

# TANZANIA WATER WELLS PROJECT

PHASE 3 PROJECT

BY

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# INTRODUCTION

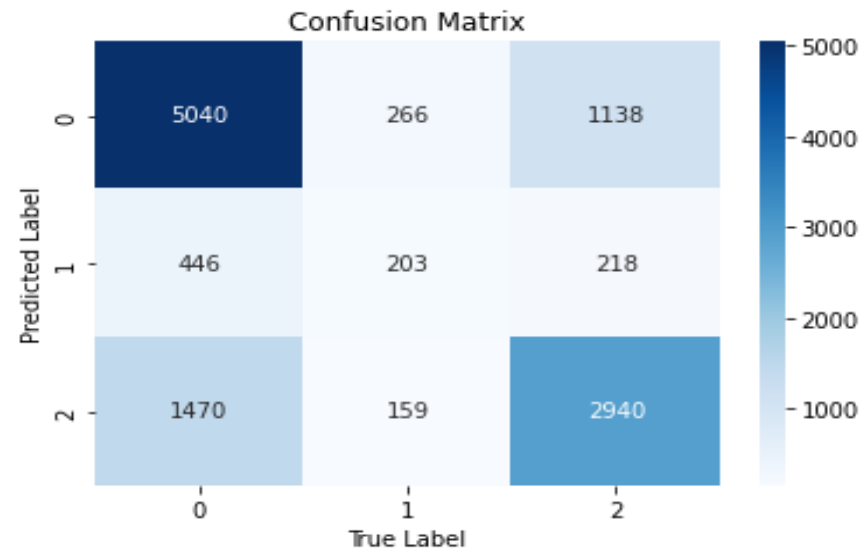
- ▶ The Tanzanian Government has decided to do a research on the status of the wells in the country due to recent water shortage in some areas.
- ▶ The goal of this project is to analyze the data provided and advise the Government on the functionality of the wells, which wells to repair and come up with a format or pattern to build new ones.

# DATA UNDERSTANDING & PREPARATION

- ▶ We began by defining our features and importing the necessary libraries for operations to be executed in our data
- ▶ Next step was to clean our data i.e work on missing values, check for duplicates and convert some data types into either floats or objects

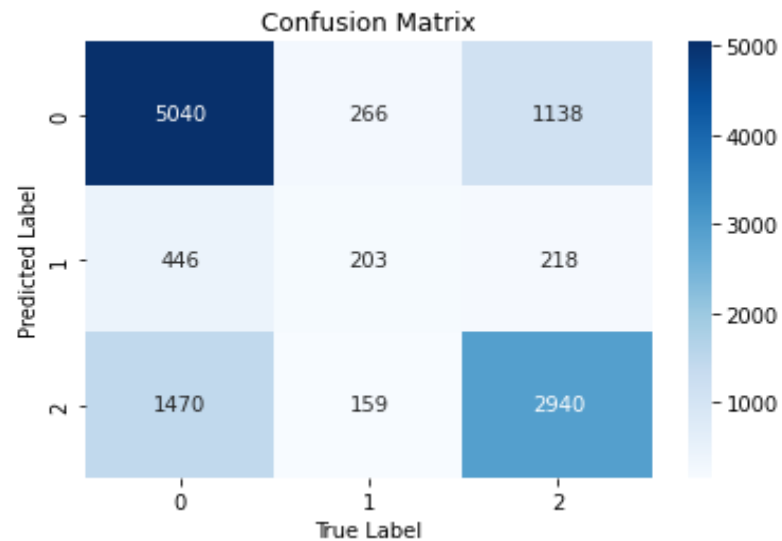
# MODEL SELECTION

- ▶ We settled for 3 models and we were supposed to pick the best.
- ▶ Logistic regression was the model I chose as my base line model which resulted in the below confusion matrix



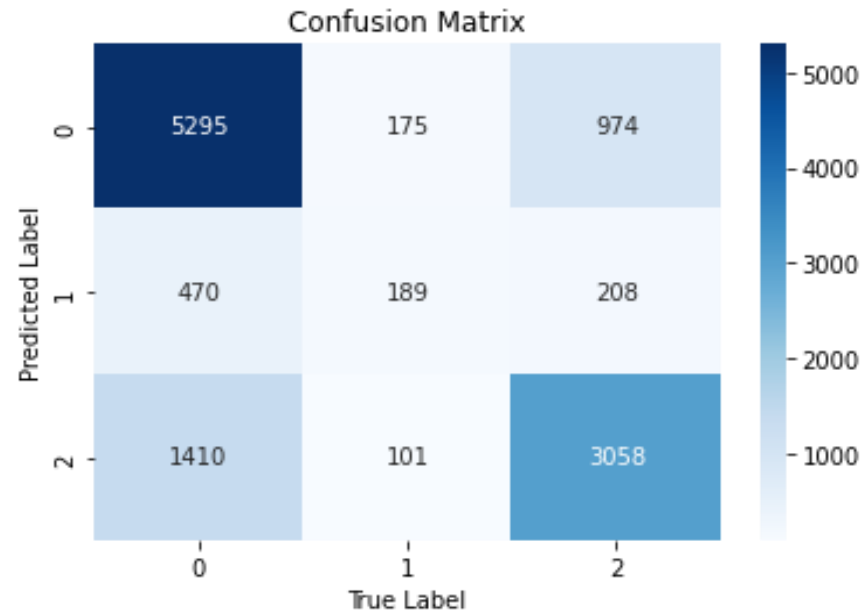
# MODEL SELECTION...CONT'D

- Our second model was decision trees model. We had to tune our hyper parameters in order to improve our test accuracy of 69% and resulted into the below confusion matrix



# MODEL SELECTION...CONT'D

- Our final model was the Random forests model. Which gave us an accuracy score of 72% so far outdoing the other two models. It's confusion matrix was as seen below



# CONCLUSION

- ▶ From the above models, it is safe to pick the random forests model as it has the highest accuracy scores of the three.
- ▶ This in turn suggests that most wells are functional and well managed. We can conclude that there are also quite a huge number of non-functional wells that need repair

# RECOMMENDATIONS

- The government to increase the number of wells within the country
- More funding is required to build, operate and maintain new wells



**THANK YOU**

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the image, creating a modern, layered effect. The rest of the background is a solid, very light gray.