**ML RESEARCH PAPER PROPOSAL**

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**TITLE:**

**Comparing different classification models for Taylor’s Manifest Anxiety Scale (TMAS) and using gradient boosting on model with overall highest evaluation metrics.**

**IDEA:**

Everyone’s body responds to stress differently, the response could be something as simple as having a minor headache or having warm hands to experiencing something severe as to having trouble breathing. This natural response in situations of stress or fear is called anxiety. Everyone experiences different levels of anxiety from mild to extremely severe. One of the self-reporting anxiety scales commonly used is the Taylor’s Manifest Anxiety Scale(TMAS). The scale classifies the person in one of the four categories based on the score calculated from the test. Using different classification models, we want to check which model would accurately classify the category of anxiety without having to calculate the overall score. We then want to check whether the gradient boosting method is successful at making our best model more accurate.

**OBJECTIVE:**

#### To find how Age and Gender affect the Anxiety score which we will do by using ANOVA.

1. Using Decision Tree, Random Forest, K-nearest neighbors and Naive bayes algorithms to determine the best classification model for our dataset based on various evaluation metrics.
2. Optimize the best model with an ensemble method called gradient boosting and careful parameter tuning in XGBoost, which will train our model more accurately.

**DATASET SOURCE: Manifest Anxiety Scale Responses, Kaggle.com**