# FINDING BEST APPROACH TO PREDICT ACCIDENT SEVERITY IN MORATUWA POLICE DIVISION USING FEATURE REDUCTION TECHNIQUES

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# Abstract

Road accidents are having a huge impact on the people globally. The objective of the study is to address rate of increasing traffic accidents that is a huge problem to the whole world. Sri Lanka is a low-income country and therefore the economic impact on this issue is huge due to no of lives lost as well as the damage to property. This study is to analyze road accidents in Moratuwa police division of Sri Lanka within last three years with the target of developing an accurate model for predicting severity of accidents using Logistic Regression, Decision Tree, Random Forest, Multiple linear regression.

LR, DT and RF were used on 1300 accident details collected from Moratuwa police during the period 2019-2022. Accuracy of each model was inspected. When tested using feature importance with two algorithms, RF with the Chi squared feature extraction technique came with the best accuracy of 80%. Then the most accurate model chosen with feature extraction algorithms have been used in the final equation. Then the application to predict severity of future accidents was built using the model. If the recommendations would be applied by individuals to be concerned about the upcoming danger, this study would help to reduce number of serious and non-serious accidents within the area.

**Keywords:** scikit-learn, Random Forest, Decision Tree, Regression Analysis, Classifiers