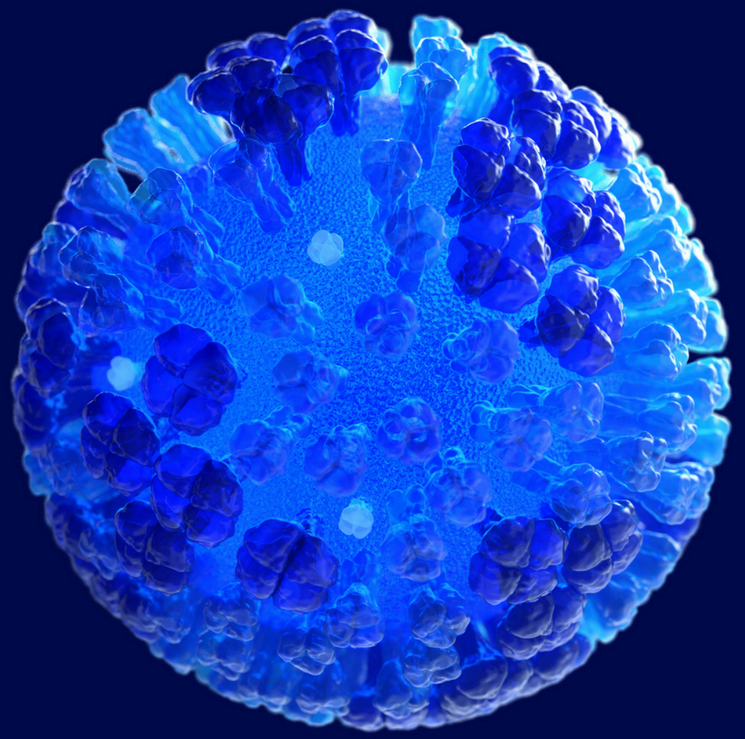
H1N1 and Seasonal Vaccination Uptake Presentation

A MACHINE LEARNING PROJECT

Introduction

- In June 2009, **Influenza** was declared a **global pandemic** by the World Health Organization (WHO).
- Respiratory complications caused by the virus resulted to about **284, 500 deaths** globally.
- This was approximately **0.007% of the global population** at the time.
- As a prevention measure the **H1N1** and **seasonal flu vaccines** were developed and availed to the public.



PUBLIC HEALTH

Problem Statement

The goal of this project is to guide future planning of vaccination measures in the event of a global pandemic by providing predicted uptake rates for these two vaccines, using data collected from the National 2009 H1N1 Flu Survey.

Objectives:

Potential targets of this project are whether the respondent received:

- The **H1N1 flu vaccine**, or
- The **seasonal flu** vaccine.

Modeling tools:

The machine learning algorithms used to solve this problem are:

- **Logistic Regression**
- **Decision Tree**

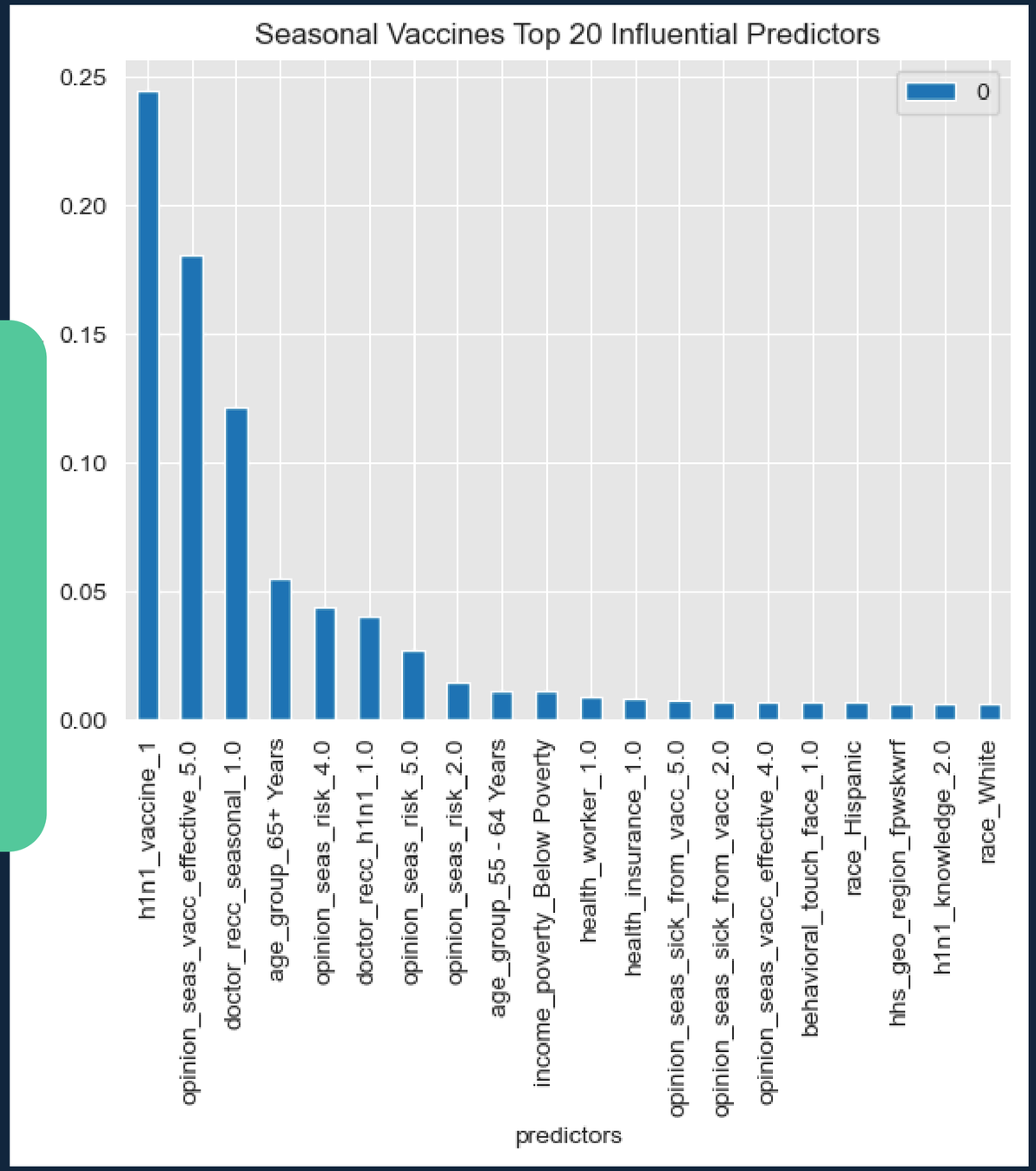
PUBLIC HEALTH

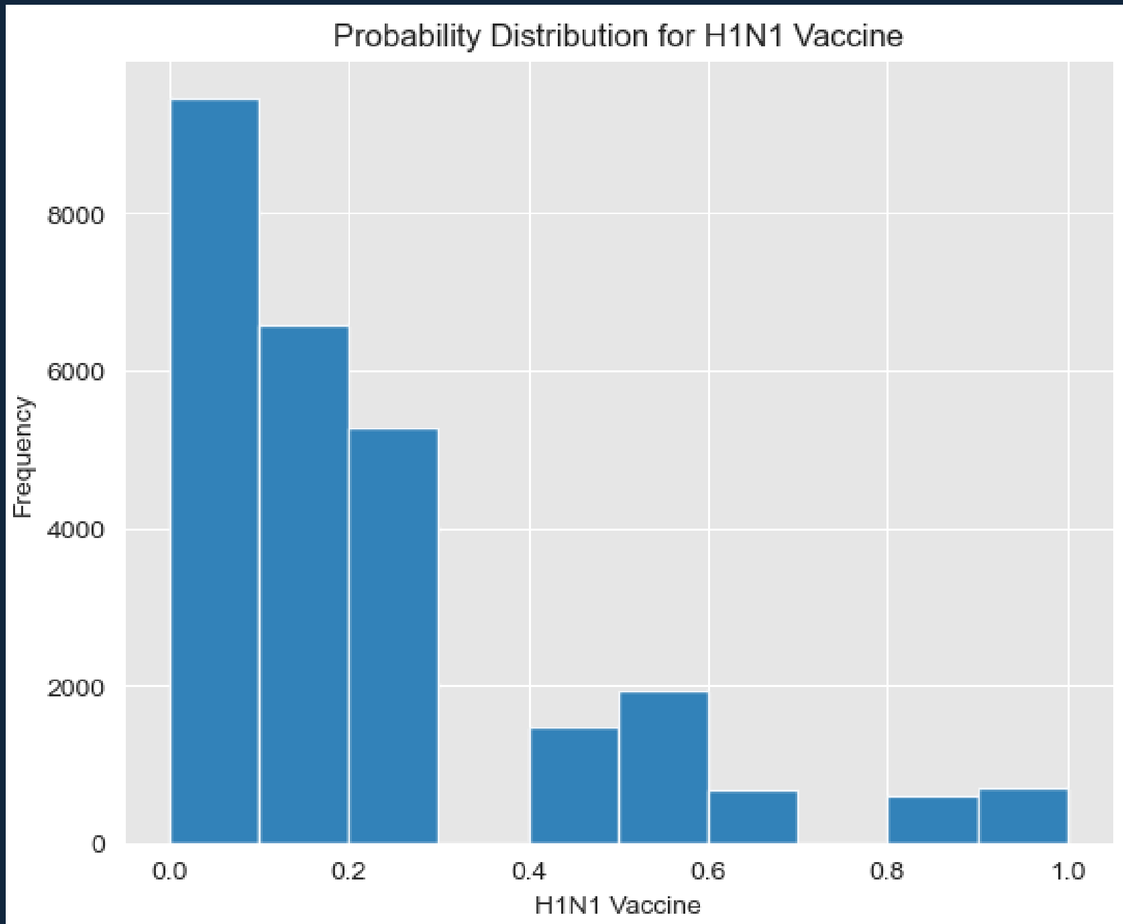
Findings

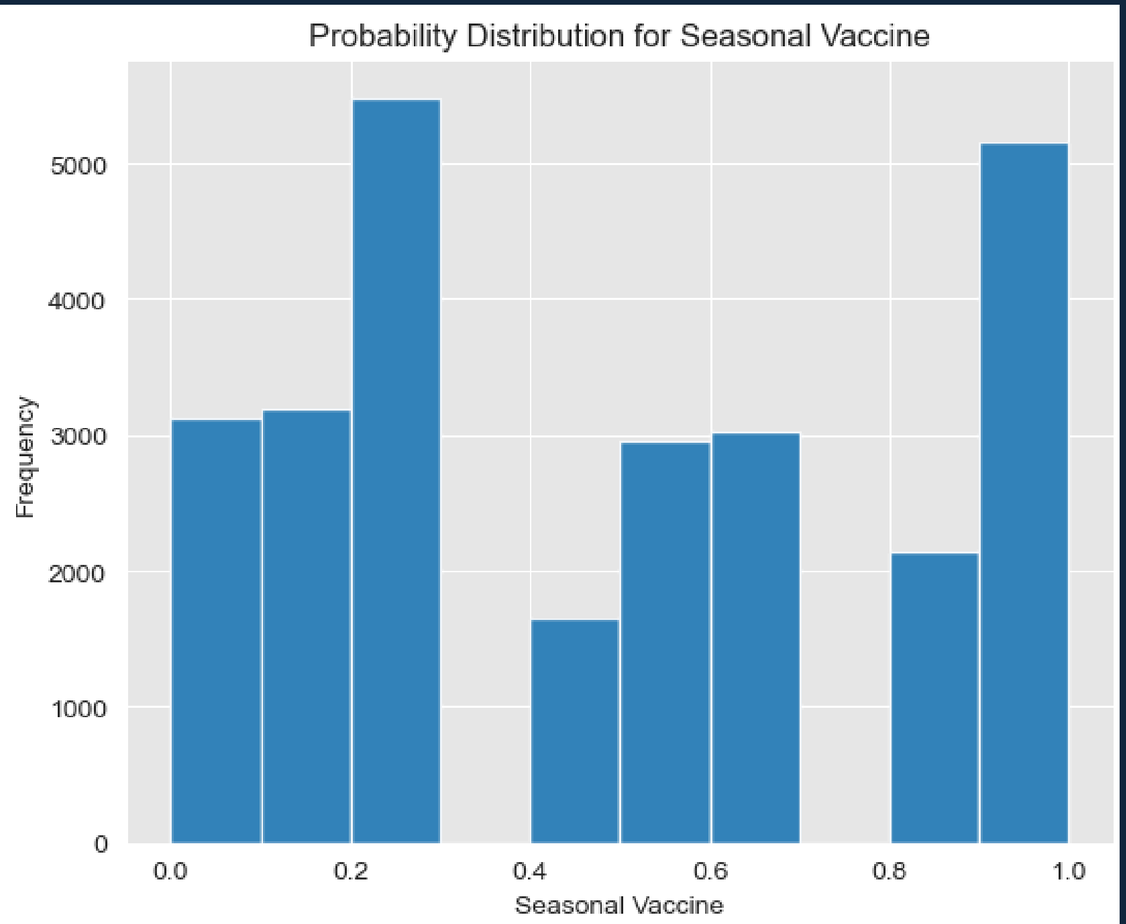
1

H1N1 vaccine administration and the respondent’s opinion on the effectiveness of the H1N1 vaccine were the most influential predictors of whether a person received the seasonal flu vaccine.

This was closely followed by doctors' recommendations on the seasonal flu vaccine, the respondent’s age group, and the respondent’s concerns about the risks associated with taking the seasonal flu vaccine.







2

Both distributions have gaps, which indicate the presence of different instances in different classes of the predictors.

The distribution of the H1N1 vaccine is more negatively skewed, while the distribution of the seasonal vaccine, on the other hand, is multimodal.

PUBLIC HEALTH

3

On average, the predicted probability of receiving the H1N1 vaccine is 0.1932, while the probability of receiving the seasonal flu vaccine is 0.47704.

The average vaccination uptake for both vaccines is very low, at 0.3351.

Conclusion and Recommendations

Vaccine access

Improve access to the vaccines, including their distribution.

Medical facilities and equipment

Ensure close accessibility to facilities for vaccine administration, such as hospitals, dispensaries, medical equipment, etc.

Education

Providing education programs is crucial for a better understanding of the benefits of the vaccines.

Get in touch

Ms. Awuor J. Owuor
Economist/Data Scientist
joanawuoroct18@gmail.com