

# Predicting Food Deserts Using Census Tract Data

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# What Is A Food Desert?

- **USDA defines a food desert as an area where at least 33% of the population:**
  - **Lives farther than 1 mile from a grocery store in urban areas**
  - **Lives farther than 10 miles from a grocery store in rural areas**



# Why Predict Food Deserts?

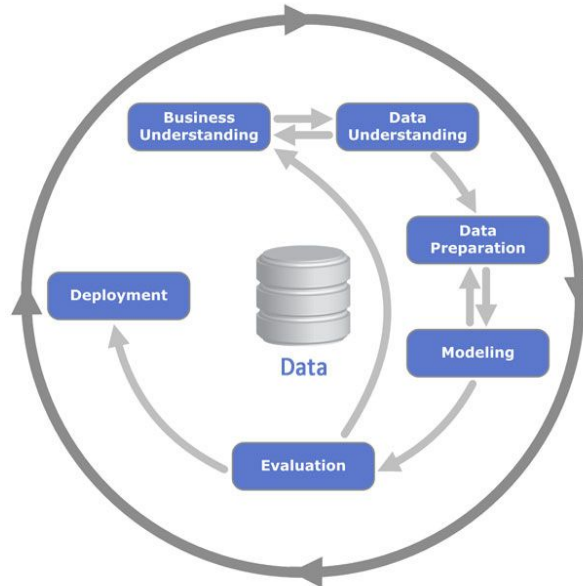
- Diabetes - world leader
- Obesity - world leader
- USDA last released a food desert locator in 2015
- Model to predict where food deserts are likely to occur
- Update the model as new socioeconomic data is brought to light
- HFFI



# Data

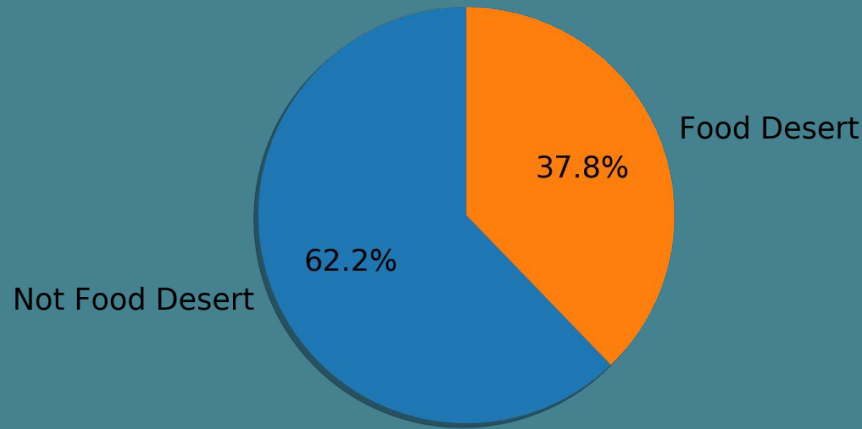
- ERS.USDA
- CENSUS
- Census Tracts
- 72,865 rows and 51 features

## CRISP-DM Process Diagram

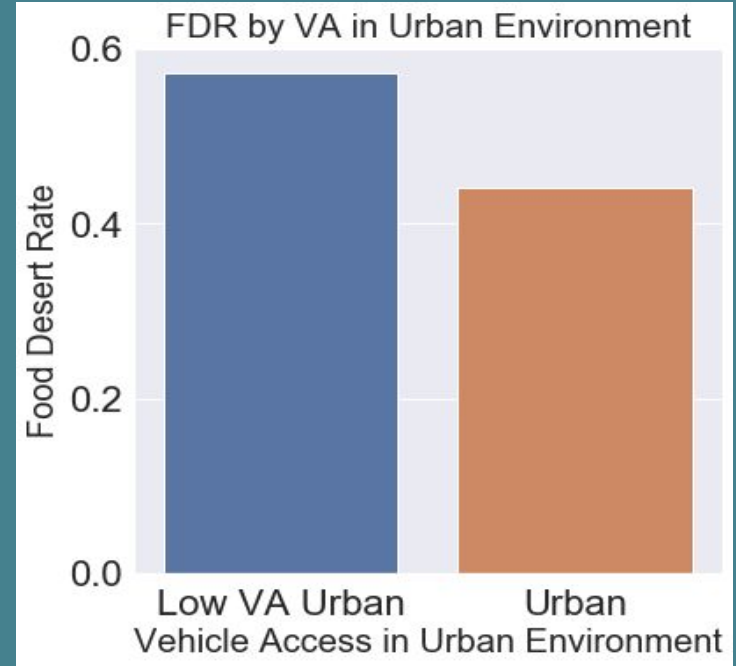


Source: Kenneth Jensen

# EDA / Feature Engineering



**Class Imbalance**



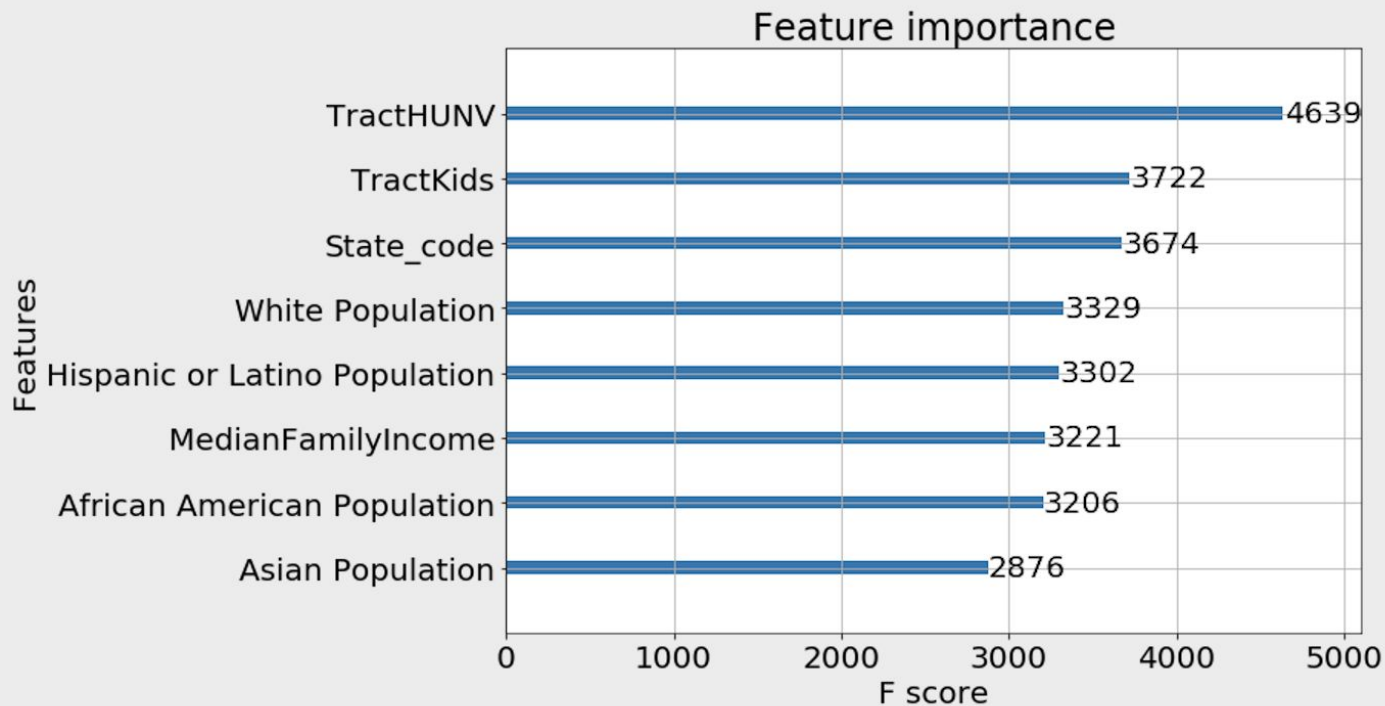
**P-Value of  $2.28 \times 10^{-163}$**   
**Test Statistic of 27.24**

# Modeling Selection



Model Type	Recall	F1 Score
Baseline Model	.40	.42
Decision Tree (TomekLinks)	.75	.68
Random Forest (TomekLinks)	.77	.70
XG Boost (SMOTEENN)	.80	.67

# Conclusions



# Next Steps

- Food Swamps





# Any Questions?



## Sources:

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<https://spoonuniversity.com/lifestyle/food-desert-obesity-rates>

<https://www.bluezones.com/2017/11/news-food-swamps-contribute-obesity-food-deserts/#:~:text=A%20food%20swamp%20is%20an,access%20to%20affordable%2C%20nutritious%20food>

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