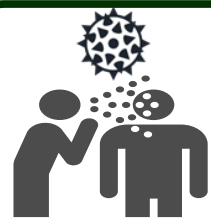


Data Collection



Confirmed Cases

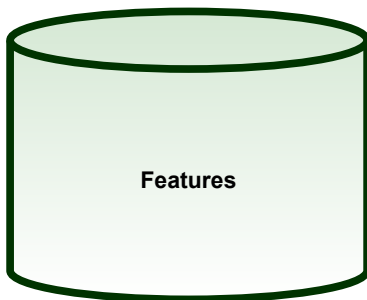
COVID-19 Features



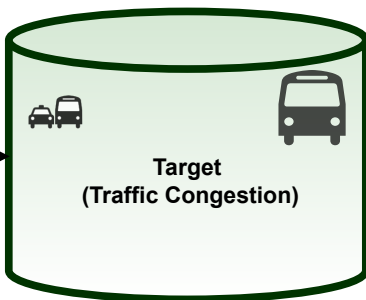
Government Restrictions



COVID-19 Vaccine



Features



Target
(Traffic Congestion)

Environment Features



Climate



Waste

Human Mobility Pattern



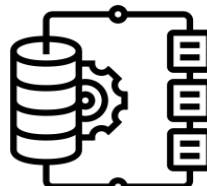
Mobility Changes

Time Features

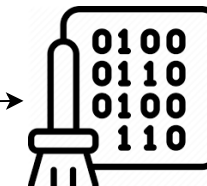


Holiday

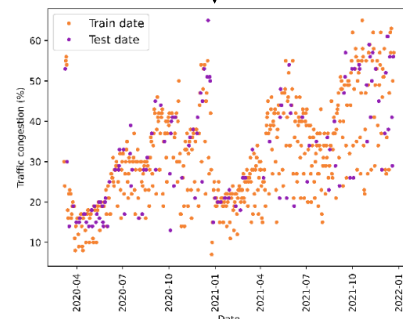
Machine Learning Models



Feature Construction



Data Pre-processing



Train Test Split (80:20)



Model Training

- Multiple Linear Regression
- LightGBM
- Random Forest
- Support Vector Regression

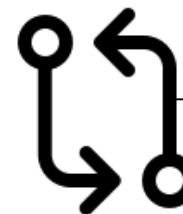
Hyper Parameter tuning



Evaluation with:

RMSE, MSE, MAE, MAPE and R^2 Metrics

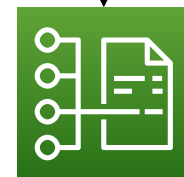
Model Comparison and Selection



Model Comparison



Selecting the
Best-Performance Model



Five-Fold
Cross Validation



Report Mean
Evaluation Metrics

Model Interpretability and Feature Importance Results



Random Forest
Feature Importances



SHAP

SHapley Additive
exPlanations