

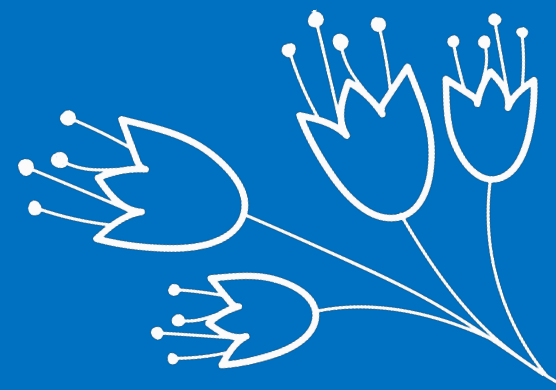
Predicting vaccination rate

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About the data

- ✓ **Provided by Drivendata**
- ✓ **Variables**
 - **Behavioral**
 - **Economic/Social status**
 - **Medical history**
- ✓ **Irrelevant variables**





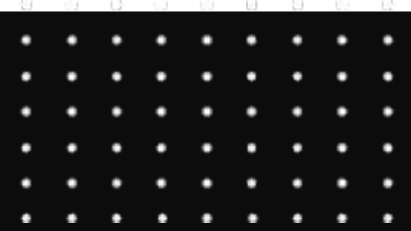
Accuracy of each model



<i>Model</i>	<i>Avg. Accuracy</i>
Logistic	0.81
KNN	0.77
Decision Tree	0.78



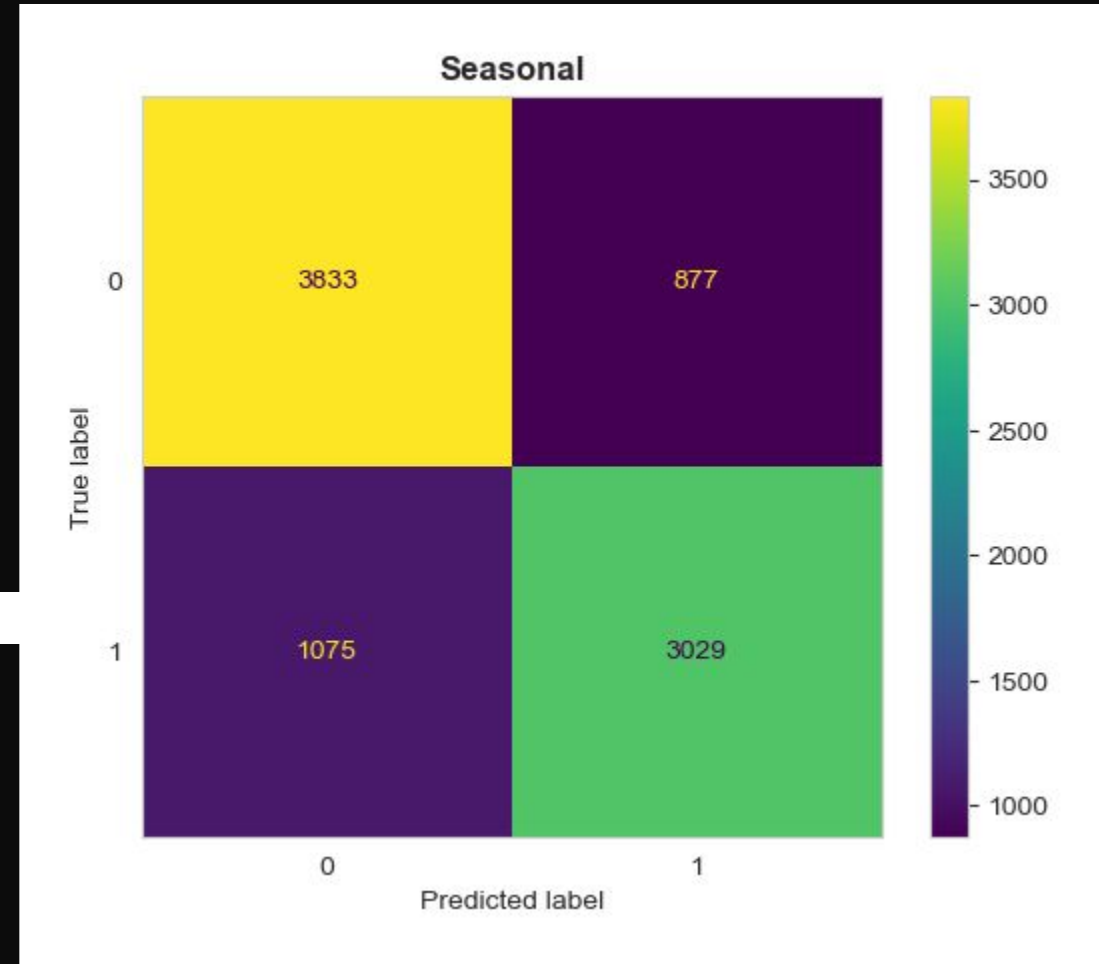
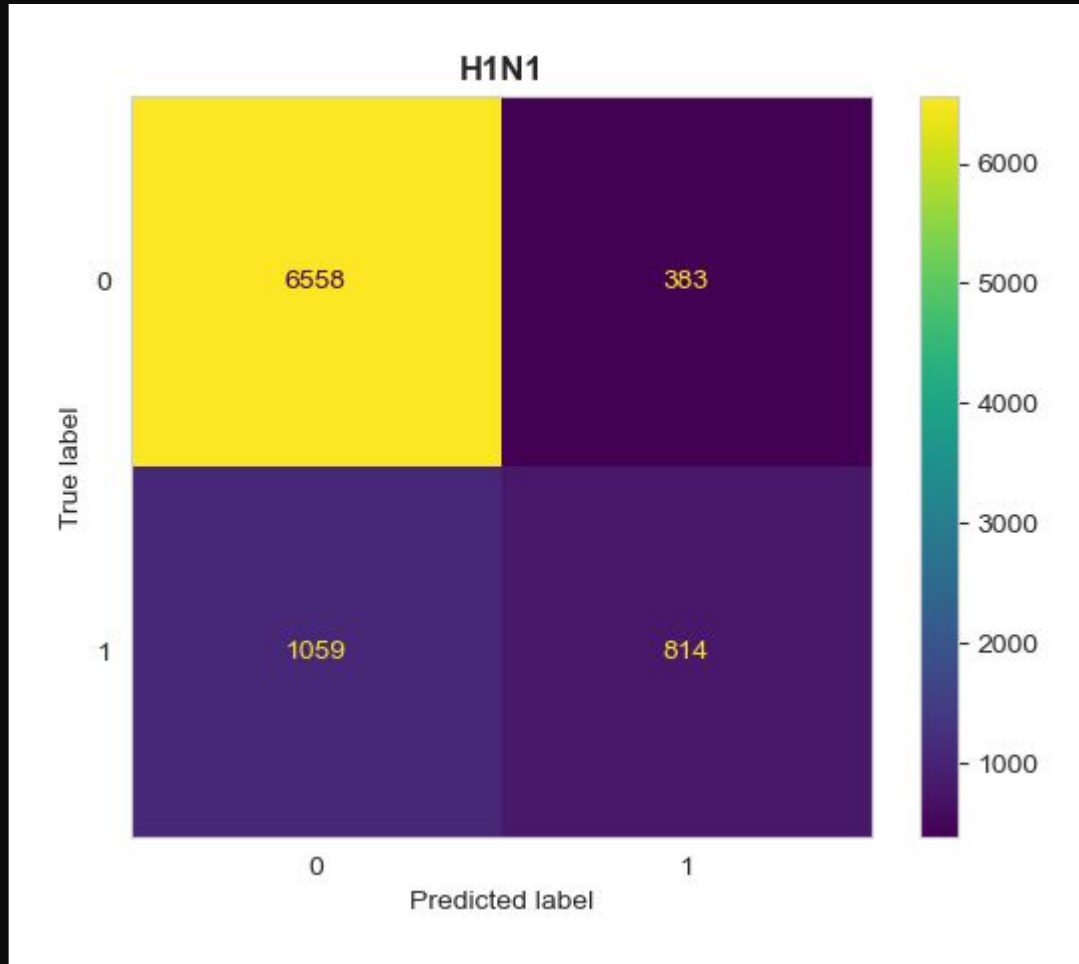
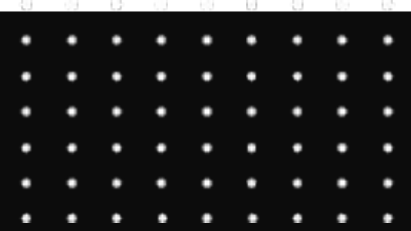
Performance of the model



- Confusion Matrix
- Positive and negative predictive values
 - Precision
 - Recall
 - Accuracy
 - F1
- Receiver operator characteristic curve (ROC)



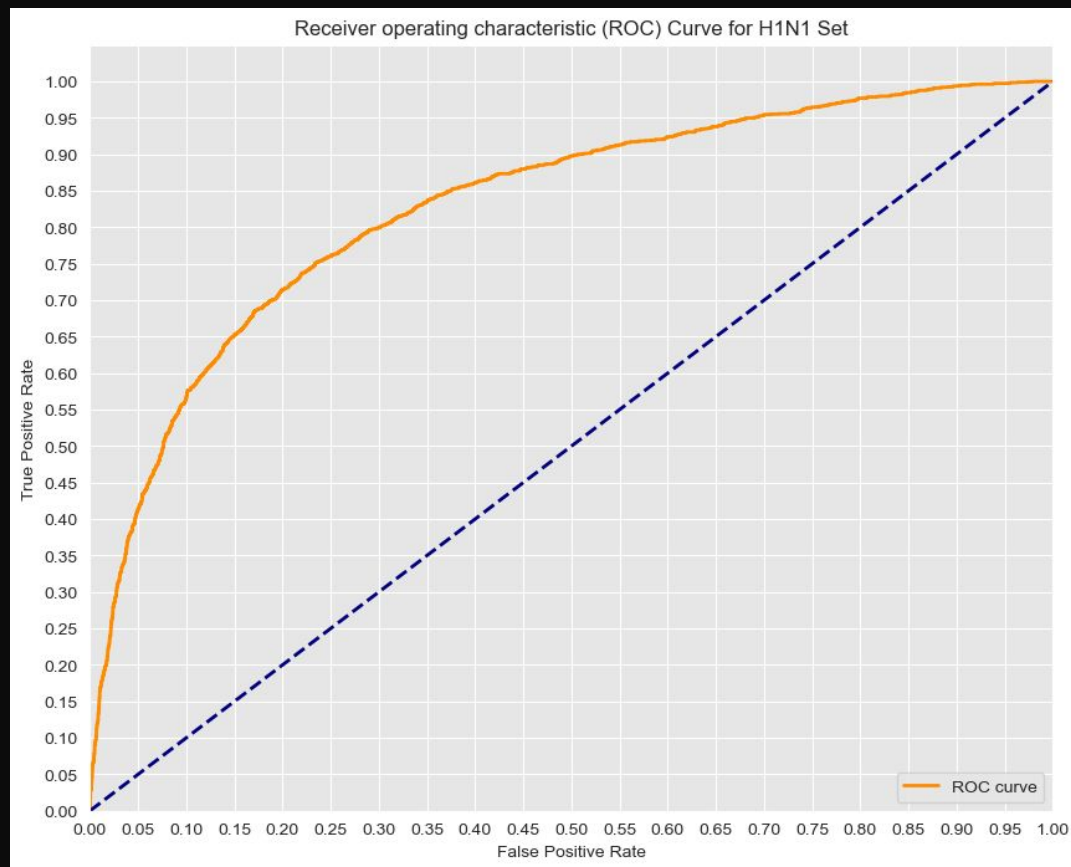
Confusion Matrix



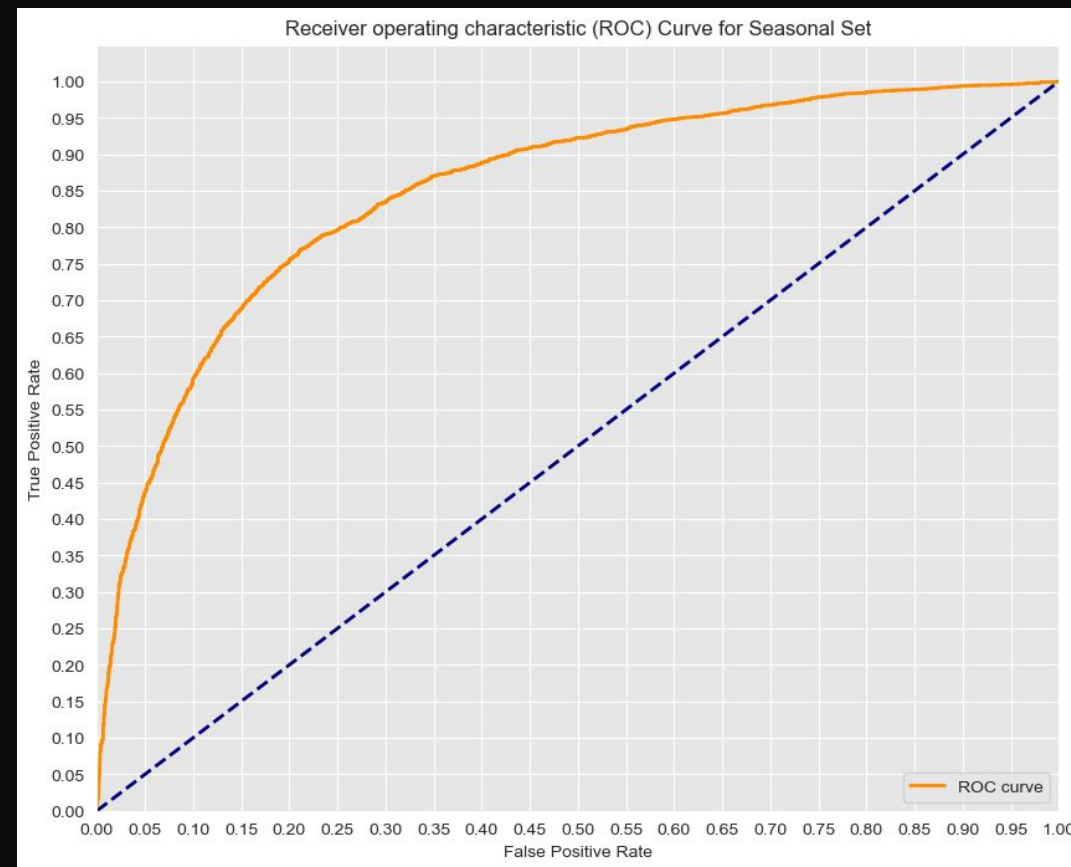
Prediction Scores

	H1N1	Seasonal
Precision	0.68	0.78
Recall	0.43	0.74
Accuracy	0.84	0.78
F1	0.53	0.76

ROC curve



AUC: 0.83



AUC: 0.85

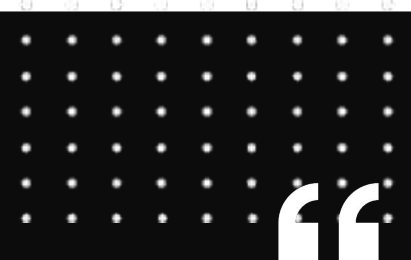
Final predictions & recommendations

Vaccine	Average Probability
H1N1	0.21
Seasonal	0.46

- More people are likely to take the seasonal vaccine
 - Pfizer should produce more seasonal vaccine
- Investigate why certain variables yield lower rates
 - Race
 - Education
 - Income
- May use this outcome to push future vaccinations



Improvements & Further developments



- **Making a more accurate model**
 - Working with less null values
 - Finding the best predictive model for each column
 - Trying different combinations of hyperparameters
- **Removing variables**
 - The dataset has multiple columns
 - Removing more irrelevant columns





Thank You!

This Presentation is Prepared by

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