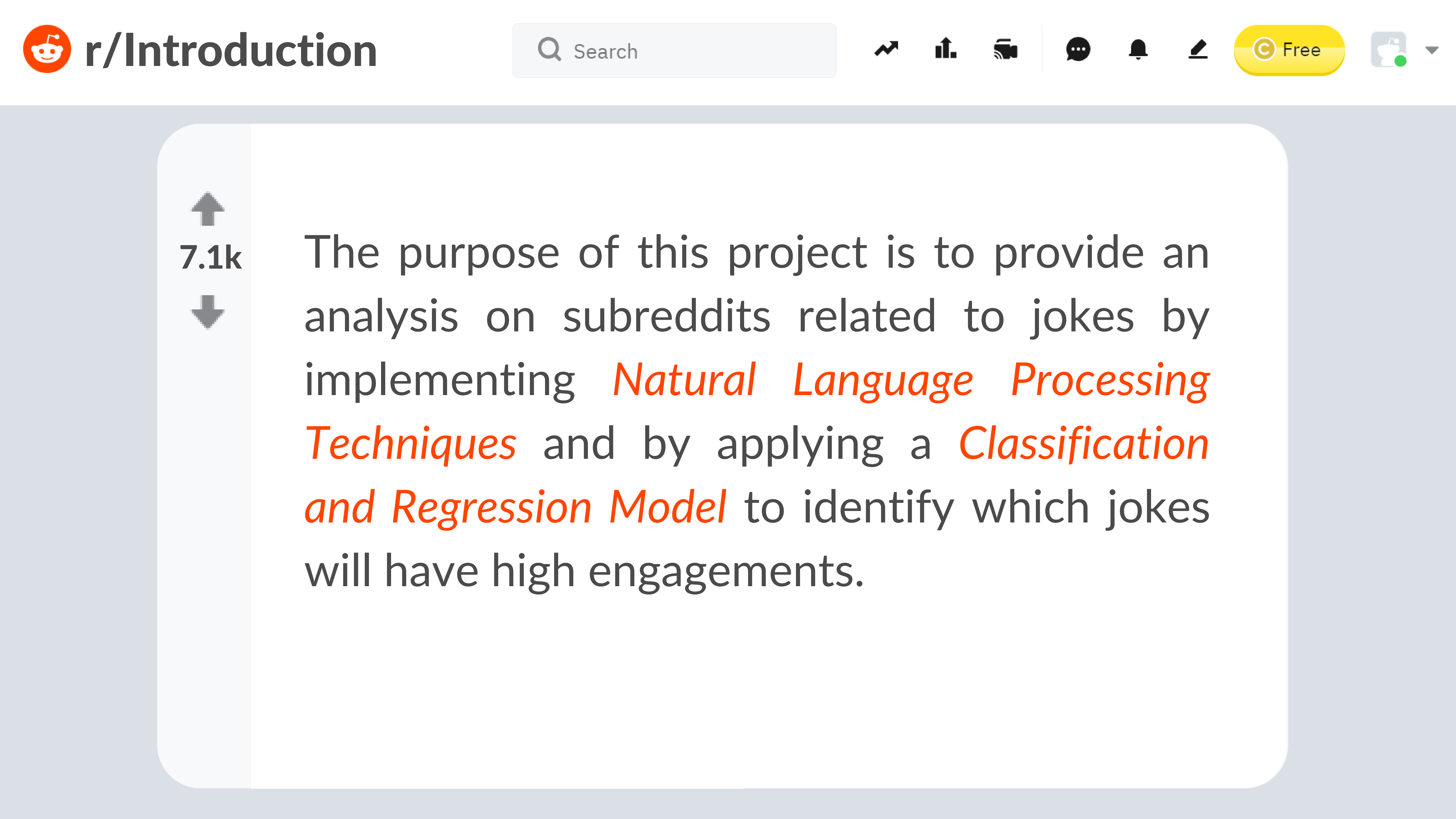
A subreddit analysis on Jokes

TEAM SEPTIC TANK

Edward, Jona, Nico, Rara, Tyron



The purpose of this project is to provide an analysis on subreddits related to jokes by implementing *Natural Language Processing Techniques* and by applying a *Classification and Regression Model* to identify which jokes will have high engagements.

r/Reddit

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r/What is Reddit?

Reddit is a network of ***communities*** based on people's interests.

Forums on the Reddit platform are called ***subreddits***. Users can use a ***subreddit*** to create new posts on a specific topic. These can be questions and requests for help, but also informative news articles, images, and videos.

r/Jokes

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r/But why choose Jokes?

Brands can reach their audience through *humor*.

The Influence of Humor Strength and Humor-Message Relatedness onAdMemorability: ADual ProcessModel

"The study shows the impact of humorous advertisements are more on ***recall of ads****, and* ***ad memorability****, the humor get attention and mood when the humor appeal is strong, the positive influence of mood created by humor and product relatedness made."*

Cline and Kellaris, 2007

r/Review of Related Literature

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Gets people to listen - *"Let the Good Times Roll Building of a Fun Culture" David Stauffer, Harvard Management*

Increases long term memory retention - *"Relationship between Instructor and Student Learning" M Wanzer, Communication Education*

Helps communicate messages - *"Does Humor Use Enhance SpeakerEthos?" C Ellis Campbell, Association for Applied and Therapeutic Humor.*

Builds trust - *"Humor in the Workplace: A Communication Challenge", Robert A. Vartebedian, Speech Communication Association*

Improves likeability - *"A funny thing happened on the way to the bottom line", B.J. Avollo, Academy of Management Journal*

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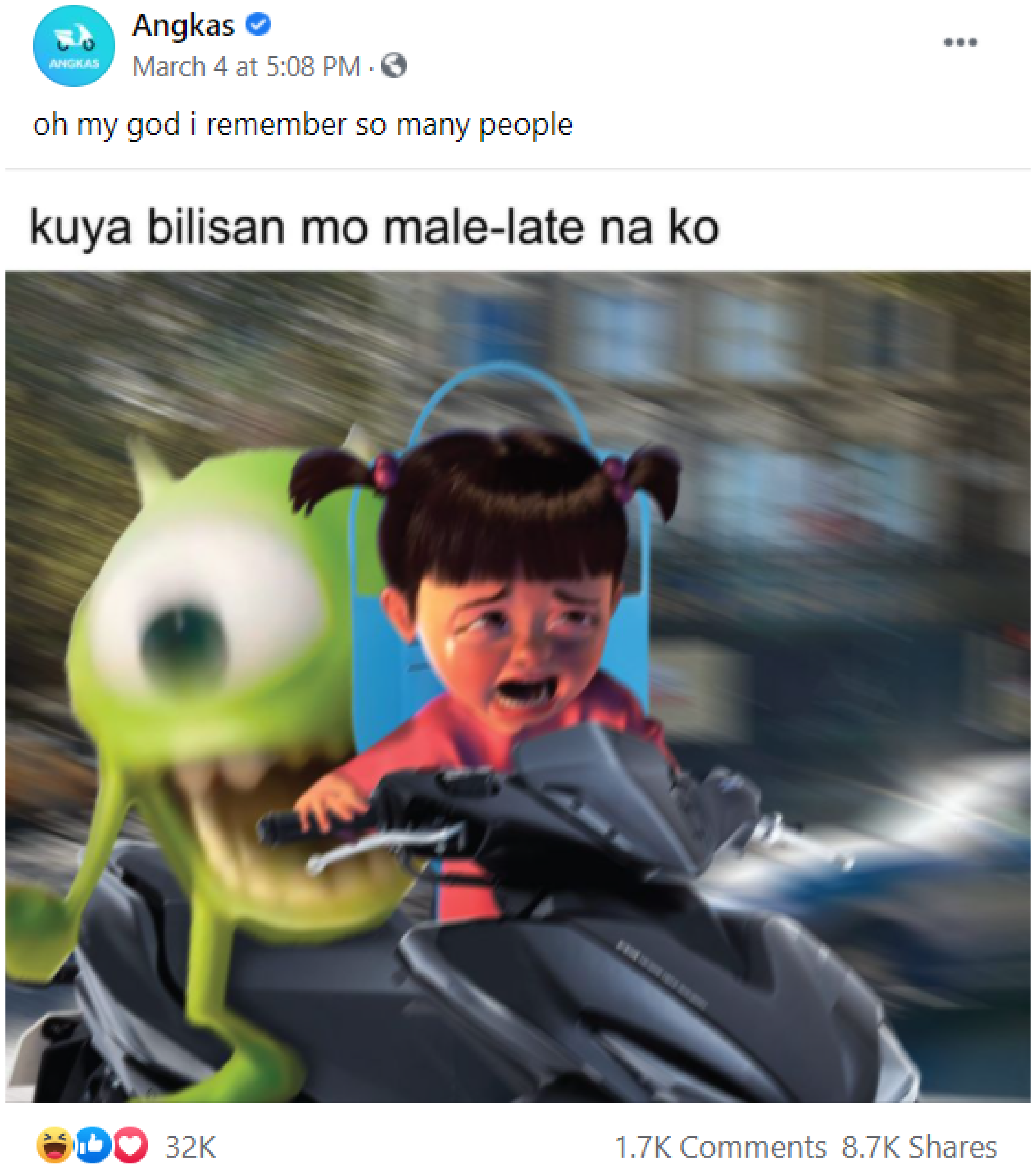
r/Angkas

Angkas posted on Facebook last March 4, 2021. This post garnered a total engagements of 32k likes, 1.7k comments, and 8.7k shares



Angkas

March 4 at 5:08 PM ·

oh my god i remember so many people

kuya bilisan mo male-late na ko

32K

1.7K Comments 8.7K Shares

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r/RC Cola Ph

RC Cola Philippines which tweeted its advertising video on Twitter last November 26, 2020. This tweet garnered a total engagements of 20.6k likes, 1.5 retweets, and 8.6 quote retweets.

r/Objectives

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- ***Analyze*** the joke subreddits by using Natural Language Processing Techniques
- ***Identify*** which jokes will have high engagements through a Classification and Regression model

r/Data Information

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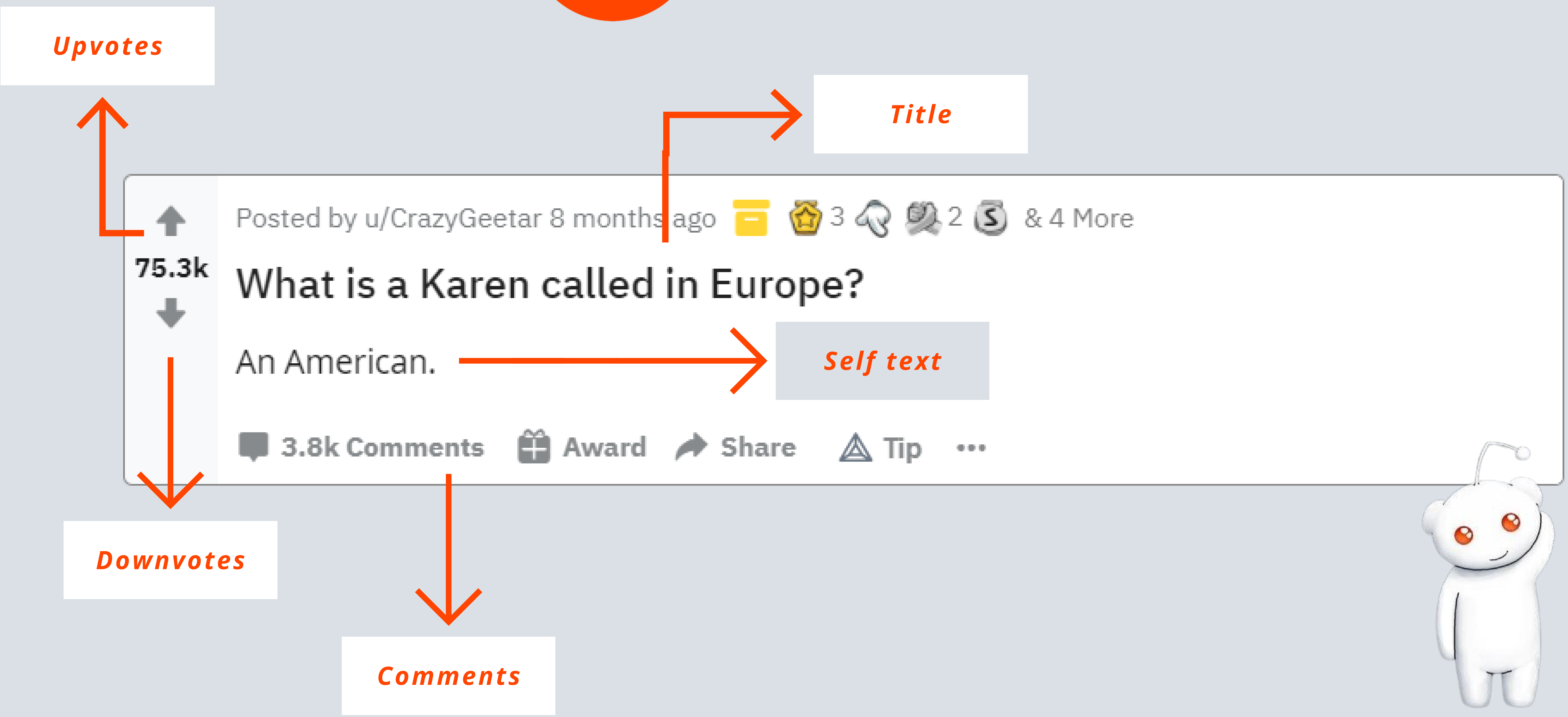

Posted by u/CrazyGeetar 8 months ago 3 2 & 4 More

75.3k

What is a Karen called in Europe?

An American.

3.8k Comments Award Share Tip •••

r/Methodology

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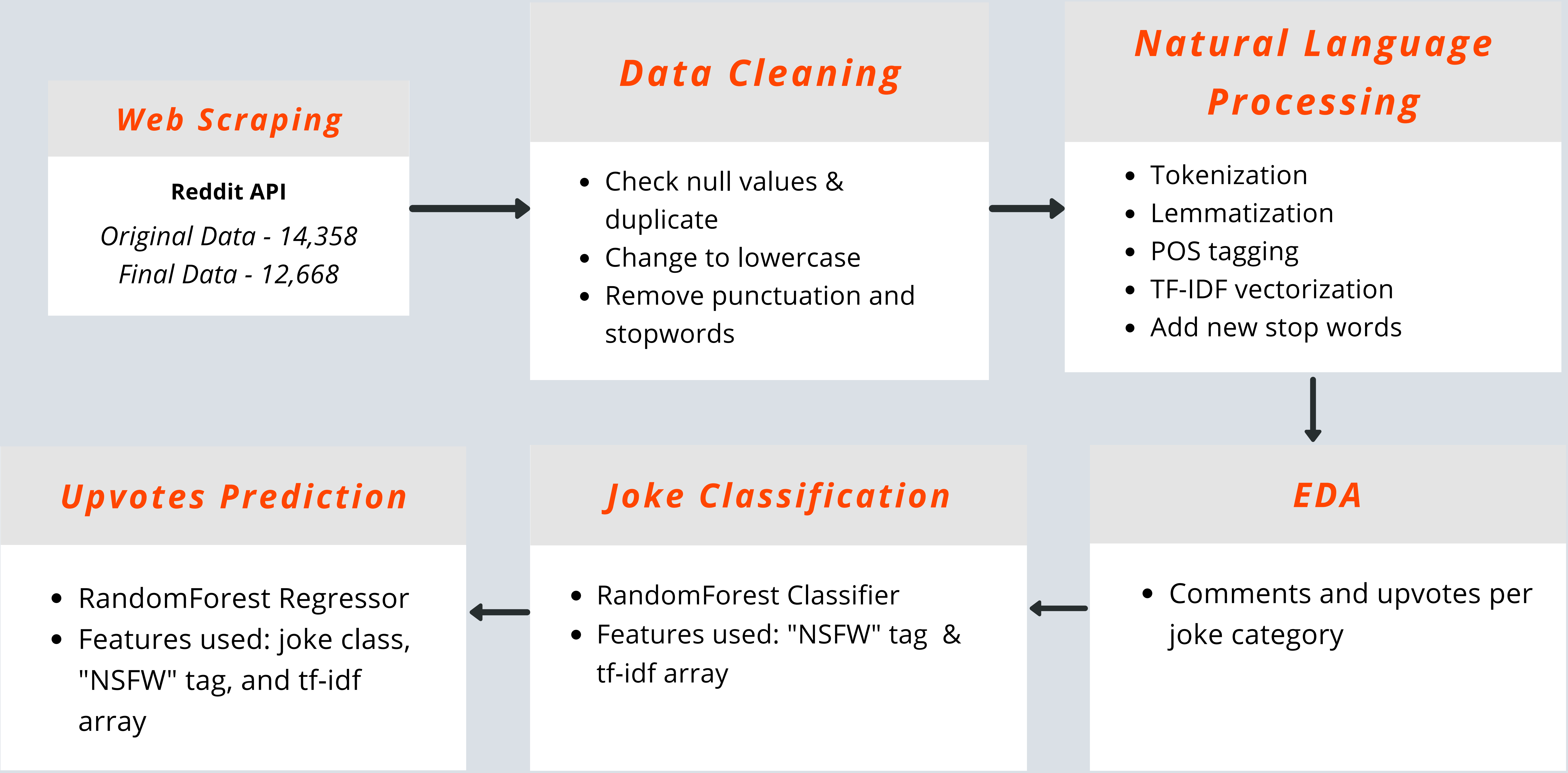


Web Scraping

Reddit API

Original Data - 14,358
Final Data - 12,668

Data Cleaning

- Check null values & duplicate
- Change to lowercase
- Remove punctuation and stopwords

Natural Language Processing

- Tokenization
- Lemmatization
- POS tagging
- TF-IDF vectorization
- Add new stop words

EDA

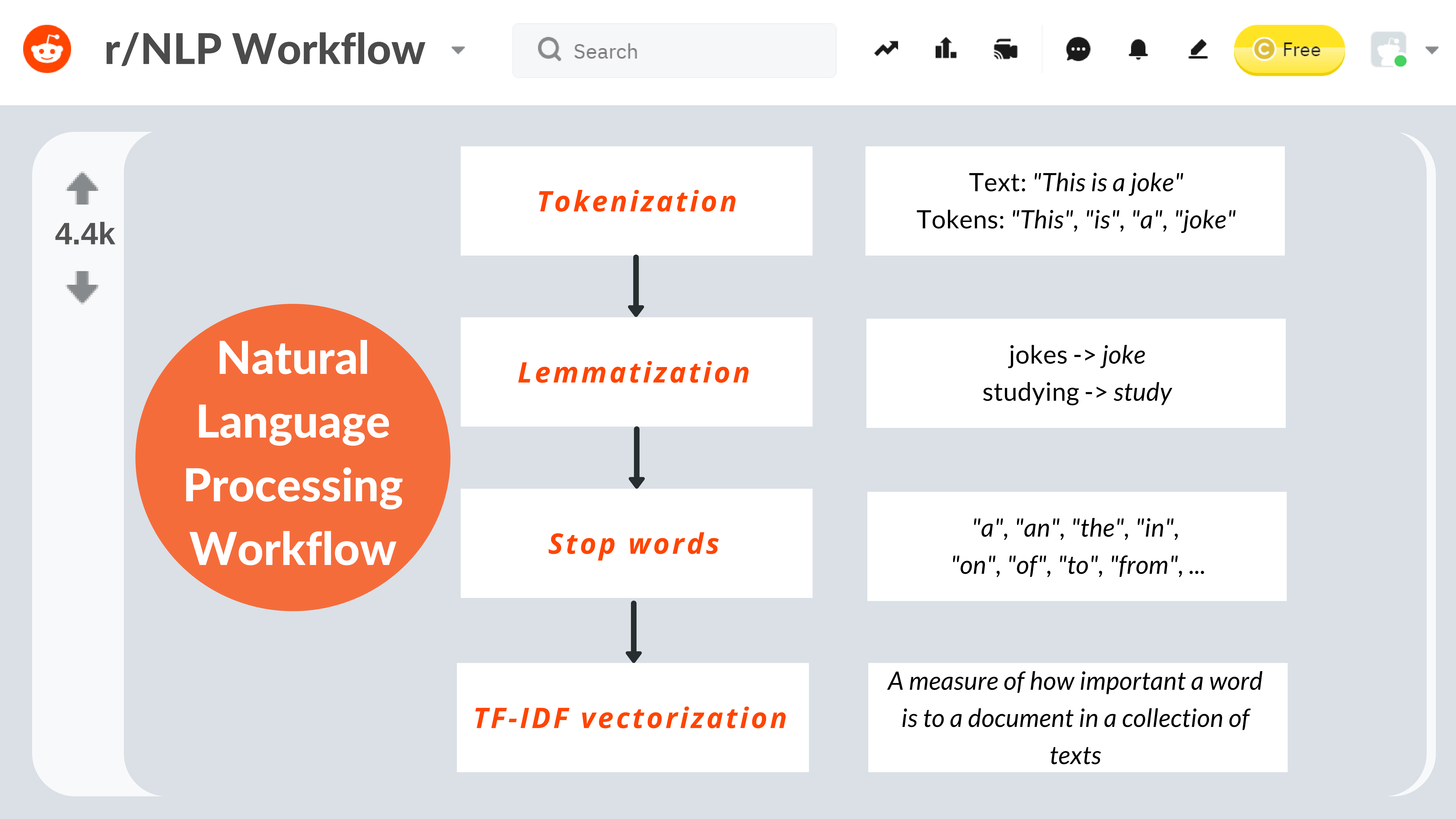
- Comments and upvotes per joke category

Joke Classification

- RandomForest Classifier
- Features used: "NSFW" tag & tf-idf array

Upvotes Prediction

- RandomForest Regressor
- Features used: joke class, "NSFW" tag, and tf-idf array



Natural Language Processing Workflow

Tokenization	Text: *"This is a joke"* Tokens: *"This", "is", "a", "joke"*
Lemmatization	jokes -> *joke* studying -> *study*
Stop words	*"a", "an", "the", "in",* *"on", "of", "to", "from", ...*
TF-IDF vectorization	*A measure of how important a word is to a document in a collection of texts*

r/EDA

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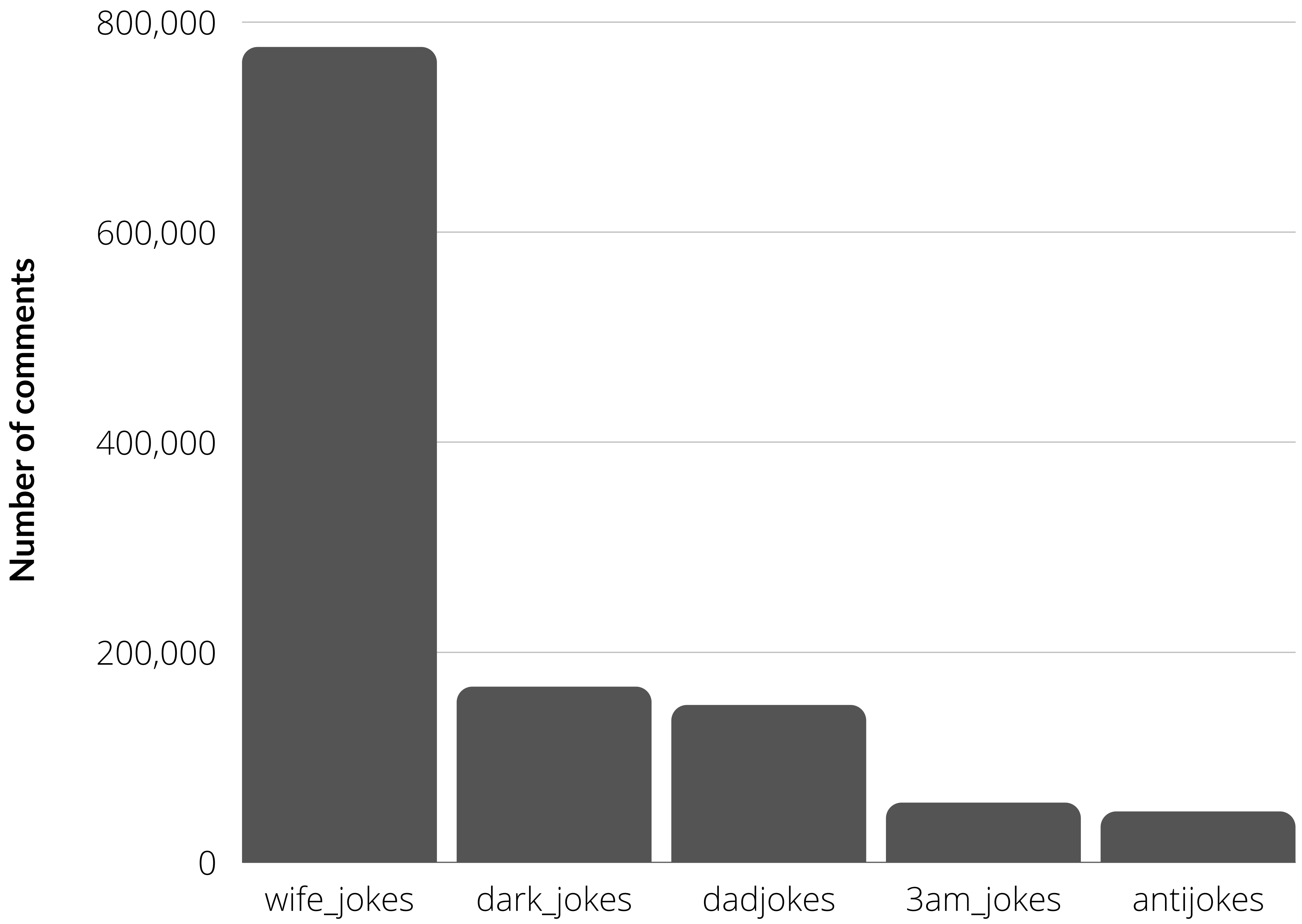

wife_jokes has the ***highest number of comments*** while antijokes has the least number of comments

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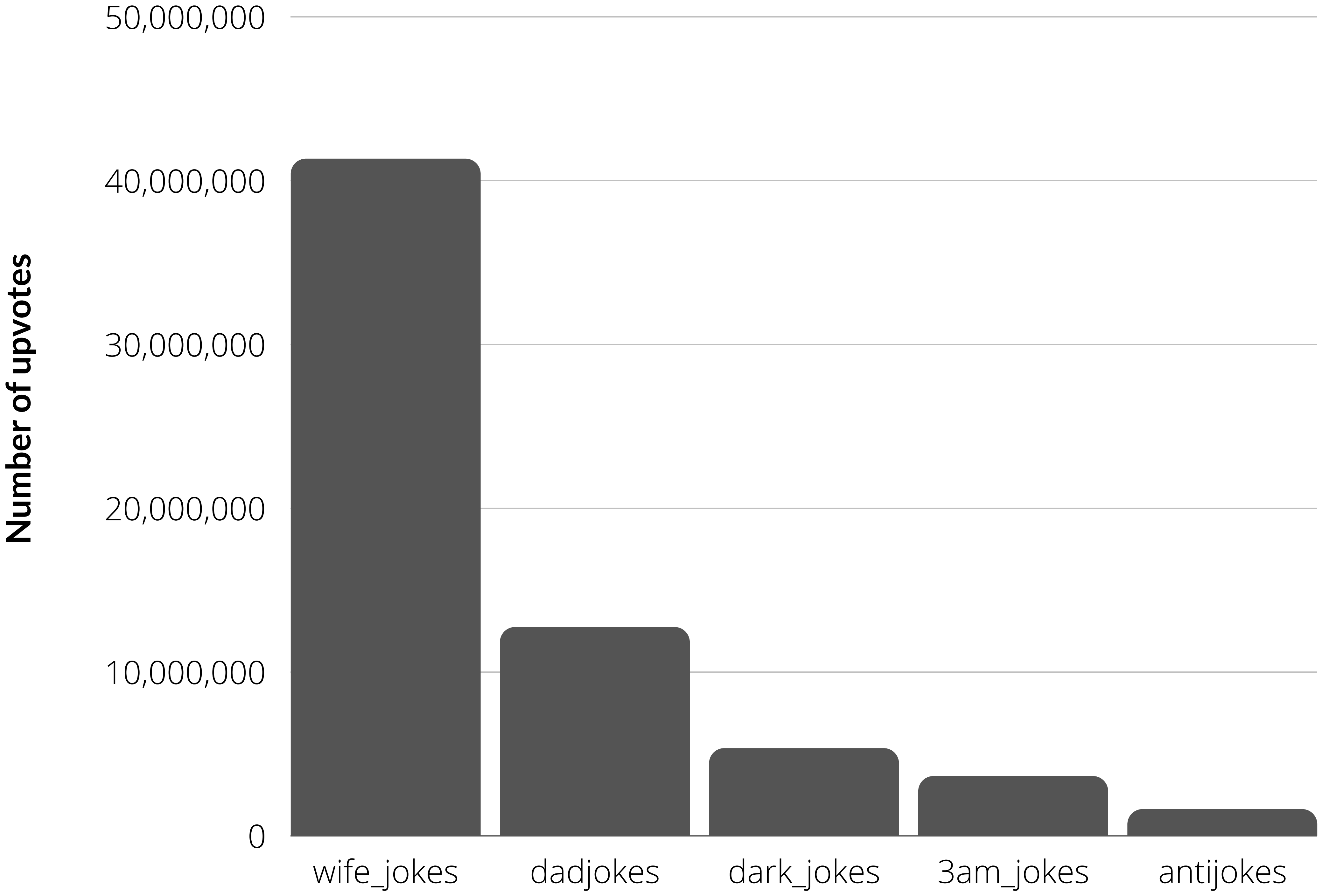

wife_jokes has the ***highest number of upvotes*** while antijokes has the least number of upvotes r/EDA

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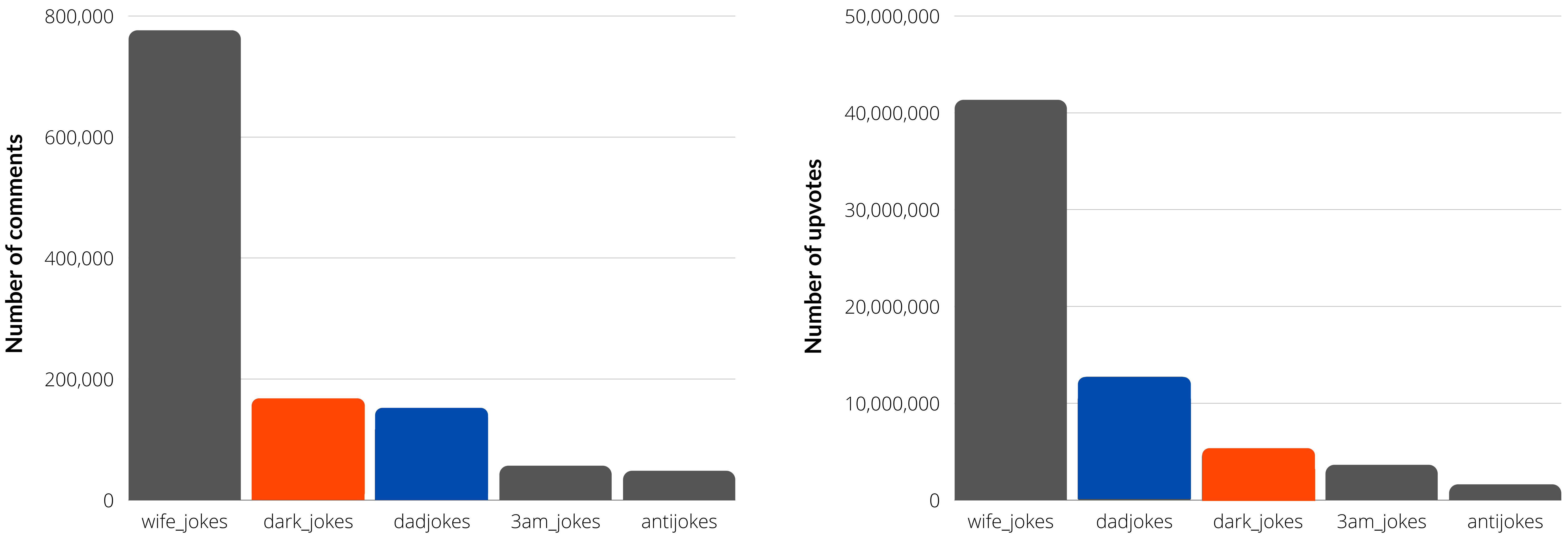
Correlation of Upvotes and Comments



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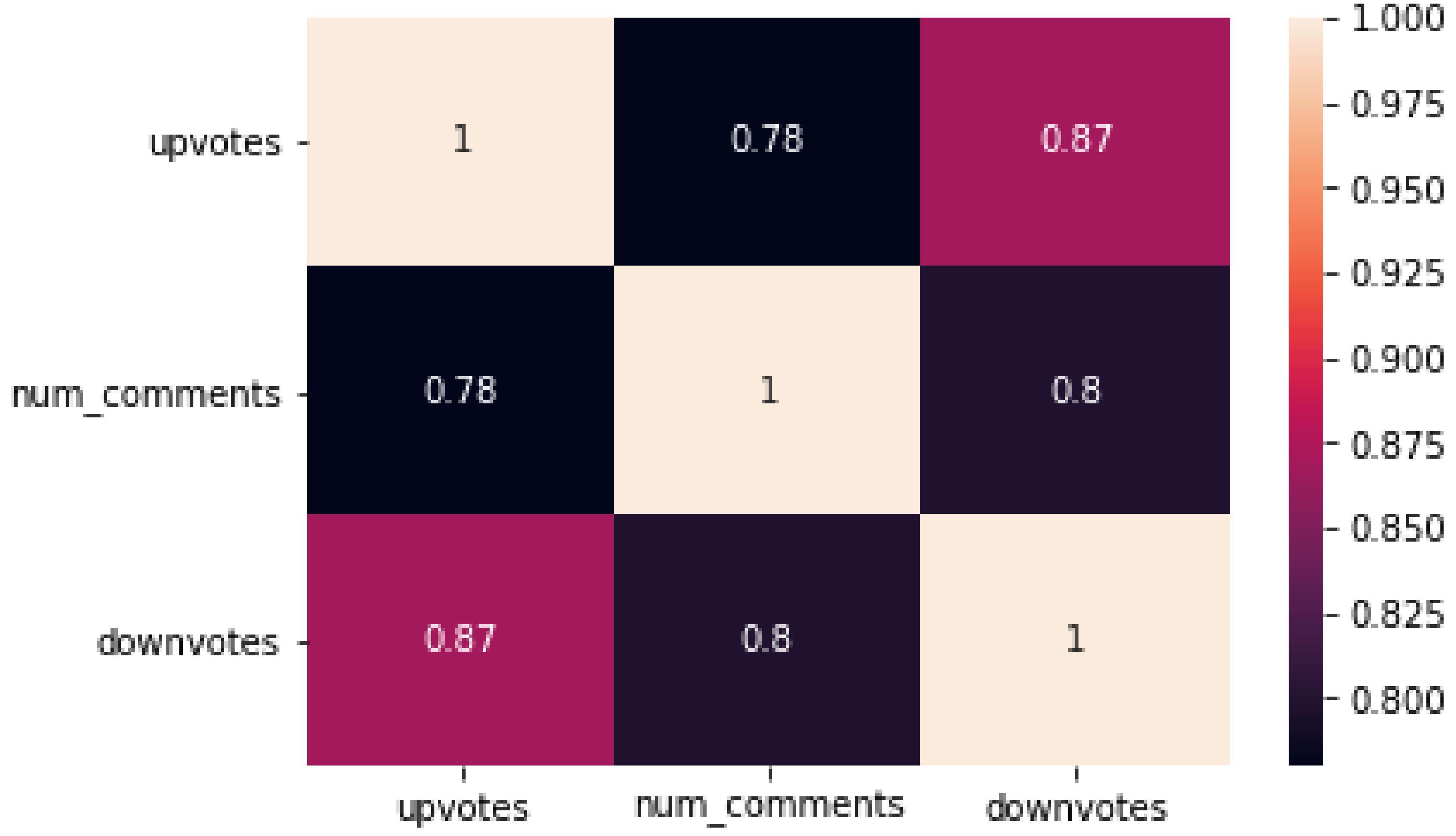

	upvotes	num_comments	downvotes
upvotes	1	0.78	0.87
num_comments	0.78	1	0.8
downvotes	0.87	0.8	1

Although the number of comments and upvotes are ***highly correlated***, we still recommend ***analyzing them separately***.

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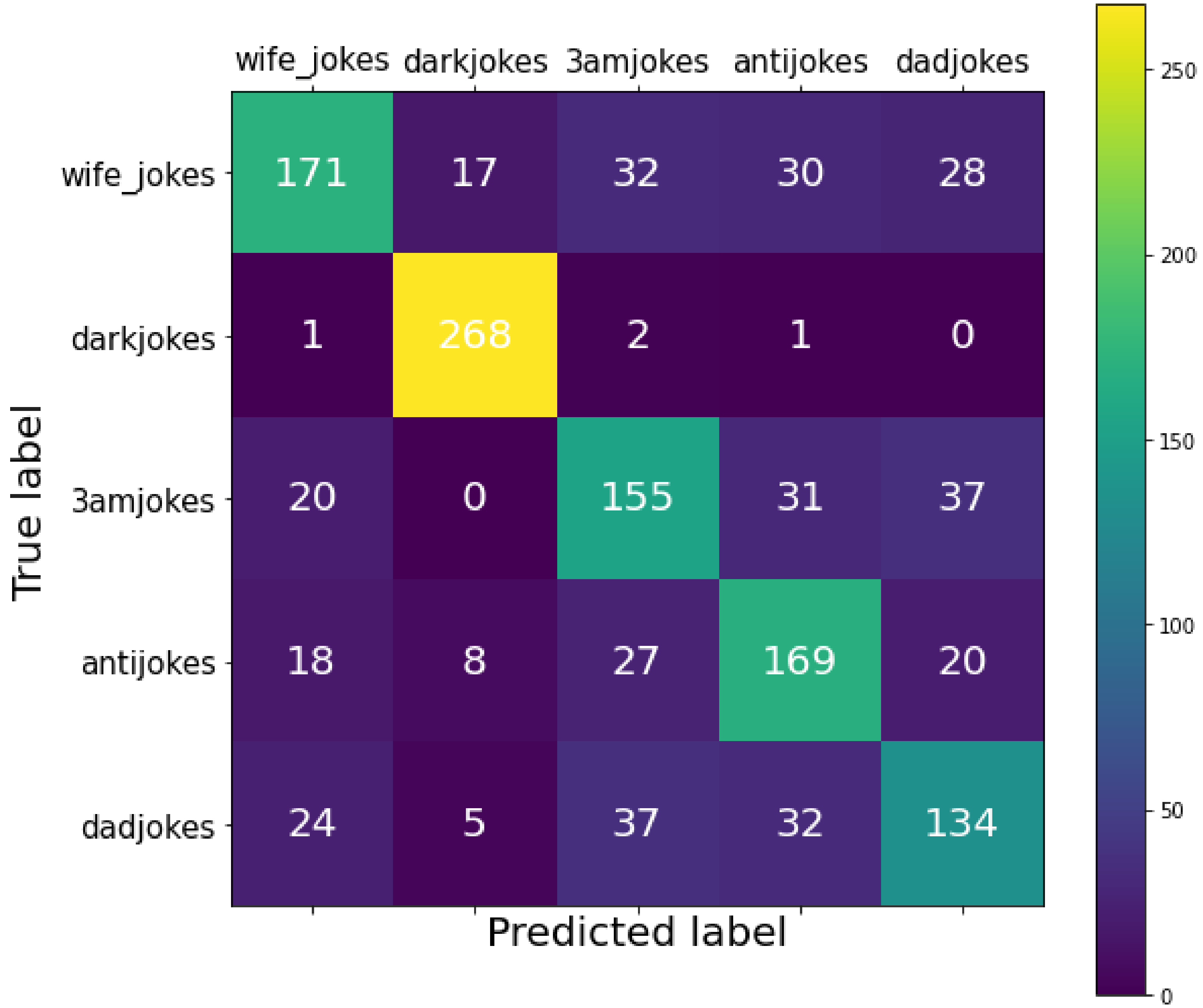
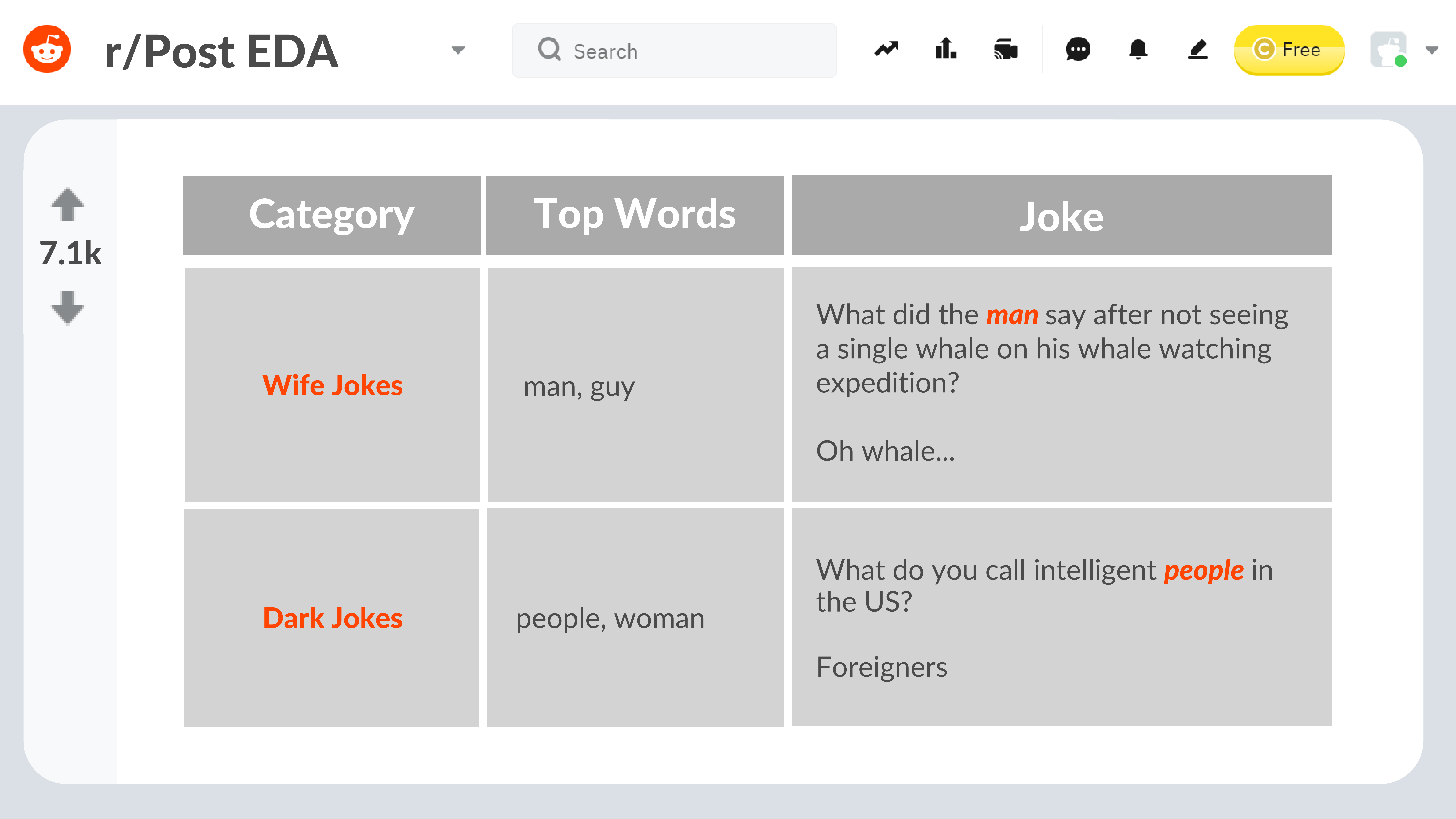
r/Classification Model - Random Forest



	wife_jokes	darkjokes	3amjokes	antijokes	dadjokes
wife_jokes	171	17	32	30	28
darkjokes	1	268	2	1	0
3amjokes	20	0	155	31	37
antijokes	18	8	27	169	20
dadjokes	24	5	37	32	134

- Trained on 11,401 and tested on 1,267 jokes
- Accuracy scores
  - 5-Fold CV Training: *69%*
  - Test score: *71%*



Category	Top Words	Joke
Wife Jokes	man, guy	What did the ***man*** say after not seeing a single whale on his whale watching expedition? Oh whale...
Dark Jokes	people, woman	What do you call intelligent ***people*** in the US? Foreigners

r/Post EDA

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6.2k

Category	Top Words	Joke
3AM Jokes	call, yesterday	What do you ***call*** a female singer with a humorous gaze? Gwen Starefunny
Anti Jokes	bar, joke	Harry Potter walks into a ***bar*** Just kidding, Harry Potter doesn't exist.
Dad Jokes	dad, wife	When does a joke become a “***dad*** joke”? When it becomes apparent

r/ML Model

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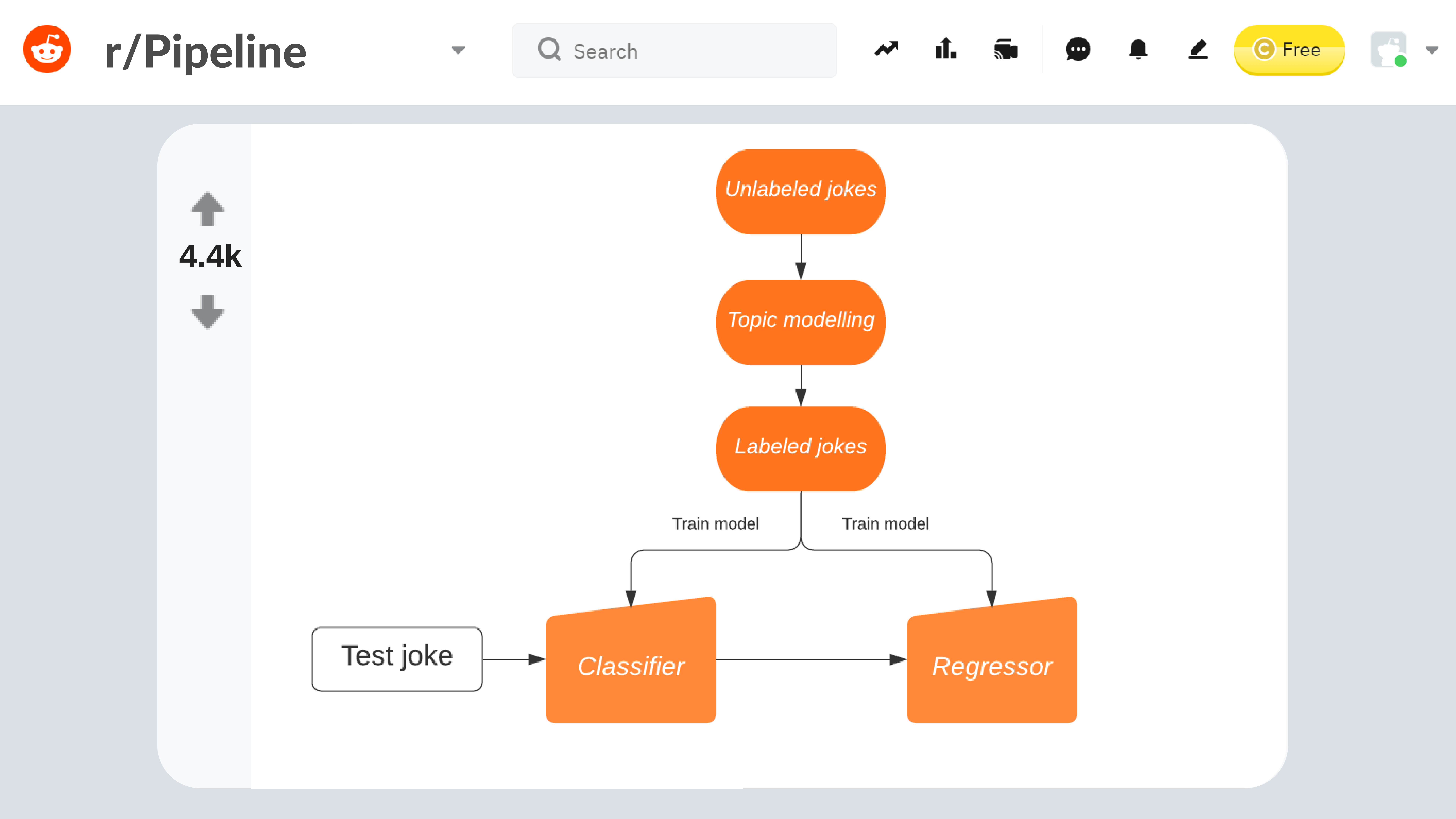
r/Regression Model - Random Forest

- Features used
  - joke class
  - "NSFW" tag
  - tf-idf array
- Target variable
  - No. of upvotes
  - May also use the ***no. of comments*** as another target

- Trained on 11,401 and tested on 1,267 jokes
- R^2 scores
  - 5-Fold CV Training: ***59%***
  - Test score: ***61%***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4.4k
Unlabeled jokes
Topic modelling
Labeled jokes
Train model
Train model
Test joke
Classifier
Regressor

r/Conclusion

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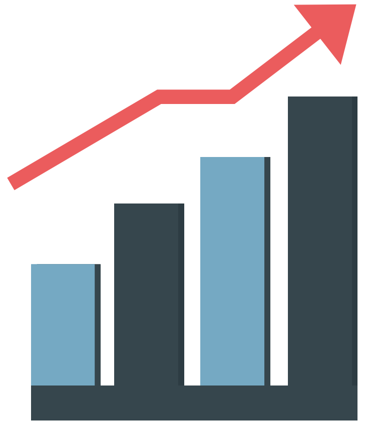
wife_jokes have the ***highest*** number of engagements while the antijokes have the least.

Subreddit classification heavily depends on ***key words*** present



Both ***upvotes*** and ***comment count*** can be used simultaneously as measures of engagement.

r/Recommendation

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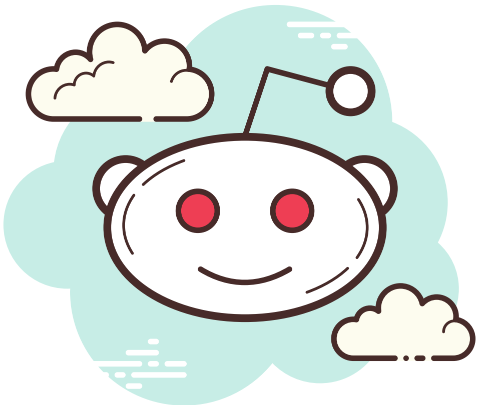
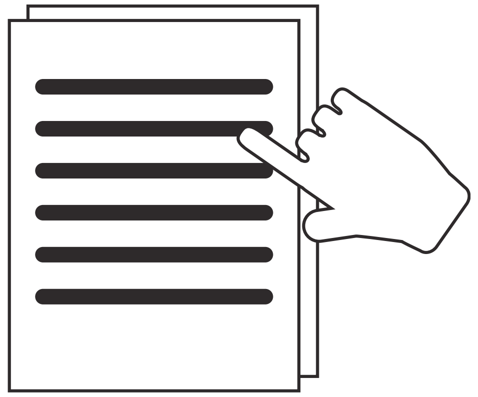


Add more data to potentially improve joke classification



Add more features to potentially improve the performance of the models

Clean the data further

Perform image analysis for 'image-type' jokes (e.g. memes)

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r/Eskwelabs

posted by Team John: Edward, Jona, Nico, Rara, Tyron

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