

SUBREDDIT CLASSIFICATION
R/GAINIT & R/BODYWEIGHTFITNESS

PROJECT 3: WEB API & NLP

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SUBREDDITS

r/gainit
Weightlifting

VS

r/bodyweightfitness
Bodyweight

CONTENTS

- Introduction
- Problem Statement
- Cleaning & Pre-processing
- Modeling
- Performance Summary
- Conclusion & Model Limitations

INTRODUCTION

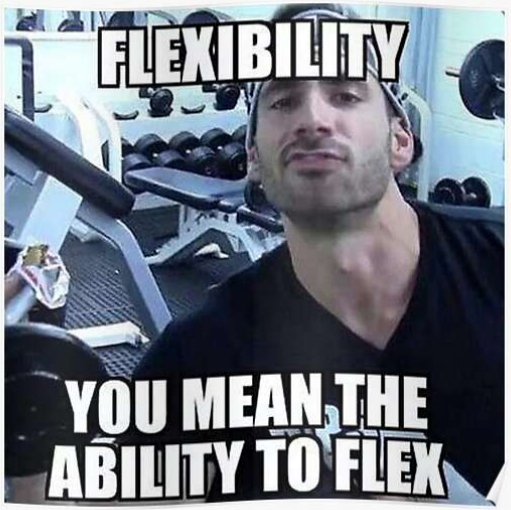
Fitness suffers from misinformation online

Diet craze

Wellness trends

Fitness fads

Broscience



PROBLEM STATEMENT

To classify fitness and health related questions or posts into the correct subreddit

- right experts can give proper advice and answers to these posts

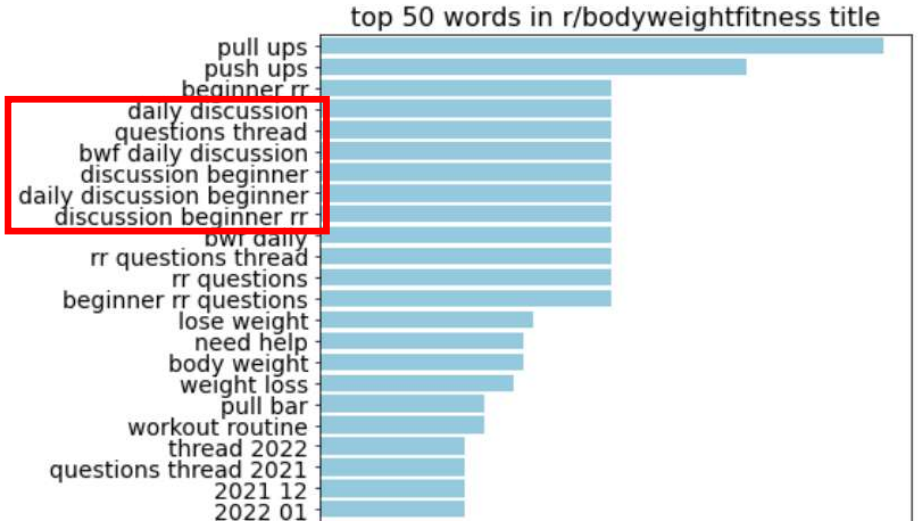
WRONG EXPERT = INCORRECT ADVICE = INEFFICIENT TRAINING/ DIET = EVEN INJURY

CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts
- Common Posts
- Spams
- Duplicates
- Links
- Special Characters
- Tokenizing & Lemmatizing

CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts



CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts
- Common Posts

title
Beginner to push up Ultimate guide
Is ATHLEAN-X a good fitness YouTuber?

CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts
- Common Posts
- Spams
- Duplicates

author	
ComplaintCapital2781	I barely have any chest mass. Is it possible f...
ComplaintCapital2781	I barely have any chest mass. Is it possible f...
ComplaintCapital2781	I barely have any chest mass. Is it possible f...

CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts
- Common Posts
- Spams
- Duplicates
- Links

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[Recommended
Routine](https://www.reddit.com/
r/bodyweightfitness/wiki/kb/reco
mmended_routine)
```

CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts
- Common Posts
- Spams
- Duplicates
- Links
- Special Characters

REGEX

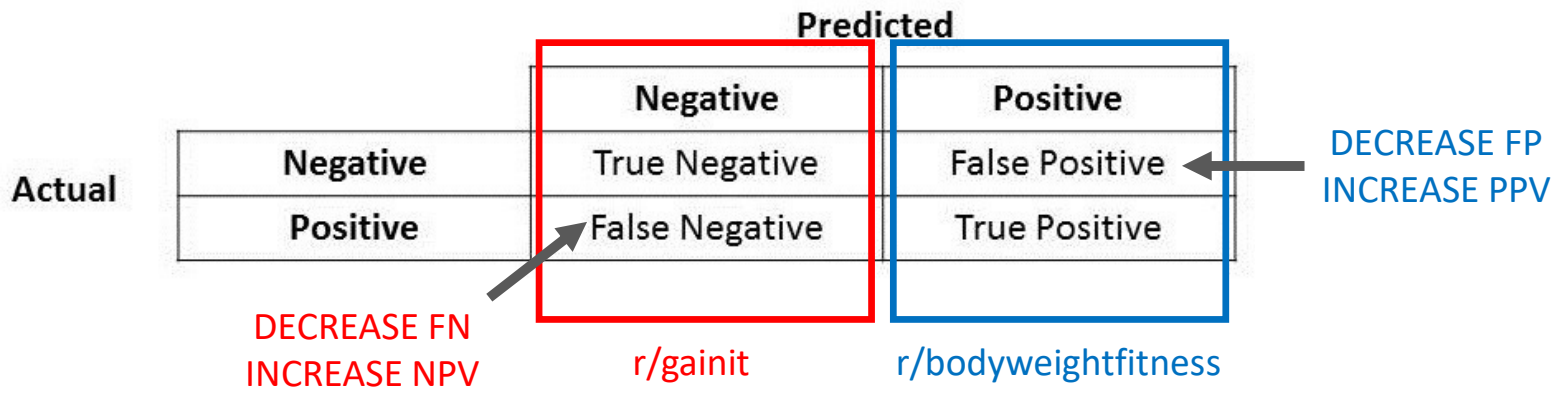
CLEANING & PRE-PROCESSING

- Moderator and Discussion Posts
- Common Posts
- Spams
- Duplicates
- Links
- Special Characters
- Tokenizing & Lemmatizing

	original_word	lemmatized_word
0	trouble	trouble
1	troubling	trouble
2	troubled	trouble
3	troubles	trouble

MODELING

- If wrongly classified, wrong experts would be answering the questions
- Incorrect advice -> inefficiency and even injuries
- Need to decrease False Positives and False Negatives!
- Increase PPV and NPV scores!

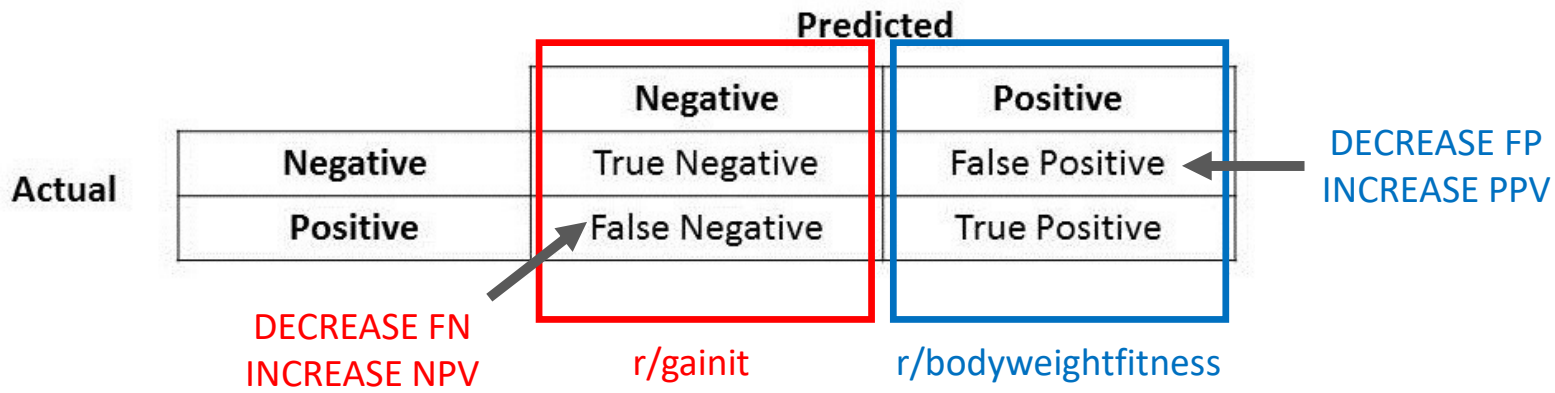


MODELING

Accuracy

PPV (Positive Predictive Value/Precision)

NPV (Negative Predictive Value)



MODELING: LOGISTIC REGRESSION W TVEC

Primary words for each subreddit!

```
=============== Predicted Scores ==================

PPV (Positive Predictive Value/Precision): 0.825
NPV (Negative Predictive Value)          : 0.827
Accuracy    : 0.8266
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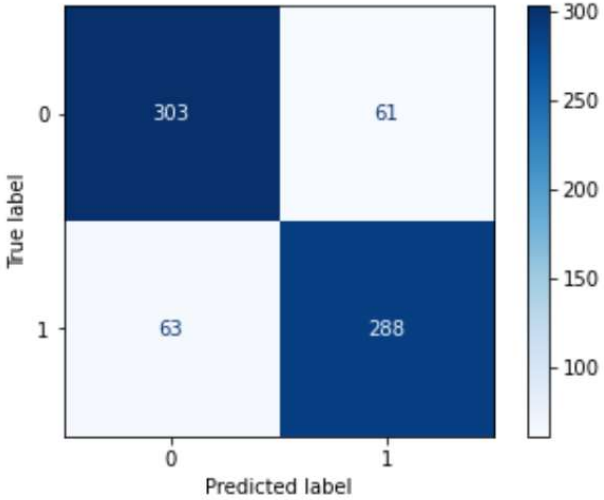
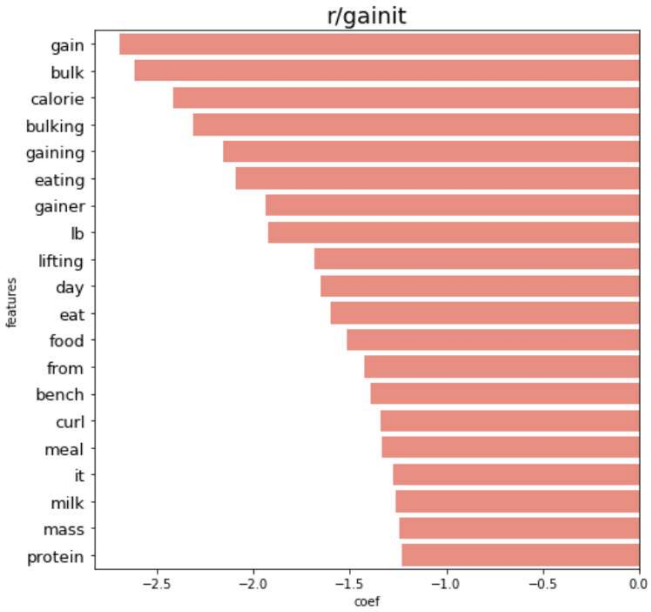
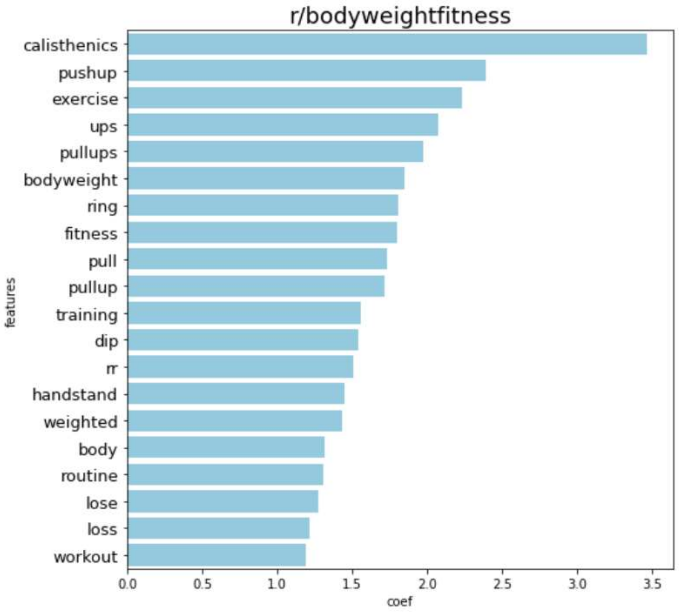


Mix bag



gain, calorie, lifting, protein

Mix bag



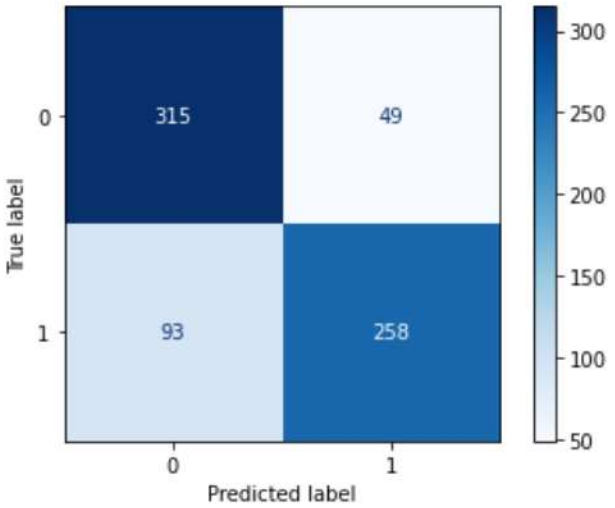
calisthenics, ring, handstand

MODELING: NAÏVE BAYES W CVEC

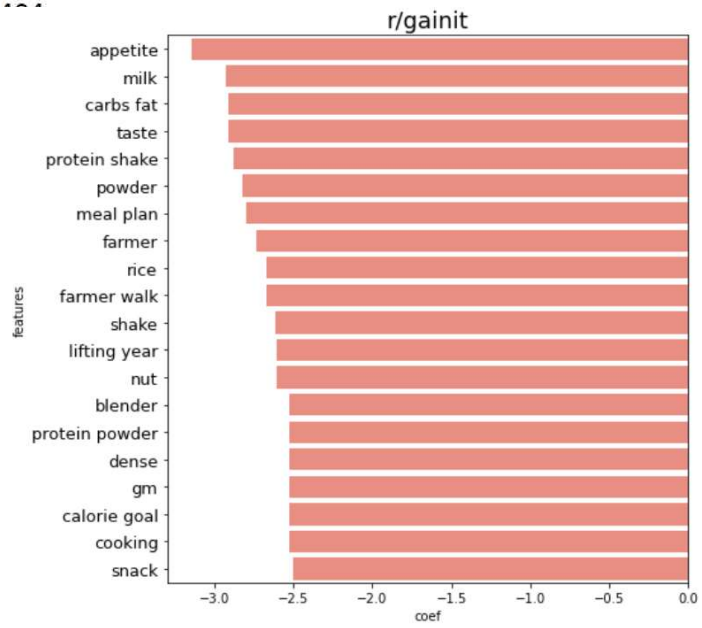
Primary words for each subreddit!

```
=============== Predicted Scores ==================

PPV (Positive Predictive Value/Precision): 0.8[illegible]
NPV (Negative Predictive Value)          : 0.7
Accuracy    : 0.8014
```

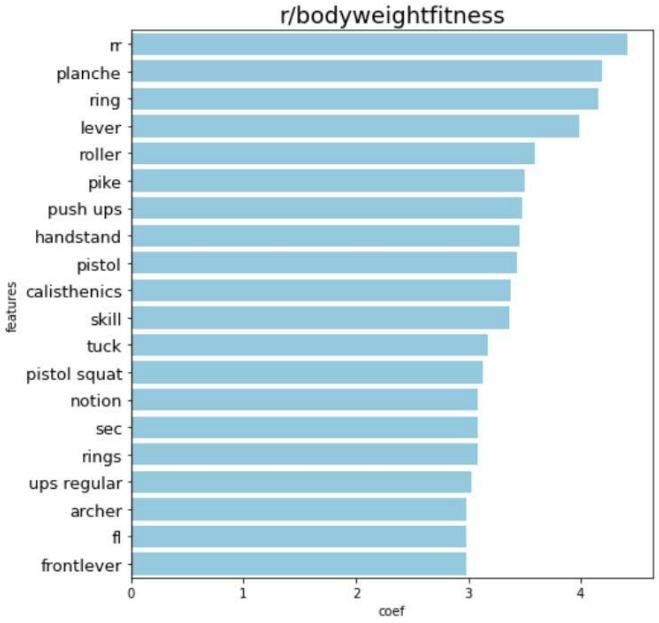


Diet & nutrition



Appetite, protein, meal plan

Advance techniques



rr, planche, lever, pistol squat

MODELING: RANDOM FOREST W TVEC

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=============== Predicted Scores ==================

PPV (Positive Predictive Value/Precision): 0.7825
NPV (Negative Predictive Value)          : 0.8343
Accuracy   : 0.807
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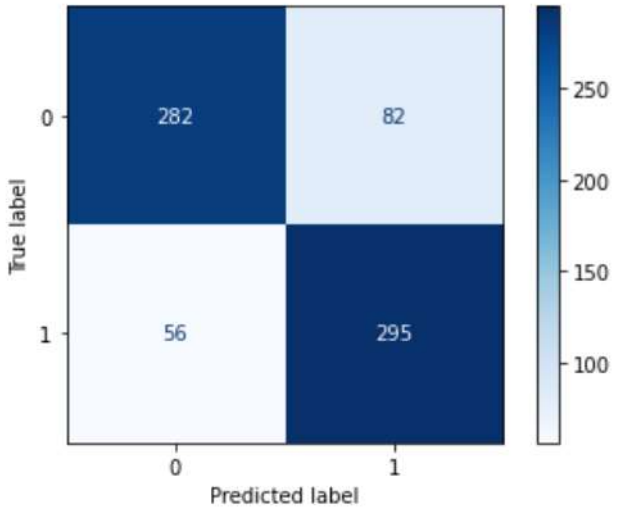
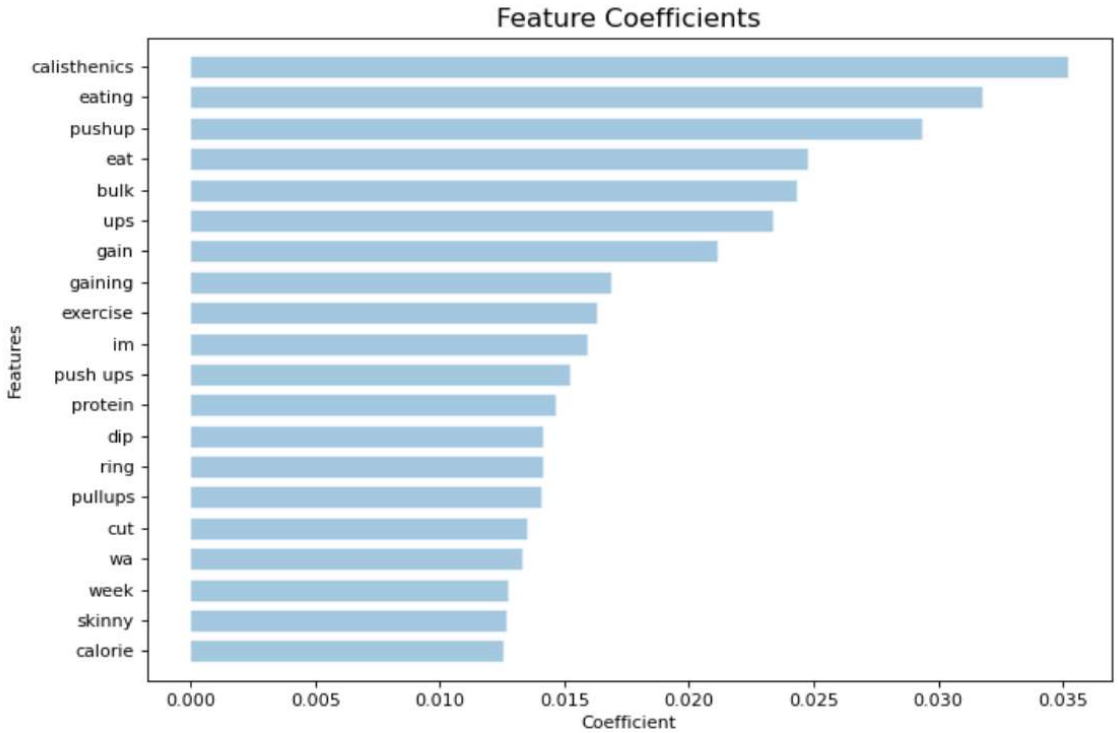
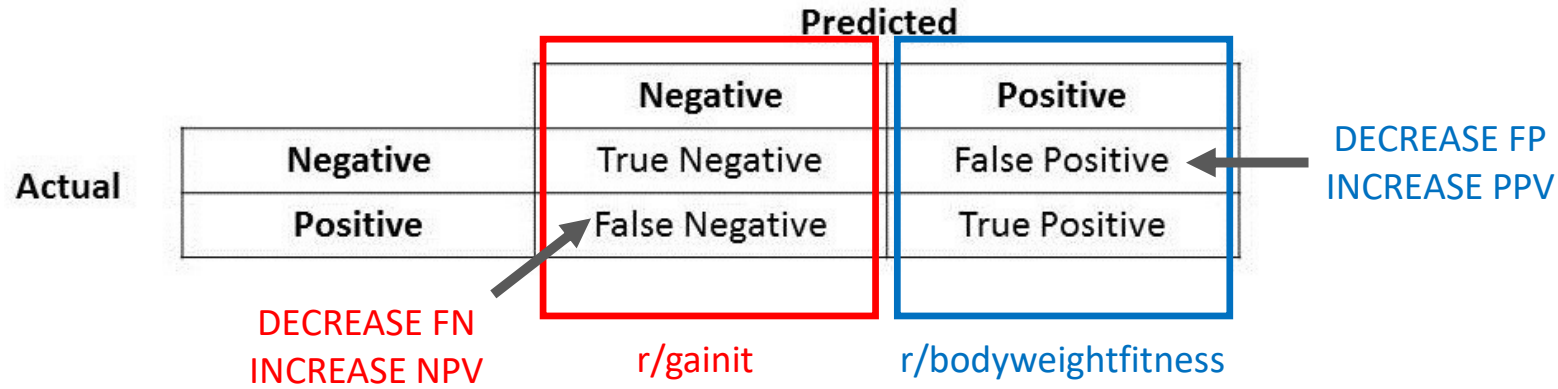




PERFORMANCE SUMMARY

	Estimator	Transformer	Train	Test	Best_score	PPV	NPV	Test_Acc
0	LogisticRegression()	cvec	0.9599	0.7930	0.8067	0.7544	0.8418	0.7930
1	LogisticRegression()	tvec	0.9174	0.8266	0.8184	0.8252	0.8279	0.8266
2	MultinomialNB()	cvec	0.8483	0.8014	0.7871	0.8404	0.7721	0.8014
3	MultinomialNB()	tvec	0.8880	0.8168	0.8016	0.8901	0.7691	0.8168
4	(DecisionTreeClassifier(max_depth=5, max_featu...	cvec	0.8296	0.8098	0.7941	0.7851	0.8373	0.8098
5	(DecisionTreeClassifier(max_depth=5, max_featu...	tvec	0.8385	0.8070	0.7937	0.7825	0.8343	0.8070



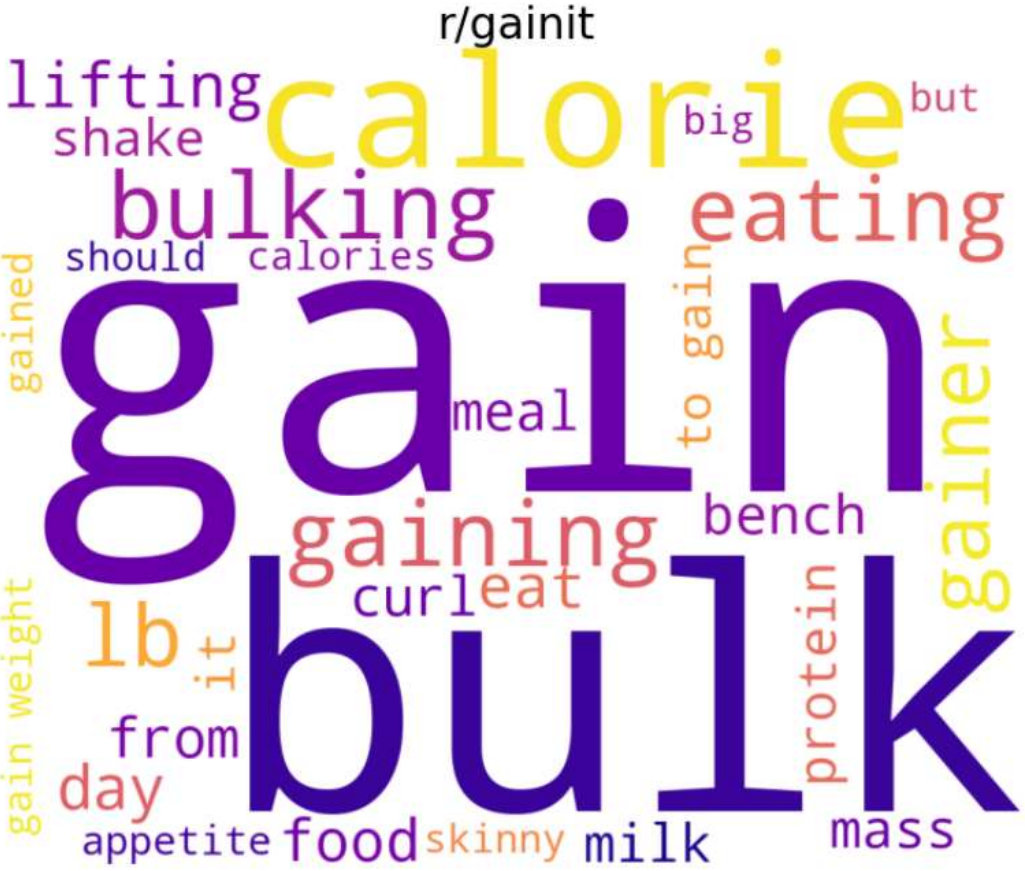
CONCLUSION

- Production model: Logistic Regression with TF-IDF Vectorizer
- Accuracy, PPV, NPV scores above 0.8
- Some posts could belong to either subreddits

MODEL LIMITATIONS

1. Fine-tune further on production model, avoid overfitting
2. Explore other complex estimators that might have the potential to be more accurate

THANK YOU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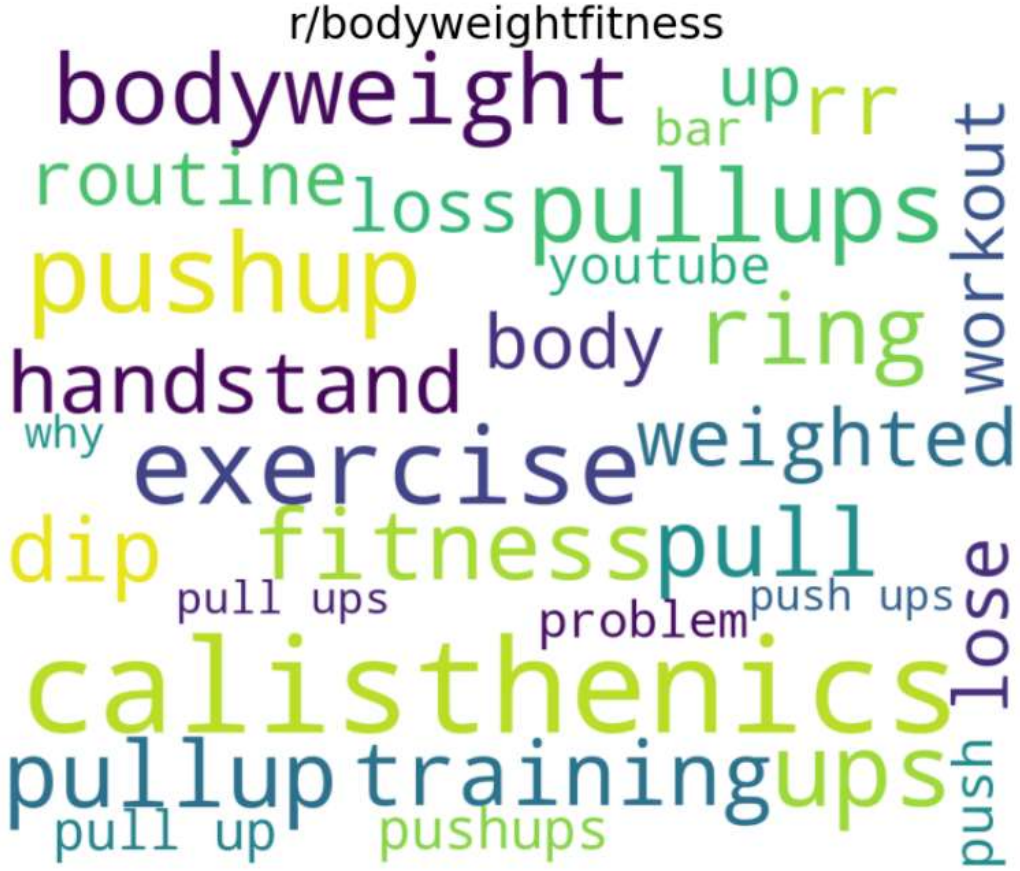
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pull up
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