

Machine Learning Model Outcomes

Executive summary report for TikTok prepared by the TikTok data team

Overview

The TikTok data team wants to develop a machine learning model to assist in classifying the claim status of a video. We have determined that video engagement levels are highly indicative of claim status. Once the model is built, we will also examine feature importance to understand how different features affect the final results.

Problem

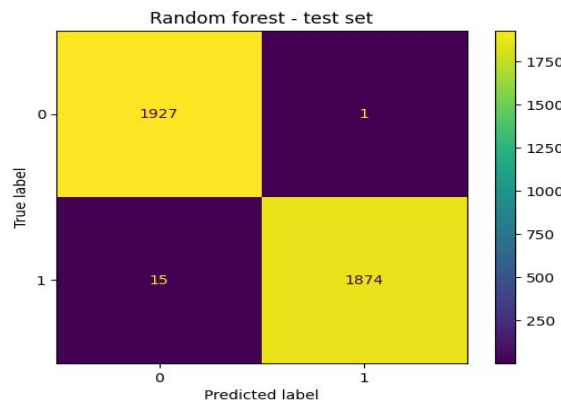
TikTok has had difficulty detecting and reviewing violating videos and handling user reports of videos. Since TikTok is a large company and handles a very large number of videos, we wanted to find an effective way to handle violating videos, that is, to set a priority for handling claim videos.

Solution

The data team divides the entire dataset into three parts: training, validation, and testing. We plan to use two different tree-based models, Random Forest and XGBoost. After training and validating both models, we plan to use the best model as the final model on the test model to evaluate the performance and check feature importance.

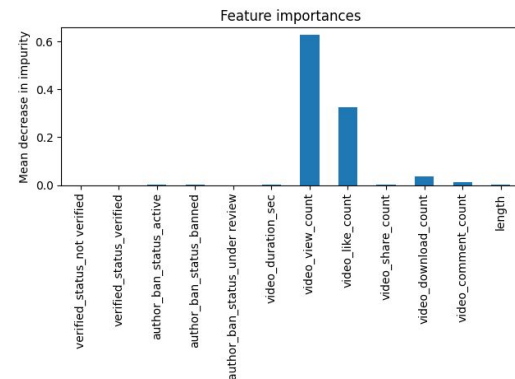
Details

Both model — Random Forest (RF) and XGBoost — performed very well on the validation dataset, with very close performances. The RF model outperformed the XGBoost model on all three evaluation metrics (precision, recall, and f2 support) and was selected as the champion.



Performance on the test data yielded near perfect scores, with only 16 misclassified samples out of 3,817.

From the feature importance plot of the RF model, we can see that the main predictors are greatly influenced by the video engagement, such as video views, likes, comments, and downloads. Based on these results, we can conclude that videos with higher user engagement are more likely to become claims, no opinion video has more than 10,000 views.



Next Steps

While the random forest model performs well on the test data, I think it might be helpful if we could get more features related to the author themselves, such as how long the author has been registered and how long they have been active, because we can learn more about the author and predict the likelihood of them publishing a claim video or even violating the platform's regulations.