Battling Food Waste in Retail-Stores

Predicting Retail-Stores Demand

Team JSS

Consumer behaviors are sometimes unexpected

- Demand for different items varies at different points in time.

- Various external factors affect the demand.

- Most of the wastage comes from the perishable food being not consumed on time.
- Demand Forecasting helps in optimizing the inventory for maximum utilization.
- Reduction in waste has monetary and environmental benefits.
- 170 million metric tons of CO_2 emissions - 42 coal powered plants !

Enhance Demand Planning is the best solution!

- Retail stores have the biggest influence on food demand connecting producers and suppliers to consumers.

Data from https://refed.org/

Methodology

- Dataset:
- Data Source: Store Demand Forecasting from Kaggle
- Data Size: 931,000 entries

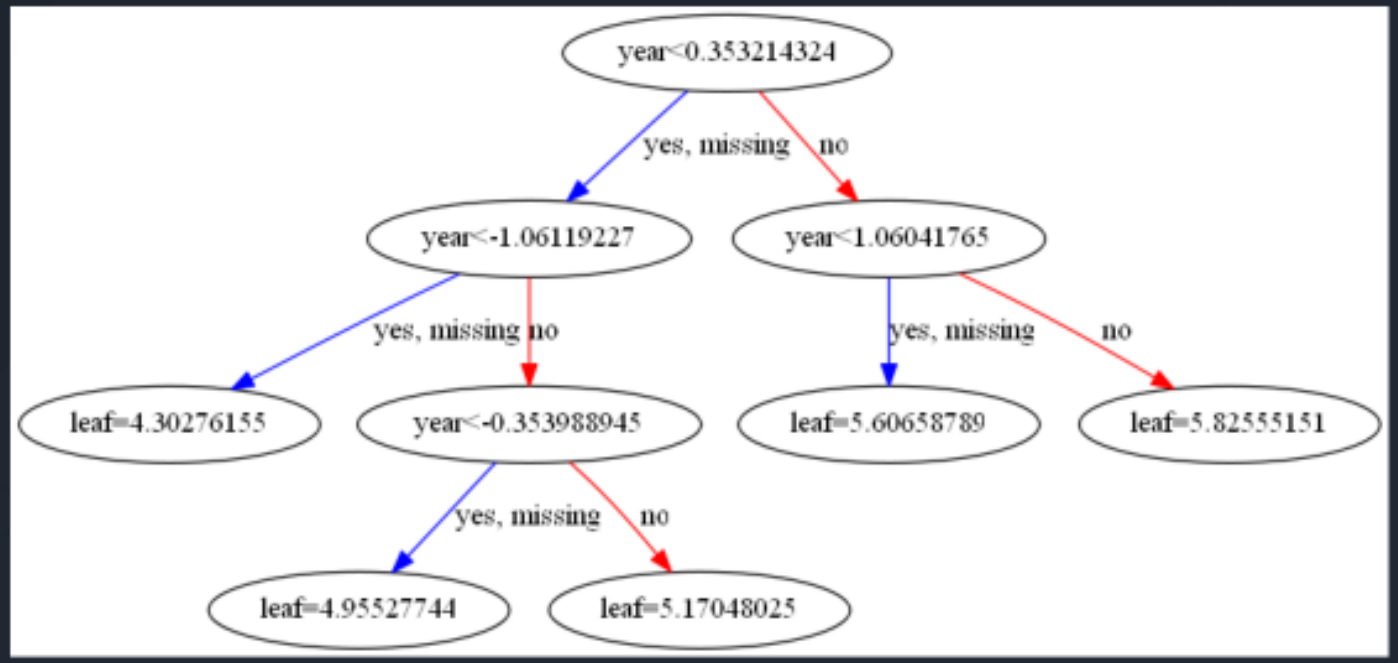
Methods:

- Visualization of test data
- Analyze possible trends
- Train test data to Xgboost model

XGboost RMSE: 8.35

Accuracy : 95%

Weekly avg and monthly avg are most important when it comes to predicting sales values.



Social Impact and Feasibility

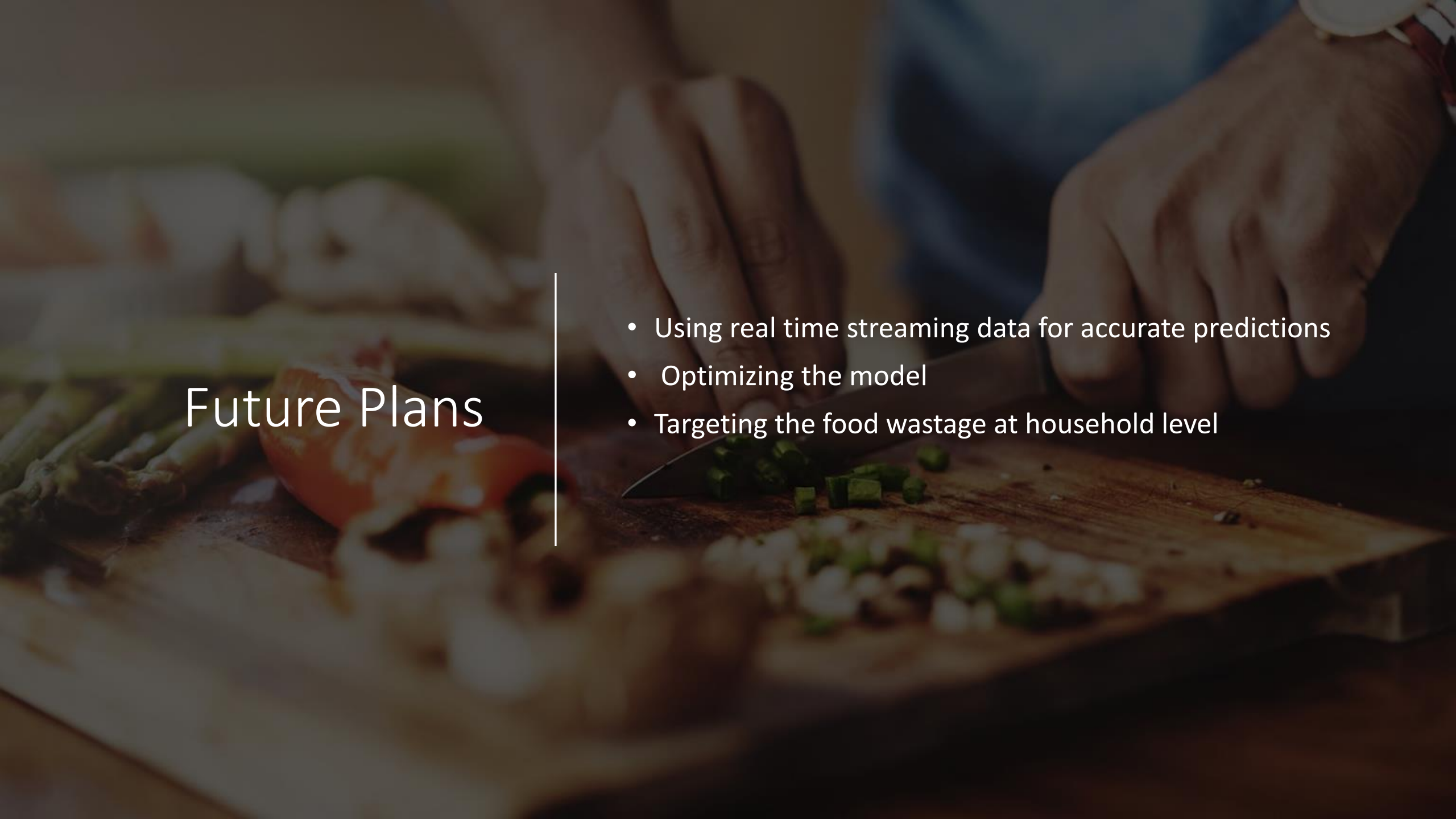
Financial benefits : Government, Retailers and Consumers

Food Security : Ensuring all people have access to food

Environmental Benefits

Stores have a lot of items but we target perishable food items as they are a major source of concern.

Currently a lot of stores do inventory management manually making them hard which is hard to manage and scale.



Future Plans

- Using real time streaming data for accurate predictions
- Optimizing the model
- Targeting the food wastage at household level

Thank You