Machine Maintenance Prediction

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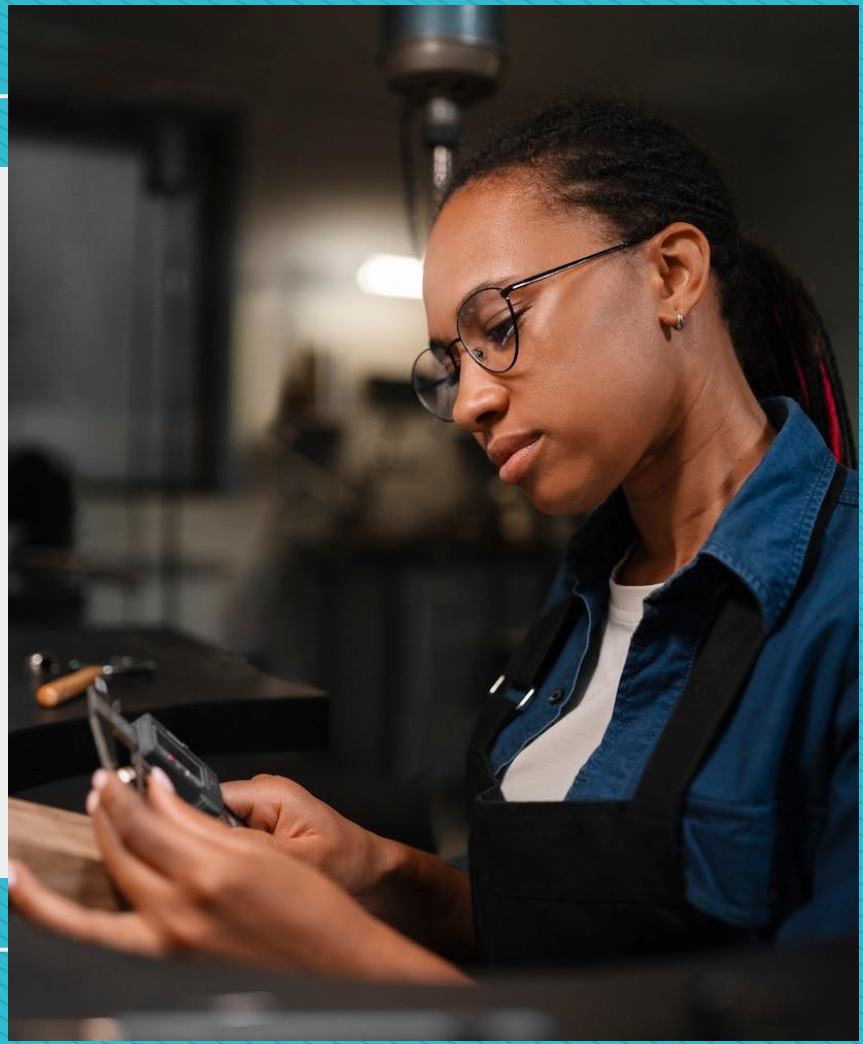

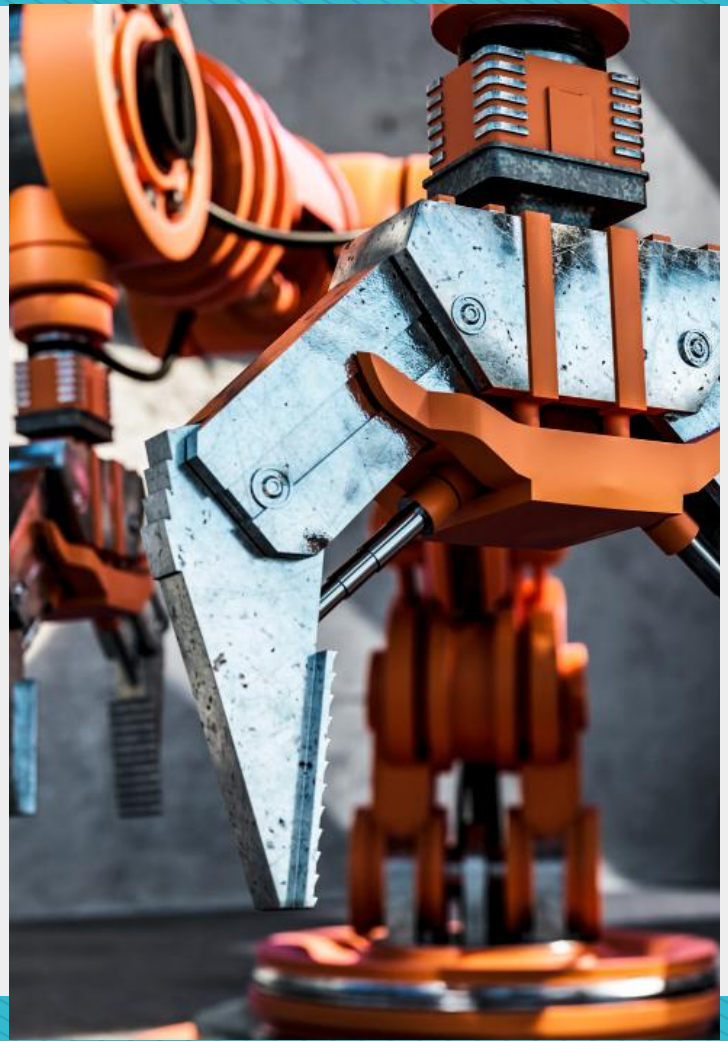

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Objectives

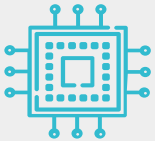
Our aim

To understand the relationship between service hours and maintenance needs in order to optimize operational efficiency and minimize downtime as opposed traditional reactive measures

The goal

Empower businesses to schedule maintenance activities strategically and ultimately enhancing overall productivity and reducing operational disruptions

Data insights



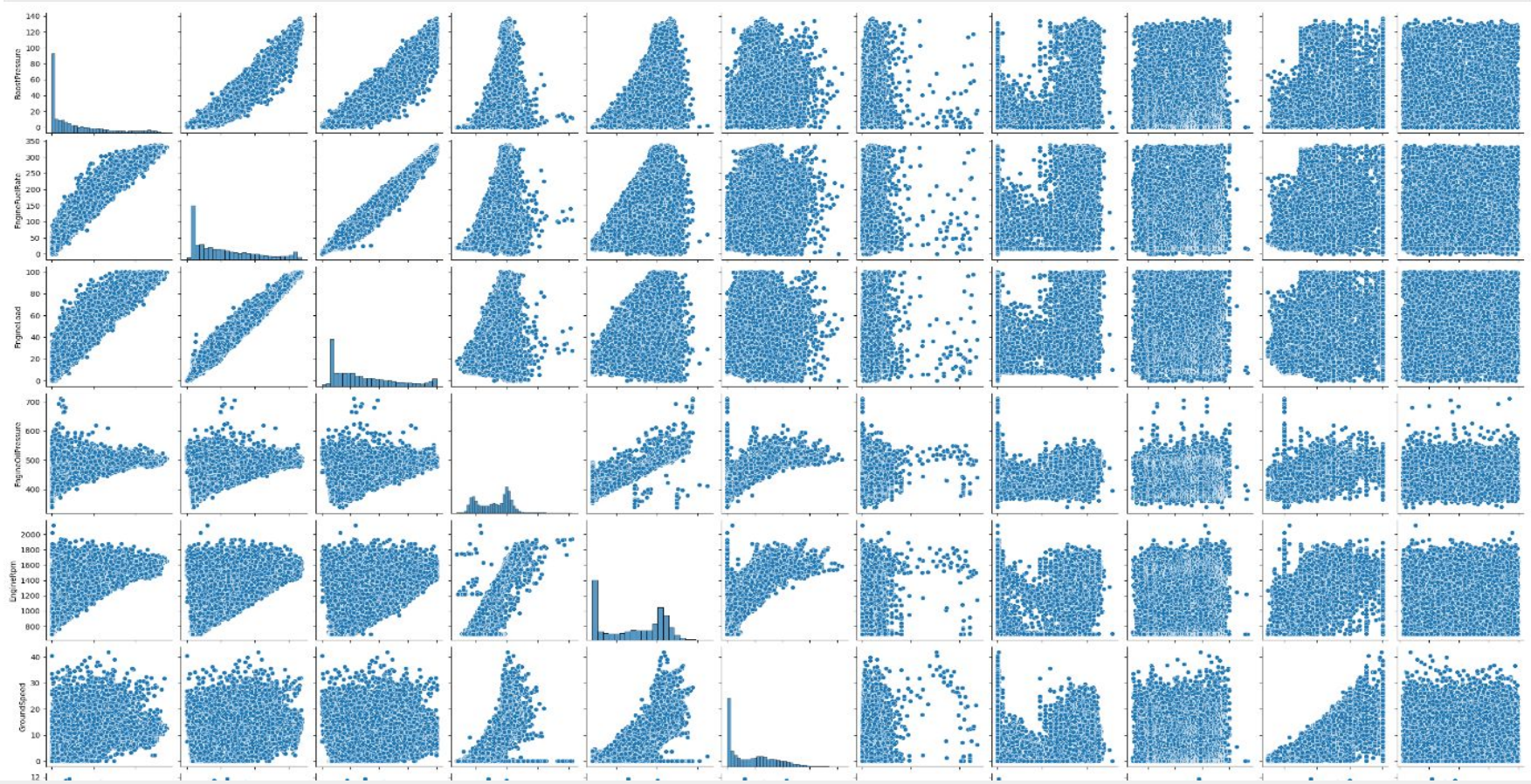
Data Collection

This was done using embedded sensors and telemetry systems integrated into each machine

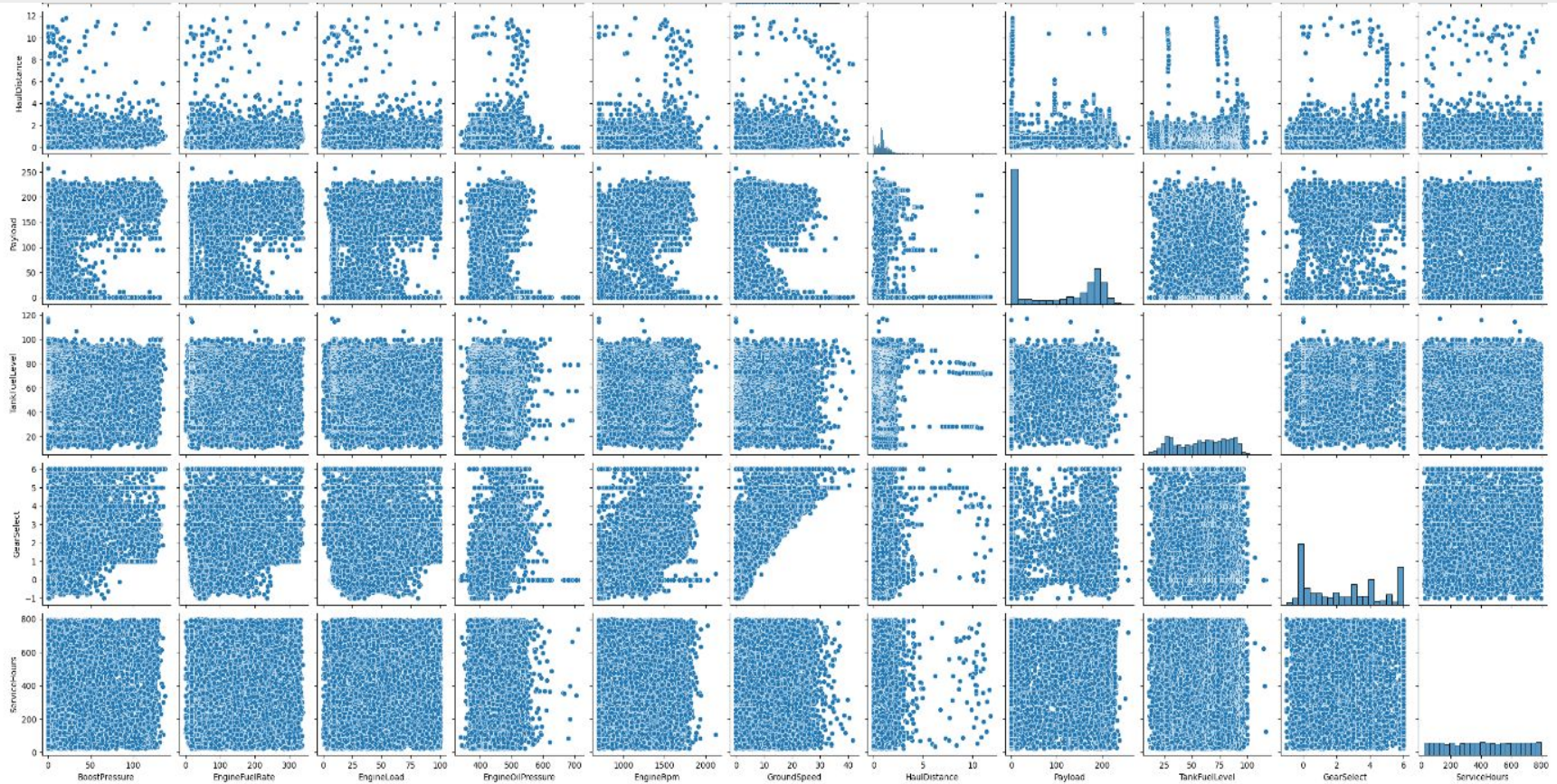
Machine characteristics

Boost pressure, Energy fuel rate, Engine Load, Engine oil pressure, Engine rpm, Ground speed, Haul distance, Payload, Tank fuel level, Gear select and Service hours for 11,500 samples

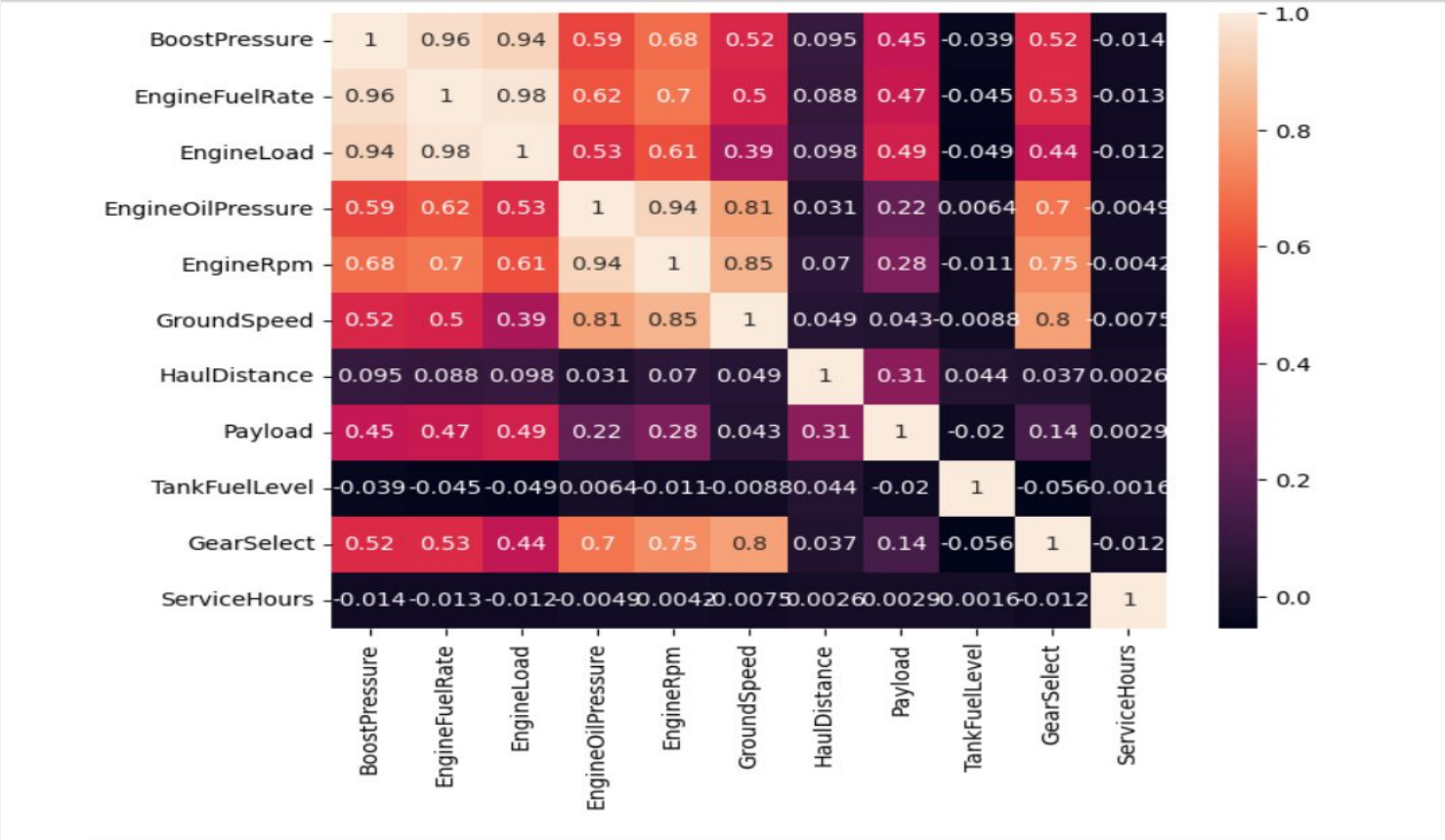
Visualizing relationships



Visualizing relationships II



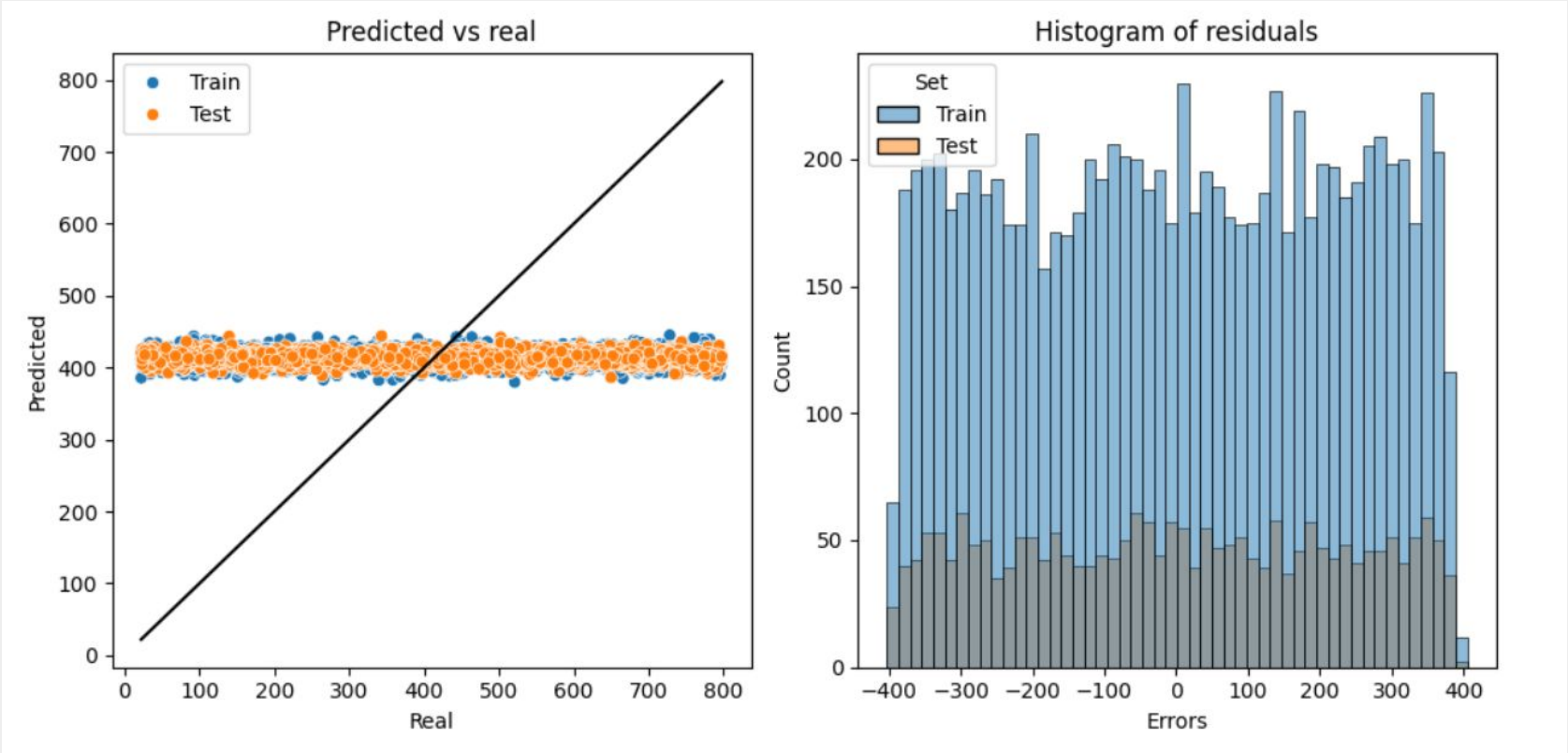
What does our correlation matrix say?



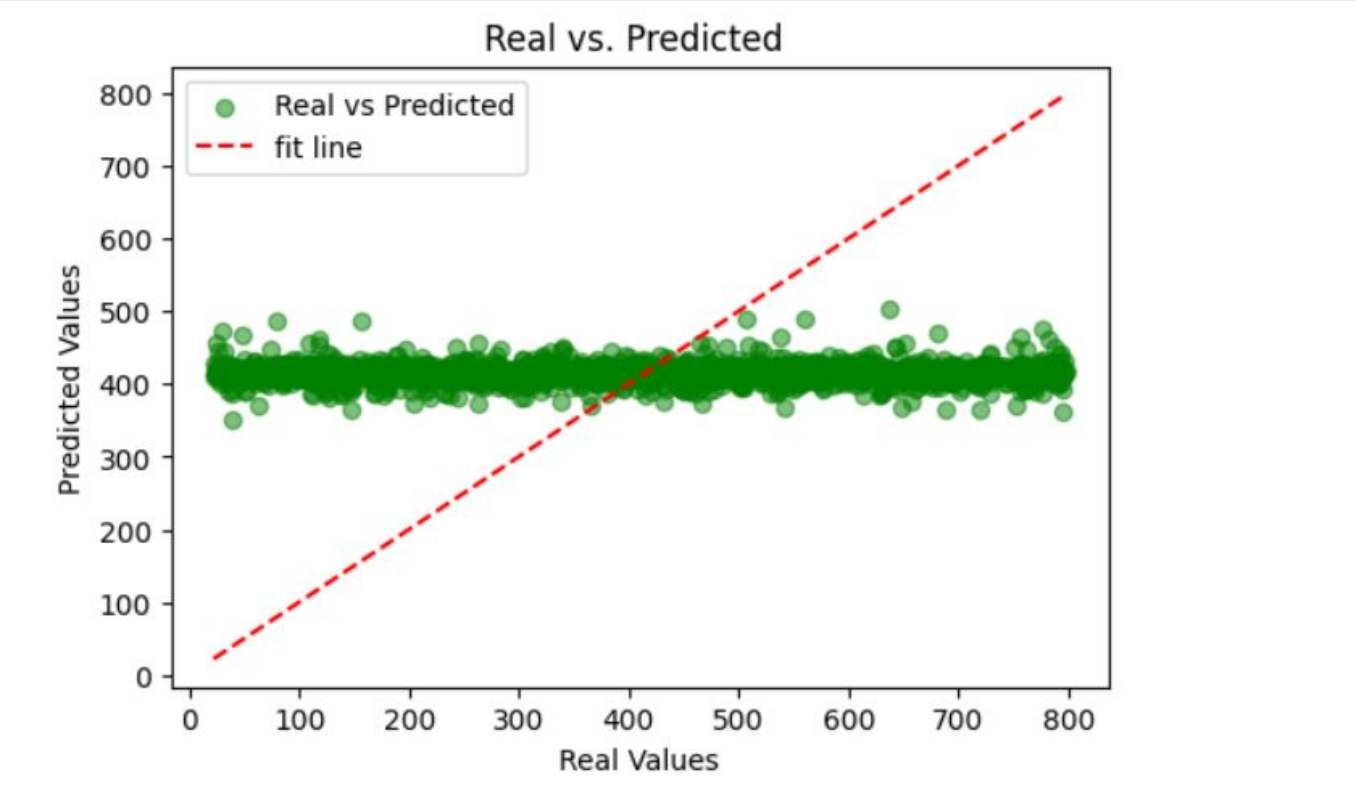
ML models for prediction

- Linear regression
  R2: 0.00
  RMSE: 225.30
- Random forest
  R2: 0.00
  RMSE: 225.40
- Knn regression
  R2: -3.30
  RMSE: 466.53

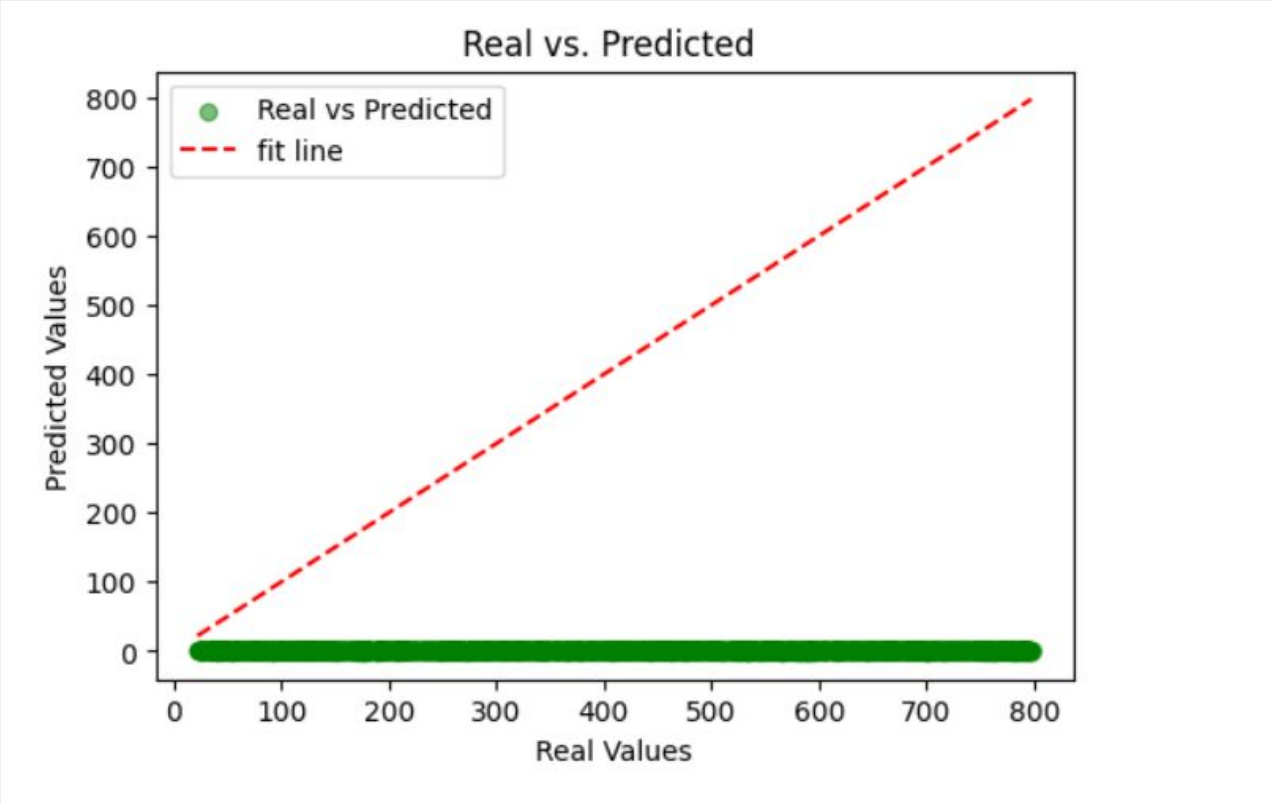
Prediction with linear regression



Prediction with random forest



Prediction with knn

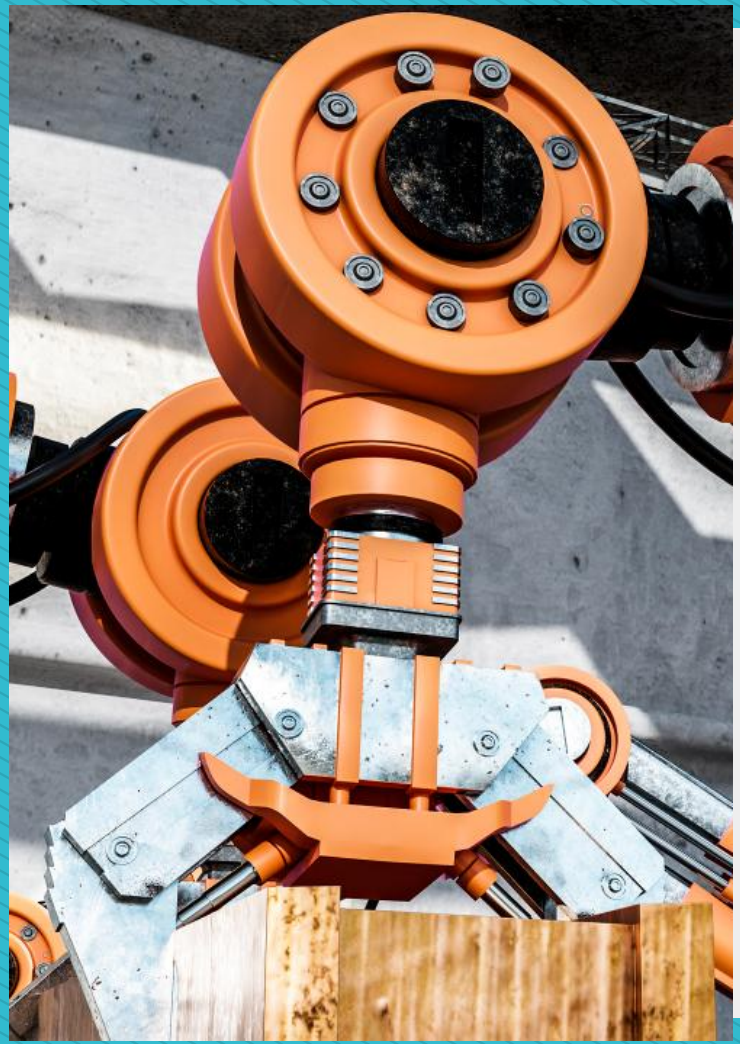


Conclusion

There was pretty nothing to predict seeing that our variables show a really low correlation with our target variable

What next?

Hone my data analysis skills and explore more datasets



Thanks!

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