PROJECT 3:
NLP REDDIT PROJECT

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PROBLEM STATEMENT

Who's the Client?

Marvel DC United specialising in video games

Who are we?

Data scientists from a consultancy firm

Task:

1. Classify Marvel and DC fans on reddit for targeted advertising of the client's new superhero game
2. Identify and recommend most discussed heroes to be included in the game

STAKEHOLDERS

Primary Stakeholder

→ Video Game Creator

Secondary Stakeholder

→ Video Game Consumers & Reddit Users

CONTEXT

Reddit:

An American social news aggregation, web content rating, and discussion website. Registered members submit content to the site such as links, text posts, images, and videos, which are then voted up or down by other members.

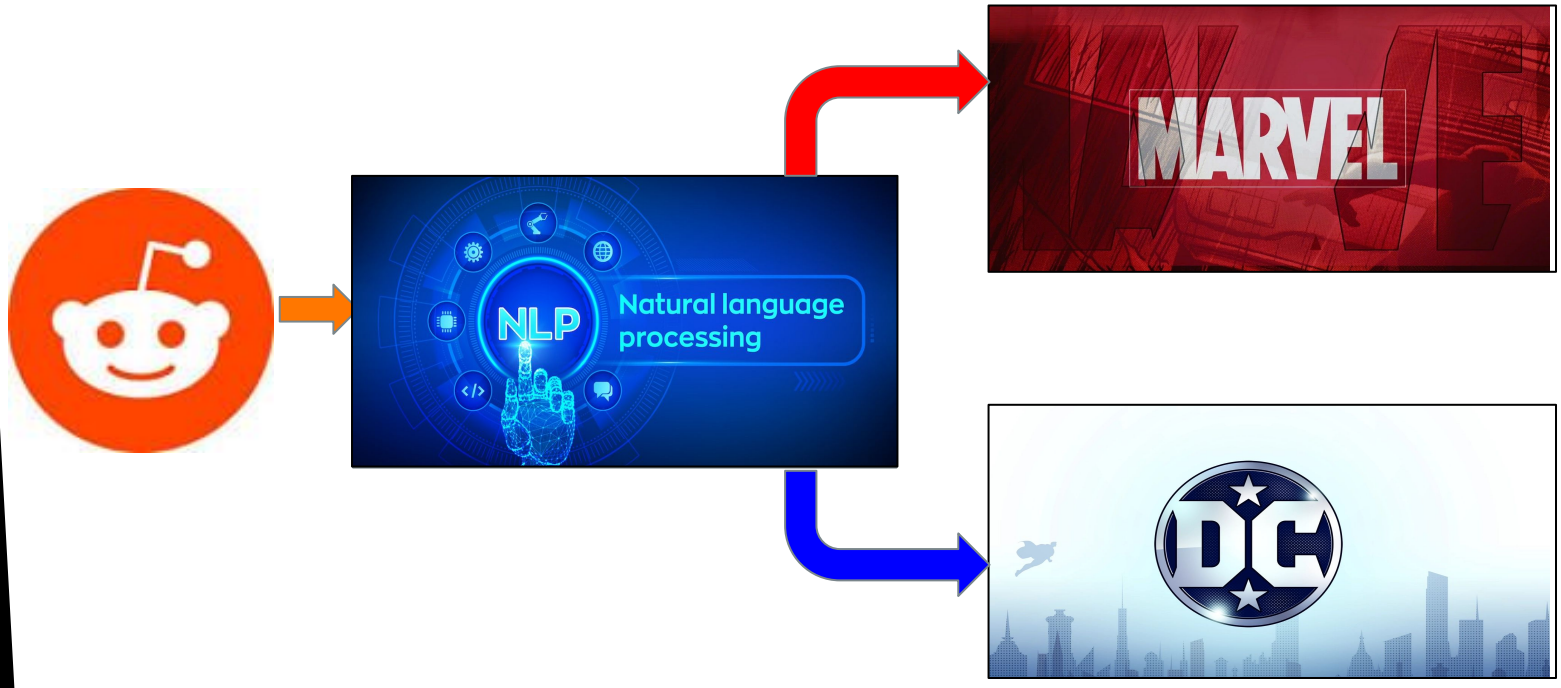
Marvel vs DC :

Rival American superhero franchises centered on the stories of two different groups of superheroes.

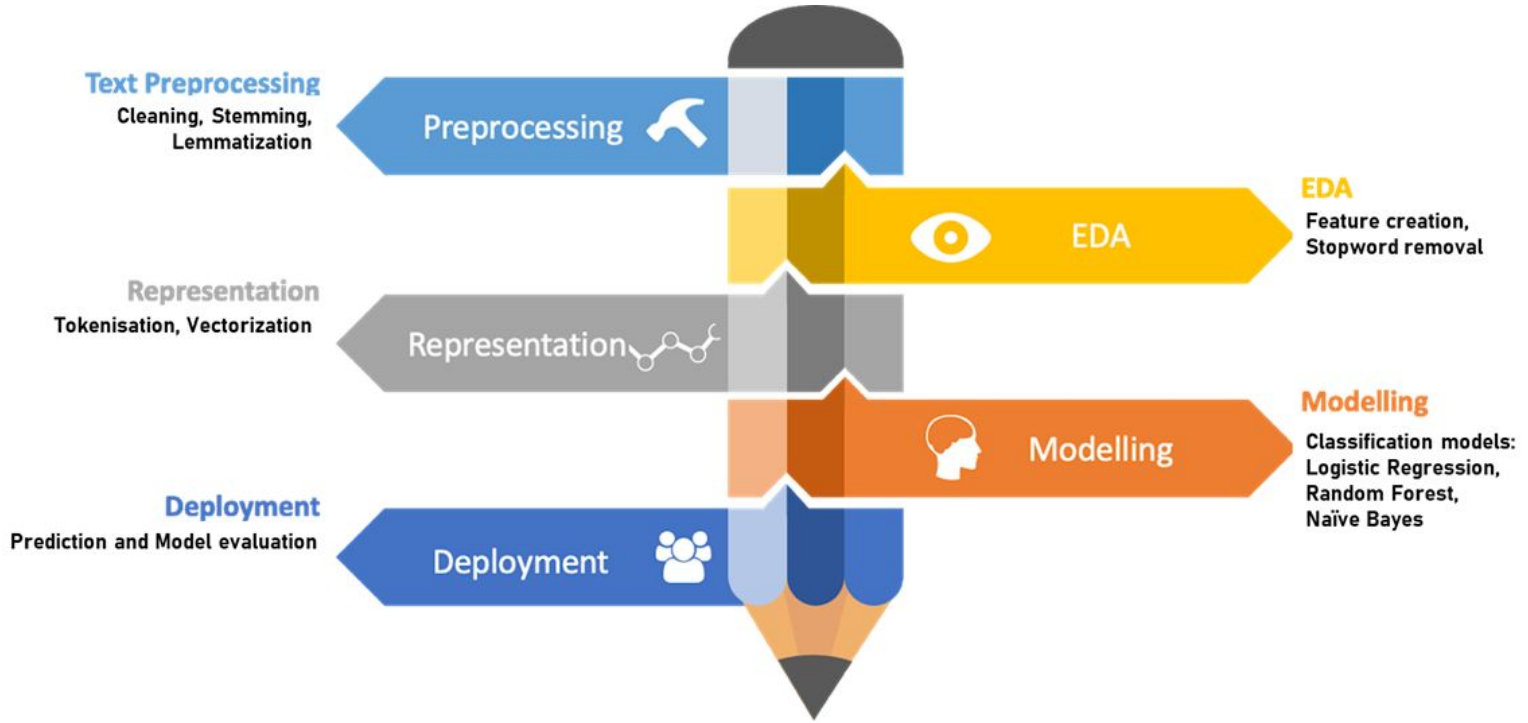
Dataset:

1,000+ posts each from r/marvelstudios and r/DC_Cinematics

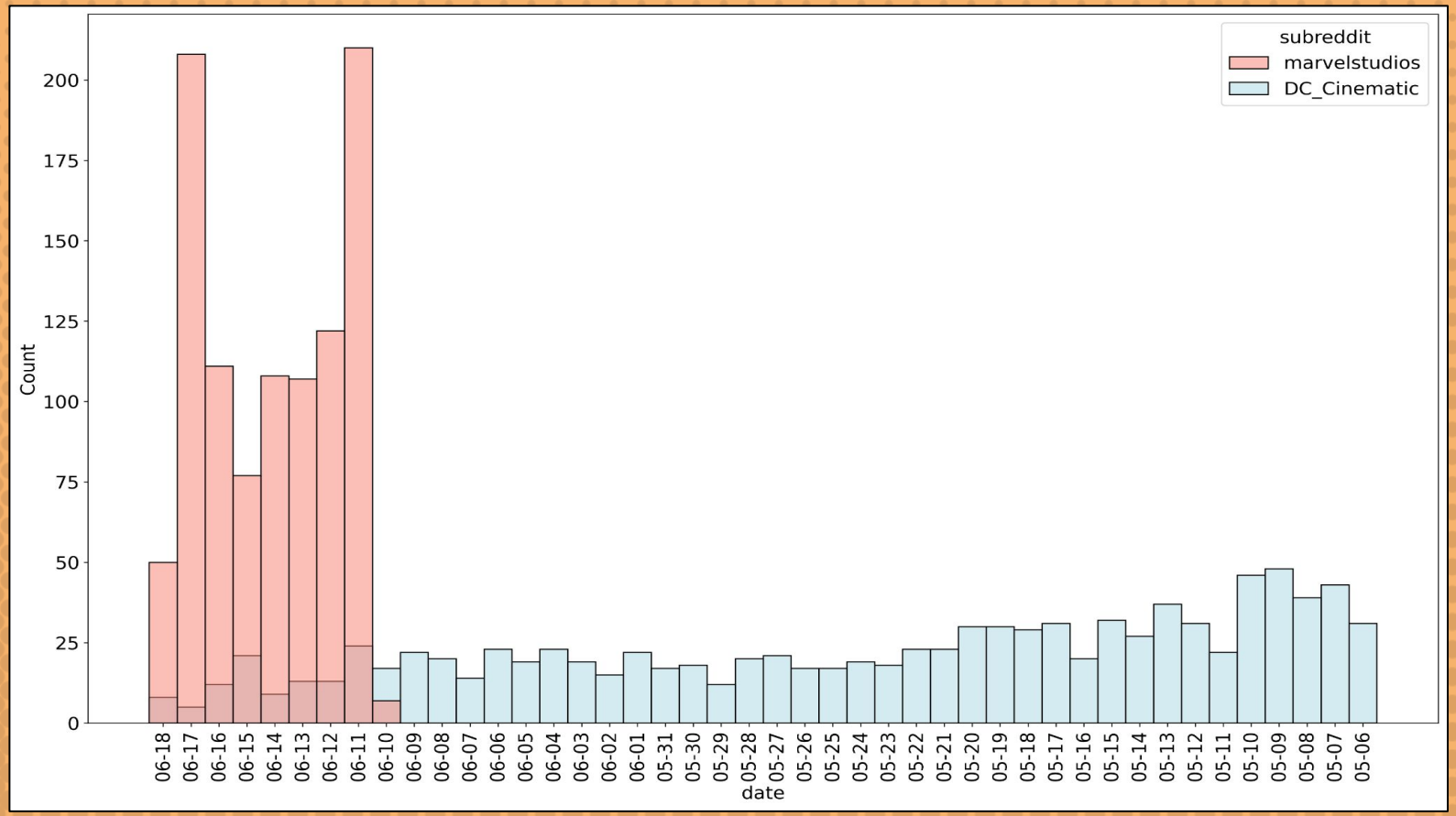
WHAT WE AIM TO DO



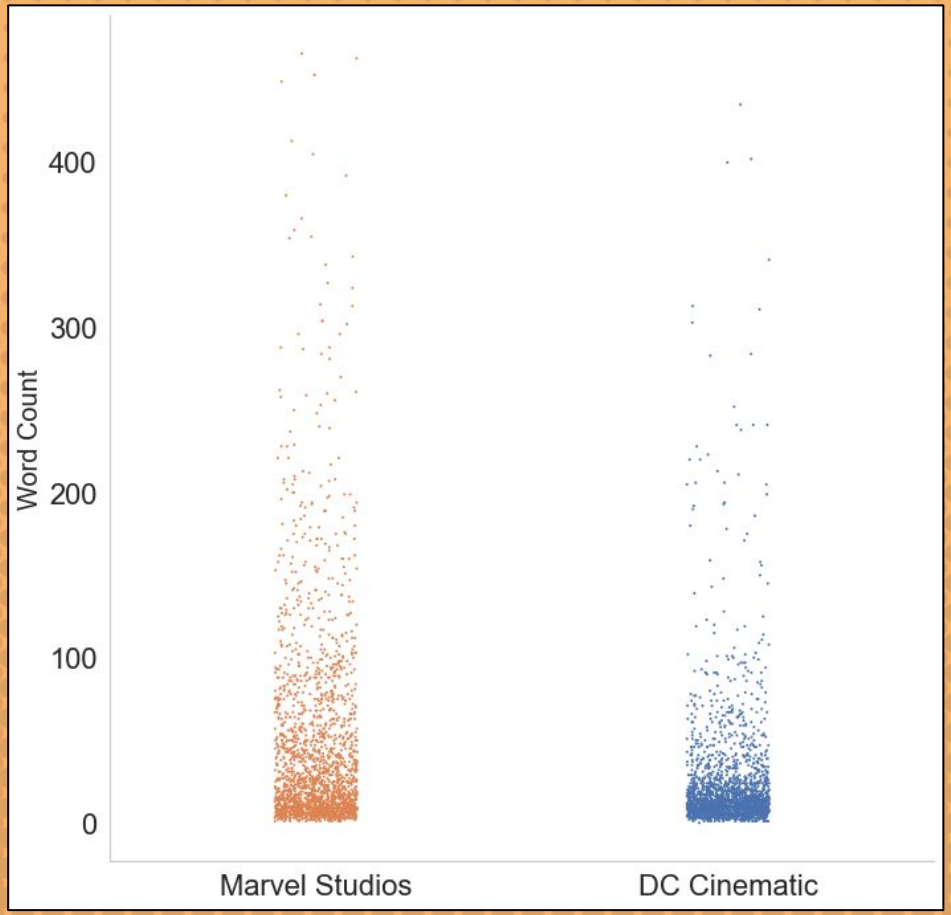
THE DATA SCIENCE PROCESS



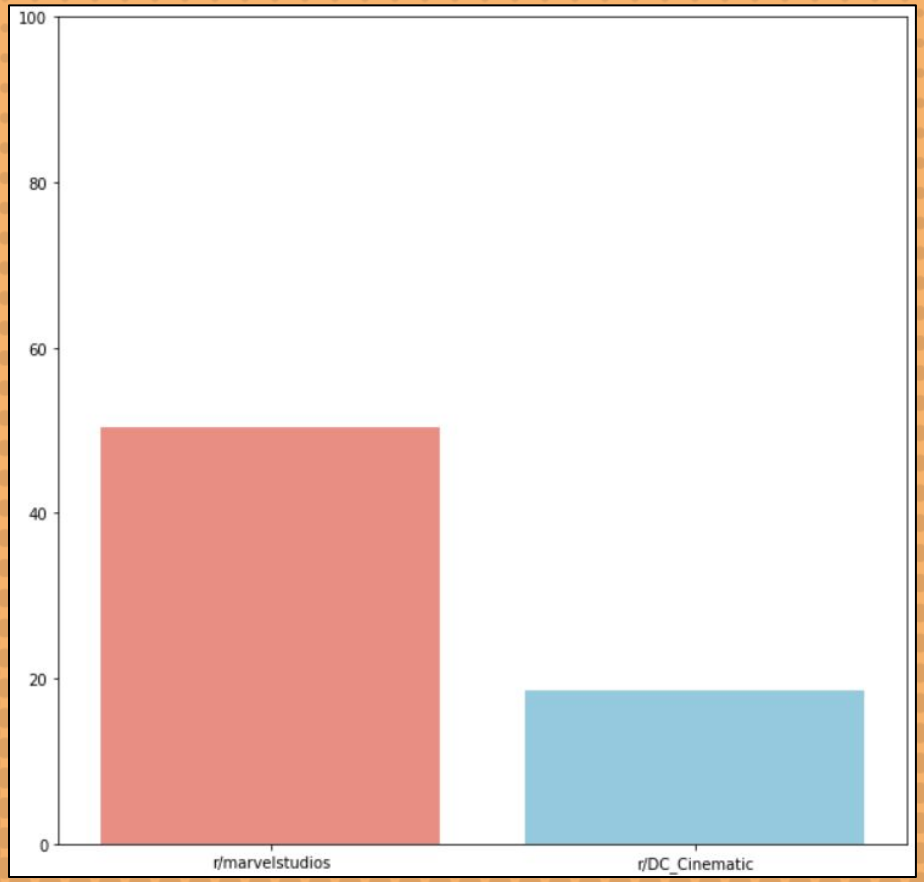
DISTRIBUTION OF 1000+ POSTS PER SUBREDDIT OVER TIME



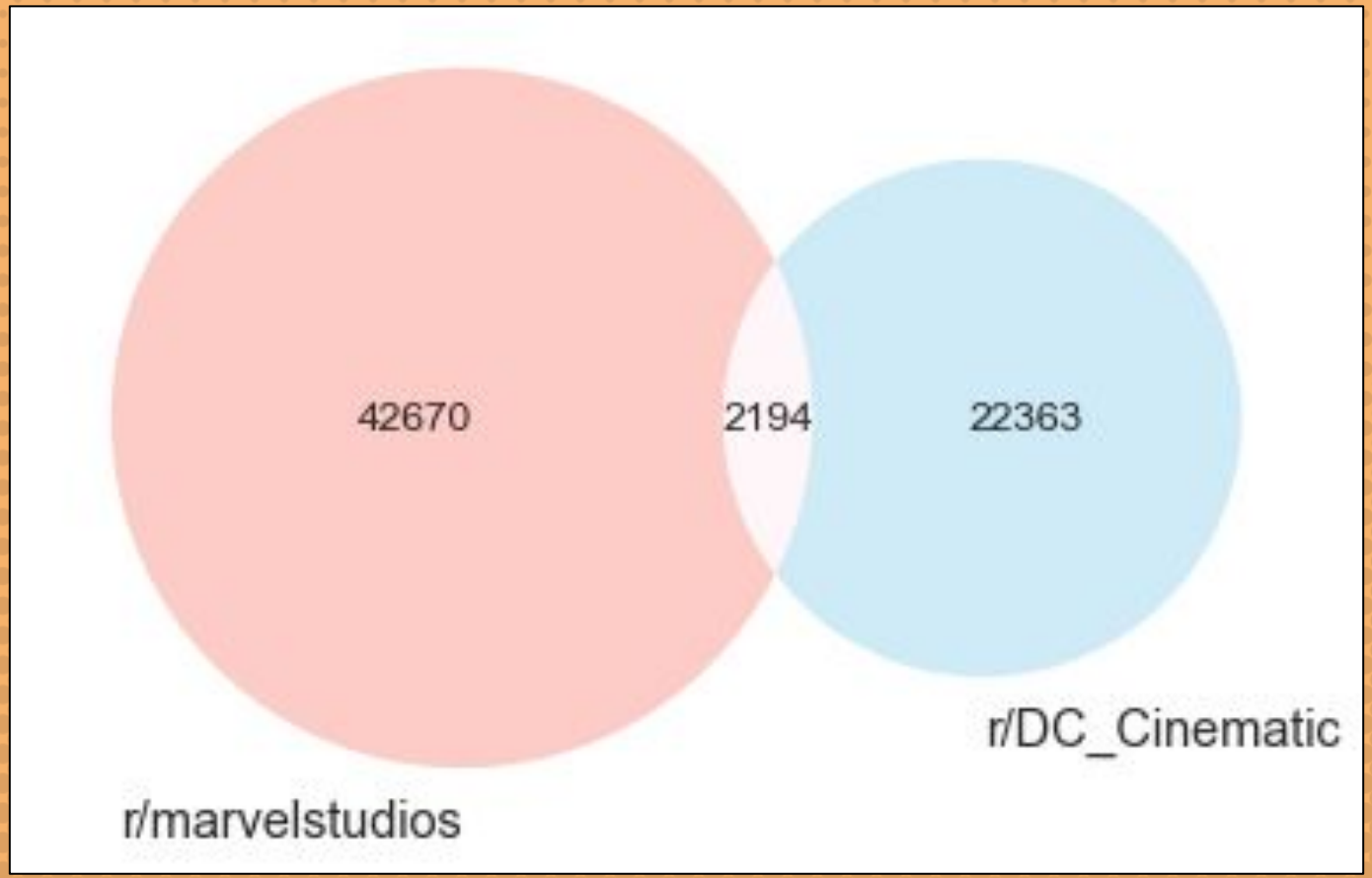
DISTRIBUTION OF POSTS BY WORD COUNT



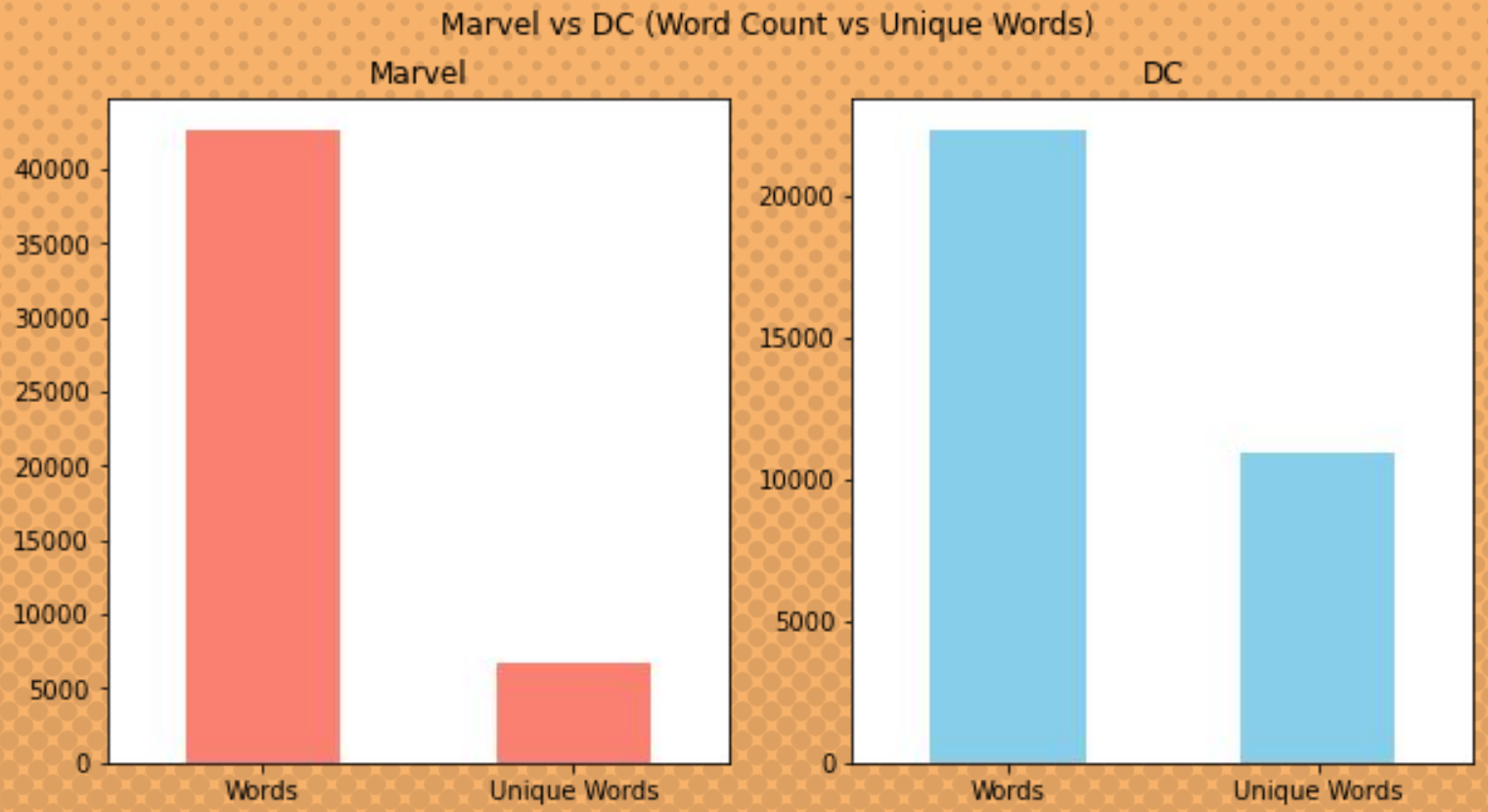
PERCENTAGE(%) OF POSTS WITH SELFTEXT



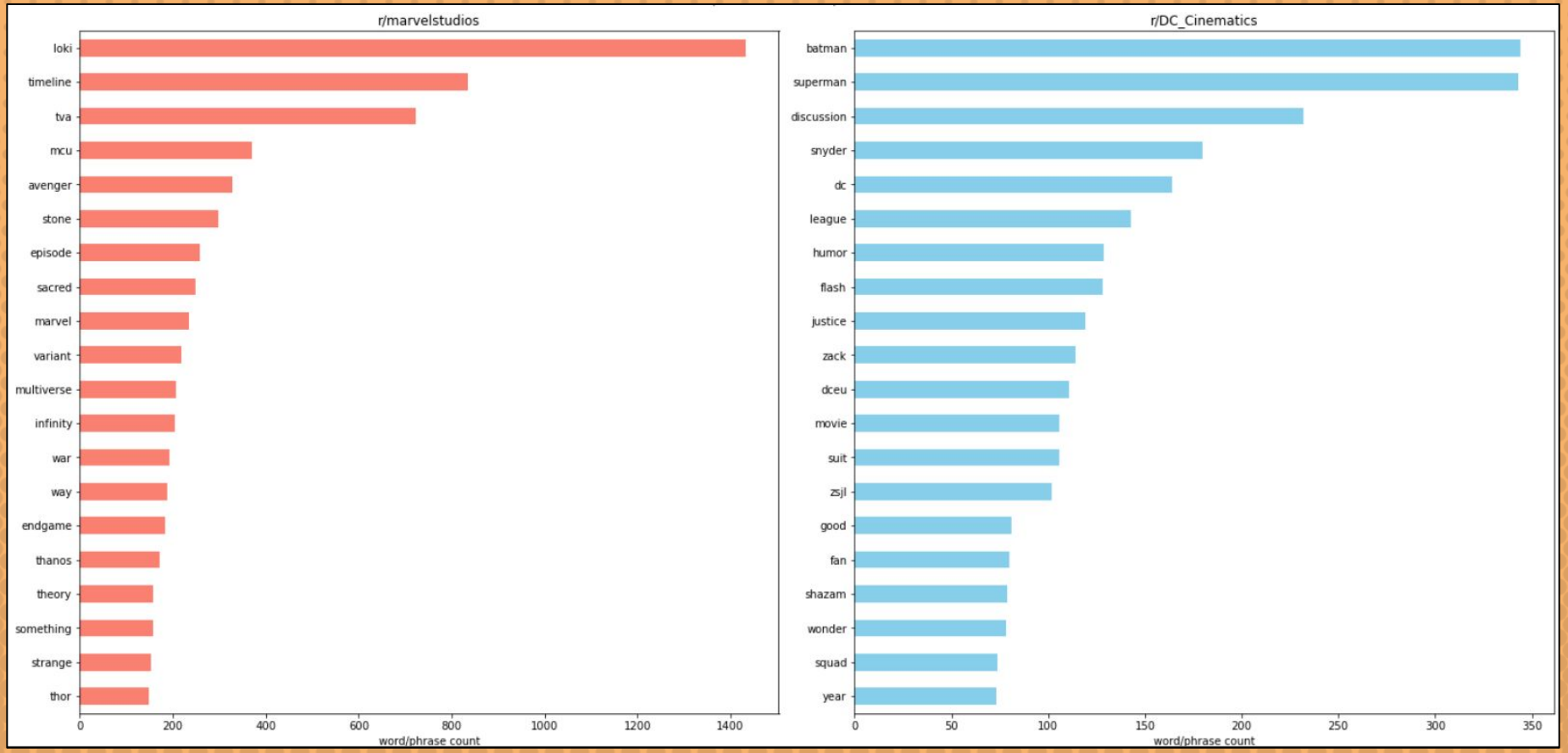
WORDS IN POST



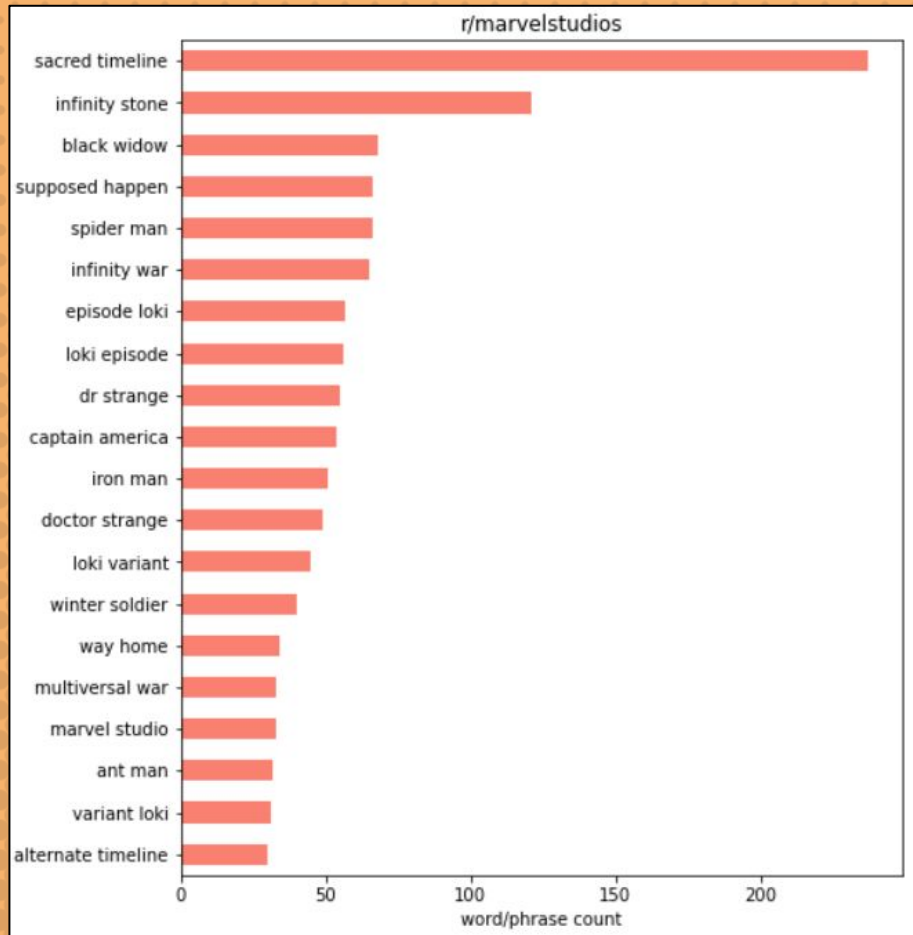
MARVEL VS DC (WORD COUNT VS UNIQUE WORDS)

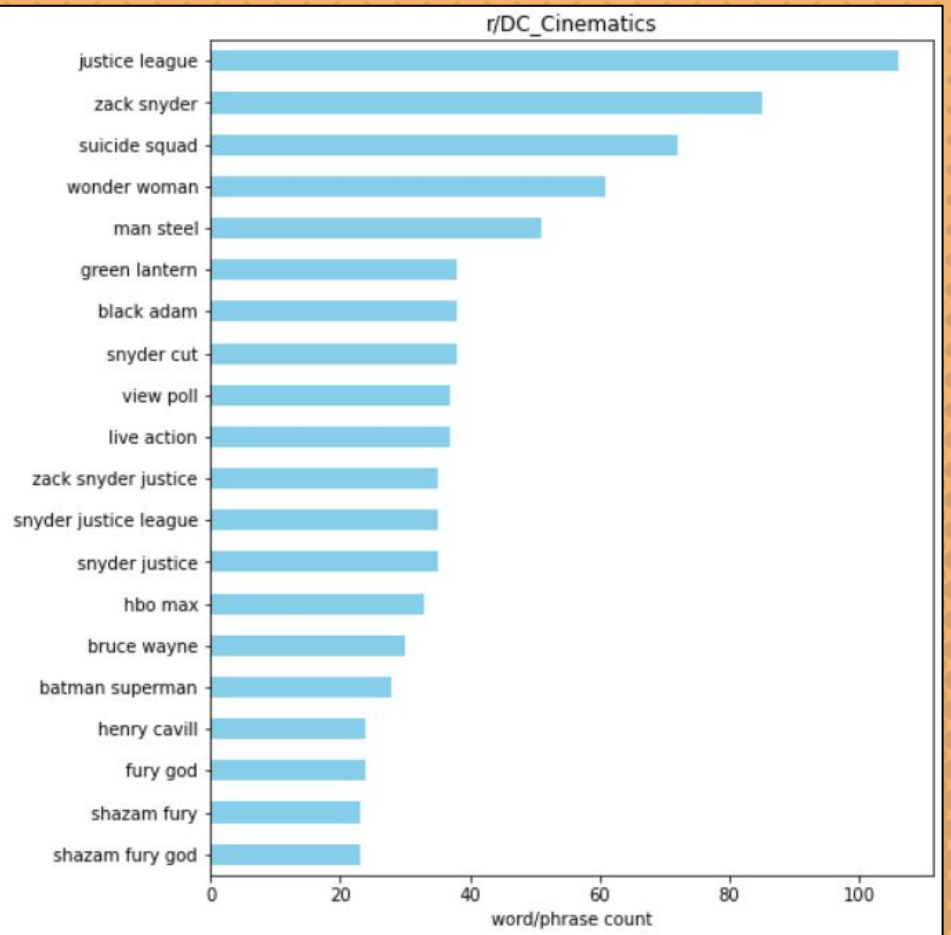


TOP 20 SINGLE WORDS



TOP 20 COMBINATION OF WORDS





MARVEL TOP WORDS

CAPTAIN AMERICA

SPIDERMAN

DR STRANGE

LOKI

BLACK WIDOW

DC TOP WORDS

BATMAN

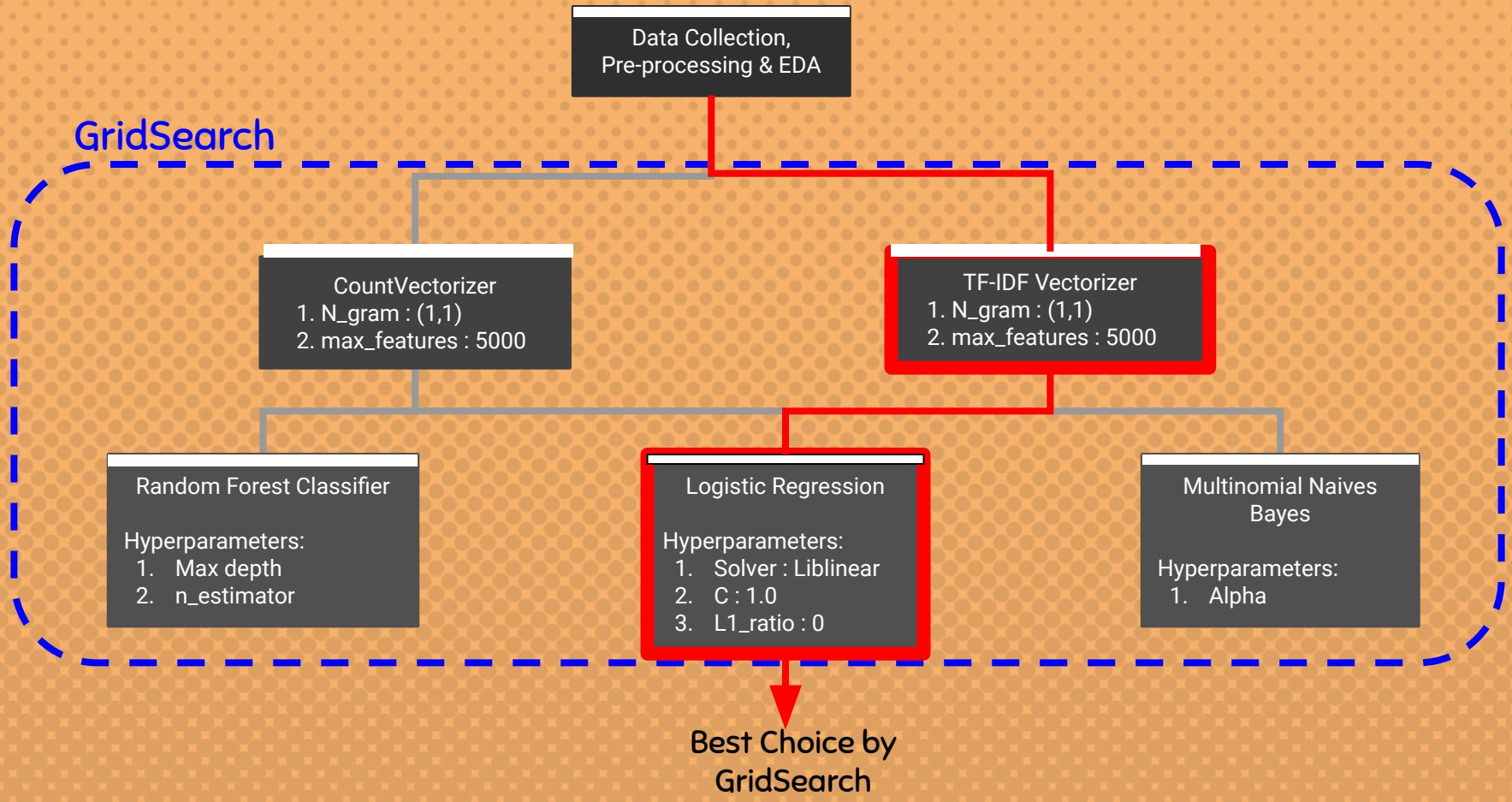
SUPERMAN

FLASH

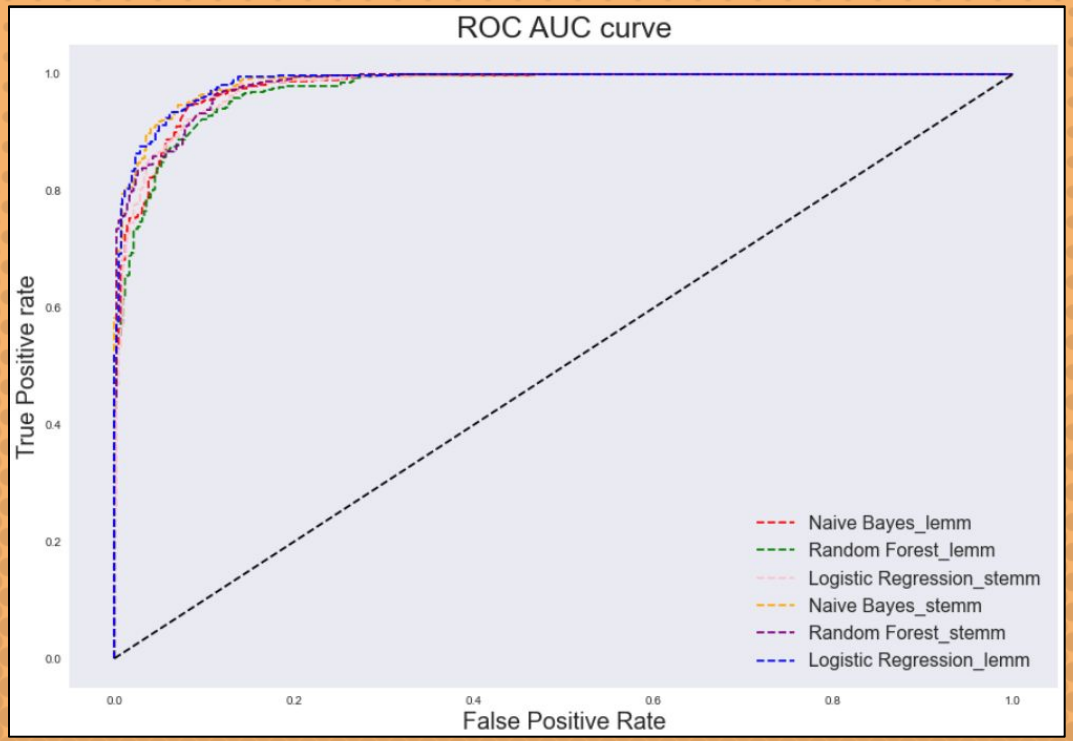
JUSTICE LEAGUE

WONDER WOMAN

MODELLING

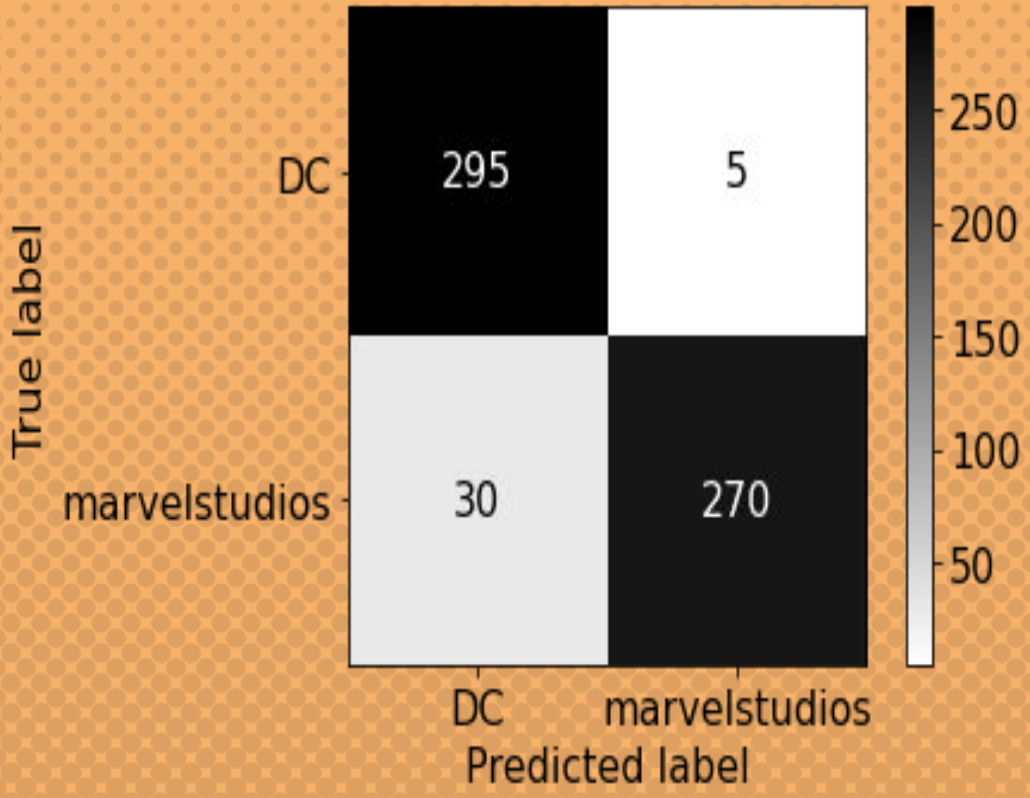

Data Collection,
Pre-processing & EDA
GridSearch
CountVectorizer
1. N_gram : (1,1)
2. max_features : 5000
TF-IDF Vectorizer
1. N_gram : (1,1)
2. max_features : 5000
Random Forest Classifier
Hyperparameters:
1. Max depth
2. n_estimator
Logistic Regression
Hyperparameters:
1. Solver : Liblinear
2. C : 1.0
3. L1_ratio : 0
Multinomial Naives Bayes
Hyperparameters:
1. Alpha
Best Choice by GridSearch

METRICS



Parameters	Results
Vectorizer	Tfidf Vectorizer
Model	LogisticRegression
Train AUC Score	0.999
Test AUC Score	0.993
Model Train Accuracy	0.990
Model Test Accuracy	0.959

METRICS



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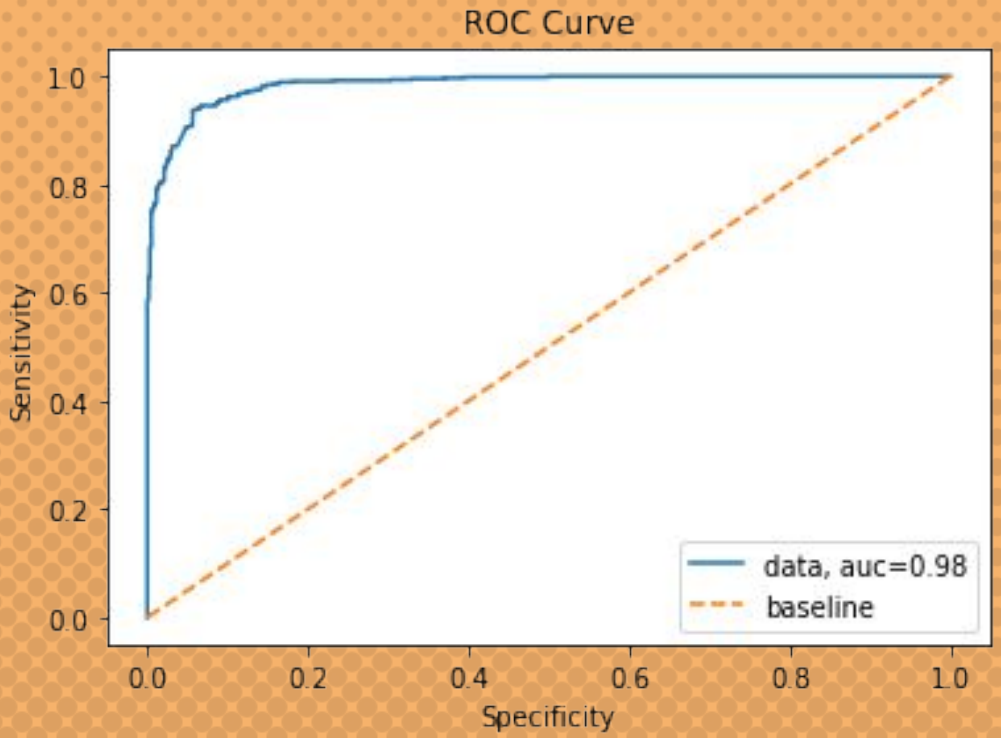

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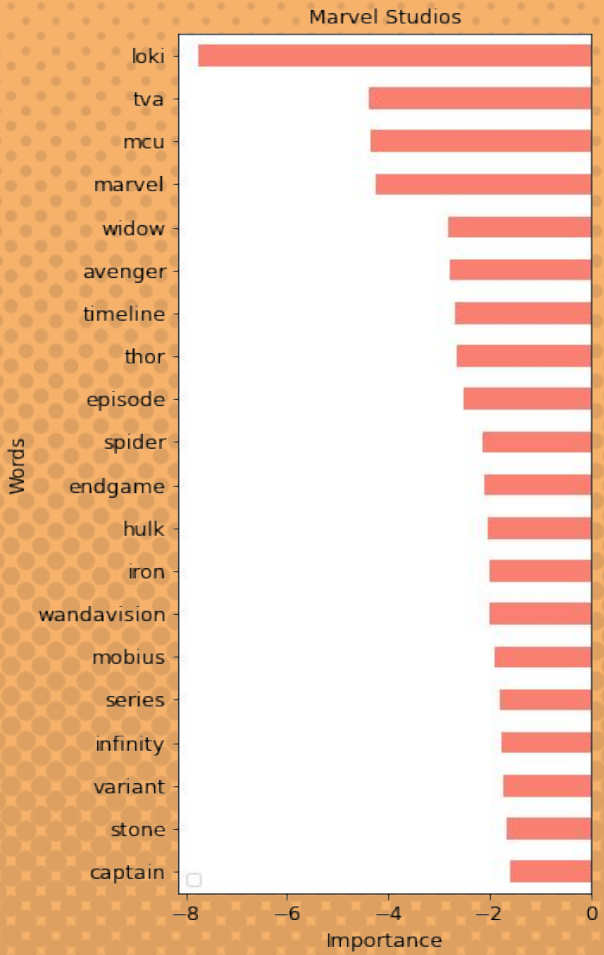
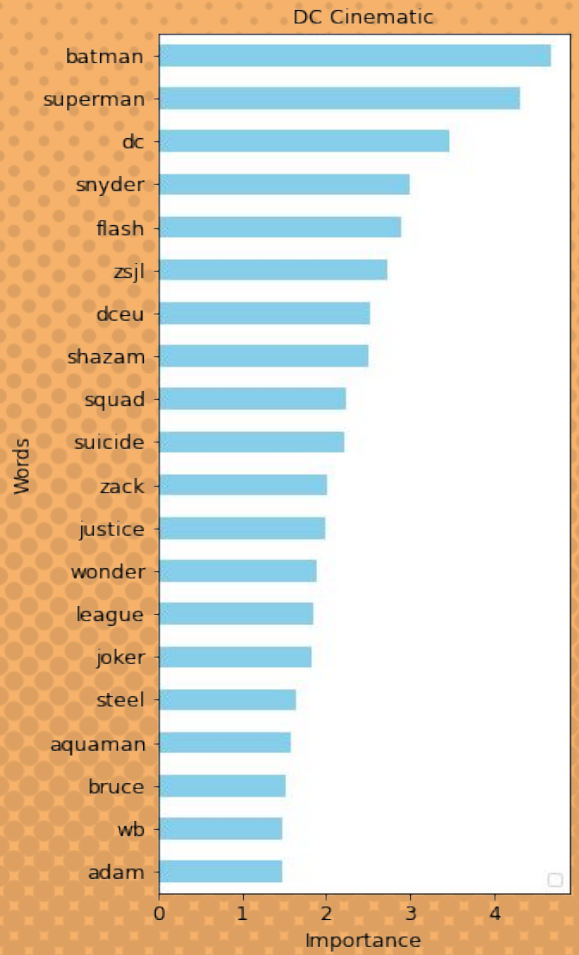
Model Test Accuracy	

MODEL EVALUATION - TOP PREDICTORS





CONCLUSION

Identify Marvel and DC fans on reddit for targeted advertising of the client's new superhero game

Our model is trained on reddit posts and can classify posts as Marvel or DC with 96% accuracy.

CONCLUSION

The coolest superheroes recommended for the game!!

MARVEL STUDIOS

Loki

Black Widow

Spiderman

Batman

DC

Superman

Wonder Woman

LIMITATIONS AND RECOMMENDATIONS

Limitations

- Model limited to Reddit data
- Data was limited to 1000+ posts per subreddit
- Sentiment analysis on posts

Recommendations

- Retraining of models every 2 months (or at every product release)
- Expand into other social media platforms

THANK YOU!