

Reddit Posts Classifier

An analysis of PS5 and XboxSeriesX sub-reddits

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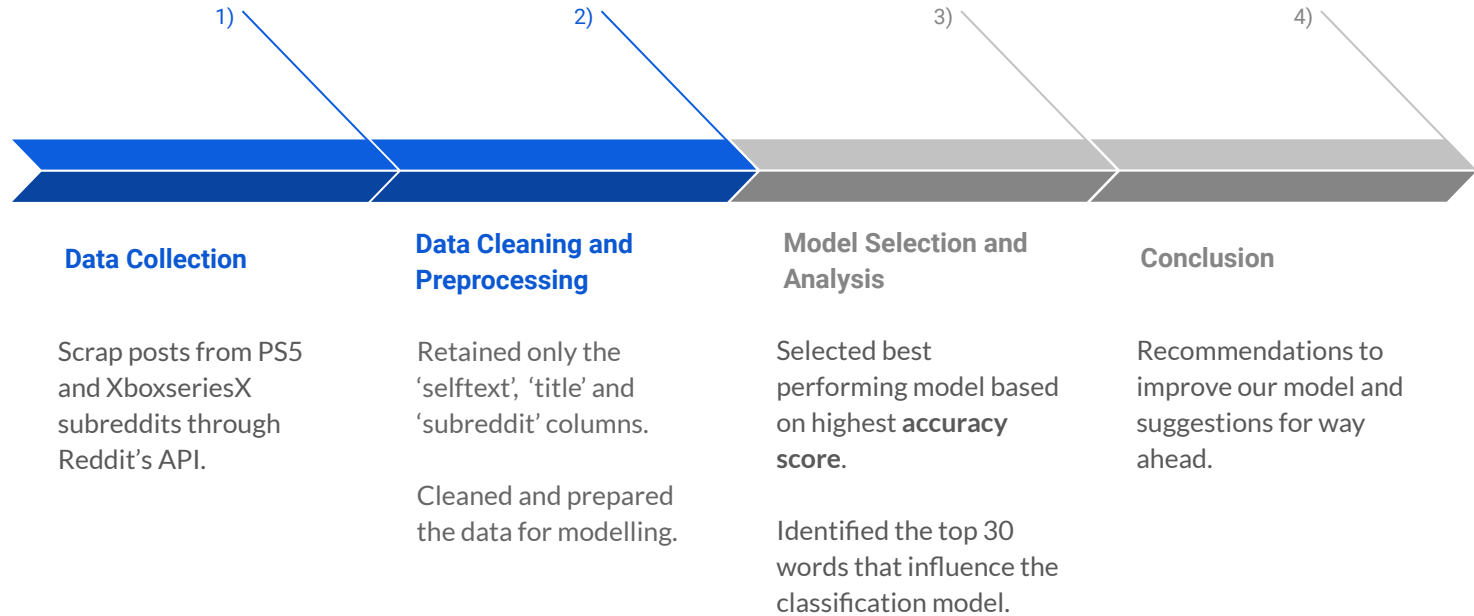
Problem Statement

Seeking a contingency plan in the event of a server glitch, Reddit is looking to develop a model to sort posts into the respective subreddits when subreddit posts get mixed up. As a proof of concept, Reddit has requested for us to;

1. Create a model that best classify which subreddit a post came from between 2 subreddits.
2. Identify words that will most differentiate our two chosen subreddits.



Methodology



Data Cleaning using regular expressions





Impute missing values

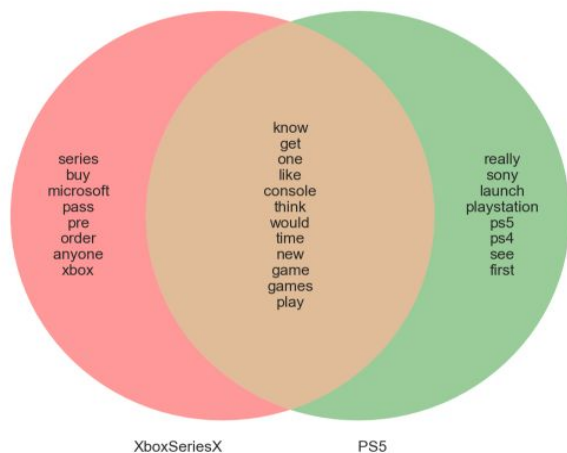
'title' + 'selftext' = 'title selftext'

'title' + ' ' = 'title'

	title	selftext	combined_text
0	random fan decided make this awesome xgp trailer credit vincenzo fayez channel		random fan decided make this awesome xgp trailer credit vincenzo fayez channel
1	the taco bell deal available country	pretty sure there taco bell here saudi arabia but idk the prize thing available will very appreciated can help yes checked google didn say anything	the taco bell deal available country pretty sure there taco bell here saudi arabia but idk the prize thing available will very appreciated can help yes checked google didn say anything
2	state mouse and keyboard support xbox consoles	buying series regardless mouse and keyboard support but was wondering what the current state mainly play shooters and when playing console with controller feels like drunk its just incredibly slow and inaccurate from what understand some games support mouse and keyboard single player that true for most shooters don really care about multiplayer games anymore but would like play titles like doom with mouse and keyboard that possible	state mouse and keyboard support xbox consoles buying series regardless mouse and keyboard support but was wondering what the current state mainly play shooters and when playing console with controller feels like drunk its just incredibly slow and inaccurate from what understand some games support mouse and keyboard single player that true for most shooters don really care about multiplayer games anymore but would like play titles like doom with mouse and keyboard that possible

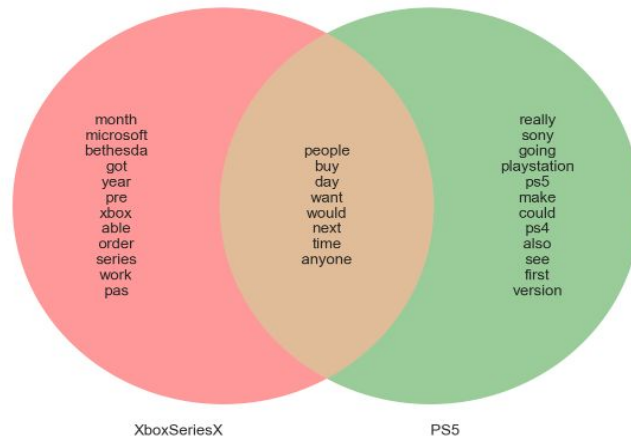
Remove stop and overlapped words

after 'english' stopwords removal



Top 20

after remove high freq overlapped words



Cleaned Top 20

[illegible][illegible]

'xbox' appeared 1023 times, 'series' appeared 742 times, 'microsoft' appeared 239 times. 'ps5' appeared 888 times, 'ps4' appeared 392 times, 'sony' appears 320 times.

- Top predictive unique words: product name and manufacturer's name.
- Top overlapped words: 'game', 'new', 'play', 'like', 'get', 'think' (removed)



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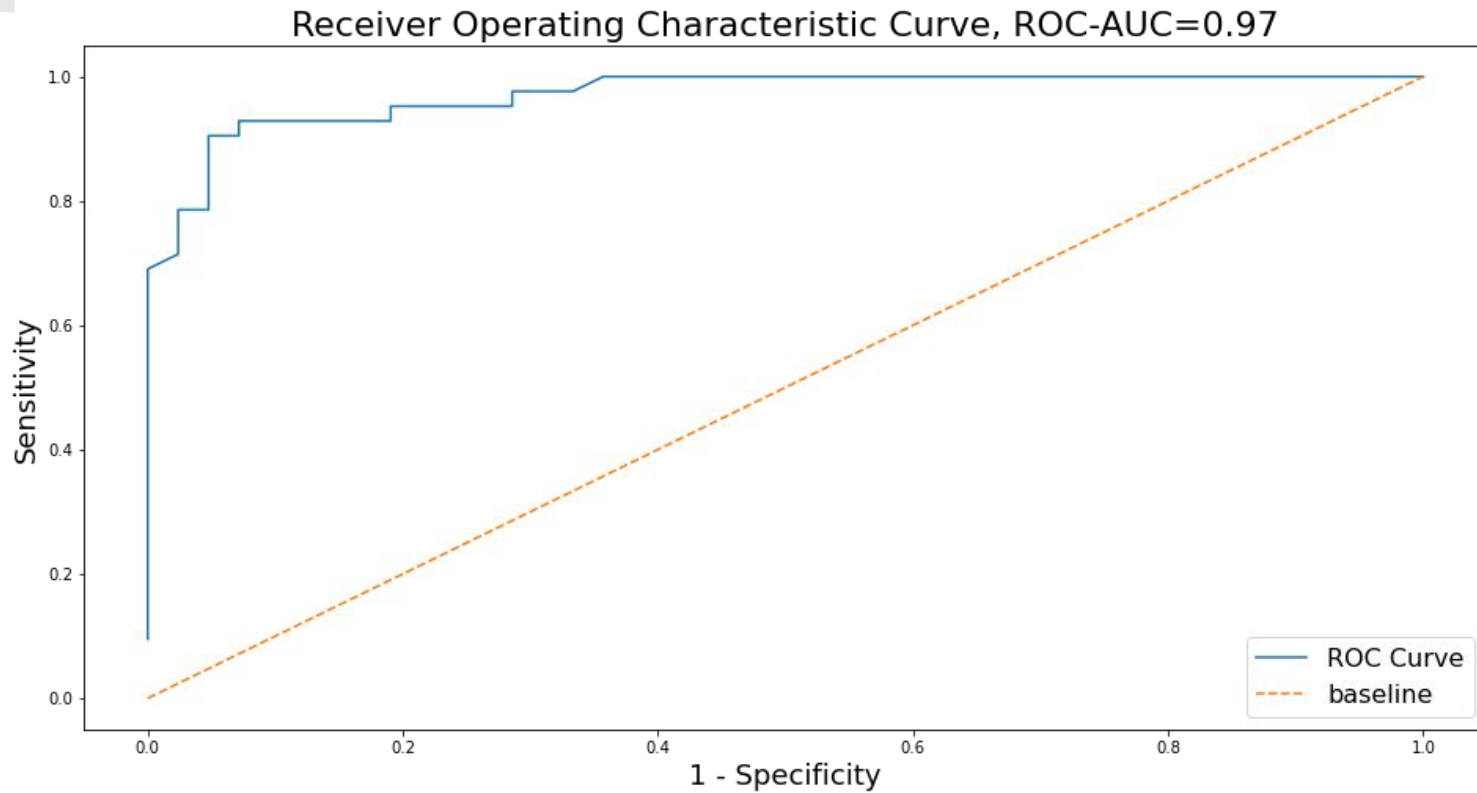
Model Selection

1. 4 lemmatised optimised models were compared
 - a. CV Multi NB:
 - Max Features:3500; alpha = 1.05
 - b. TF-IDF Logistic Regression:
 - Max Features:1700; C= 1.44
 - c. CV KNN:
 - Neighbours=3
 - d. CV Random forest:
 - Estimators:93; max depth=8
2. Models were scored using accuracy against an unseen test set
3. Selected model params with best estimators:
 - a. MNB: Max Features:3500; alpha = 1.05

Model	Test-accuracy	ROC AUC score
Multinomial Naive-Bayes	0.91	0.97
Random Forest	0.81	0.97
KNN	0.67	0.71
Logistic Regression	0.87	0.93



Model 1 ROC





Key Findings

Based on the optimised Multinomial Naive Bayes model, we observed the following:

1. Previous generation owners seemed to be most interested in the newer version of their respective consoles: PS4 to PS5, Xbox One X to Xbox Series X
2. These game titles appeared to classify for the Xbox
 - a. Destiny Series
 - b. Doom Series
3. These game titles appeared to classify for the PS5
 - a. Marvel's Spider-man Series
 - b. Bloodborne
 - c. Demon Souls Series



Conclusion



1. Top 3 key words for each subreddit
 - a. XboxSeriesX subreddit: xbox, series, microsoft
 - b. PS5 subreddit: ps5, ps4, playstation
2. Accuracy of 91% on test data where a given post came from
3. Trace posts with missing post labels back to their respective subreddit
4. Serves as a backup plan during a server glitch
5. Further improvements



The End

Q & A