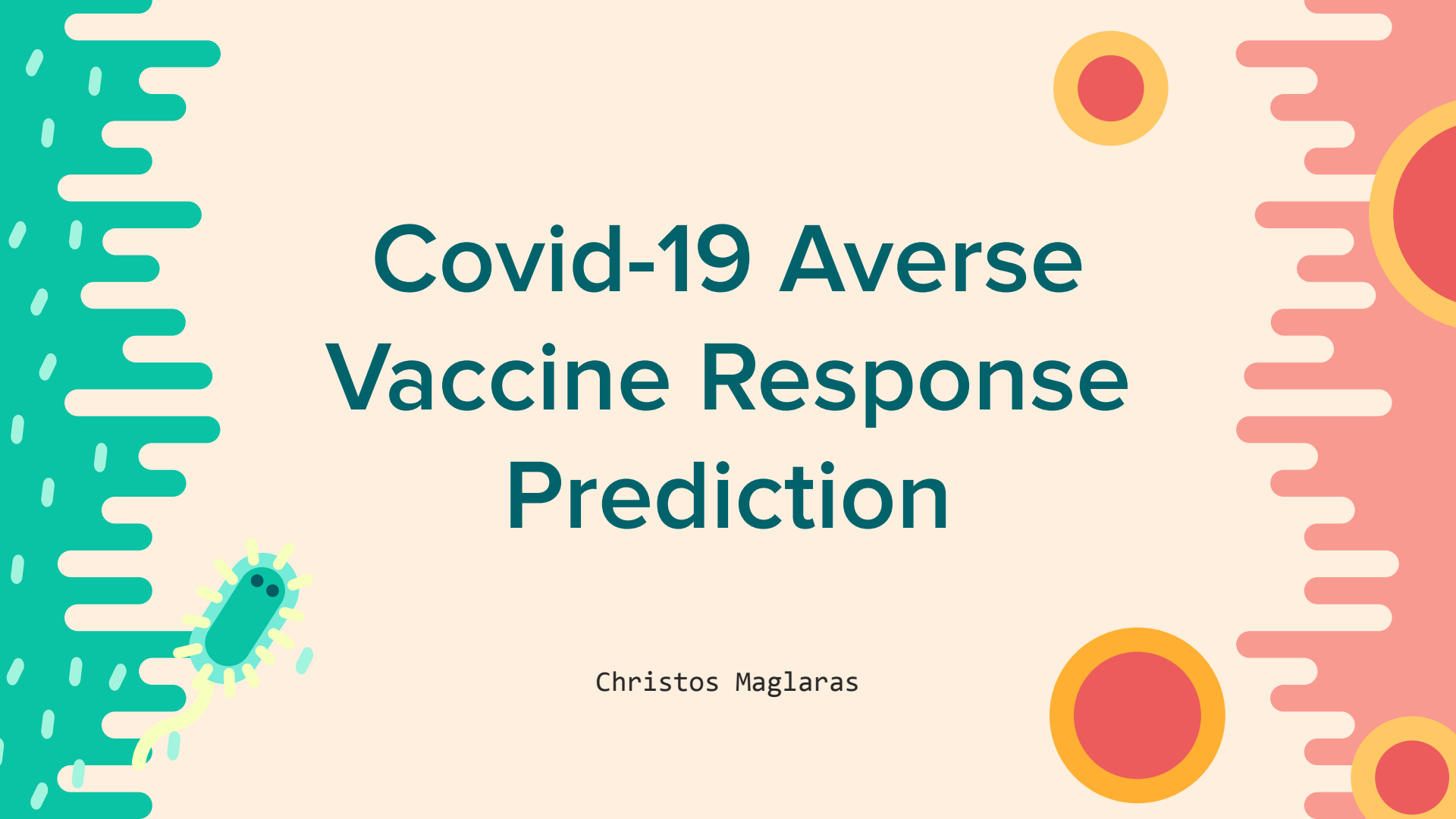


Covid-19 Averse Vaccine Response Prediction

Christos Maglaras





Stakeholder

- Hospitals
- Clinics
- You!



Data

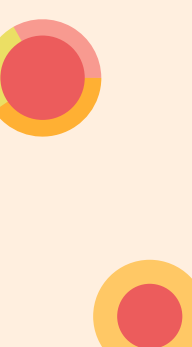
- CDC VAERS
- 70,000 Domestic Vaccination Reports
- Updated Weekly
- Anyone can submit a report, Healthcare Professionals are Required

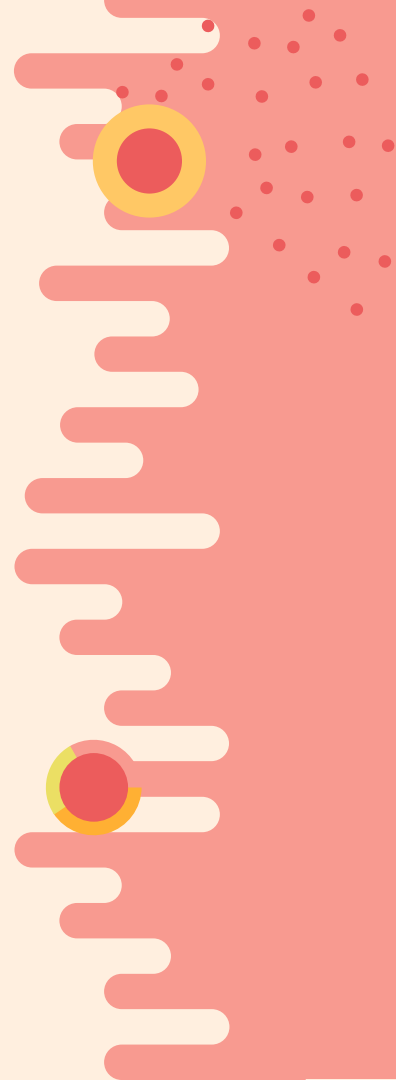
VAERS

Vaccine Adverse Event Reporting System
www.vaers.hhs.gov

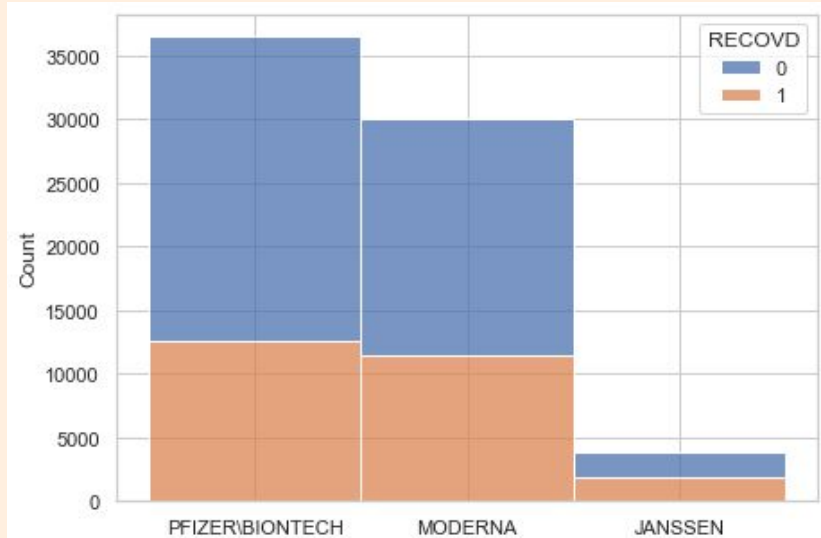


Current Statistics

- 100 Million Total Vaccinations
 - 60 Million Fully Vaccinated
 - 0.01% Hospitalization Rate
 - 23k Domestic
 - 770k Worldwide
- 



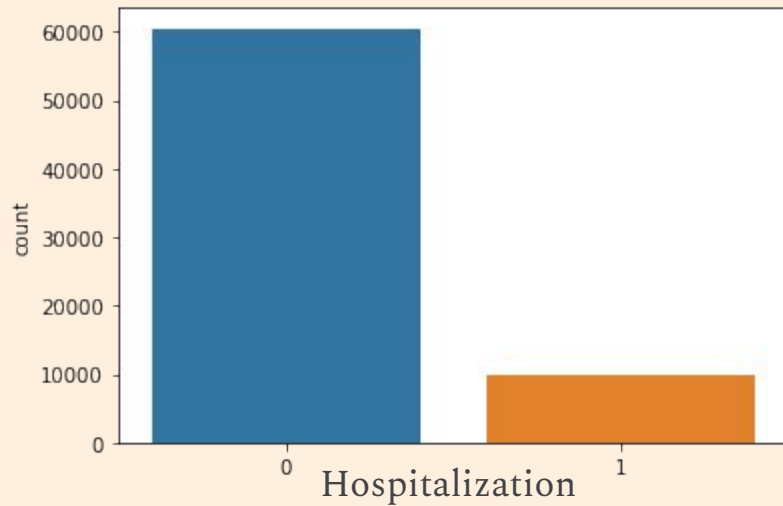
Brand



- Total Adverse Effects Per Brand
- Janssen Approved Recently
- Comparable Rate of Negative Reactions

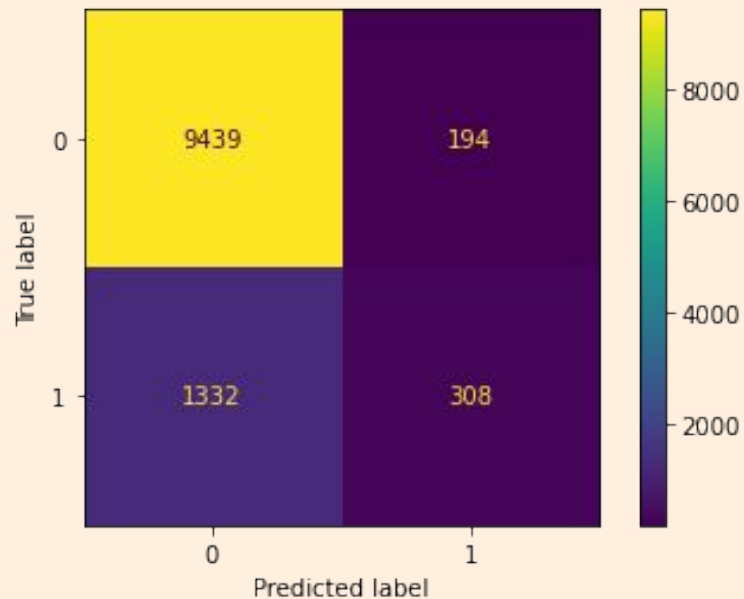
Target

- Targeting Severe Reactions Through Hospitalization
- 7:1 Imbalance



FSM

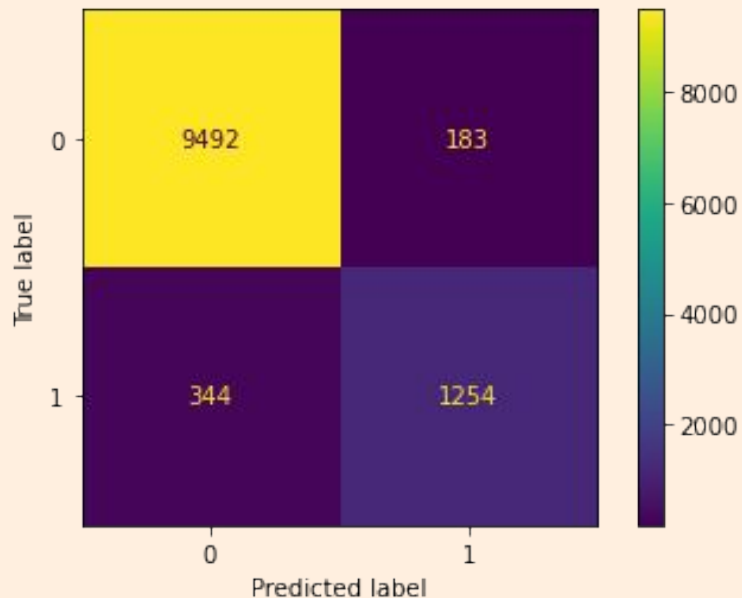
Recall = 18%



Final Model

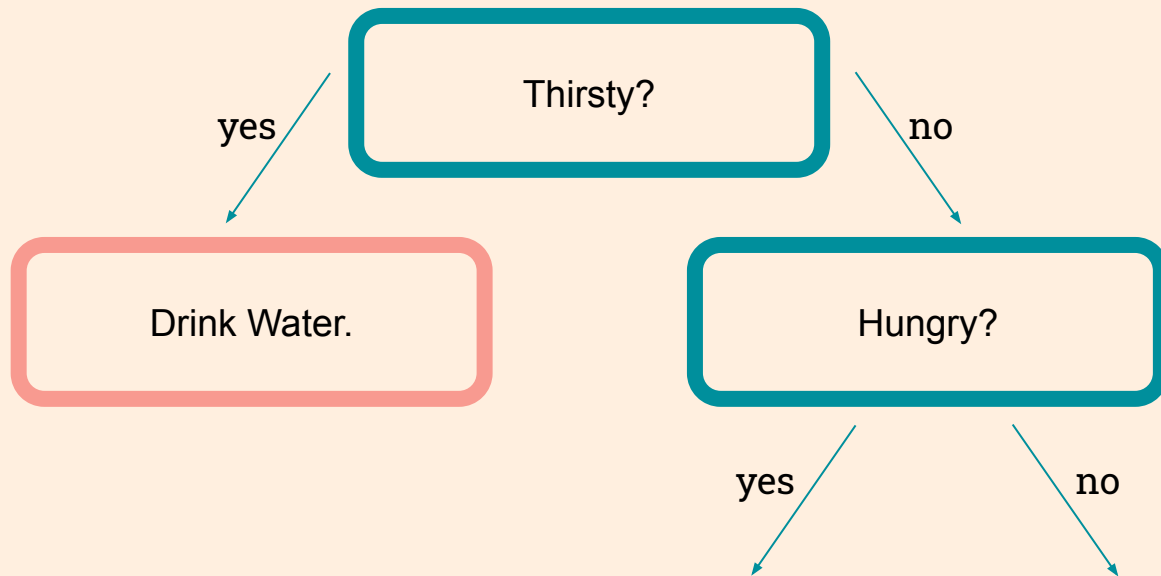
Random Forest Classifier

Recall = 78%

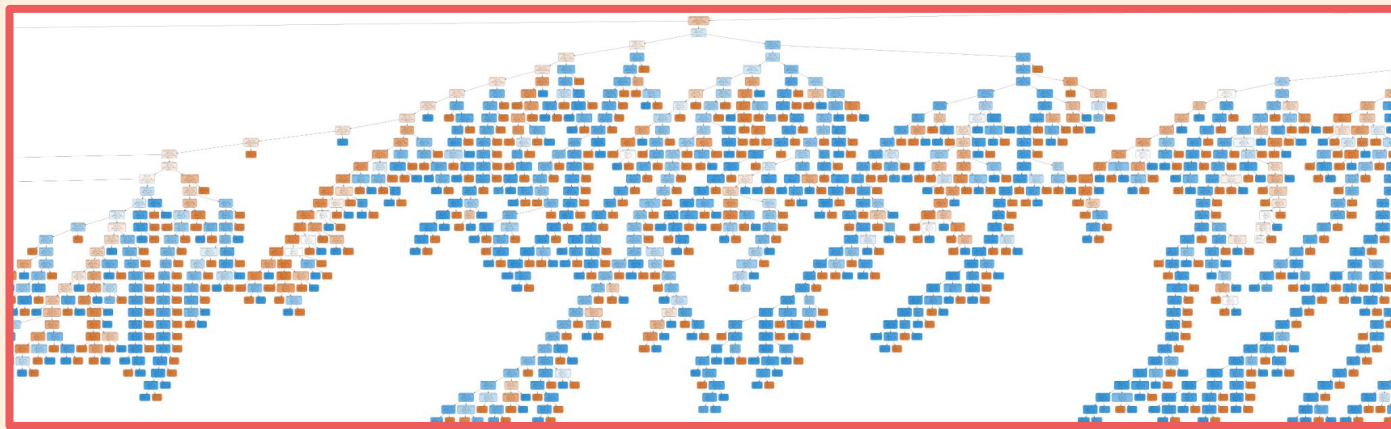


Random Forest?

- Consists of many Trees
- Each Tree is one vote



Random Forest?





Most Important Features

Age -- 0.2959

Previous Vaccinations -- 0.0236

Sex -- 0.0233

Administrator -- 0.0210

Brand -- 0.0175





Most Important Allergies

None -- 0.0049

Penicillin -- 0.0034

Latex -- 0.0008

Shellfish -- 0.0007



Most Important Underlying Illness

None -- 0.0112

Asthma -- 0.0033

Hypertension -- 0.0021

Diabetes -- 0.0009





Most Important Medication

None -- 0.0075

Codeine -- 0.0011

Amoxicillin -- 0.0007



Flask Application

[Demo](#)



Thanks!

[Github](#)
[Linkedin](#)
[Medium](#)