Predicting Food Insecurity In Ghana Using Machine learning

Integrated Food Security Phase Classification **(IPC) data modelling**

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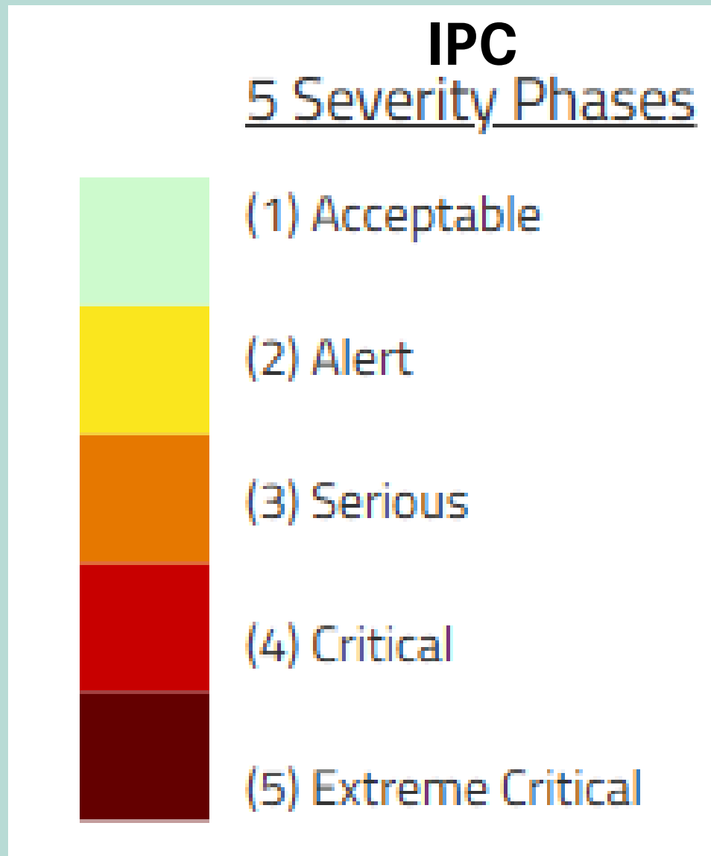
Principles of Data Science

Predict **IPC Class** given [Region, Population]

86% Accuracy

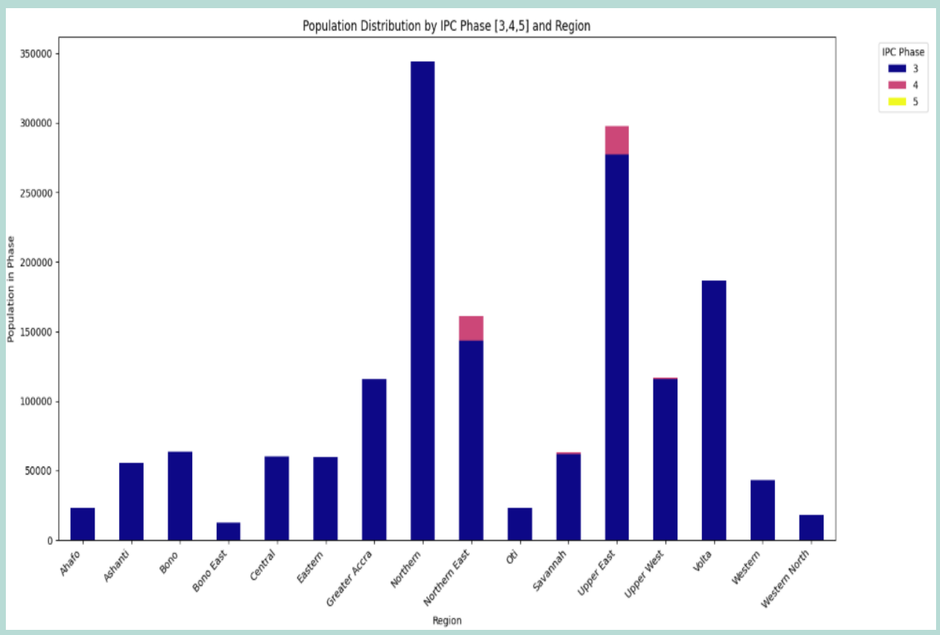


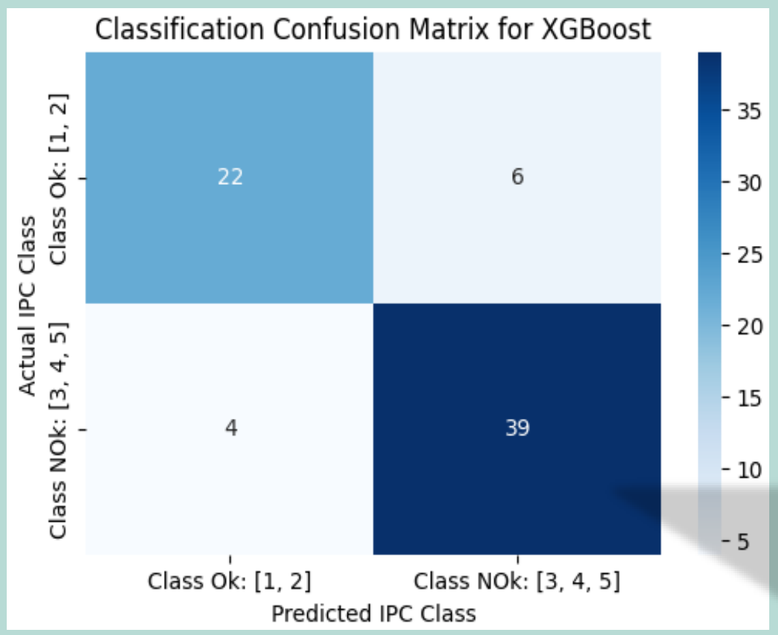
Objective: Food insecurity is a critical issue in many regions of Ghana, with varying degrees of severity. This study is motivated by the need to have a accurate model to predict food insecurity based on the Integrated Food Security Phase Classification (IPC)

Dataset: . The IPC dataset provides a standardized framework for assessing food security conditions, enabling data-driven decision-making. The dataset was filtered for 'current' conditions, admin region and current IPC phase.

modelling: . After preprocessing and cleaning the data, several machine learning models were trained and evaluated to predict IPC phases, including Logistic Regression, Decision Tree, Random Forest, SVM, and XGBoost.

Results: XGBoost emerged as the best model with an accuracy of 86%





The analysis of food insecurity in Ghana used the IPC dataset, focusing on crisis levels (phases 3-5).

After preprocessing, multiple models were evaluated, with XGBoost achieving an initial accuracy of 0.45.

Reclassifying IPC phases into "acceptable" (1-2) and "requiring urgent attention" (3-5) boosted accuracy to 0.86.

This model empowers policymakers and humanitarian organizations to target interventions effectively by predicting food insecurity with 86% accuracy on critical IPC phases 3,4 and 5.