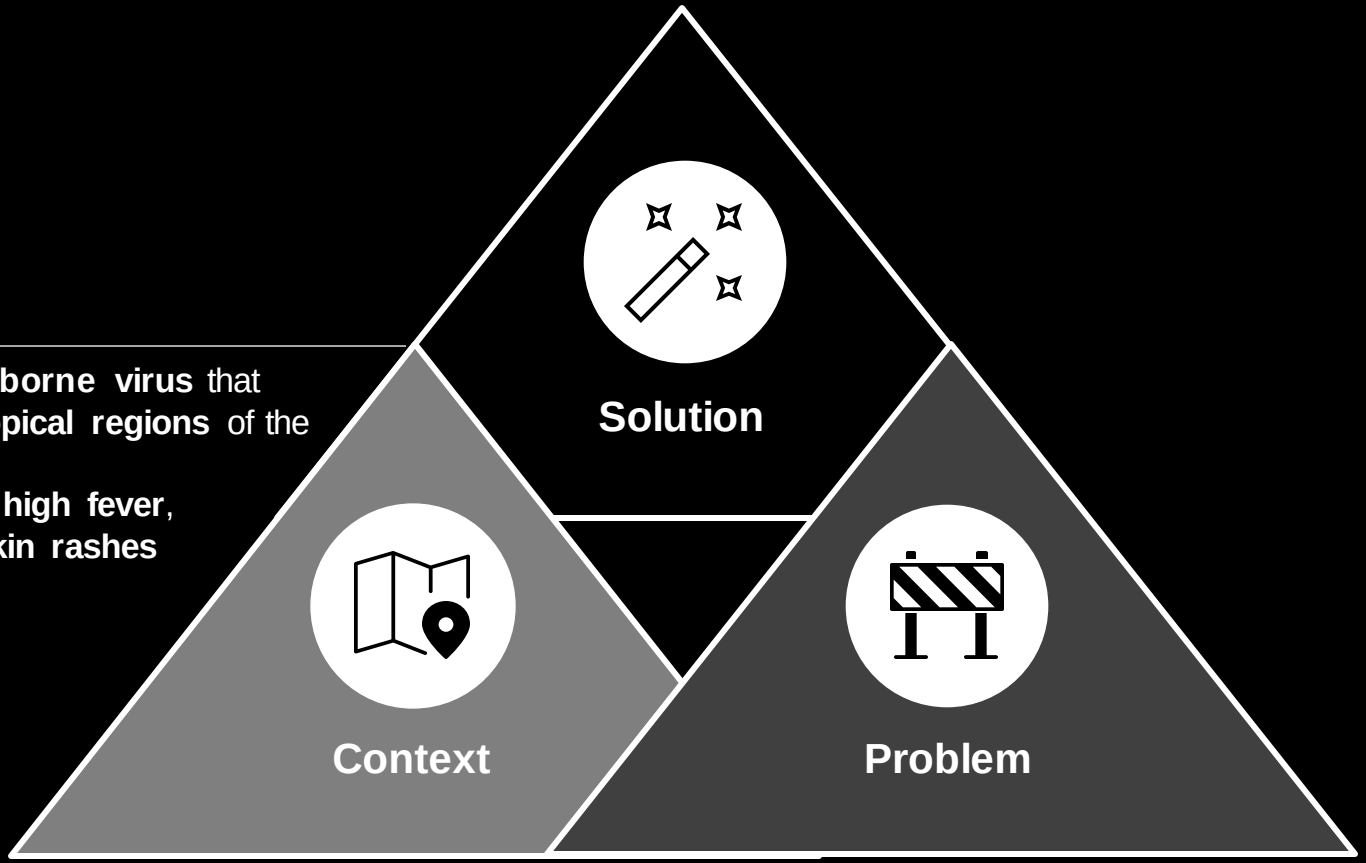
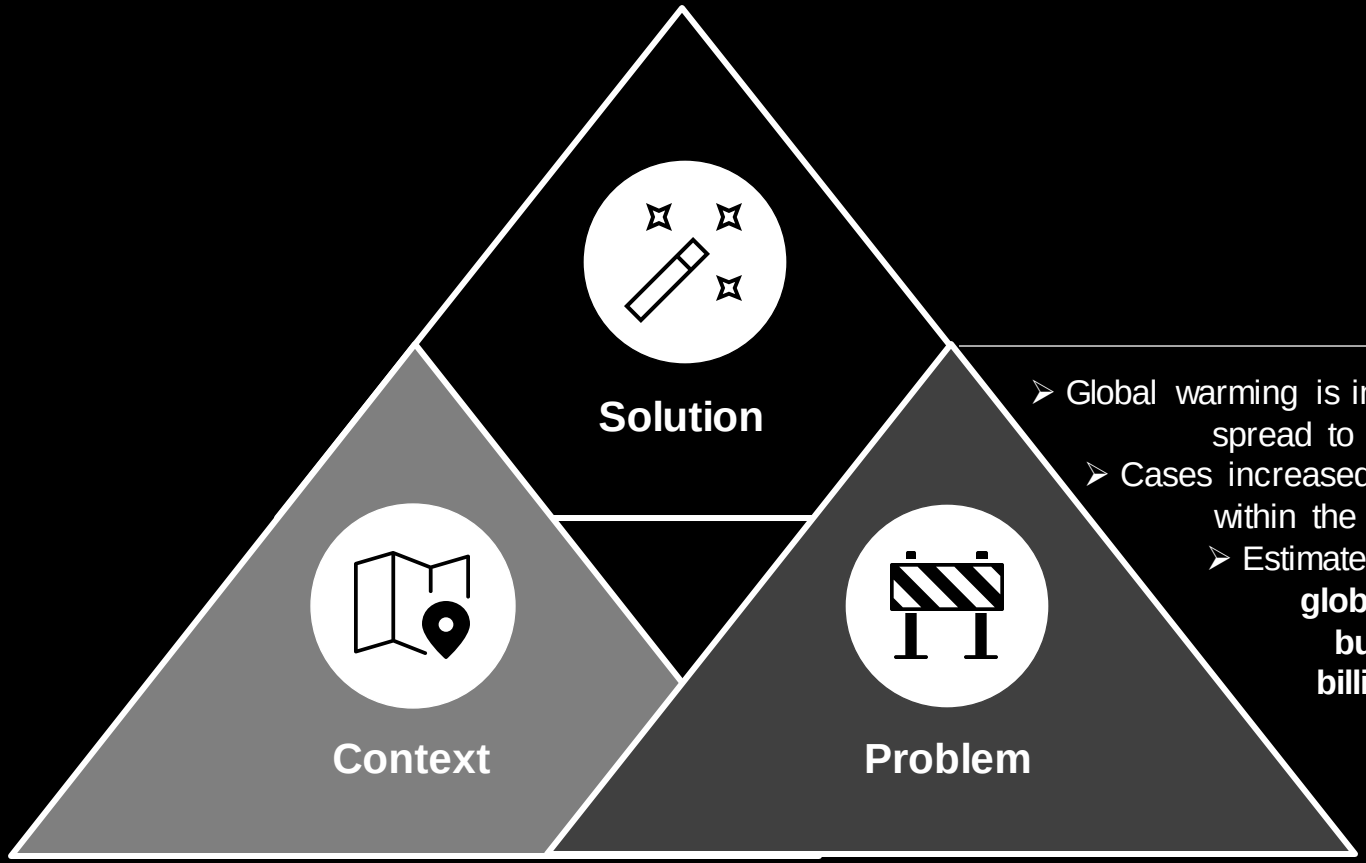

DENG AI:
PREDICTING
DISEASE SPREAD

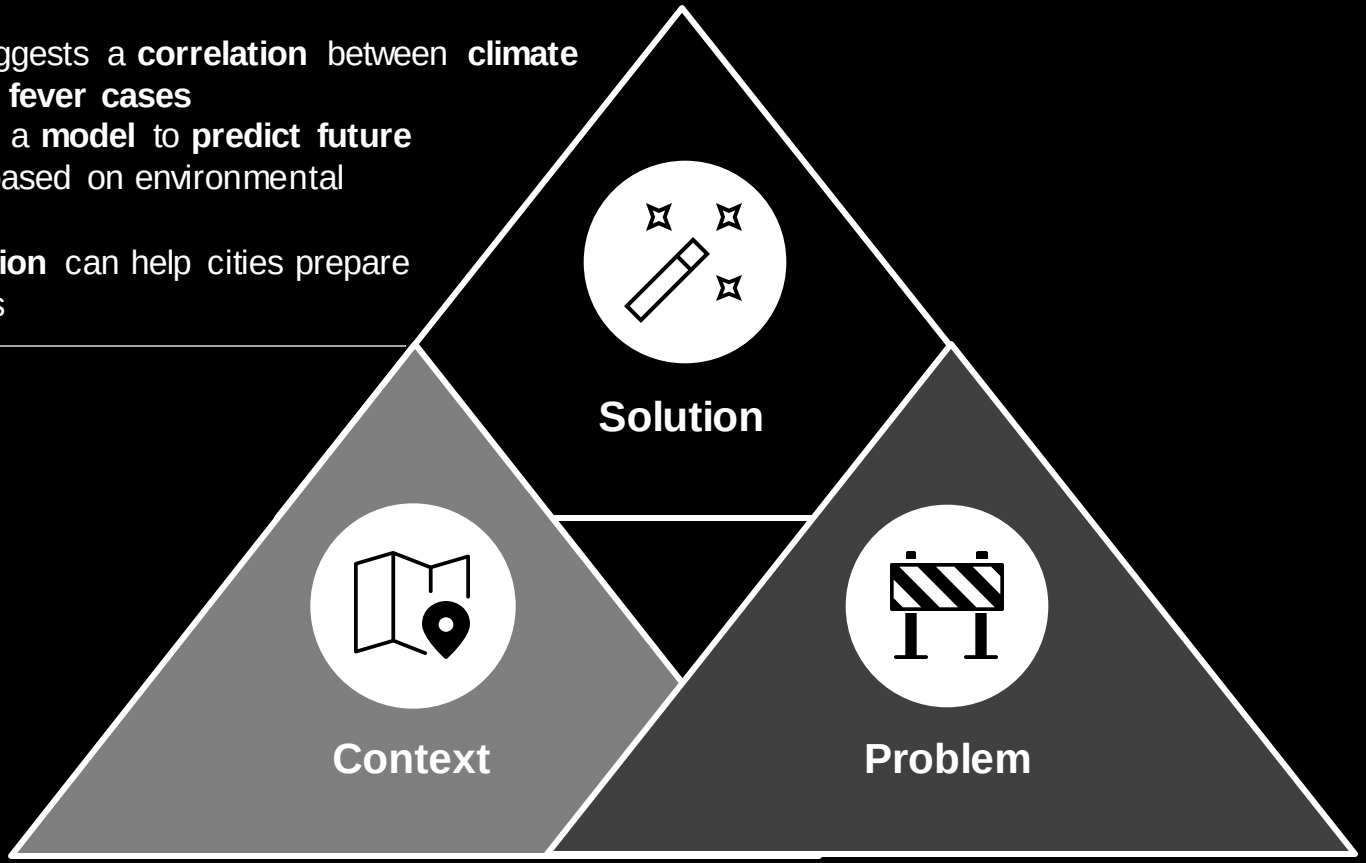
- A **mosquito-borne virus** that occurs in **tropical regions** of the world
- It can cause **high fever**, **vomiting**, **skin rashes** and **death**.



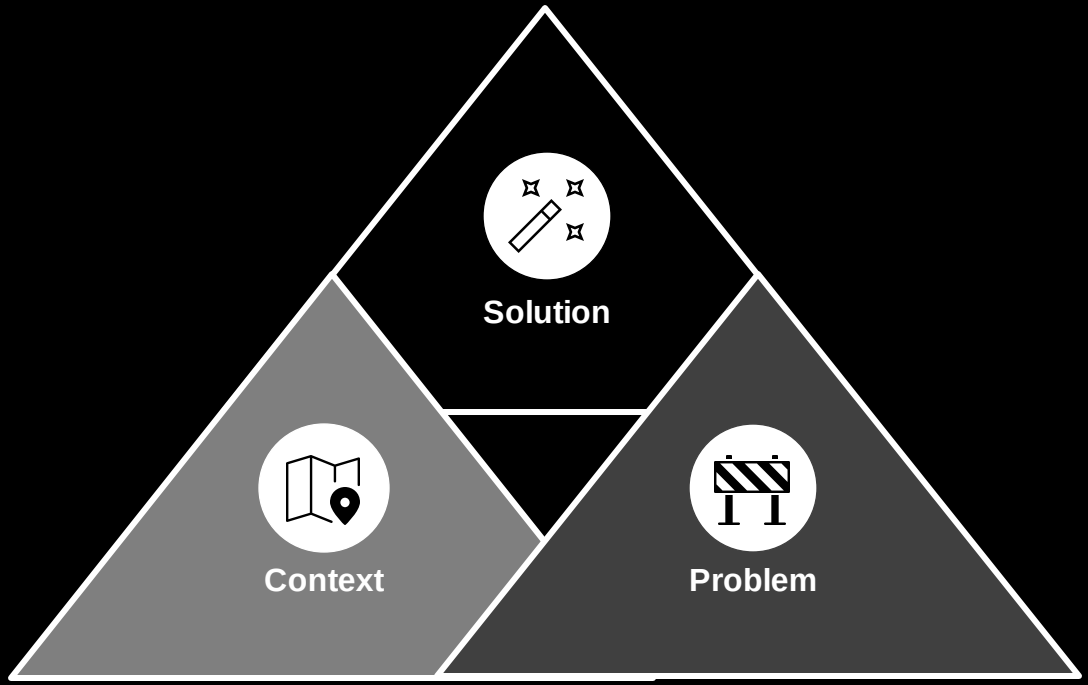


- Global warming is increasing the spread to new regions
- Cases increased dramatically within the last 20 years
- Estimated to cause a **global economic burden** of **$8.9 billion** per year.

- Evidence suggests a **correlation** between **climate** and **dengue fever cases**
- Can we train a **model** to **predict future outbreaks** based on environmental variables?
- **Early detection** can help cities prepare for epidemics

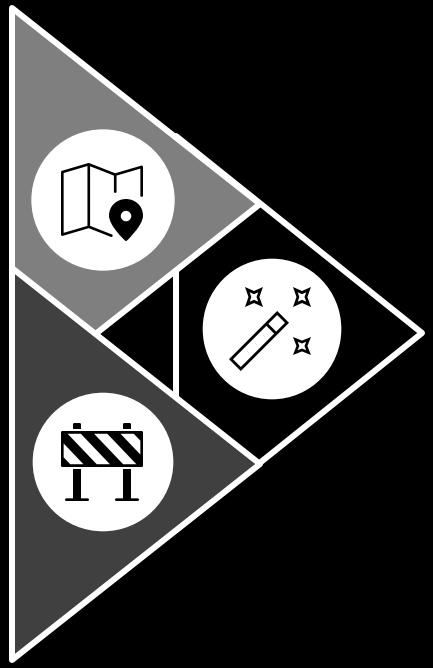


DengAI



DengAI

Background Information

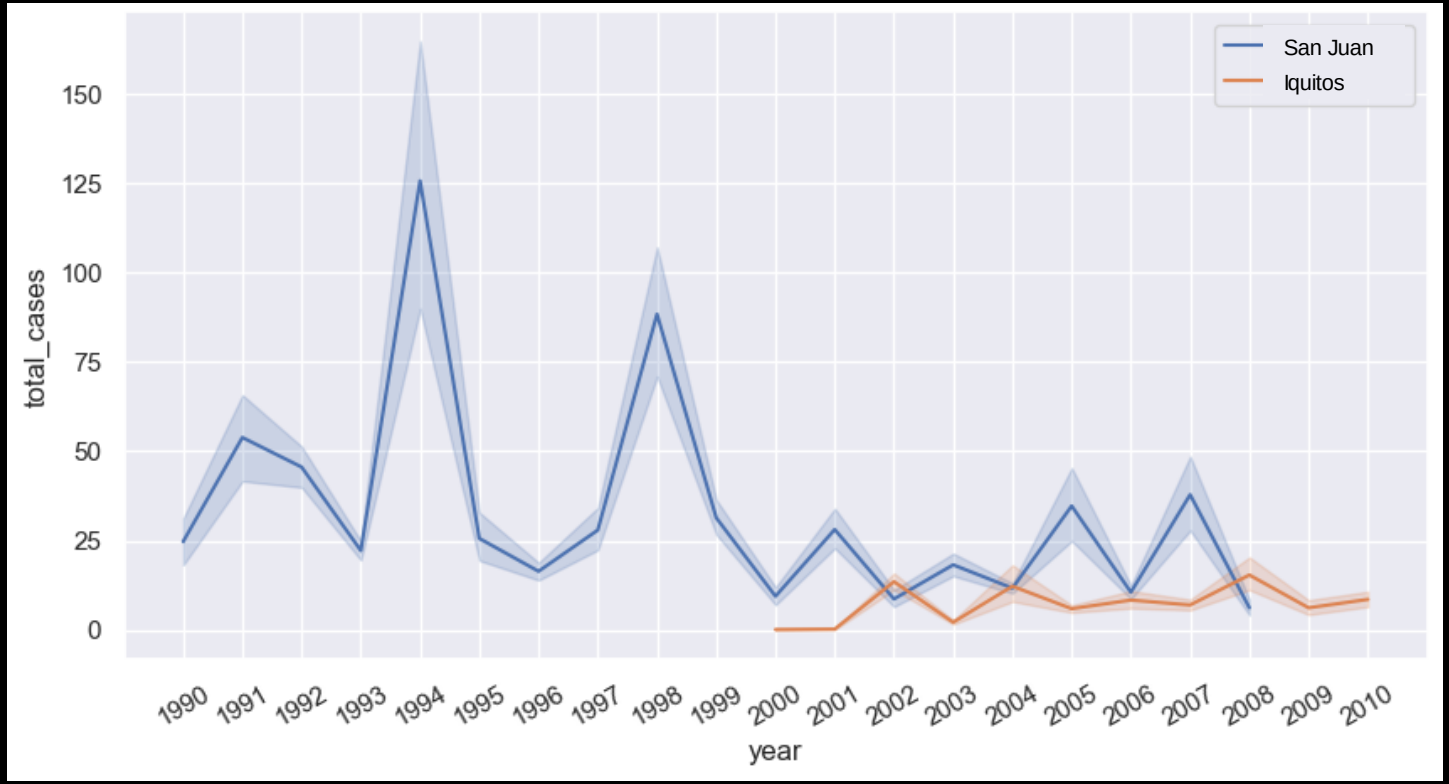


Cities

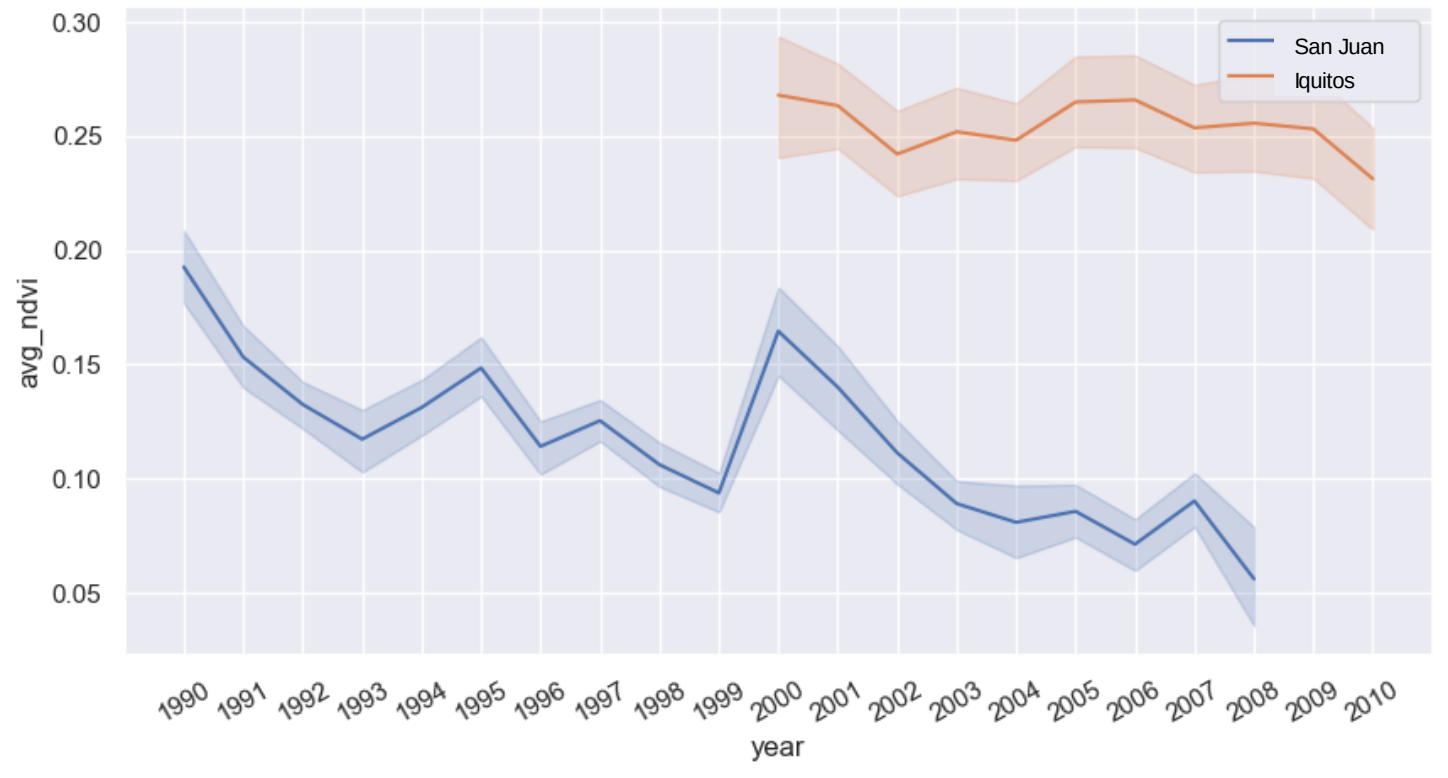
San Juan, Puerto Rico

Iquitos, Peru

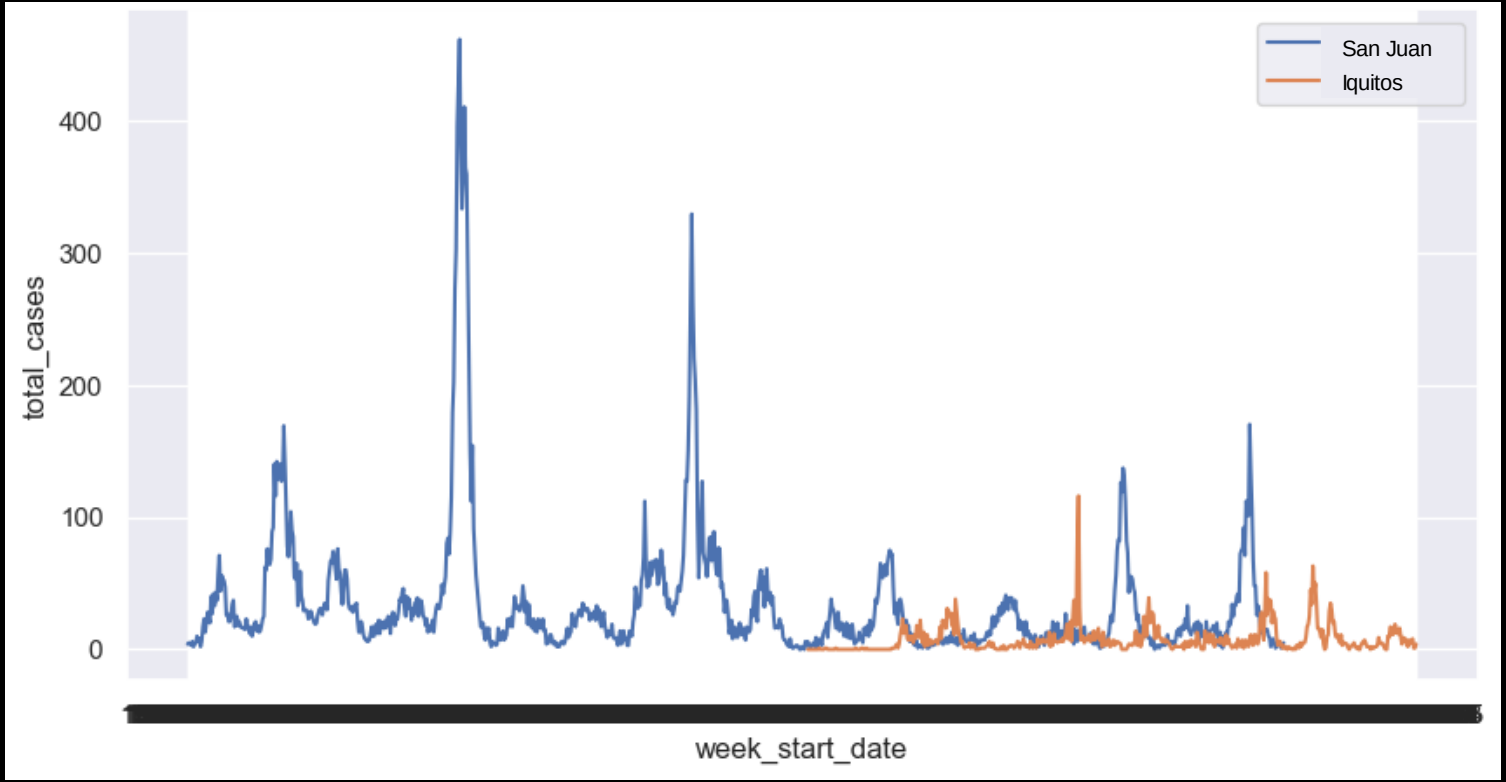
Yearly Dengue Fever Cases Over Time



Average NDVI Over Time

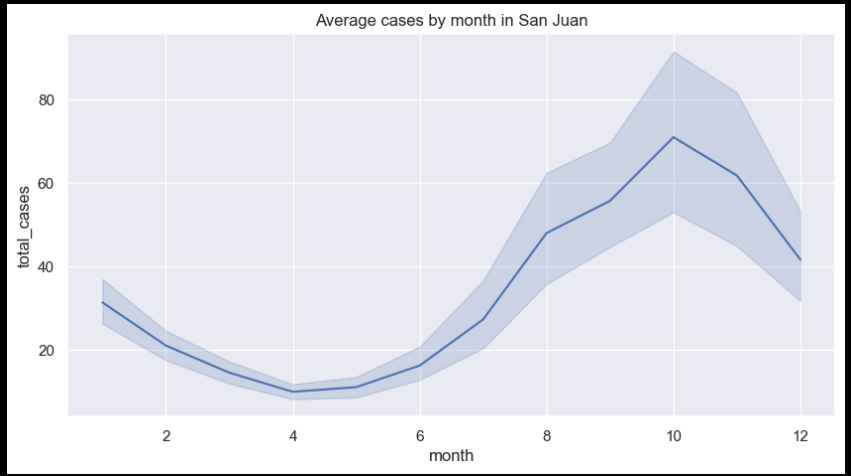


Weekly Dengue Fever Cases Over Time

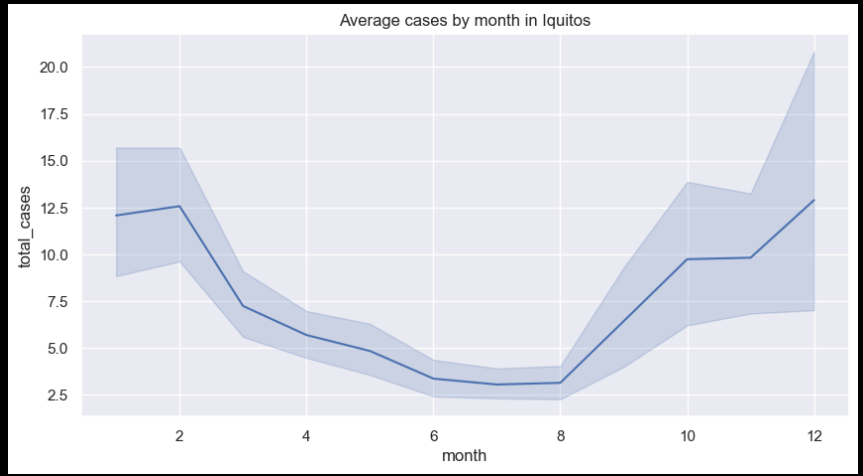


Average Number Of Cases Per Month

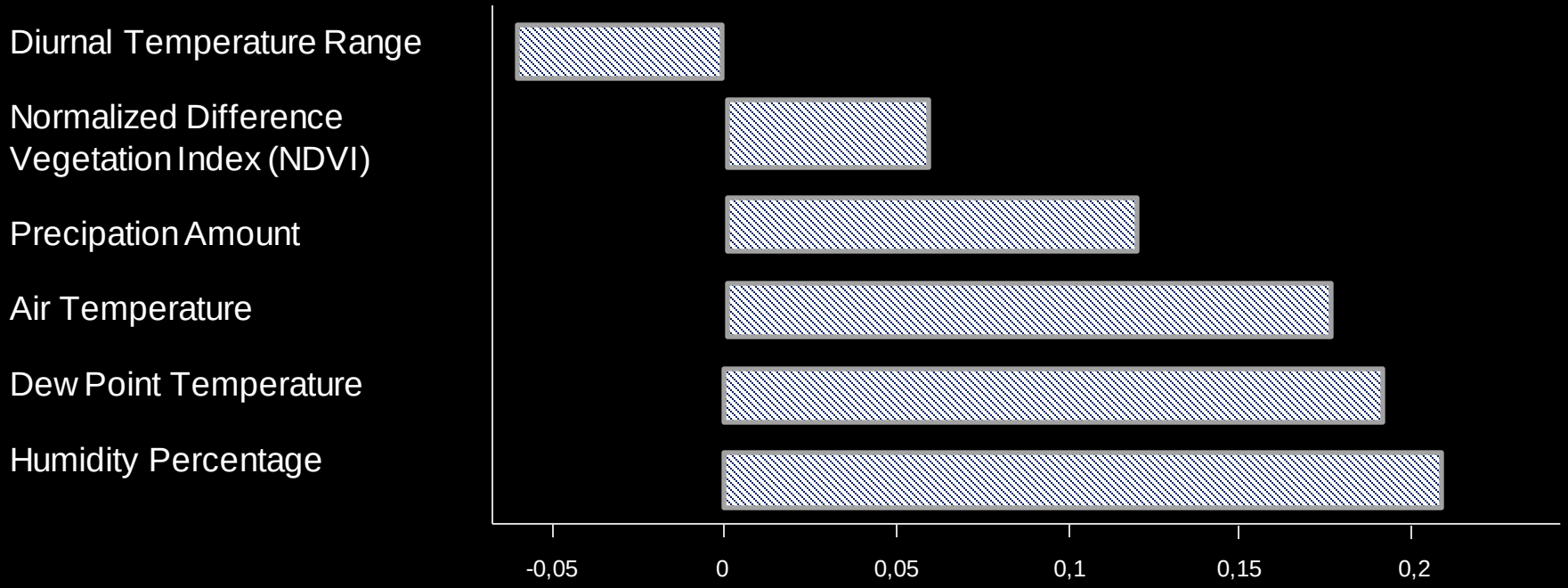
San Juan, Puerto Rico
18° 27′ N, 66° 4′ W
Population: 342.259



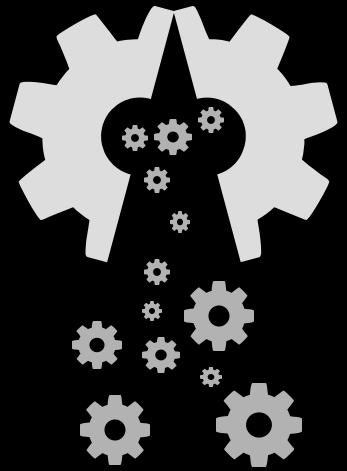
Iquitos, Peru
3° 45′ S, 73° 14′ W
Population: 144.463



Feature Correlations With Total Cases



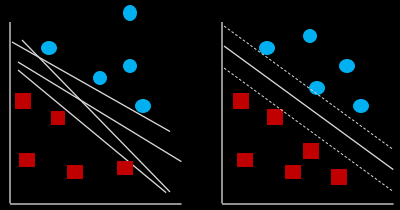
Project Objective



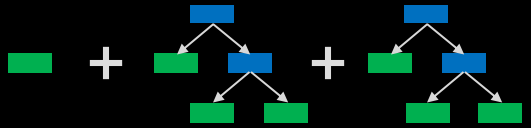
“To develop a model that detects local dengue fever epidemics using weather variables.”

Model Overview

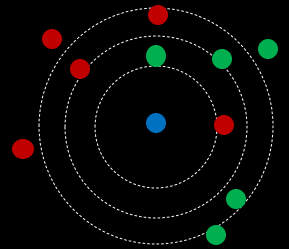
SVR



Gradient Boost

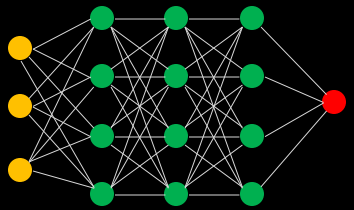


KNN

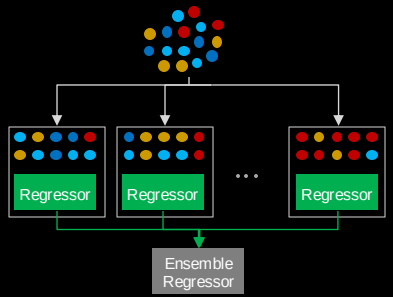


Neural Networks

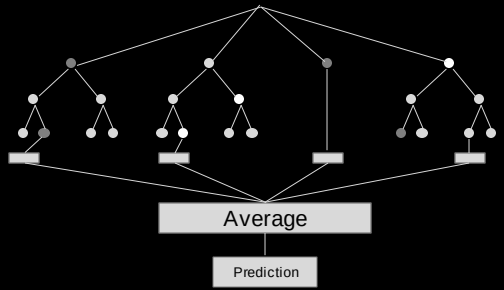
RNN LSTM CNN



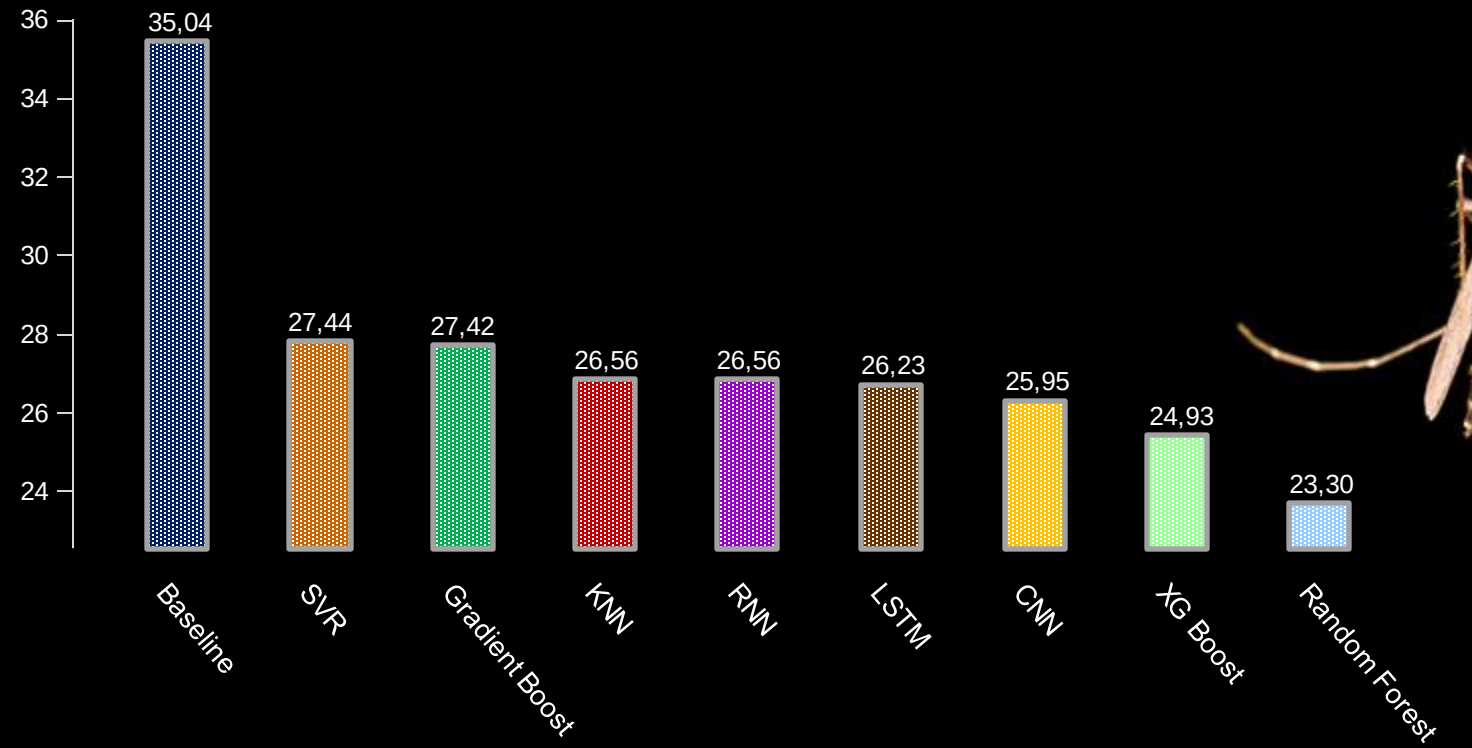
XG Boost



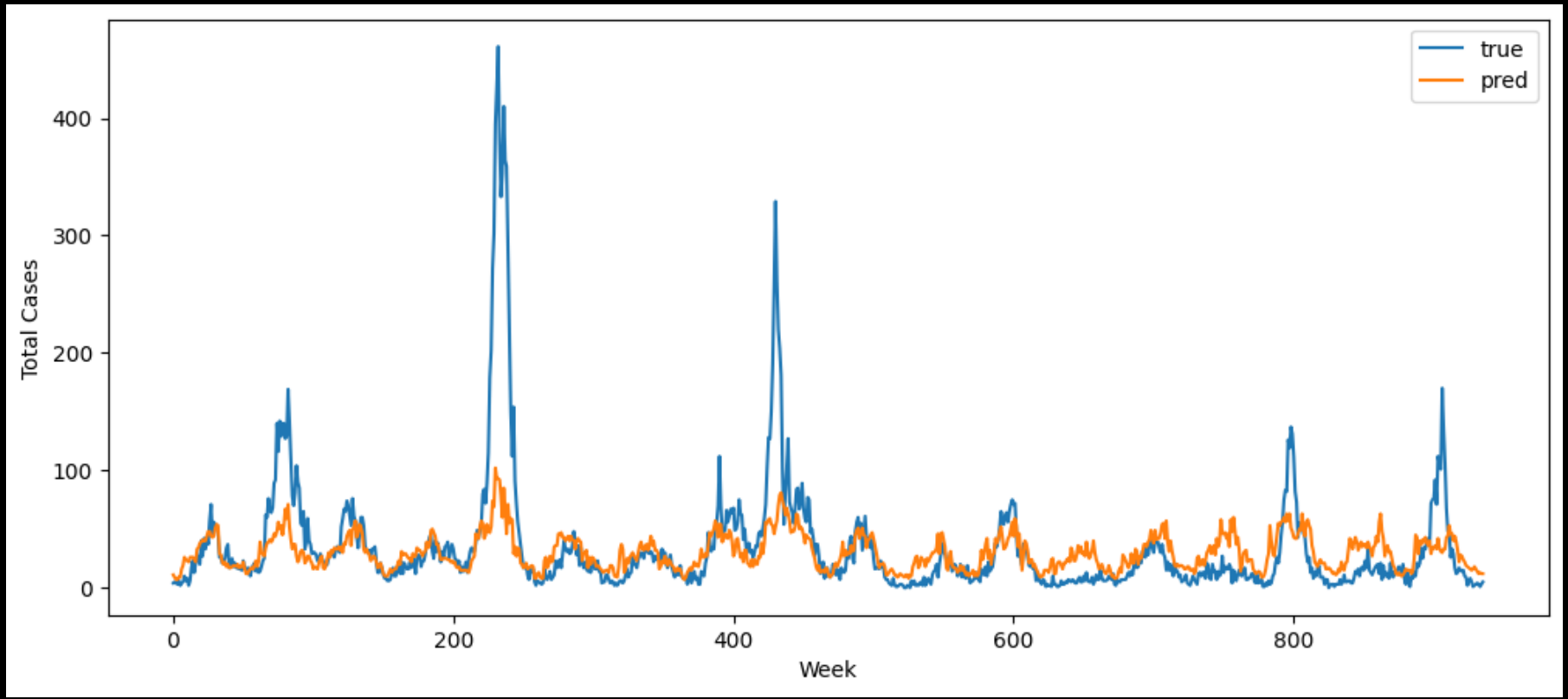
Random Forest



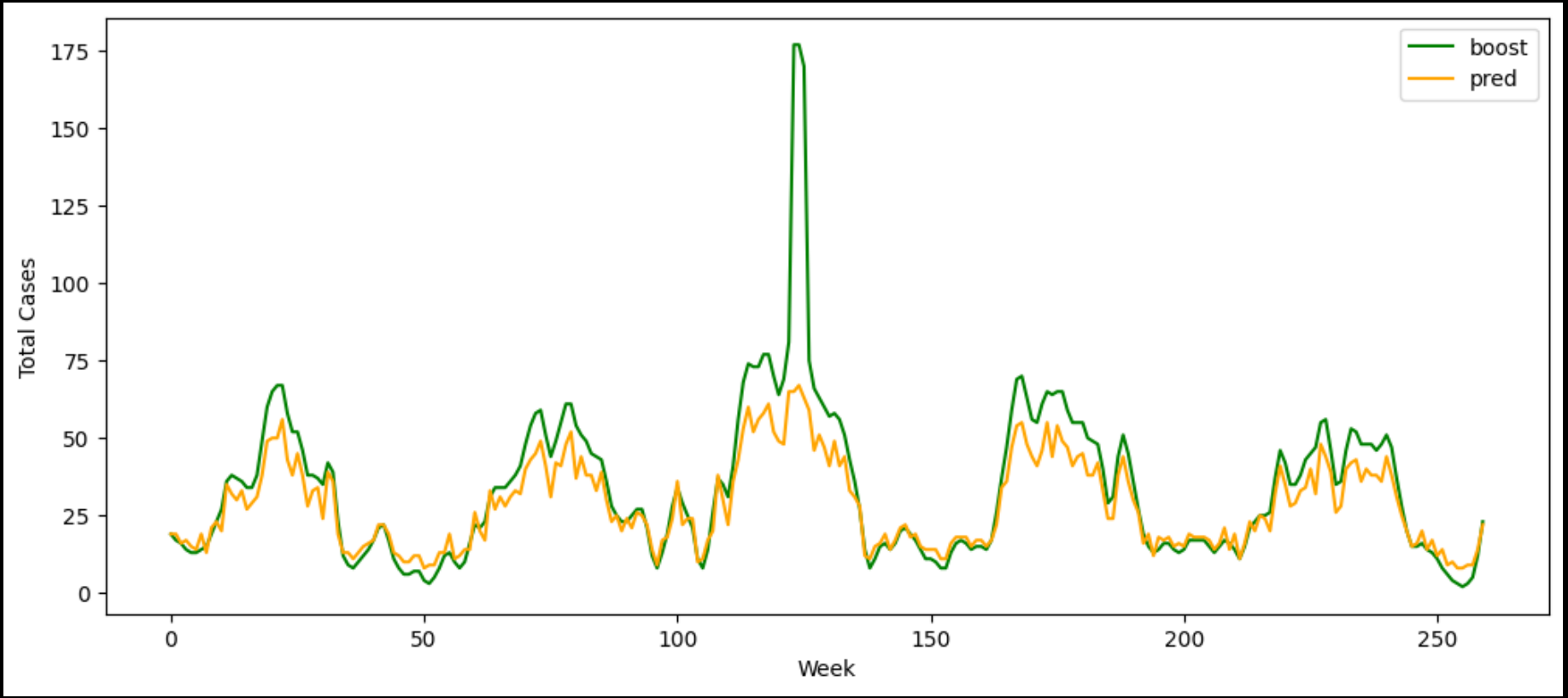
Model Performance



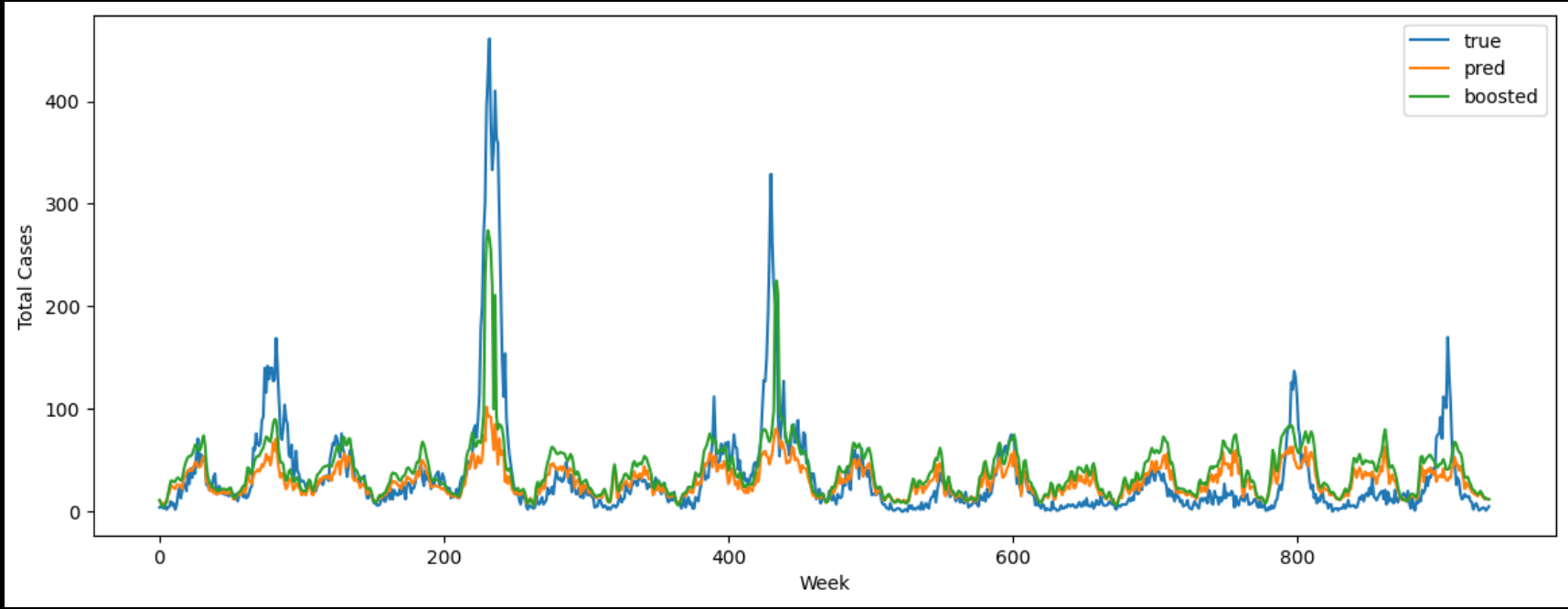
Random Forest Predictions for San Juan



Peak Boosting Function In Effect



Random Forest Predictions + Boosting



Rank 589 out of 12529 submissions - top 4.8% of models submitted

Become a beta tester!

Scan me!

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