Modeling

Persistency of a drug

Team: Team of One

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Agenda

- Problem Statement
- Models
- Final Model
- Conclusion
- App

Business Problem

An issue that has been around the Pharmaceutical industry for quite some time that has been coming about is how to have a deeper understanding of the persistency of their drug as physicians go about prescribing them. Gaining this understanding could catapult the way companies/physicians go about with their drugs. The focus here is to figure out whether a patient will follow the procedure the physician prescribes.

ABC Pharma is the client at hand and is asking for Team of One's aid in classifying patients. With this in mind a classification model has been created to allow ABC Pharma to predict whether the patient will stick to the prescribed drug that the physician has given or will not be persistent with treatment.

Models Tested

Dummy Regressor

Logistic Regression

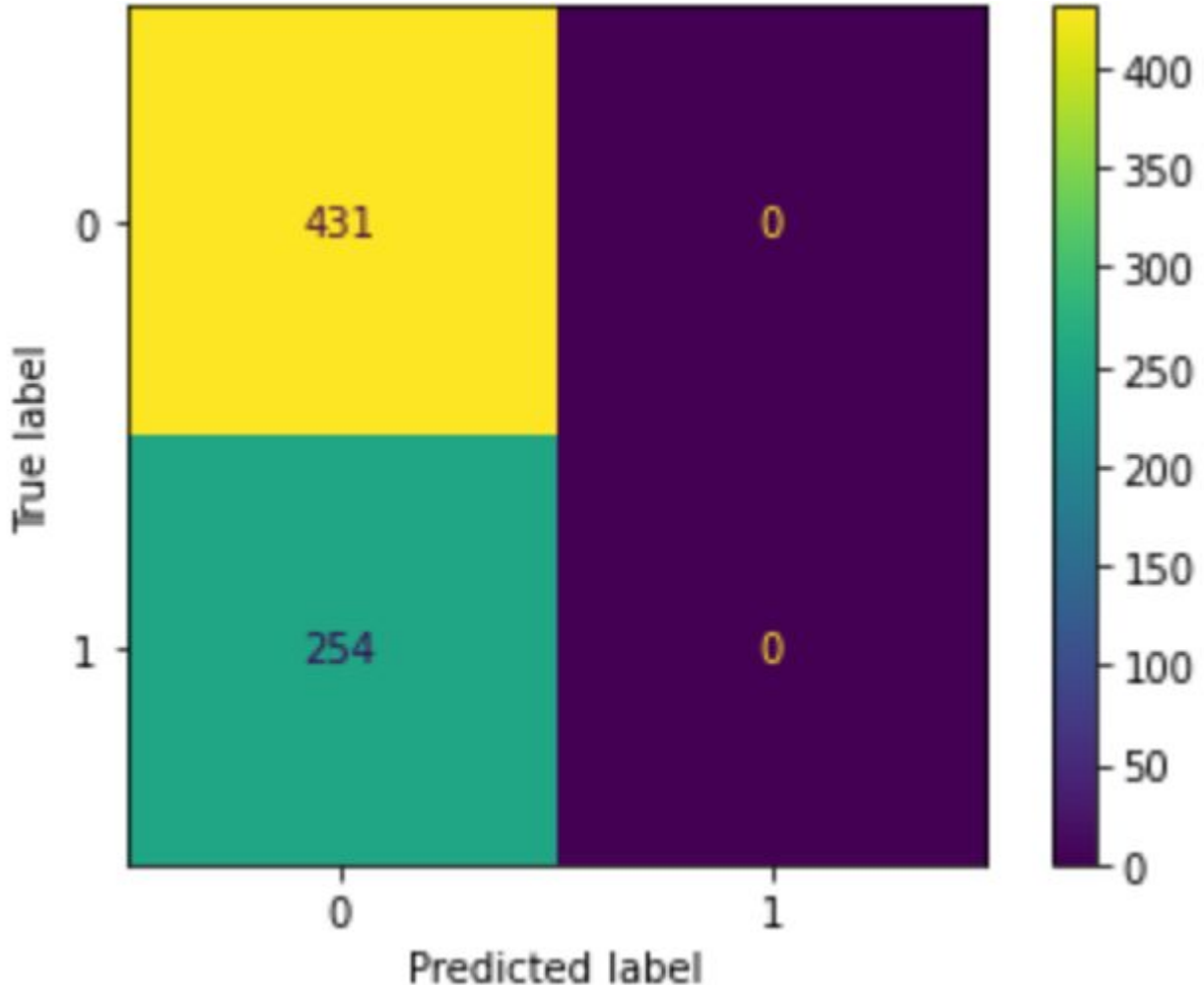
K Nearest Neighbors

Decision Tree

Random Forest

Dummy Regressor

Dummy Regressor was used as a baseline for all the models to be compared to.



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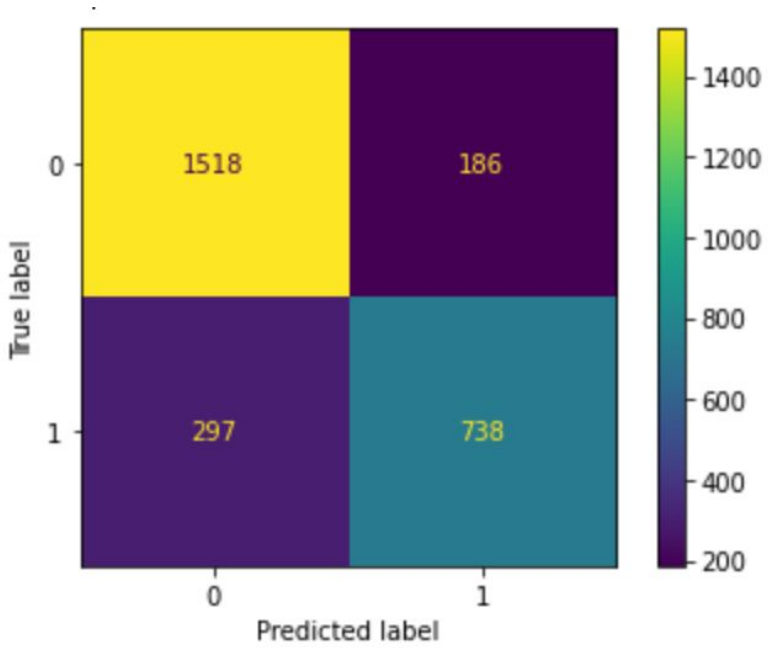
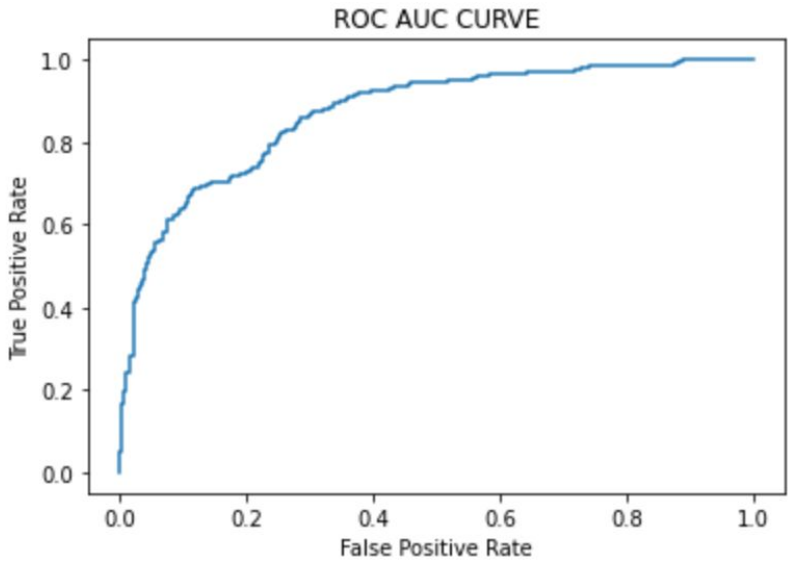
Logistic Regression

Logistic Regression algorithm was fitted onto the data to generate a predictive model. It achieved an accuracy score of .8237 on the training data but on the test data achieved an accuracy of .8073.





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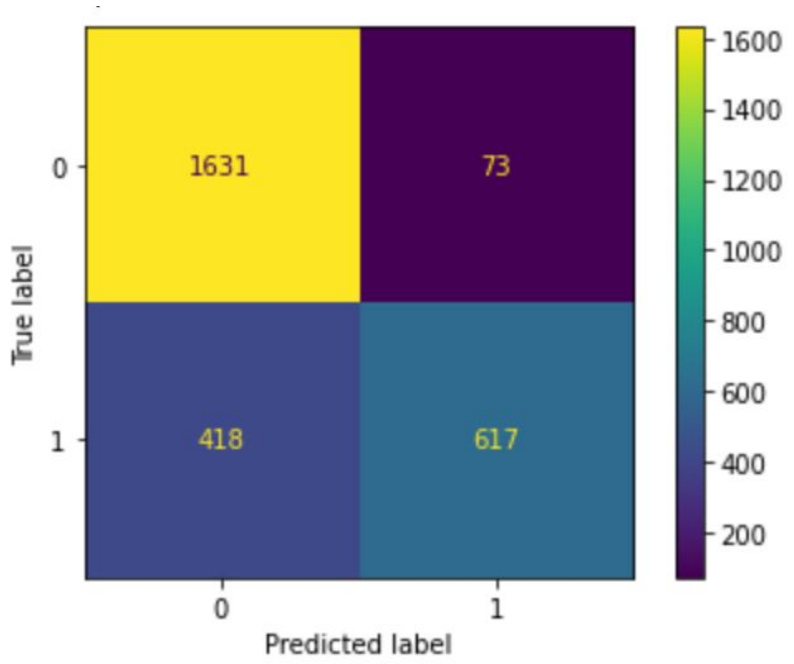
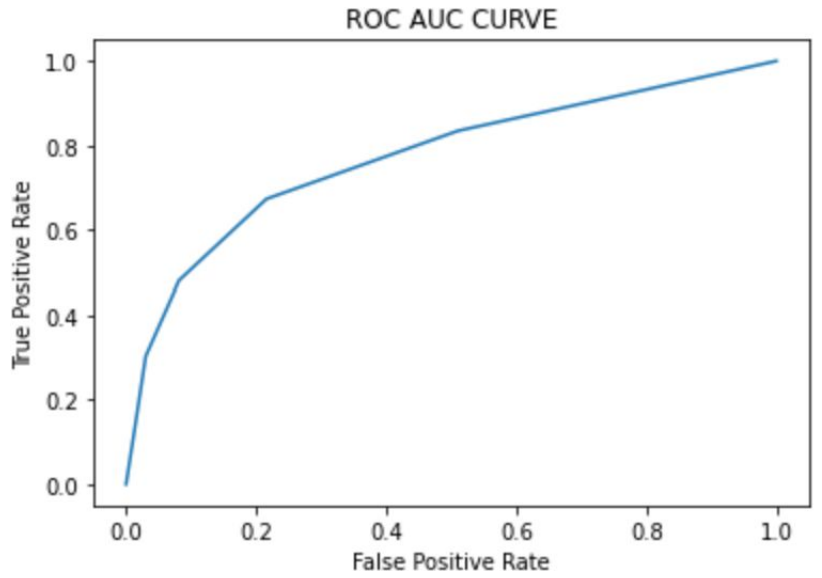
K Nearest Neighbors

K-Nearest Neighbors algorithm was fitted onto the data to generate a predictive model. It achieved an accuracy score of .8207 on the training data but on the test data achieved an accuracy of .7562.





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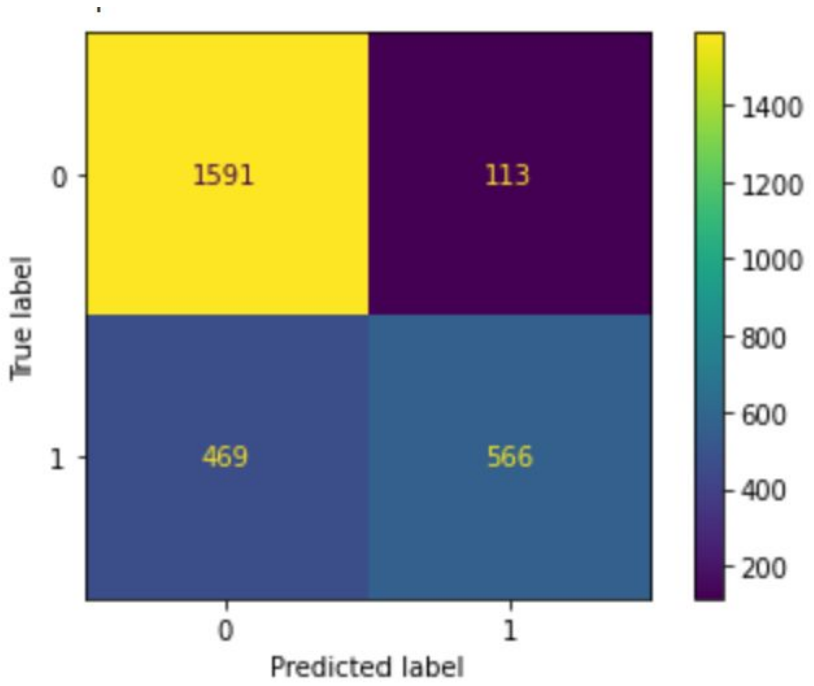
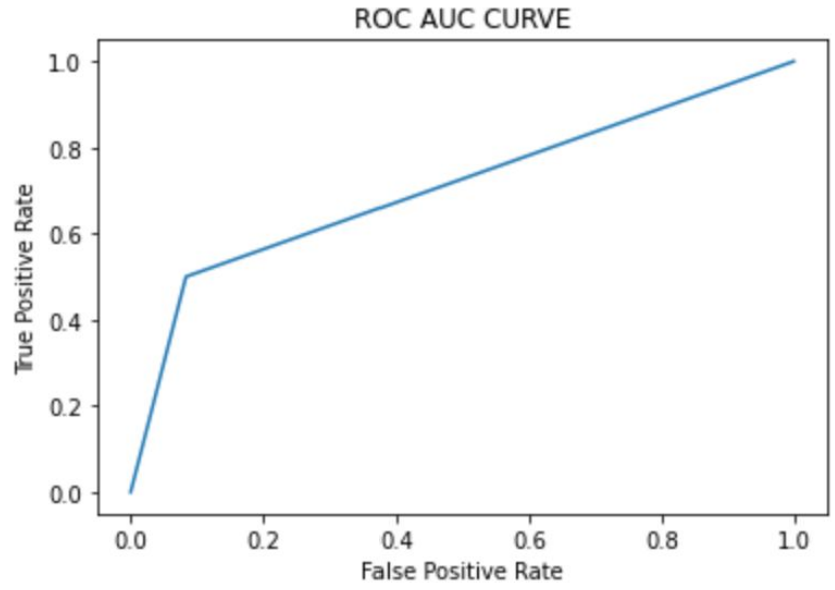
Decision Tree

Decision Tree algorithm was fitted onto the data to generate a predictive model. It achieved an accuracy score of .7875 on the training data but on the testing data achieved a score of .762.





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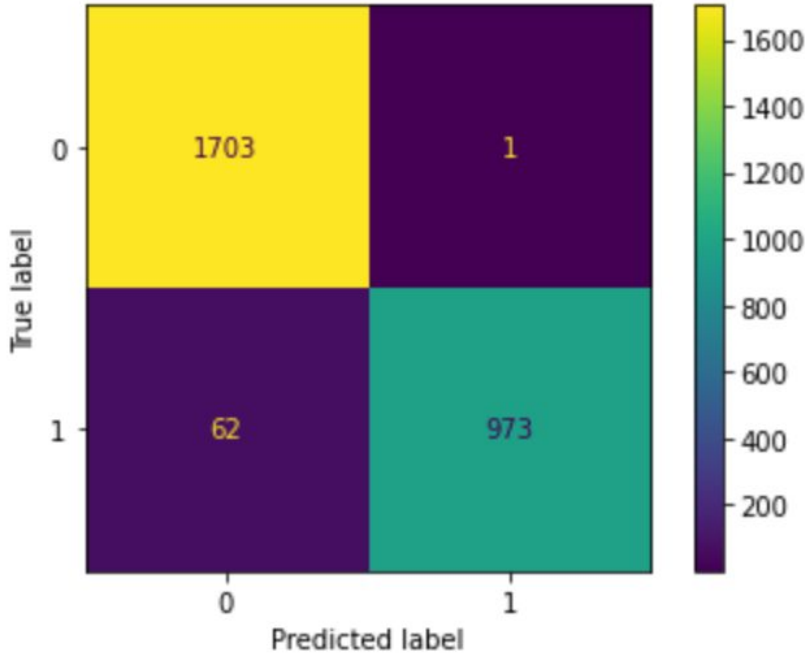
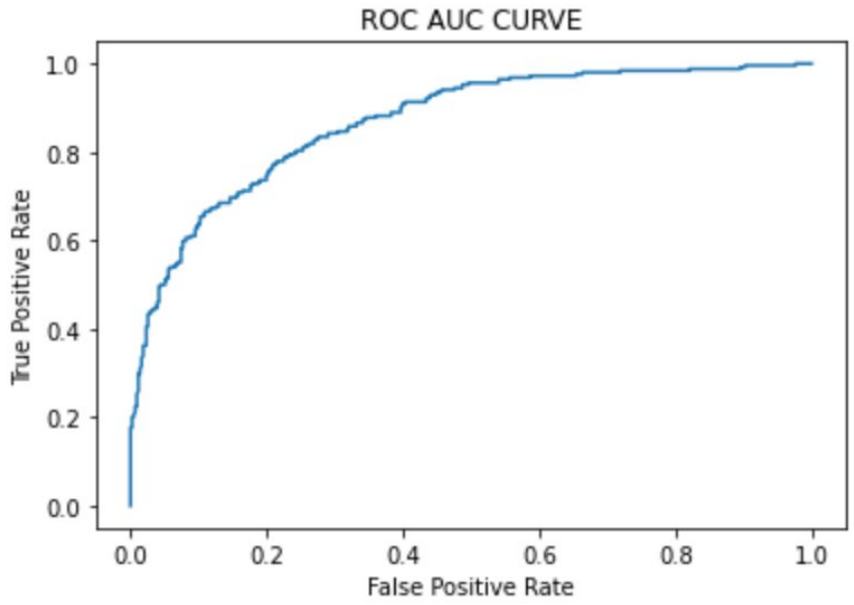
Random Forest

Random Forest algorithm was fitted onto the data to generate a predictive model. It achieved an accuracy score of .977 on the training data but on the testing data achieved an accuracy of .8.





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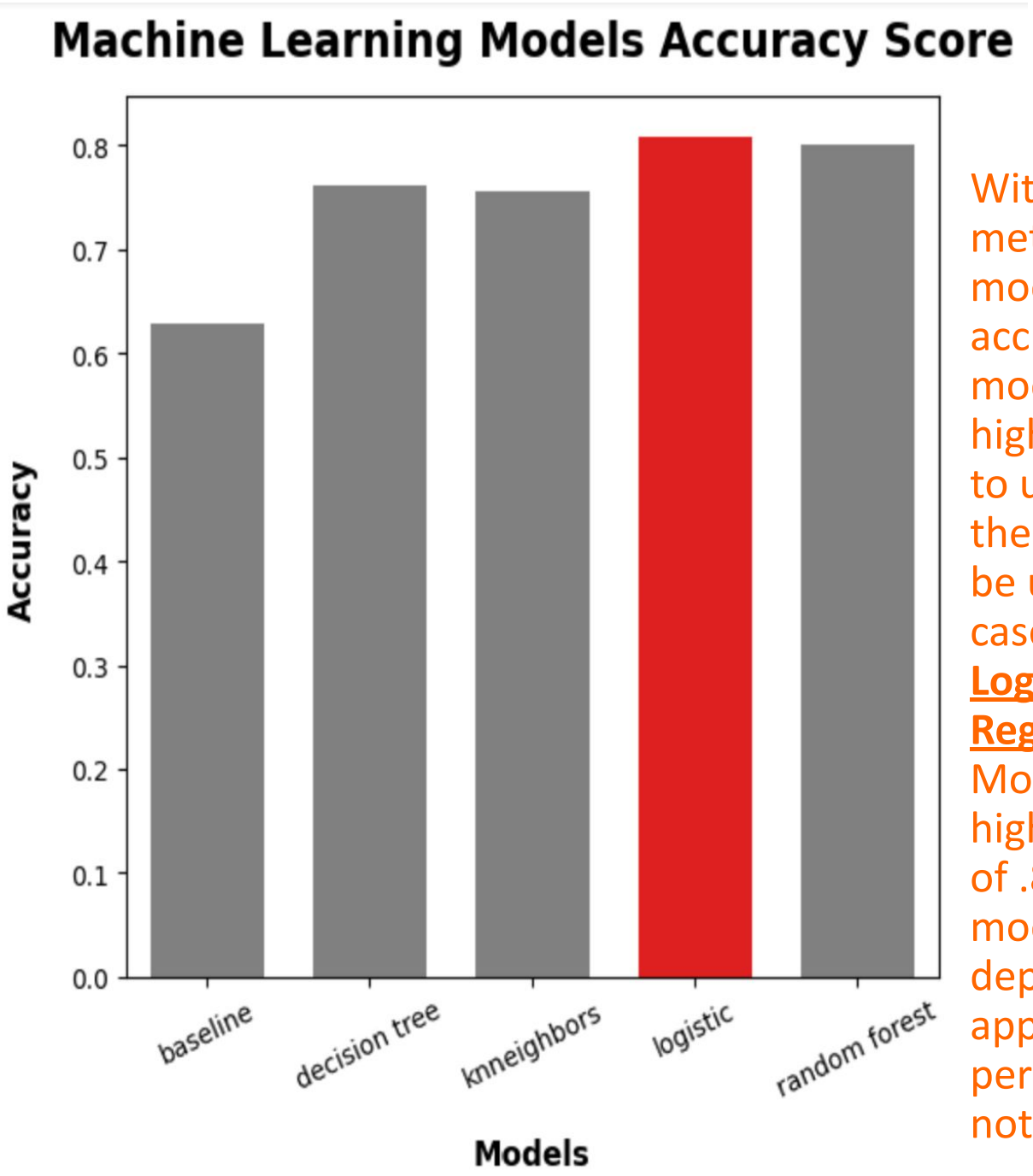
Final Model



With the main metric to this model being accuracy the model with the highest accuracy to unseen data is the one that will be used. In this case it is the **Logistic Regression** Model with the highest accuracy of .8073. This model has been deployed in an app that predicts persistency or not.

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Thank You