

Predicting Pump Functionality



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Overview

- Business Problem
- Data Understanding
- Modeling
- Evaluations
- Recommendations
- Next Steps





Business Problem

- Which pumps are functional or non-functional.
- Understanding which pumps could fail will help improve maintenance efficacy.



Data Understanding

- Source: Taarifa and the Tanzanian Ministry of Water.
- 59,400 wells
- Removed redundant features

| Feature value | Water Quality | Quality Group |
|--------------------|---------------|---------------|
| Good/Soft | 50,818 | 50,818 |
| Salty | 4,856 | 5,195 |
| Unknown | 1,876 | 1,876 |
| Milky | 804 | 804 |
| Coloured | 490 | 490 |
| Salty Abandoned | 339 | - |
| Fluoride | 200 | 217 |
| Fluoride Abandoned | 17 | - |



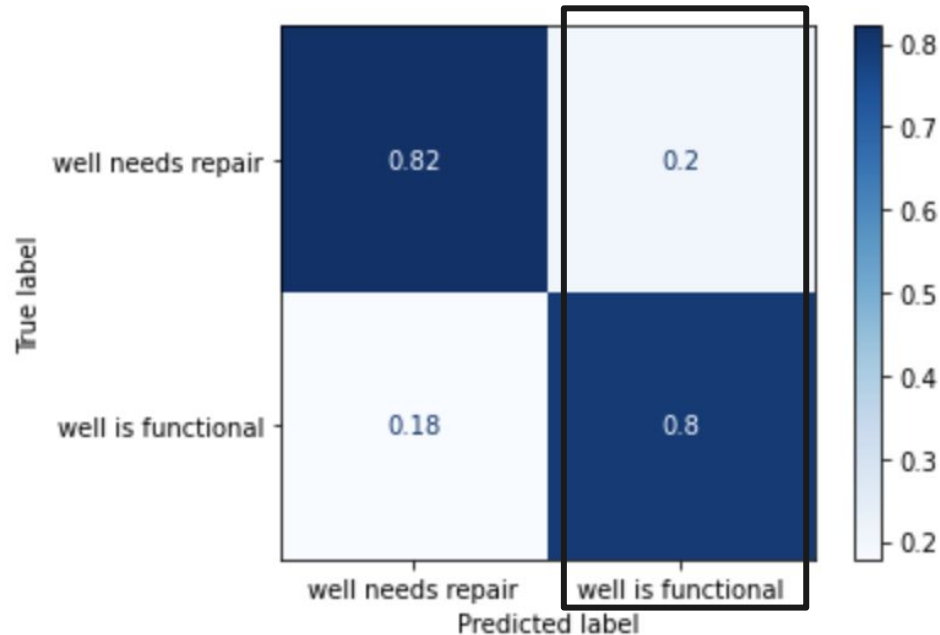


Modeling

- Ran over 4,000 models
- Precision Score
 - Eliminate False Positives



Evaluations



- Precision Score = .80
- 20% of the wells that we predicted to be functional are not functional





Recommendations

- Important Features
 - Construction year
 - Altitude of the well
 - Water quantity
- 26% more accurate than not using a model





Next Steps

- Gather more information
- Clean data
- Try different models





Thank you!



- [Garrett Williams](#)
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<https://github.com/PattiCakes59/Dragon>

