Claims Classification Project | Milestone Five

Executive summary prepared for TikTok leadership by the TikTok data team

ISSUE / PROBLEM

TikTok leadership asked the TikTok data team to develop a ML model that will help us better understand user submissions and reduce the backlog of user reports. In this part of the project, the data team needs to conduct regression analysis on the provided data set and build a logistic regression model that predicts verified_status.

RESPONSE

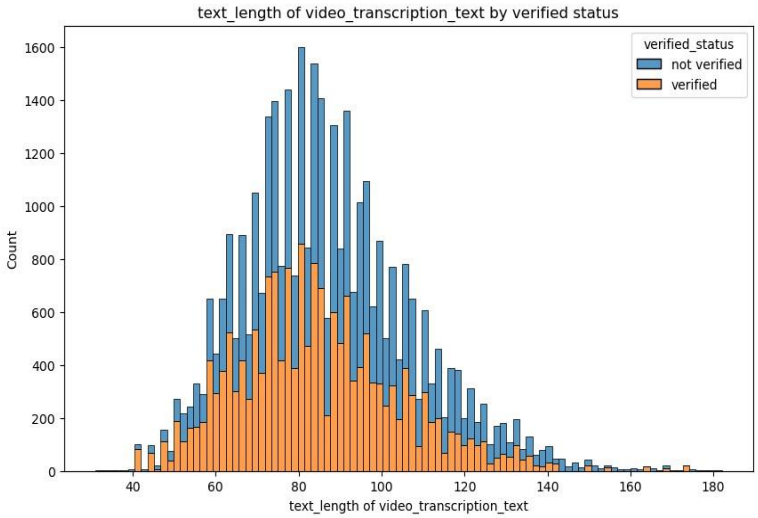
The data team chose to create a logistic regression model based on the type and distribution of data provided. The variable of verified_status was selected for this regression model because of the relationship seen between the verified account type and the video content such as the length of video transcriptions.

Seeing the confusion matrix, the model correctly predicts relatively more true positives than the other quadrants. It indicates that Type I errors are more likely to occur.

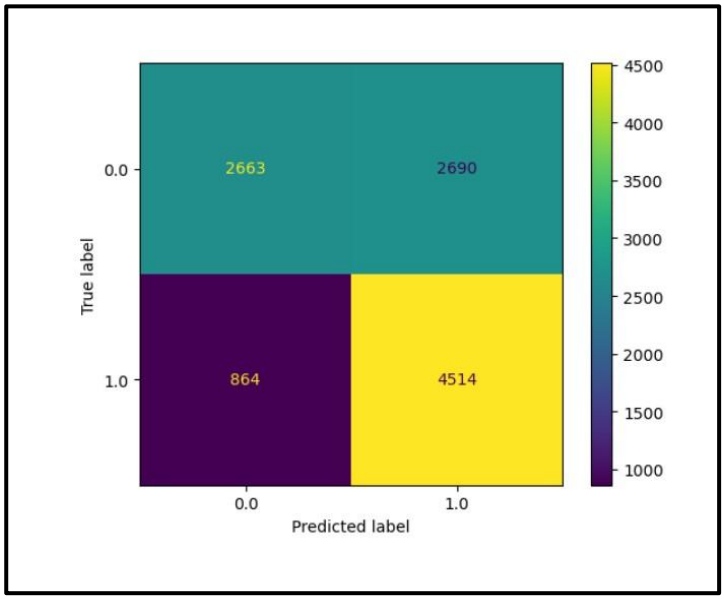
IMPACT

Performing class balancing using upscaling optimized the model since the data was imbalanced 93.71/6.29 (not verified/verified)

The logistic regression model provides a framework for predicting binary outcomes such as the verified_status of a user submission.



The histogram above illustrates the distribution of video_transcription_text length for videos posted by verified accounts and videos posted by unverified accounts.



The upper-left quadrant displays the number of videos posted by unverified accounts that the model accurately classified as so. The upper-right quadrant displays the number of videos posted by unverified accounts that the model misclassified as posted by verified accounts. The lower-left quadrant displays the number of videos posted by verified accounts that the model misclassified as posted by unverified accounts. The lower-right quadrant displays the number of videos posted by verified accounts that the model accurately classified as so.

KEY INSIGHTS

- **According to the classification report,** the logistic regression model achieved a precision of 63%, a recall of 83.9%, and f1-score of 72%. It achieved an accuracy of 67% as well. These scores are taken from the "not verified" row of the output because it is the target class that we are most interested in predicting.
- **Based on the estimated model coefficients from the logistic regression**, the video feature of 'video_duration_sec' compared to the other video features has a relatively larger estimated coefficient in the model. Each additional second of the video is associated with 0.005 increase in the log-odds of the user having a verified status.
- **The data team recommends constructing a classification model that will predict the status of claims made by users**. With the helpful context we discovered around user behavior, we may better construct and analyze the results of that classification model.