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# Machine learning for warehousing: volume prediction

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# 3PL logistics



"Third-party logistics in logistics and supply chain management is an organization's use of third-party businesses to outsource elements of its distribution, warehousing, and fulfillment services."

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# Models

	LinearRegression	DecisionTree	RandomForest
R2	0.925529	0.752545	0.909486
MAE	9.278804	3.005389	9.105760
RMSE	76.083833	4.327471	85.949043

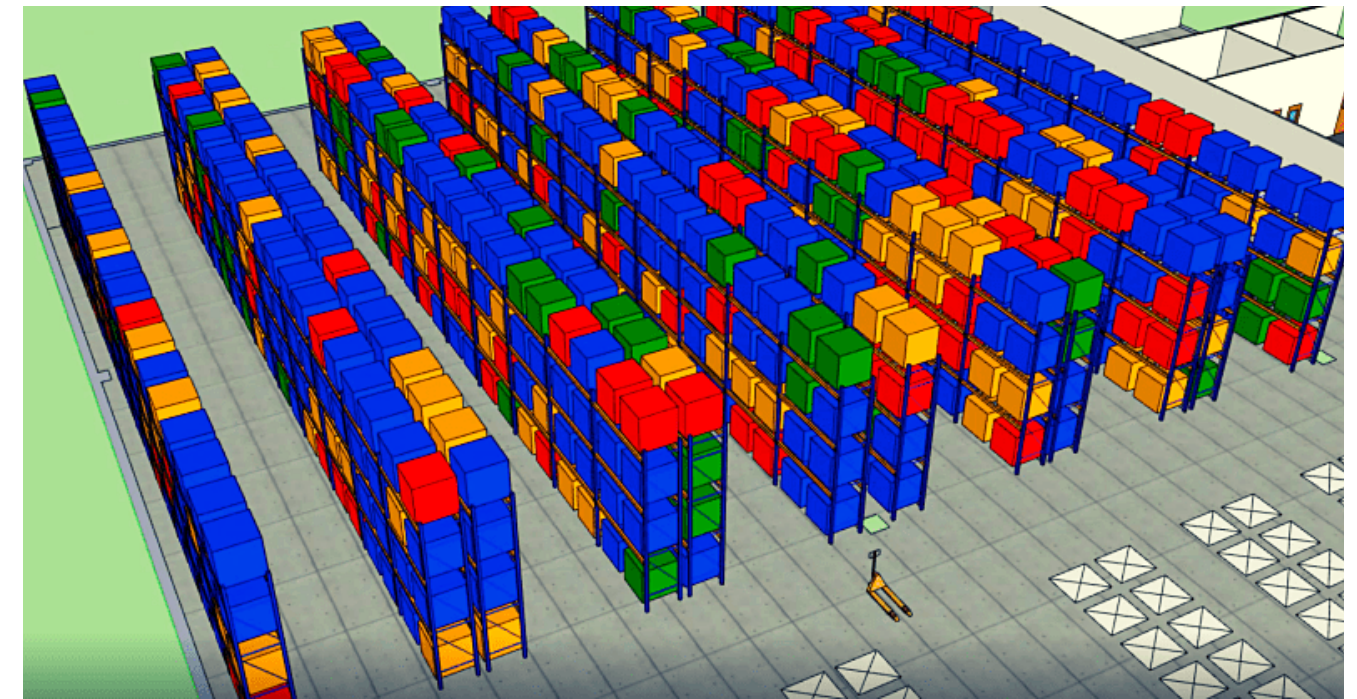
## Additional features

- daily average
- monthly average
- rolling mean



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# What is the benefit?



ABC analysis is always based on historical data.  
Resource planning is based on customer forecasts and productivity models.  
Knowing the quantities and products that are in demand helps to reduce waste in the process. Good ABC is a great boost to productivity because much more output is achieved for the same amount of effort.

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# Future improvements

- XGBoost model
  - Explore NaN values from a rolling mean
  - examine outliers and how to deal with them, as they are important for production volumes
  - Use Streamlit to find prices and categories on a customer website
  - Build a website using Streamlit to display results for individual days and part numbers.
  - Build an ABC analysis for predicted SKUs and volumes and create a new group for stable demand
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# Questions

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