

# FORECAST INDIVIDUALS' H1N1 AND SEASONAL FLU VACCINE UPTAKE.

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# TABLE OF CONTENTS

- Overview
- Problem Statement
- Proposed Solution
  - Which model best predicts likelihood of H1N1 vaccine being taken?
  - Which key factors should be emphasized on when promoting vaccination?
- Conclusion

# OVERVIEW

Seasonal flu and H1N1 flu are respiratory infections caused by influenza viruses.

The H1N1 flu was a pandemic in 2009, causing numerous deaths. It is now part of the seasonal flu. Influenza vaccines protect against common flu viruses.

CDC recommends vaccination for everyone aged 6 months and older.

The suitability of a vaccine depends on factors like age, health, and allergies.

Three flu vaccines are recommended for those aged 65 and older.



# PROBLEM STATEMENT

Given the rapid spread and associated health risks of viral diseases like H1N1 and seasonal flu, it is crucial to create a model to identify individuals likely to get vaccinated.

The 2009 H1N1 pandemic resulted in over 284,000 global deaths and was declared a pandemic by the World Health Organization.

While H1N1 now resembles seasonal flu, identifying vaccine candidates is vital to increase vaccination rates and curb flu transmission.

This model will enable targeted interventions, efficient resource allocation, and tailored information campaigns, ensuring high-risk individuals and those in contact with vulnerable populations receive vaccinations.

The urgency lies in leveraging data-driven insights to improve public health and reduce mortality rates from these viral infections.



# PROPOSED SOLUTION

Develop data-driven predictive models for identifying likely H1N1 and seasonal flu vaccine recipients using demographics and vaccination history.

Integrate data from multiple sources, personalize information campaigns, allocate resources strategically, monitor real-time trends, collaborate with healthcare providers and community organizations, and maintain an evaluation feedback loop for improving prediction accuracy and vaccination rates.



# WHICH MODEL BEST PREDICTS LIKELIHOOD OF H1N1 VACCINE BEING TAKEN?

The Logistic Regression model performs well as compared to the two other models, (DecisionTreeClassifier and KNN Classifier), in predicting vaccine uptake with high accuracy.

However, it can be further enhanced by improving precision and recall.

Access to additional features like location and employment which were encoded for data privacy reasons could boost its performance, making it a strong candidate for deployment.



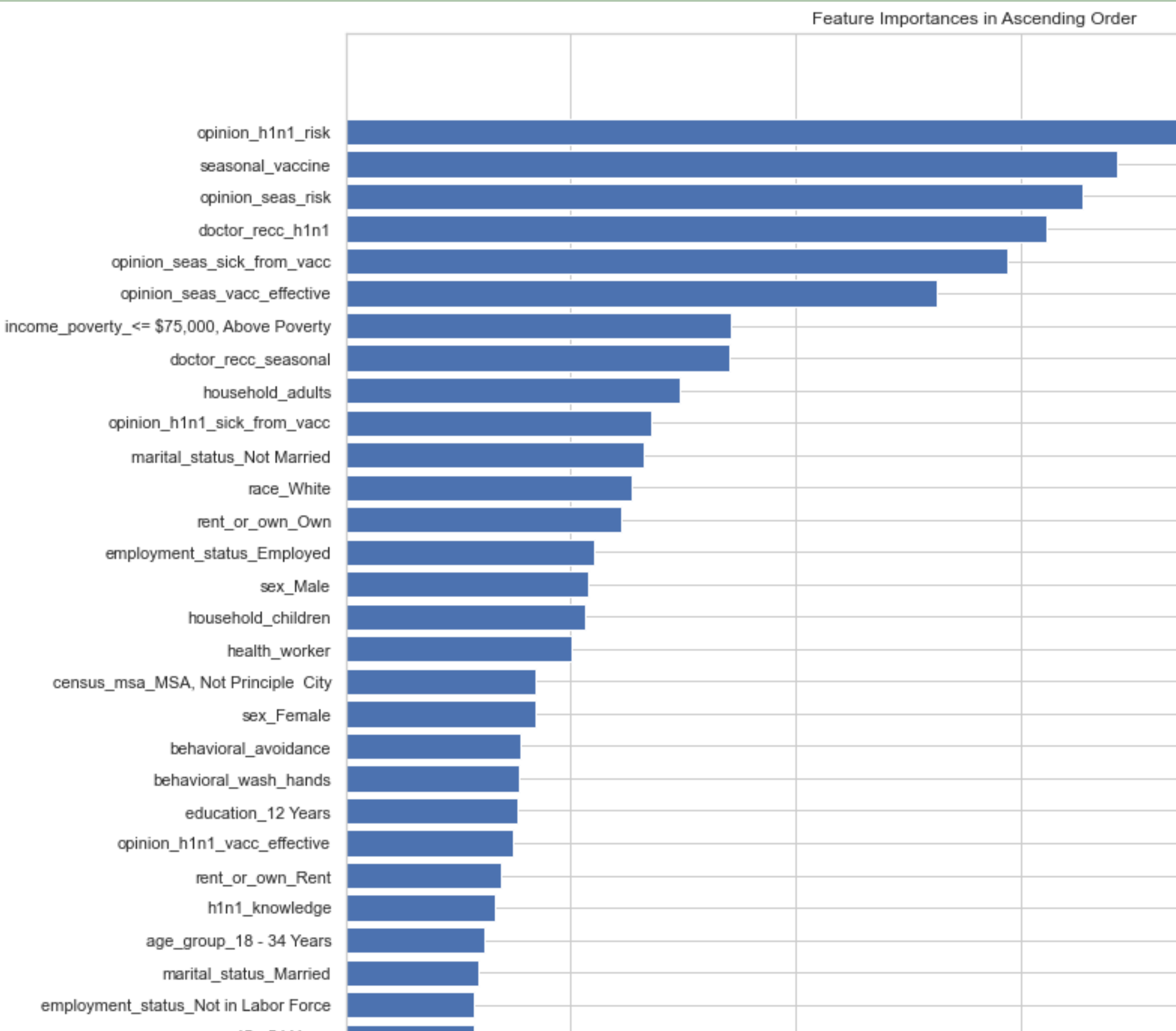
# WHICH KEY FACTORS SHOULD BE EMPHASIZED ON WHEN PROMOTING VACCINATION?

The most crucial feature, 'opinion\_h1n1\_risk,' highlights the significance of people's perception of H1N1 virus risk in vaccination decisions. 'Seasonal\_vaccine' follows, indicating a link between prior seasonal flu vaccination and H1N1 vaccine uptake.

'Opinion\_seas\_risk' also plays a vital role.

'Doctor\_recc\_h1n1' and opinions on seasonal flu vaccine effectiveness and side effects matter.

Socioeconomic factors and demographics are influential, while being a health worker is less critical.





# CONCLUSION

Logistic regression model displays promise in predicting vaccine uptake with considerations for improving precision and recall while socioeconomic and demographic factors play significant roles.

THANK YOU