**Facebook Post Comment Volume Prediction**

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**Abstract**

In the dynamic realm of social media, the volume of comments a Facebook post garners serves as a crucial indicator of its engagement and reach. This study delves into the predictive factors influencing comment volume, utilizing the Facebook Comment Volume Dataset from the UCI Machine Learning Repository. Our research leverages mixed effect model to construct a negative binomial regression that predicts the number of comments a post is likely to receive within the subsequent hours of its publication. Drawing on the work of Kamaljot Singh and others, we employ count data regression methods and its extensions to account for potential overdispersion. By examining various post features, such as page characteristics, essential and weekday features, and other basic attributes, we endeavor to identify the key determinants of comment volume. The model's accuracy will be assessed using Mean Absolute Percentage Error (MAPE), Root Mean Squared Error (RMSE), and Mean Absolute Error (MAE), alongside Posterior Predictive Check plots. Our findings aim to empower content creators and social media strategists to amplify their online presence and foster organic user interactions effectively. By providing insights into the promotion of Facebook posts without relying on paid advertising, this research seeks to democratize the approach to enhancing social media visibility.

**Introduction:**