Vaccination Model: Seasonal Flu Vaccination

Henry Van Gorp

OUTLINE

- Business Problem
- Data
- Modeling Process
- Results
- Conclusions

BUSINESS PROBLEM

- As COVID-19 continues to coincide with every day life, it is important to continue to educate about the positive effects of vaccinations. As the push for vaccinations continues, it is important to remind the public of the seasonal flu vaccine
- In an effort to push for higher vaccination rate for the seasonal flu vaccine, a local non-profit is looking to understand how people's backgrounds, opinions, and health behaviors are related to their personal vaccination patterns.
- This will provide the necessary guidance for public health efforts as flu season approaches.

DATA

- In late 2009 and early 2010, the United States conducted the NAtional 2009 H1N1 Flu Survey. This survey was conducted through the phone and asked respondents if they had received the H1N1 and seasonal flu vaccines.

- Respondents were asked personal questions about themselves as well as their opinions on the efficacy of the seasonal flu vaccine.

- Python and jupyter notebook were used to work with the data provided.

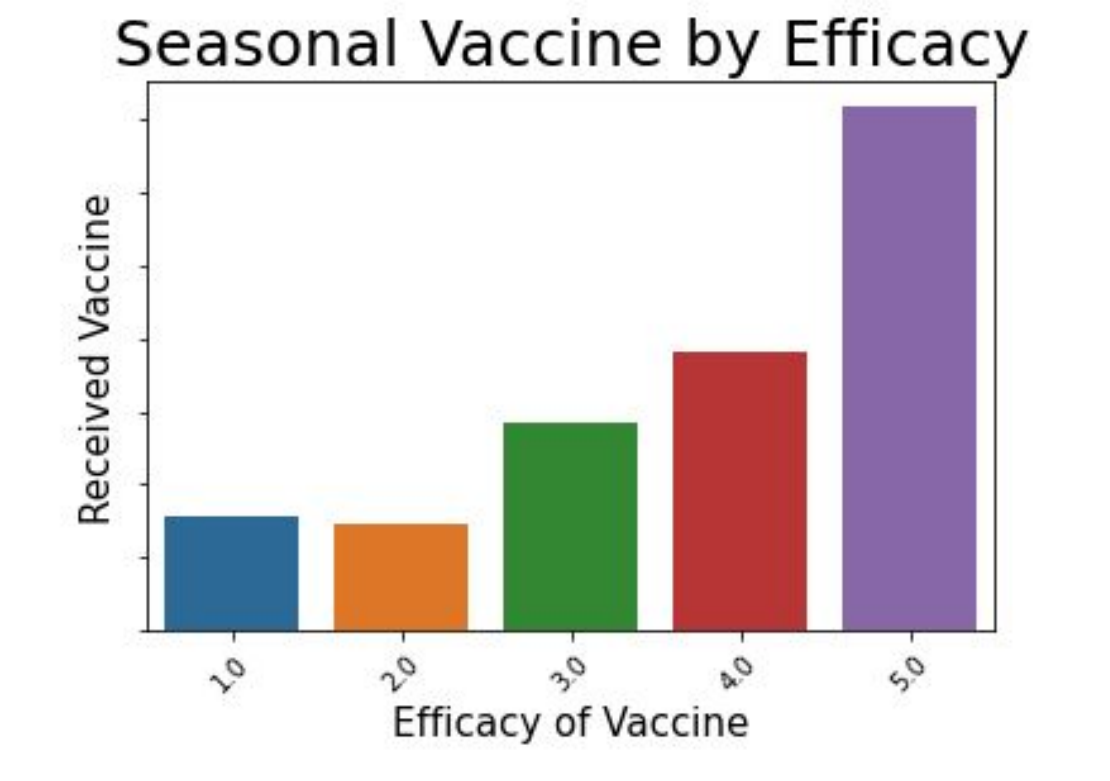
MODELING PROCESS

Four different models were created before choosing best one. Before the data was modeled it was cleaned, split, and scaled.

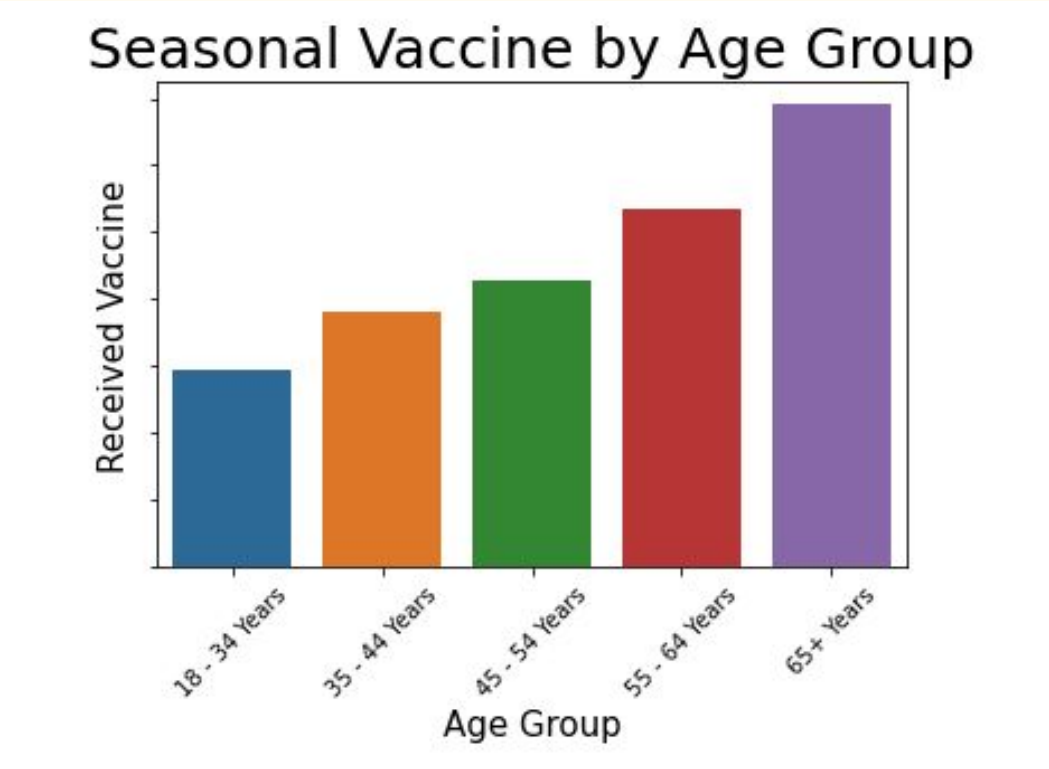
Model Types:

- Logistic Regression
- KNN
- Random Forest
- XG Boost

OPINION ON EFFICACY OF VACCINE



AGE GROUP BY VACCINE RECEIVED



CONCLUSION & NEXT STEPS

The model which is best fit for predicting if someone received the seasonal flu vaccine is the logistic regression model. It will accurately predict 78% of the time if someone received the seasonal flu vaccine.

After modeling and EDA, it is the suggestion to the stakeholder to target three specific demographics in education and awareness prior to the next flu season:

- Those who do not view the seasonal flu as a risk
- Those whose doctor does not recommend the vaccine
- Those who do not view the vaccine as effective
- Those who are in the age group of 18-34 years old

THANK YOU