A Concrete Truth:
predicting concrete strength and carbon footprint

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Concrete Data (from Kaggle)

Cement

Water

Fine Aggregate (Sand)

Filler

Coarse Aggregate

Ash

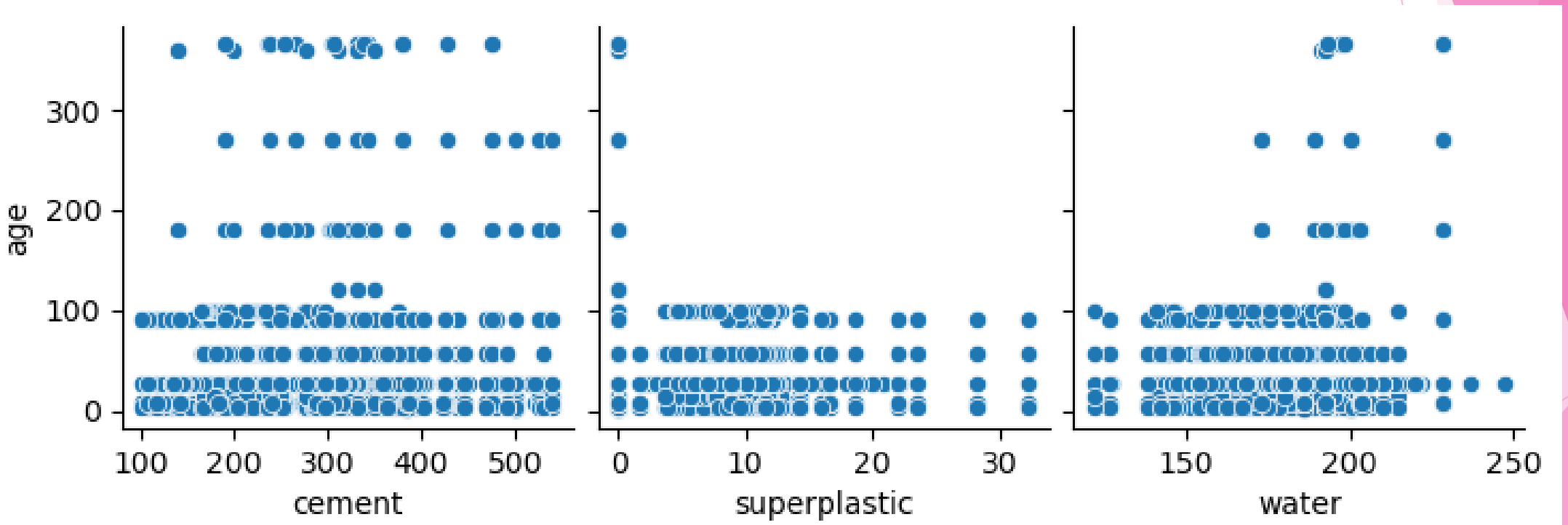
Industrial Waste

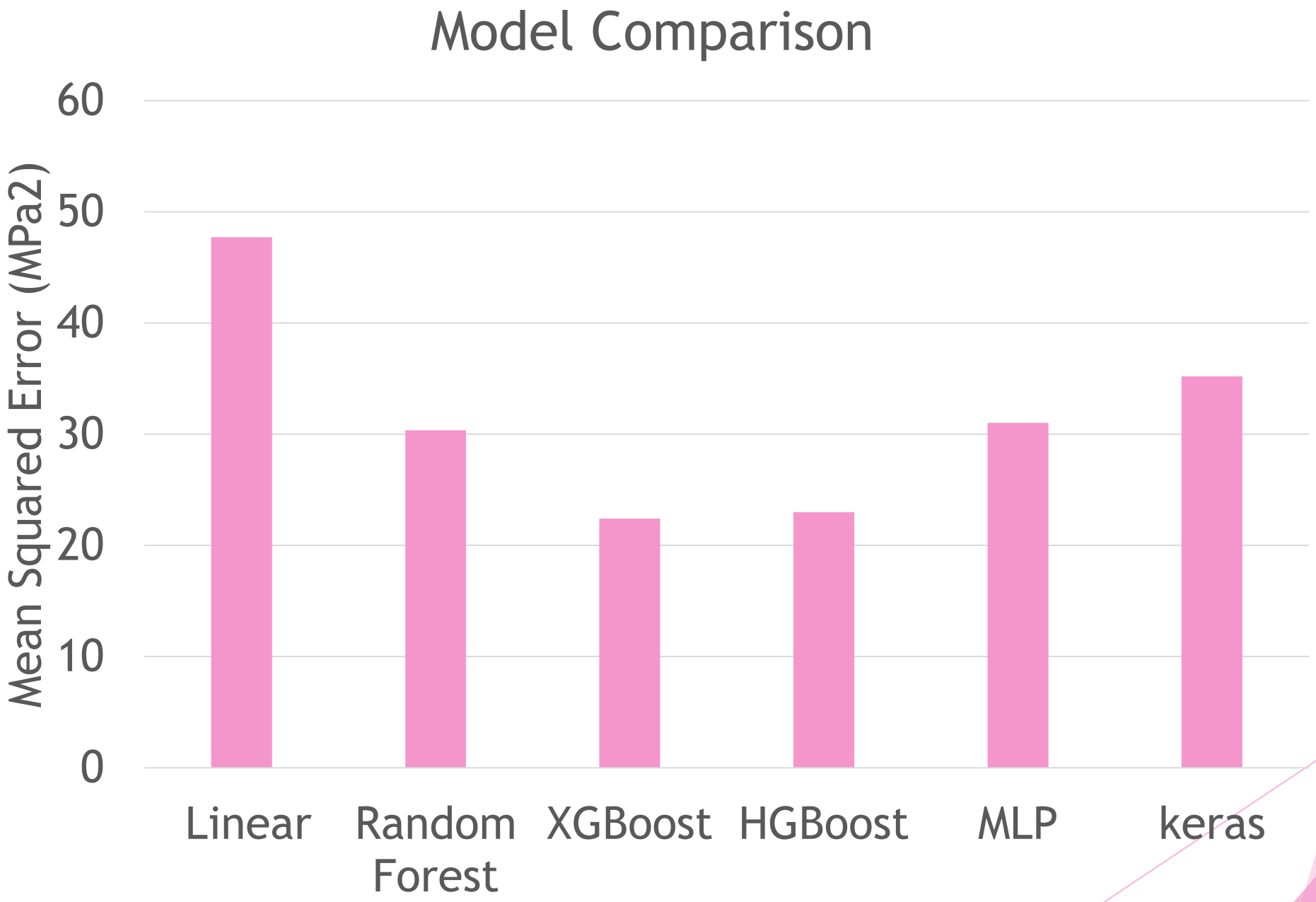
Slag

Wait to Cure

Superplasticizer (Optional)

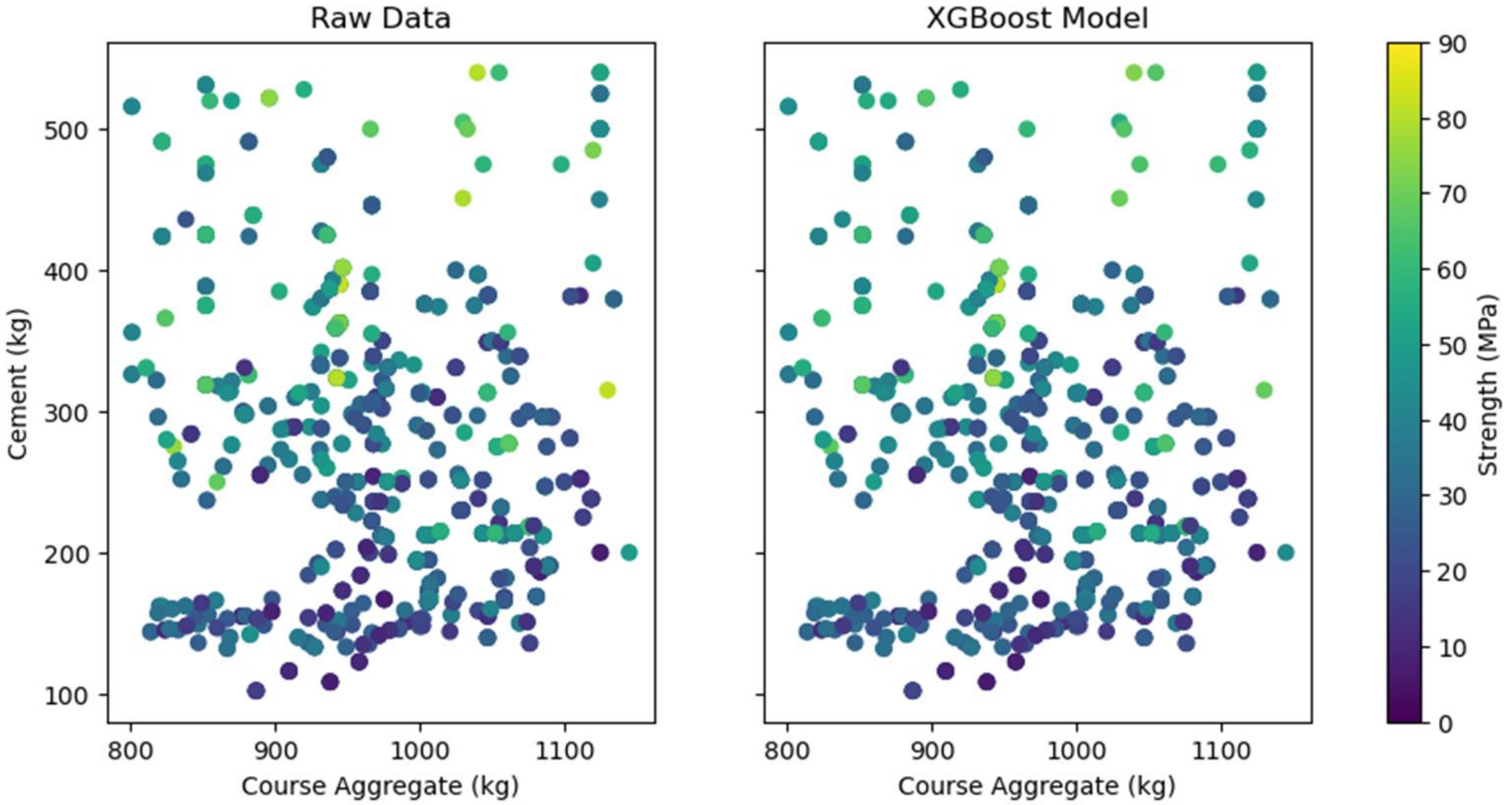
Outliers (age)



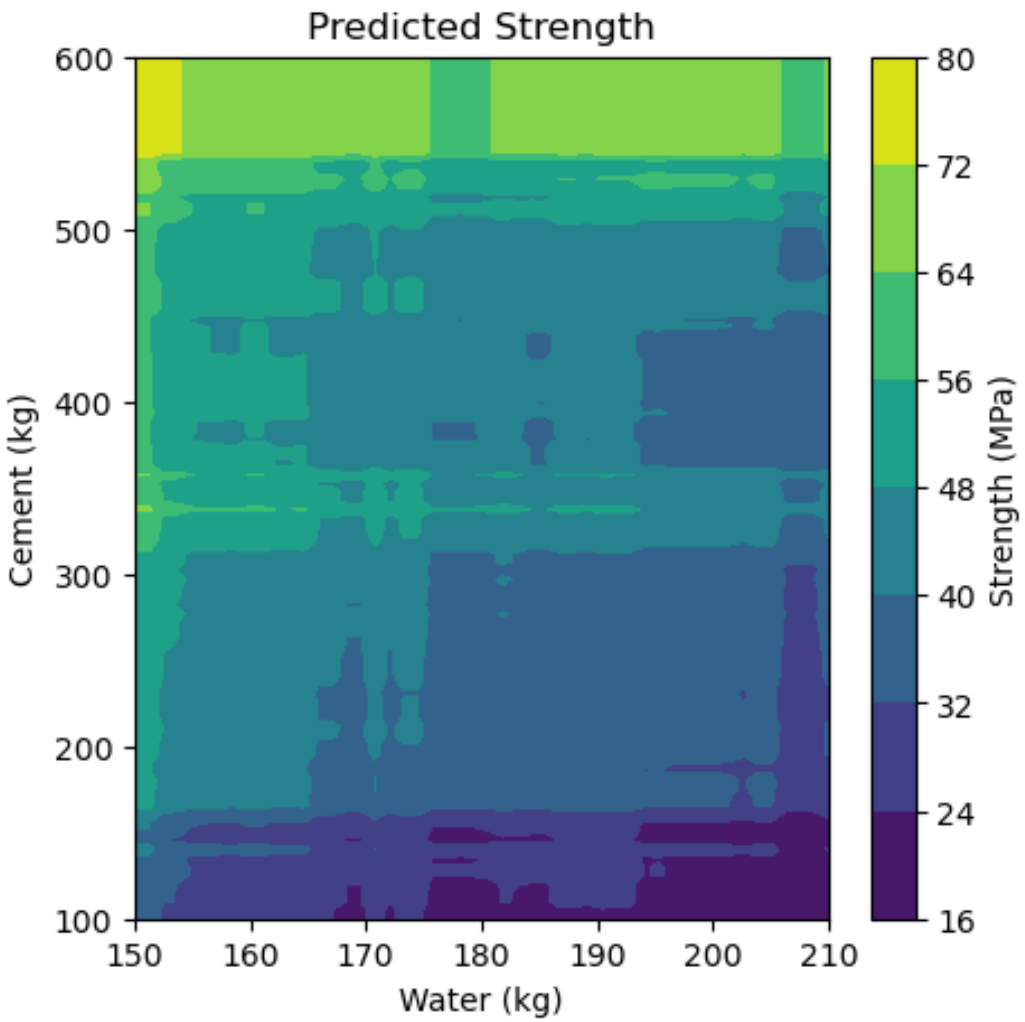

Model Comparison
Mean Squared Error (MPa2)
60
50
40
30
20
10
0
Linear
Random Forest
XGBoost
HGBoost
MLP
keras

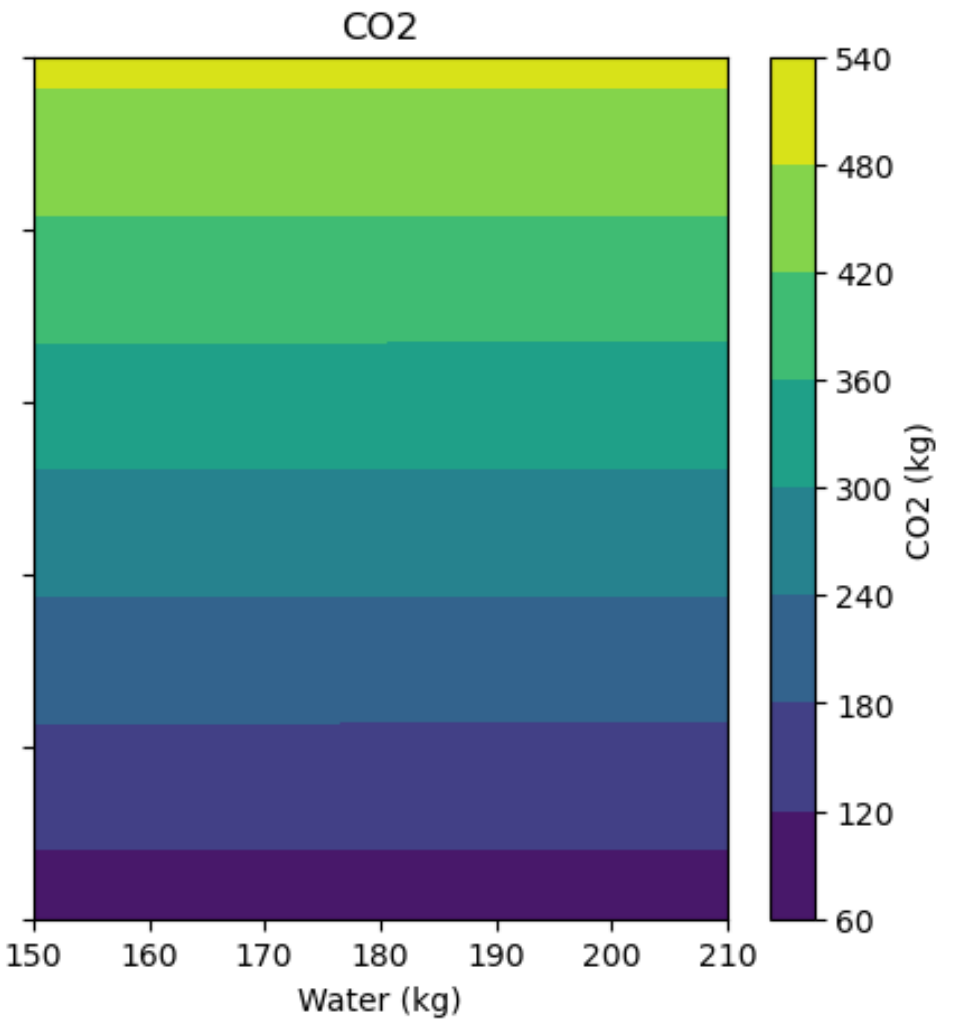
XGBoost Model comparison

Final Mean Squared Error: 18.9 (Mpa^2)



Carbon vs strength





Conclusion (if we had more time)

- We have a model with decent accuracy within the parameters given

- Analysis on ash and slag
- More training time
- Build an inverse function that takes strength and gives ingredients (minimize CO2, price)