Classifying ENERGY STAR Eligibility:

NYC Apartment Buildings

Evelyn Johnson | Metis

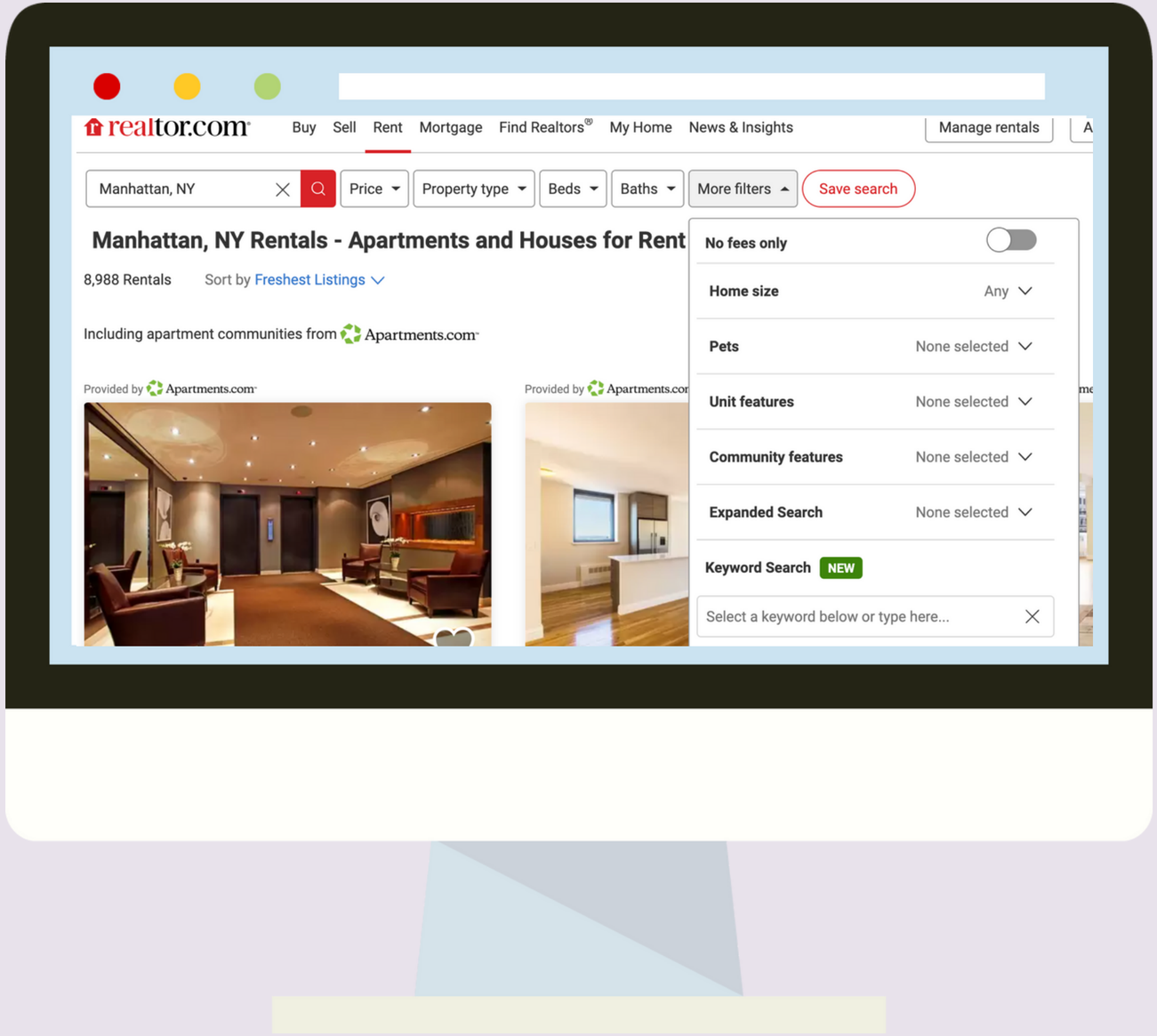
Percent of consumers willing to change purchasing habits to help reduce negative environmental impact:

According to IBM Survey Research

Real Estate: The Millennial Market

Homebuyers want and are willing to spend more on sustainable features to invest in healthy homes.

- ENERGY EFFICIENT APPLIANCES
- IMPROVED INSULATION
- LOW-EMITTANCE WINDOWS
- RENEWABLE ENERGY SUPPLY
- ENERGY STAR CERTIFICATION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Data

Energy and Water Data Disclosure for Local Law 84 2021, NYC OpenData

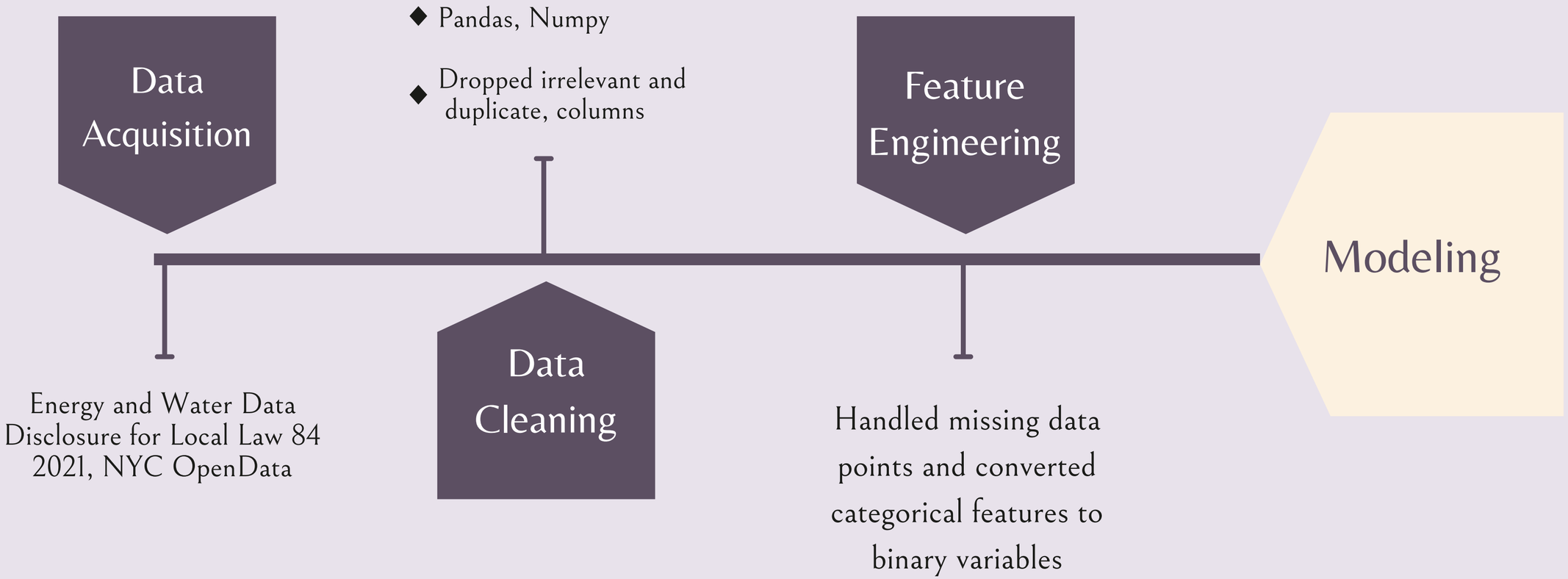
Target:

ENERGY STAR Certification - Eligibility

Features:

- Weather Normalized Source EUI
- Total GHG Emissions Intensity
- Number of Bedrooms Density
- Weather Normalized Site Natural Gas Intensity

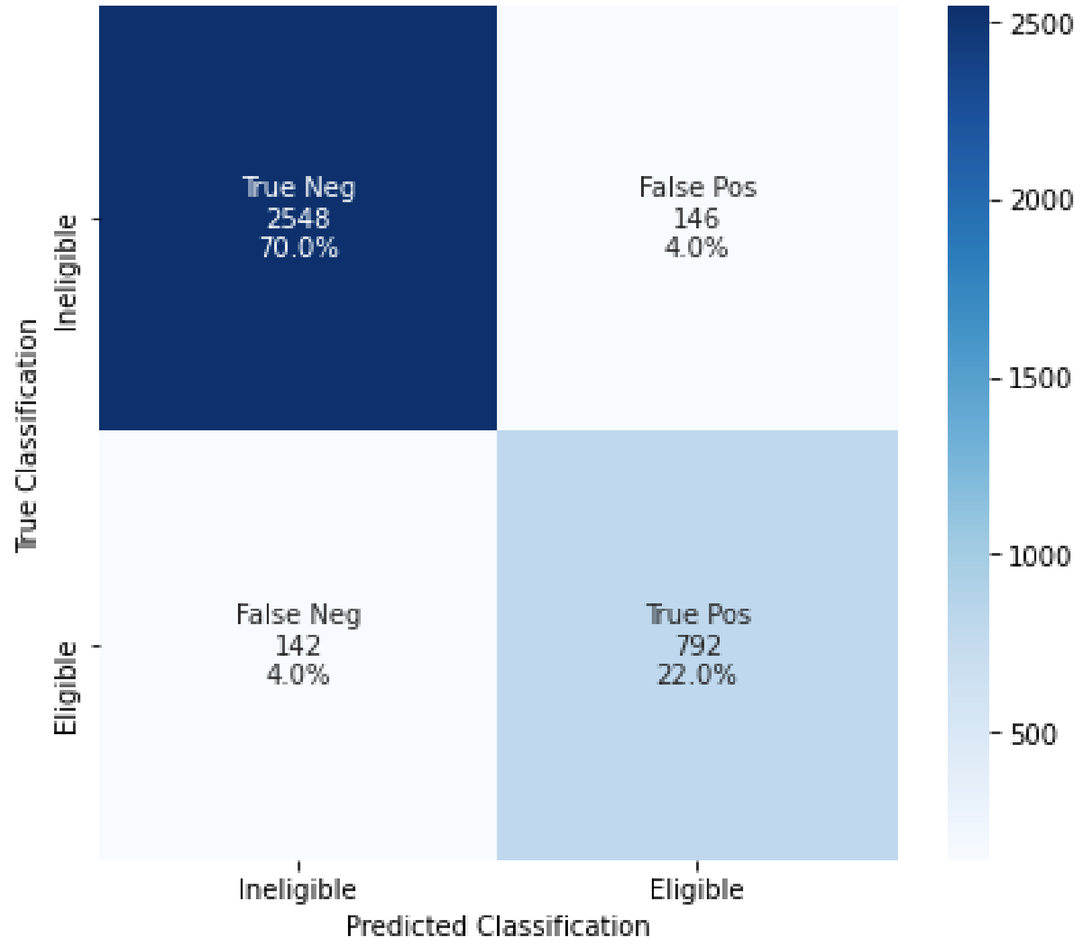
Methodology: Data Cleaning and Feature Engineering

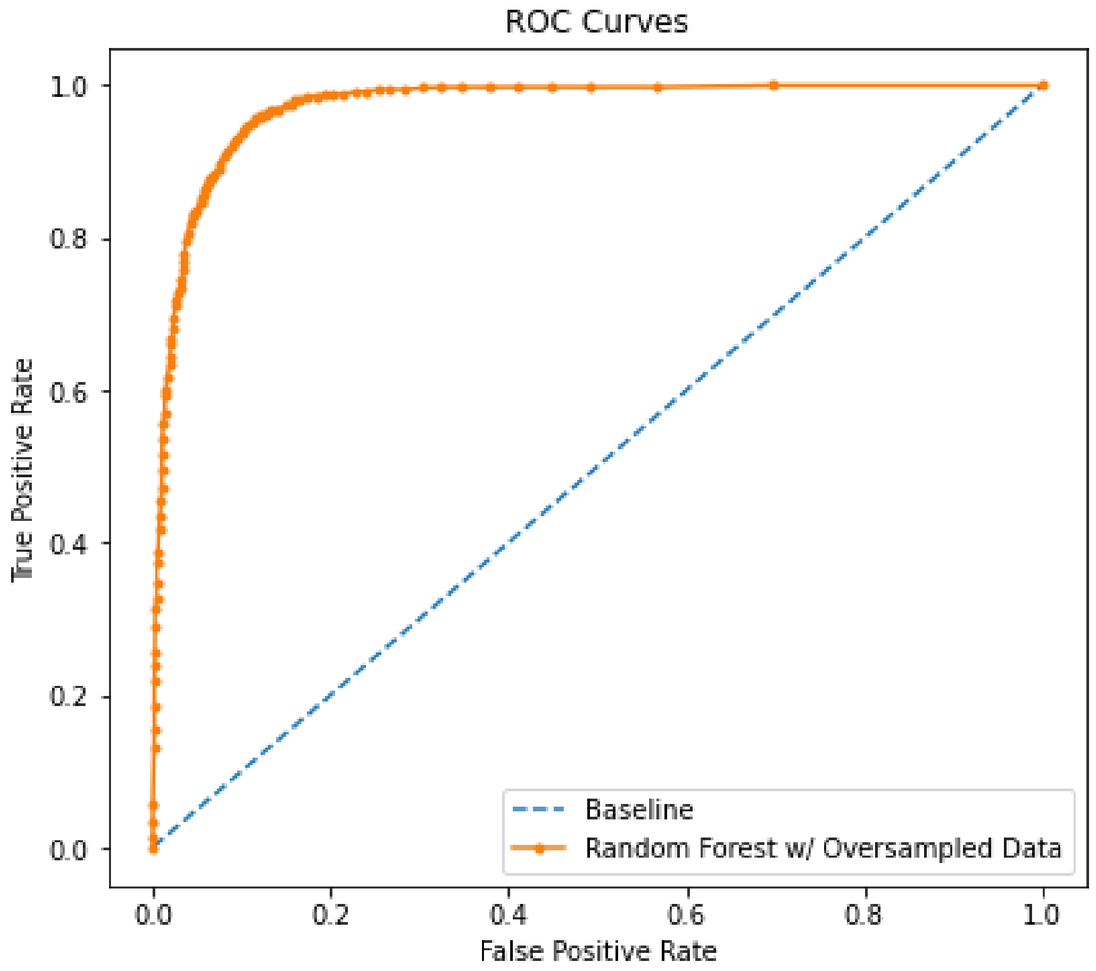


Classification Models

- LOGISTIC REGRESSION
- DECISION TREE CLASSIFIER
- RANDOM FOREST CLASSIFIER
- NAIVE BAYES

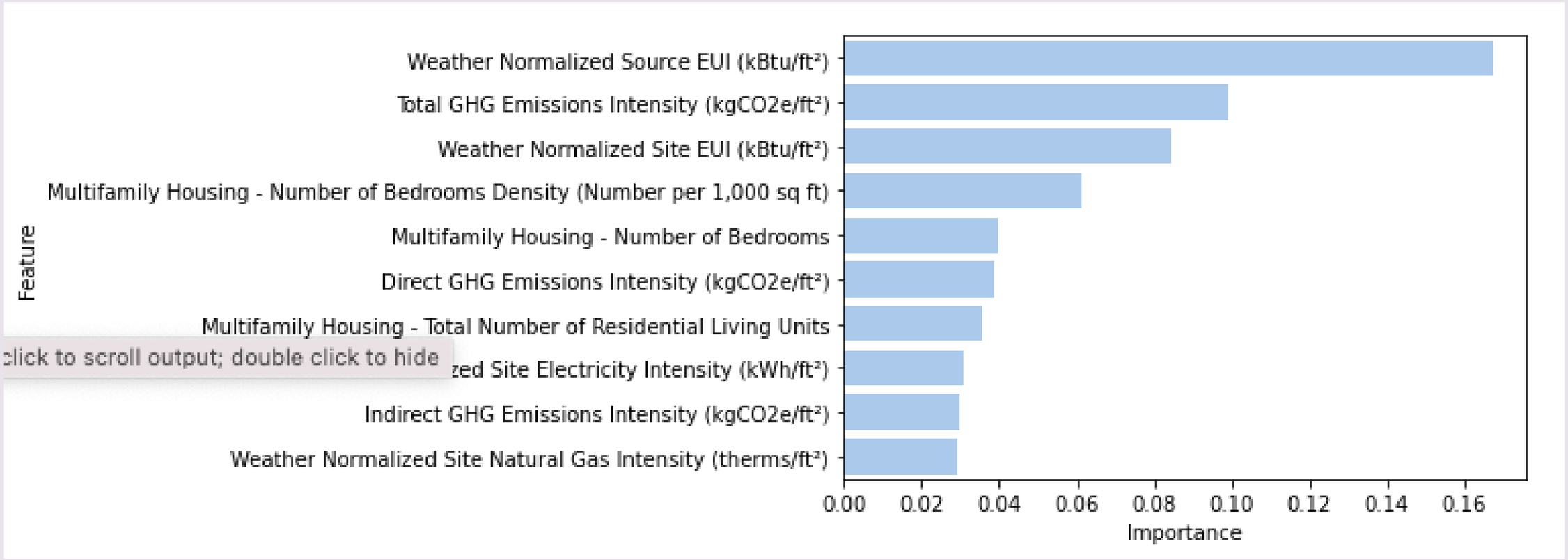
Random Forest with Oversampling





AUC ROC SCORE ON TEST DATA: 0.97

FEATURE IMPORTANCE



Future Work

- Try boosting and ensembling techniques
- Tune hyperparameters for models other than RF
- Add more categorical features

Thank you!