PREDICTIVE ANALYSIS

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Phase 3 Project

Overview

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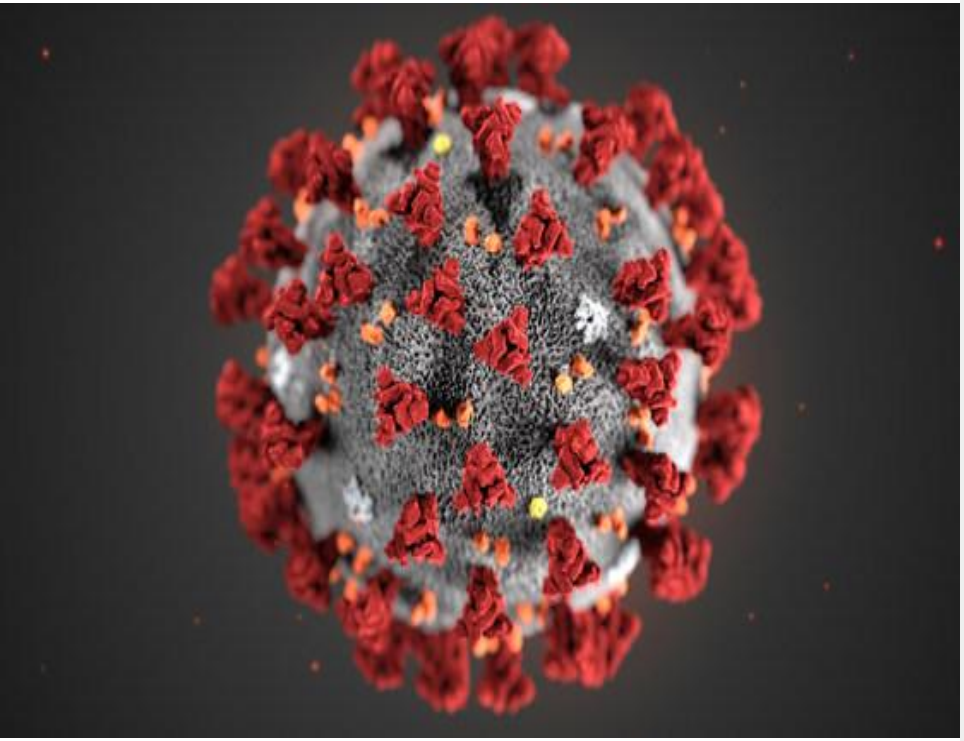
- ❏ Business Understanding
- ❏ Project Goal
- ❏ Data and Methods
- ❏ Results
- ❏ Conclusion

The problem Statement



Vaccine hesitancy is a delay in acceptance, or refusal of vaccines despite the availability of vaccine services. “WHO”

It has led to:

- Setbacks in managing outbreaks and pandemics.
- Increased Hospitalizations, high mortality rates

Business Understanding

The Centre for Disease Control and Prevention (CDC) is looking for predictions on uptake of H1N1 vaccine by USA citizens.

With the aim of developing a strategic framework to strengthen vaccine confidence in order to prevent outbreaks of vaccine-preventable diseases in the United States.

Project Goal

Who needs the vaccine?

Predict vaccinated and unvaccinated individuals based on their socio-economic status, backgrounds, opinions on the H1N1 vaccine.

Data & Methods

Data for this project is courtesy of National Centre for Health Statistics.

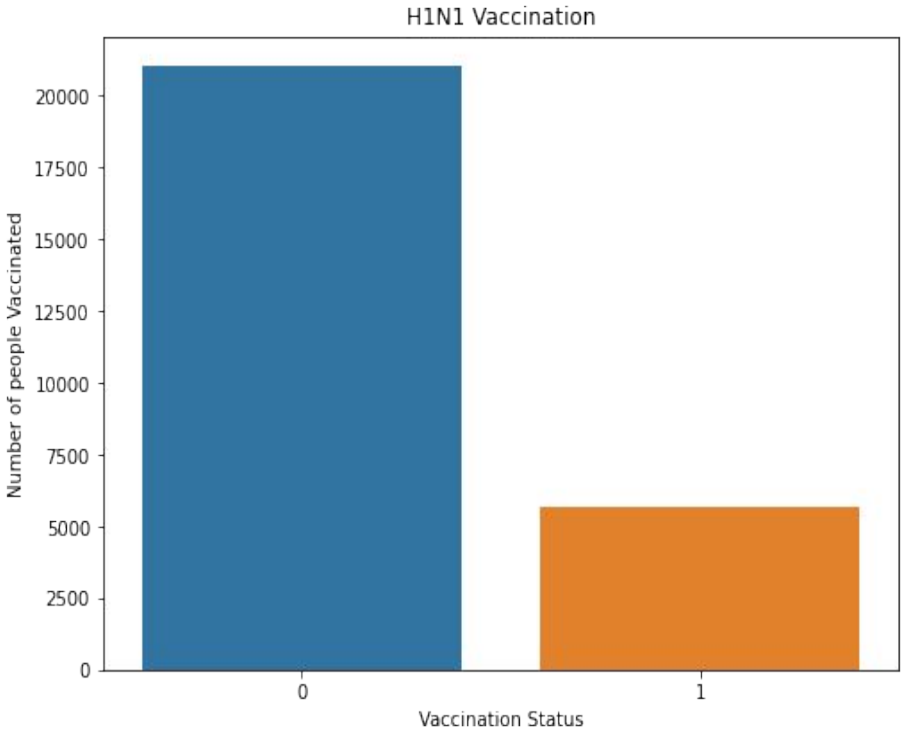
The data was collected by National 2009 H1N1 Flu Survey (NHFS) between October 2009 and June 2009.

It conducted a list-assisted random-digit-dialing telephone survey of households, designed to monitor influenza immunization coverage in the 2009-10 season.

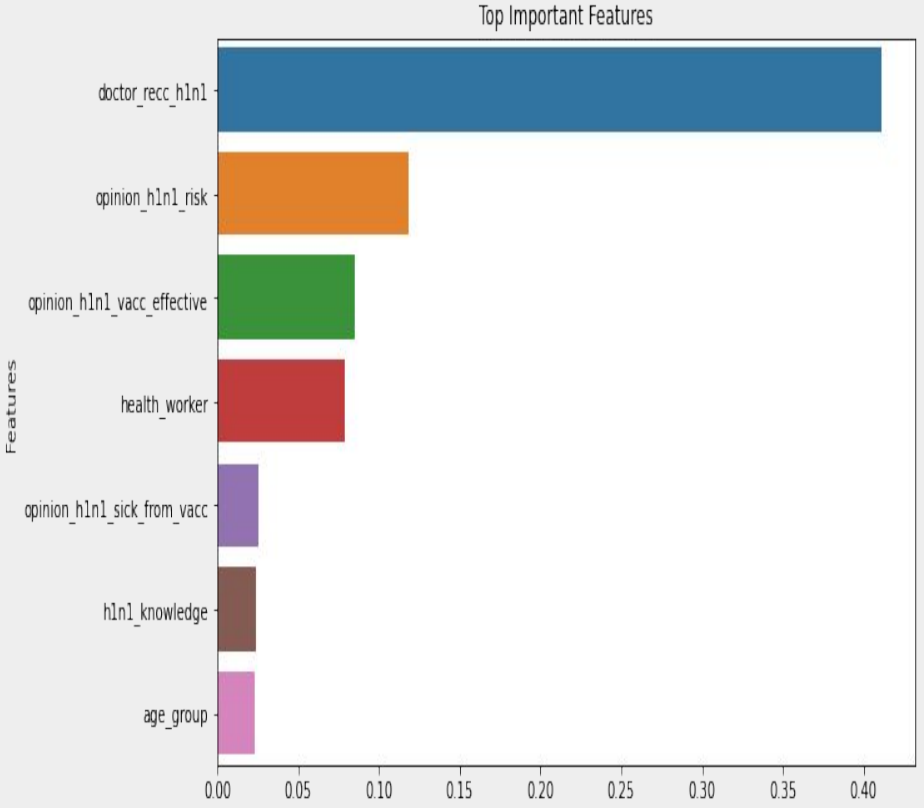
Data has over 26000 records with columns containing responses to survey questions.

Results

H1N1 vaccination distribution poor vaccine uptake

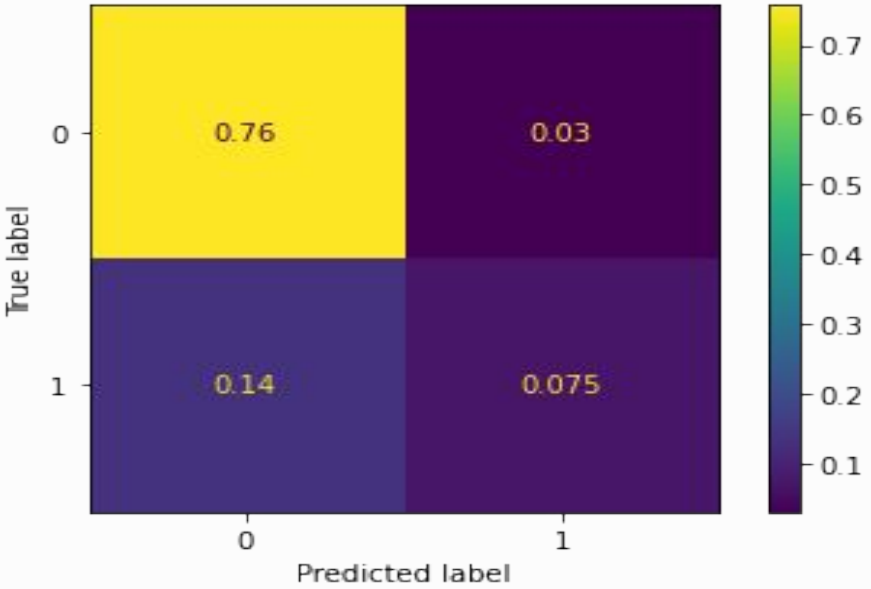


Important Features



Final Model

Accuracy 83.66%
Precision 71.6%



RandomForestClassifier()

The model correctly predicts 83.3% of the data points as vaccinated or not vaccinated.

Conclusion

Recommendations

To achieve high vaccine acceptance:

- Encourage doctors to recommend vaccines to the general public.
- Health education - H1N1 and vaccine effectiveness
- Collection of current data

Thank you.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