Vaccine Prediction

H1N1

Vanessa Hu / Project 3

Healthcare Committees

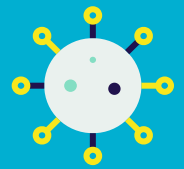
promote the awareness of upcoming Covid-19 vaccines

Who takes H1N1 vaccine ?

… and what are their reasons?

Data

- Data Source: DrivenData.org
- 2009 National H1N1 Flu Survey
- 26000+ people, 38 questions



	Score	Roc Auc
Logistic Regression	85%	81%
Naive Bayes	58%	67%
KNN	81%	76%
SVC	85%	80%
Random Forest	85%	79%
Ada Boost	85%	81%
Cat Boost	38%	86%

product

product

Shorter Survey

product

Shorter Survey

Interpretation

product

Shorter Survey

Interpretation

Fast Response

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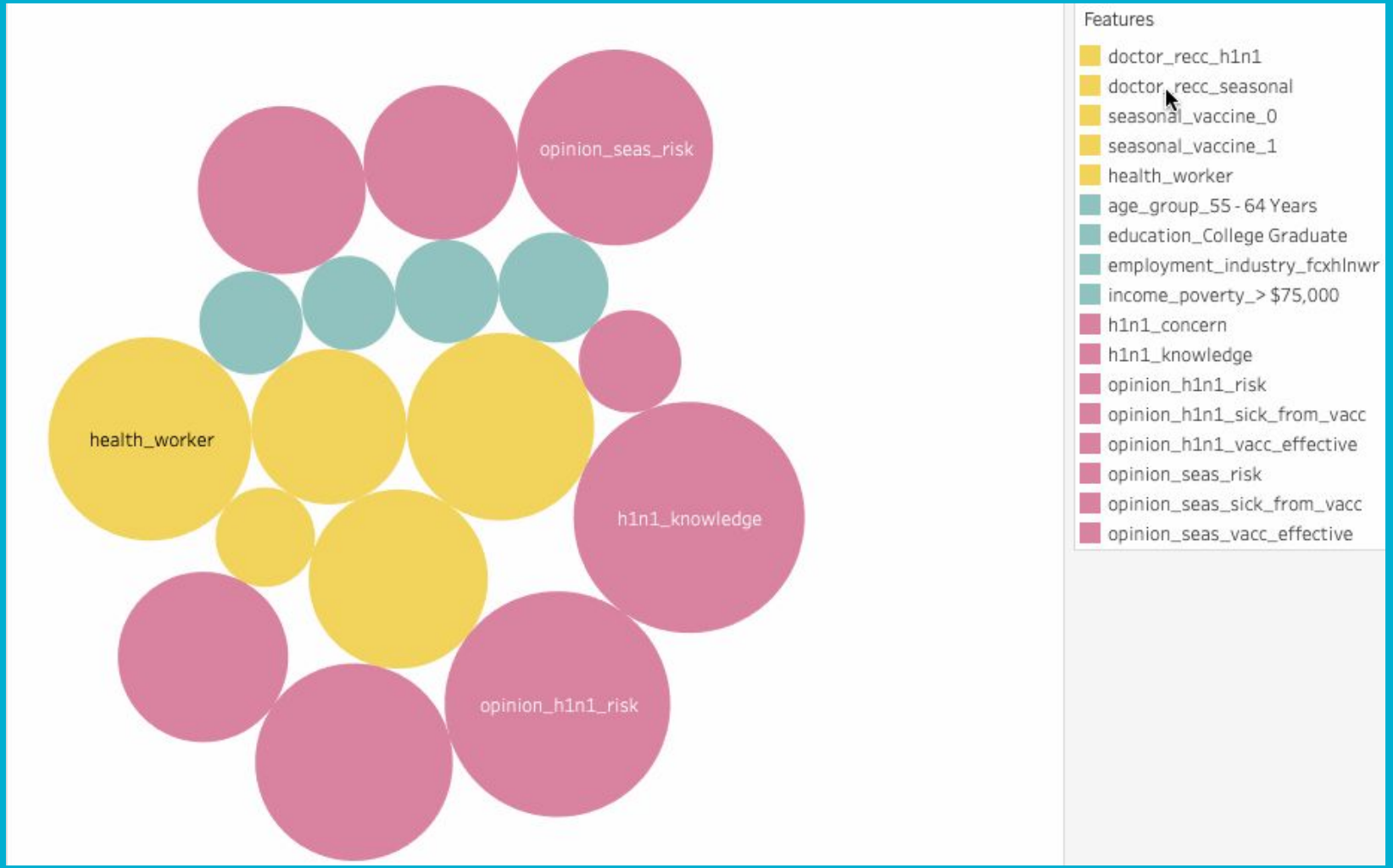

opinion_seas_risk
health_worker
h1n1_knowledge
opinion_h1n1_risk
Features
doctor_recc_h1n1
doctor_recc_seasonal
seasonal_vaccine_0
seasonal_vaccine_1
health_worker
age_group_55 - 64 Years
education_College Graduate
employment_industry_fcxhlnwr
income_poverty_> $75,000
h1n1_concern
h1n1_knowledge
opinion_h1n1_risk
opinion_h1n1_sick_from_vacc
opinion_h1n1_vacc_effective
opinion_seas_risk
opinion_seas_sick_from_vacc
opinion_seas_vacc_effective

Demographics

Age: 55 - 64 yrs old
Income: > $75K
Education: College +

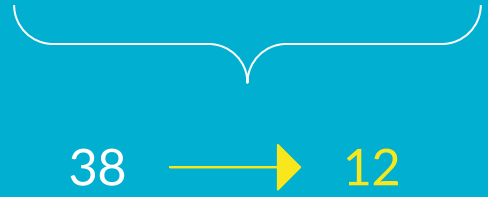
Healthcare

Doctor Recommendation
Took Seasonal Flu Vaccine or not
Whether a Health Worker or not

Opinions

Knowledge and Concern
Virus and Vaccine Risk
Vaccine Effectiveness
Sick from Vaccine

Demographics Healthcare Opinions



Logistic Regression

	precision	recall	f1-score	support
0	0.87	0.94	0.90	1561
1	0.81	0.66	0.72	641
accuracy			0.85	2202

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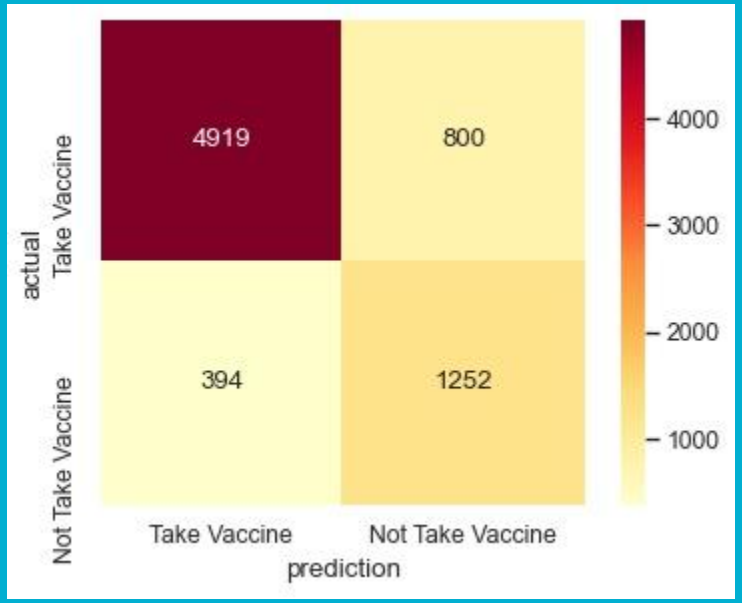
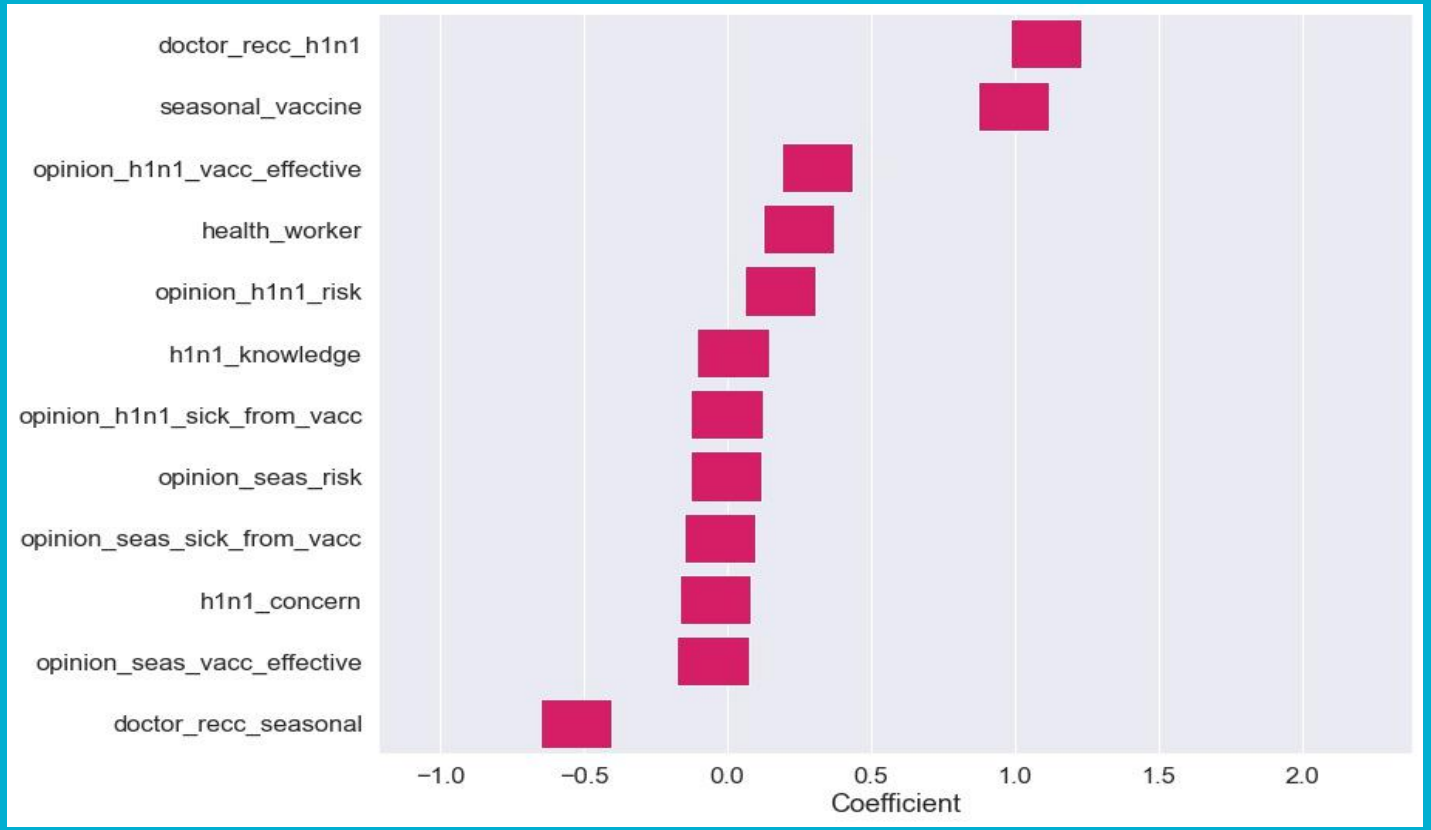
roc auc score: 88.11

Train Score: 84.43% Test Score: 85.25%

Confusion Matrix

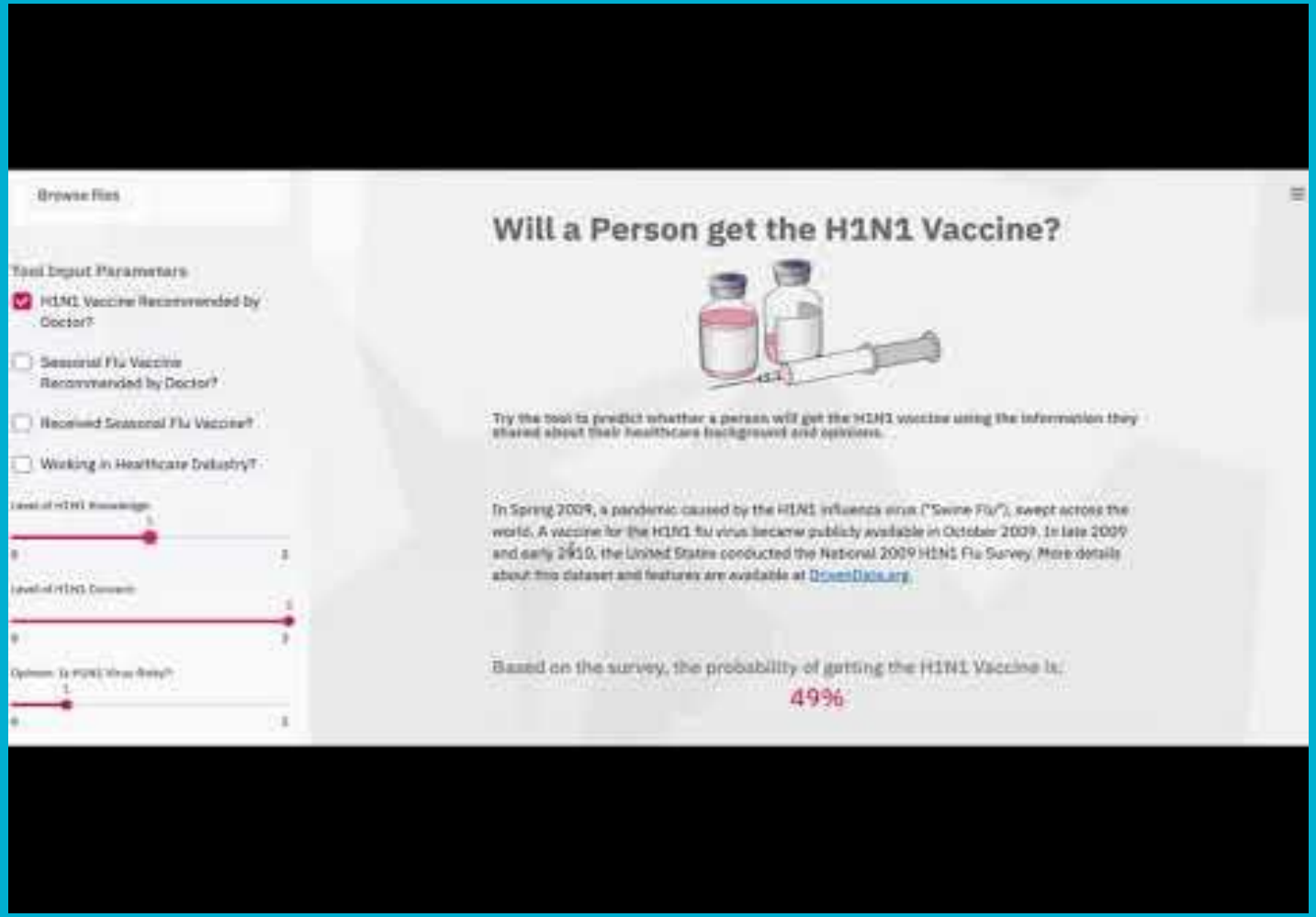


Coefficient



Future Work

- Predicting Season Flu Vaccine - could be an important proxy
- Geo data is encrypted - more demographics data to explore
- A/B Testing - Tool Design and Feedback Loop


Browse files
Tool Input Parameters
H1N1 Vaccine Recommended by Doctor?
Seasonal Flu Vaccine Recommended by Doctor?
Received Seasonal Flu Vaccine?
Working in Healthcare Industry?
Will a Person get the H1N1 Vaccine?
Try the tool to predict whether a person will get the H1N1 vaccine using the information they shared about their healthcare background and opinions.
In Spring 2009, a pandemic caused by the H1N1 influenza virus ("Swine Flu"), swept across the world. A vaccine for the H1N1 flu virus became publicly available in October 2009. In late 2009 and early 2010, the United States conducted the National 2009 H1N1 Flu Survey. More details about this dataset and features are available at DrivenData.org.
Based on the survey, the probability of getting the H1N1 Vaccine is:
49%

Thanks

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