-5 Stars: Positive**
- **Mean average rating across all reviews: 4.15**



# WHAT DID USERS LIKE?



# POSITIVE SENTIMENT

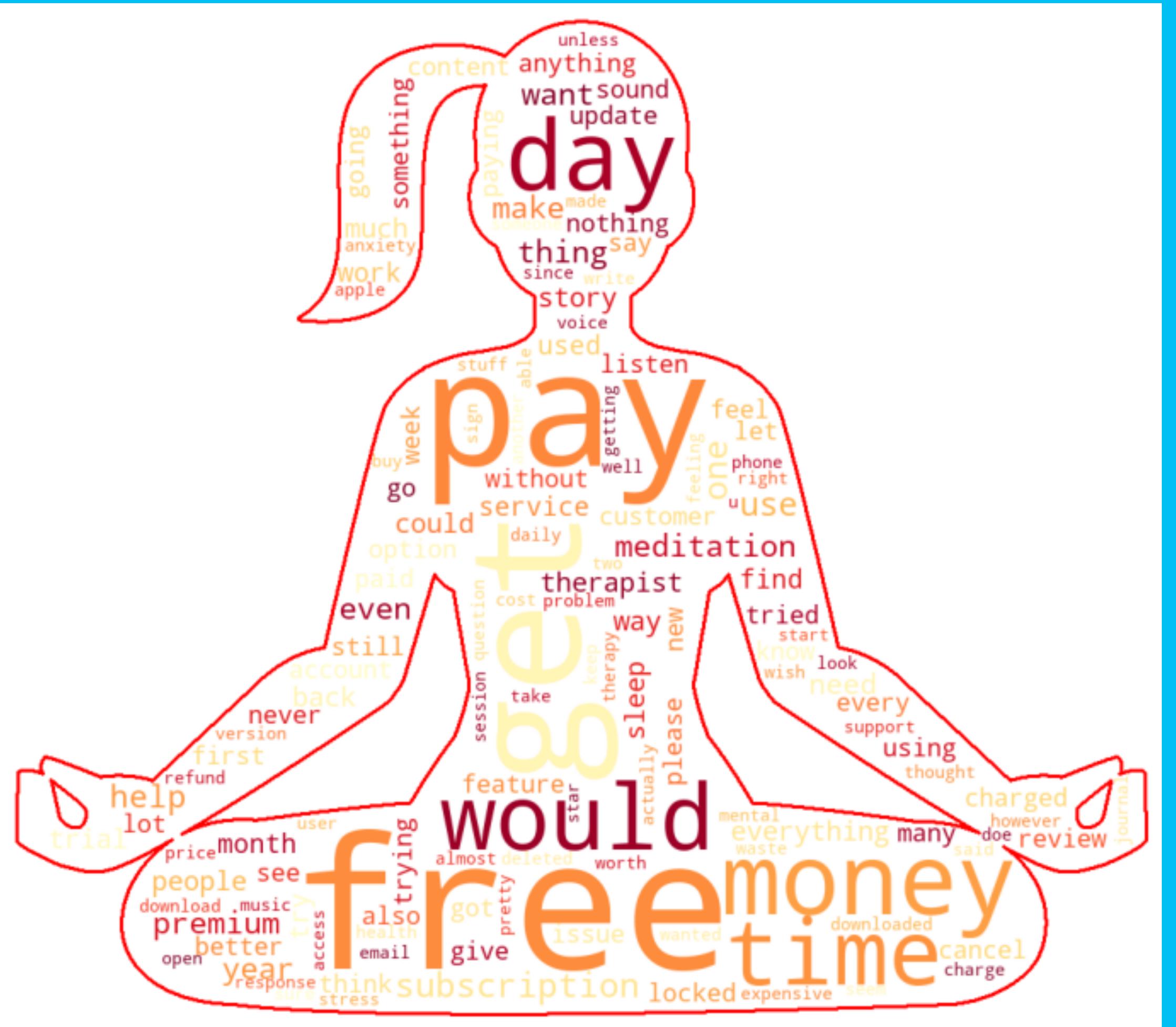


Words most likely to indicate a positive review

# POSITIVE SENTIMENT

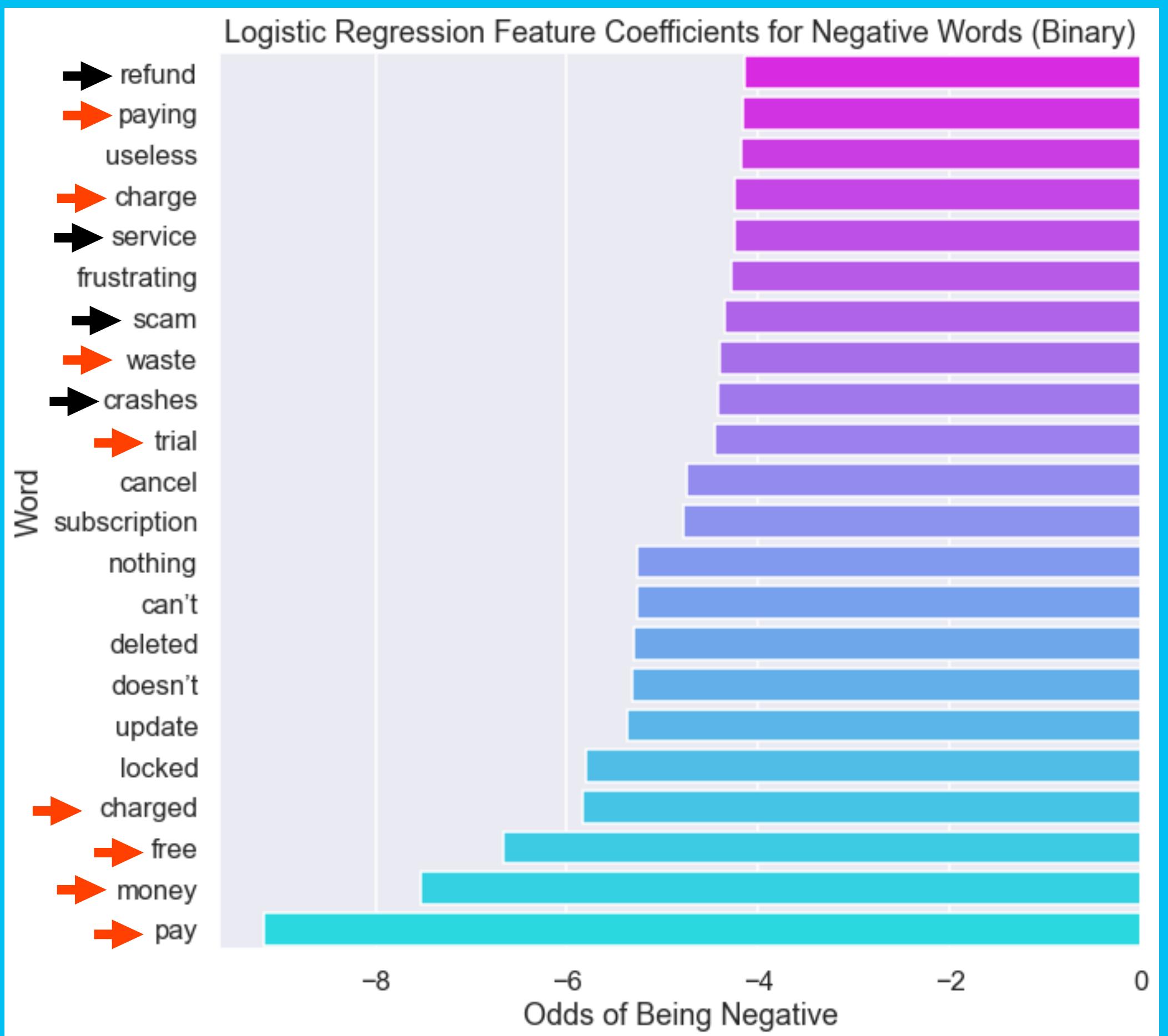
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# WHAT DID USERS DISLIKE?



# NEGATIVE SENTIMENT

# Most frequently occurring words found in negative (1-3 star) reviews



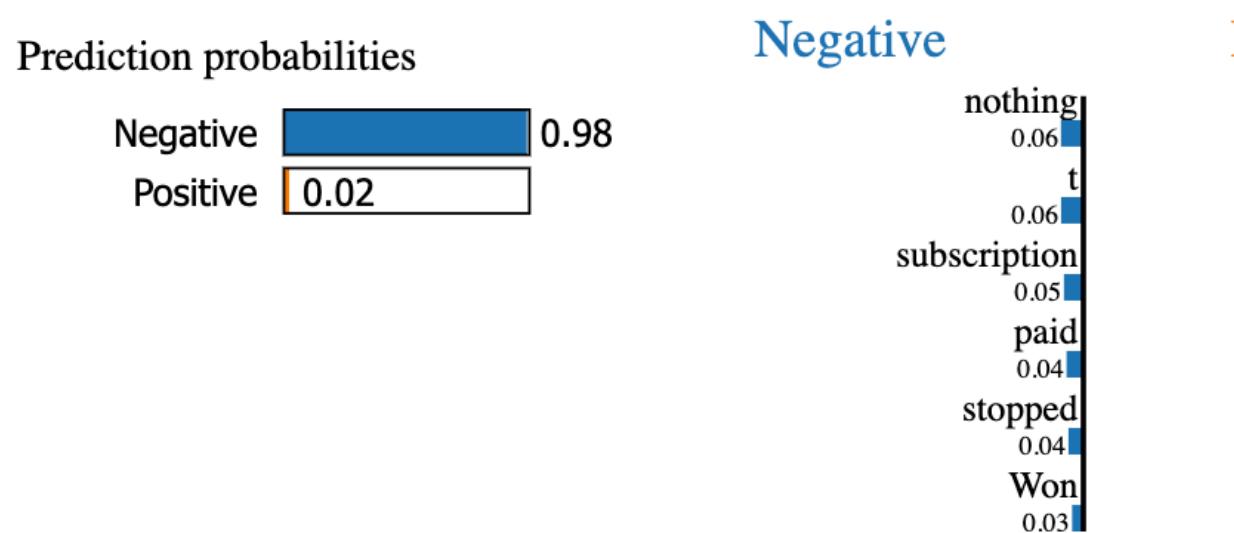
Words most likely to  
indicate a negative  
review

# NEGATIVE SENTIMENT

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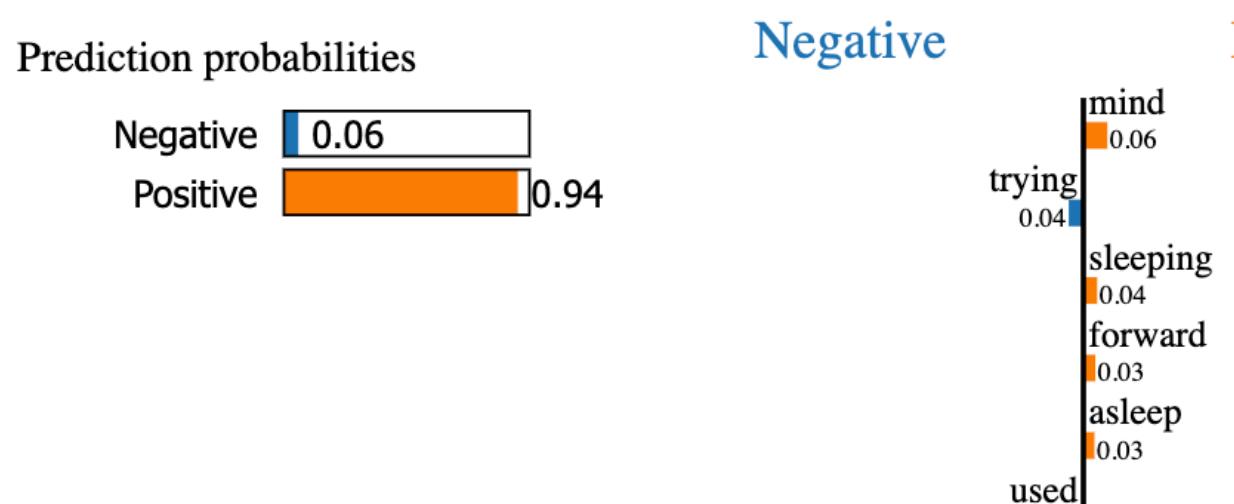
# HOW THE MODEL WORKS

Document id: 17187  
Probability(Positive) = 0.020999261127576607  
True class: Negative



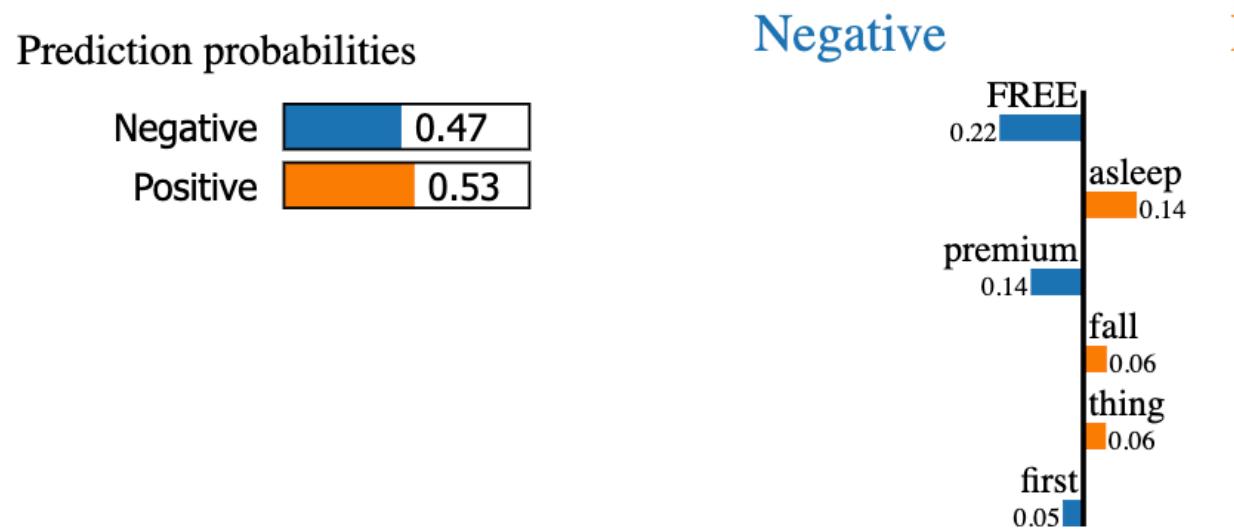
**Text with highlighted words**  
Won't let me log in. This app was great until it stopped letting me log in. Now I have a subscription I paid for until next year that I can't use.. there is nothing about the error code in the help section. So that's not cool..

Probability(Positive) = 0.9423697140038891  
True class: Positive



**Text with highlighted words**  
Peaceful. Between chronic neck pain and just plain restlessness, I'm pretty used to not sleeping that great. With Calm, I am sleeping much sounder. Just put on a soundscape and I instantly feel calmer. I also struggle with my mind racing when I'm trying to fall asleep. I started listening to meditations before my sound scape... it's been helping my mind calm down! Love this app! I look forward to going to sleep so I can relax and be peaceful!

Document id: 3212  
Probability(Positive) = 0.5265458013611568  
True class: Negative



**Text with highlighted words**  
It's just stupid to me. I just got the app to help me fall asleep and the first thing it asks is for the premium stupid thing and then I try doing one of the FREE things and it greets me with buying premium.

- 89% prediction accuracy**
- Correctly identified 86% of negative reviews
  - Correctly identified 90% of positive reviews

# LOGISTIC REGRESSION

# FINDINGS

- Topics correlated with negative sentiment:
  - Payment and costs
  - Technical and customer support
- Topics correlated with positive sentiment:
  - Ease of use
  - Sleep-aid functionality

# FINAL RECOMMENDATIONS

- Thoroughly research pricing scheme and be transparent about free vs premium features
- Thoroughly train customer support team on how to diagnose and address any technical or payment-related complaints
- Develop app interface to make it aesthetically pleasing and ease to use
- Invest in R&D of sleep-aid functionality

# LIMITATIONS AND FURTHER ANALYSIS

- Obtain and analyze pricing data to identify optimal pricing scheme
- Include Google Play Store app reviews
- Implement Latent Dirichlet Allocation topic modeling to extract further insights on what topics are considered negative vs positive

**THANK YOU!**