Executive summary 5: Predicting Verified User Status on TikTok

A Logistic Regression Analysis to Enhance Claim vs. Opinion Understanding

OVERVIEW

TikTok's data team aims to develop machine learning models that can effectively classify user-submitted videos as either claims or opinions. A key observation was that verified users tend to post more opinions. To better understand this relationship and improve the overall claim/opinion classification, this project focused on building a logistic regression model to predict user verification status. By identifying factors that influence verification, we can gain valuable insights into the behavior of users who frequently post opinions, ultimately enhancing the accuracy of our content classification efforts.

PROJECT STATUS

We selected `verified_status` as the target variable for our logistic regression model due to its observed correlation with opinion posting. A logistic regression was chosen because it is well-suited for binary classification problems and provides interpretable results.

Model Results:
The logistic regression model achieved a weighted average precision of 69% and a weighted average recall of 66%, resulting in an F1-score of 66%. These metrics indicate a reasonable level of predictive performance, providing valuable insights into the factors influencing user verification.

NEXT STEPS

Building upon the insights gained from this model, the next crucial step is to develop a classification model that directly predicts the status of claims made by users (claim vs. opinion). This will fulfill the original objective of the TikTok team. The understanding of user verification behavior, gained from this logistic regression, will provide valuable context for analyzing the results of the final claim/opinion classification model. We will now be able to use the knowledge gained about what makes someone more likely to be verified, to better understand what makes content more likely to be an opinion.

KEY INSIGHTS

Video Duration: Longer videos are associated with a higher likelihood of being posted by verified users. This suggests that content length may be a relevant factor in predicting verification status.

Other Video Features: Other video features \analyzed in the model exhibited small estimated coefficients, indicating a weak association with verification status. Therefore, beyond video length, these features do not appear to significantly influence whether a user is verified.

Confusion Matrix:

- **Upper-Left:** Correctly predicted unverified users.
- **Upper-Right:** Incorrectly predicted verified users (false positives).
- **Lower-Left:** Incorrectly predicted unverified users (false negatives).
- **Lower-Right:** Correctly predicted verified users.

This matrix helps us visualize the model's strengths and weaknesses in classifying users.