



Group of
Horribly
Optimistic
STatisticians



Data Visualizations pt.2

Intro to Data Science

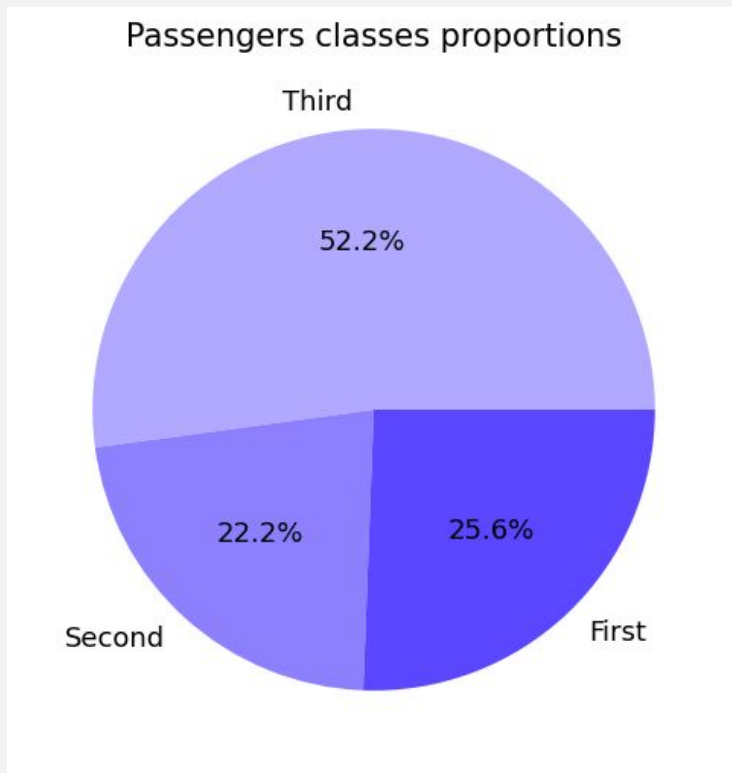
Maksymilian Norkiewicz & Jędrzej Ogrodowski



Proportions

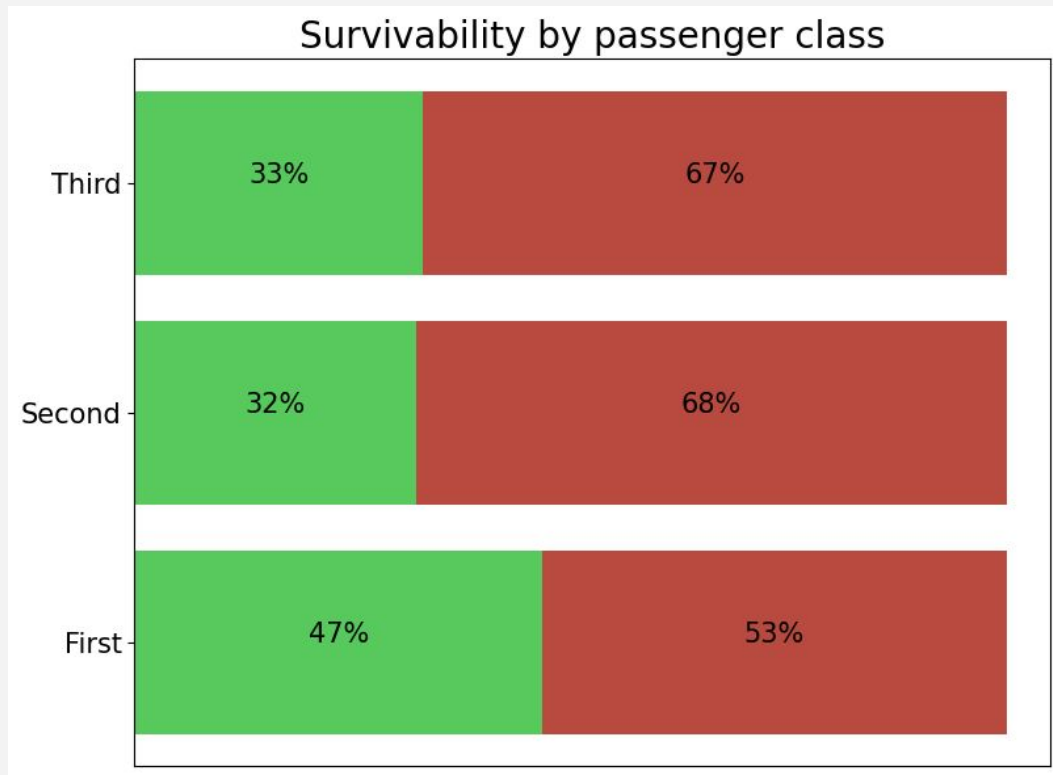


Pie chart



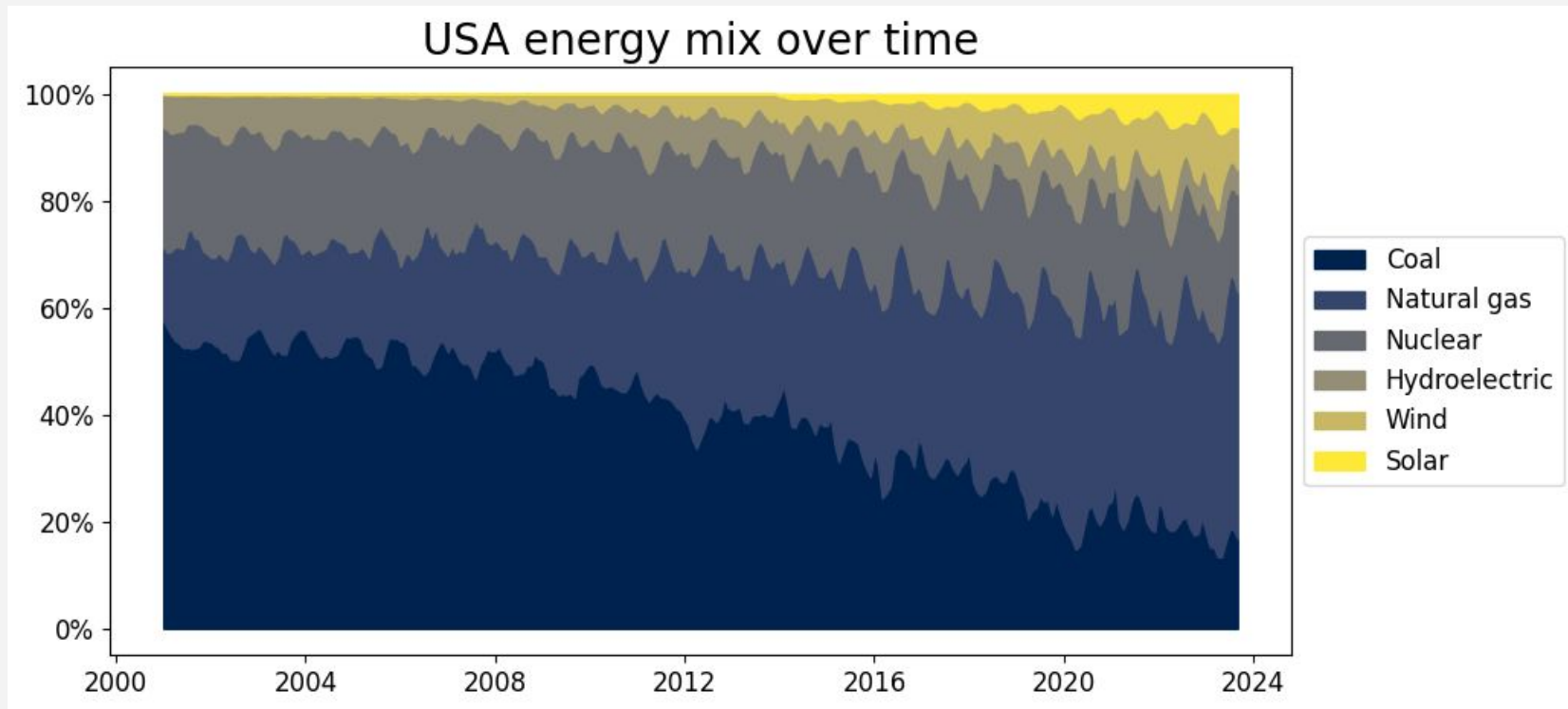


Bar chart





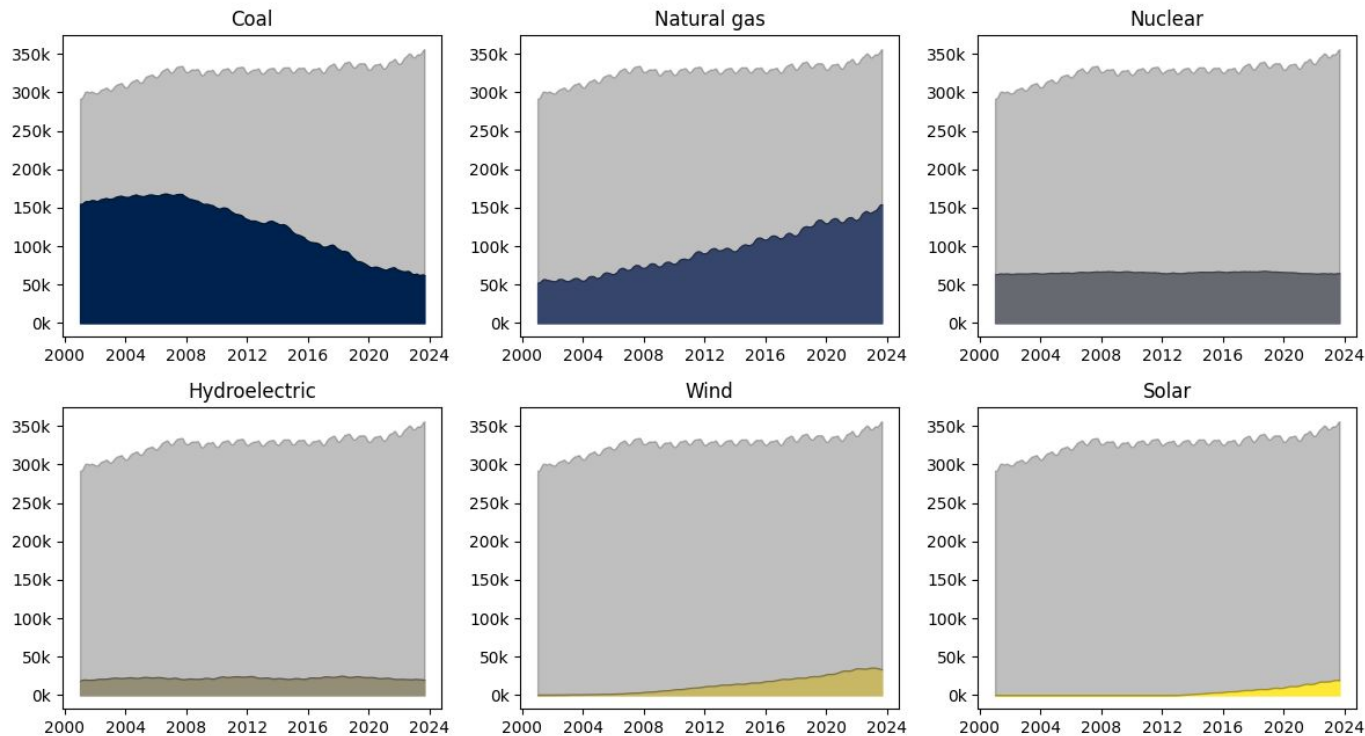
Stacked density plot





Stacked density plot

USA energy mix over time (in megawatt-hours)





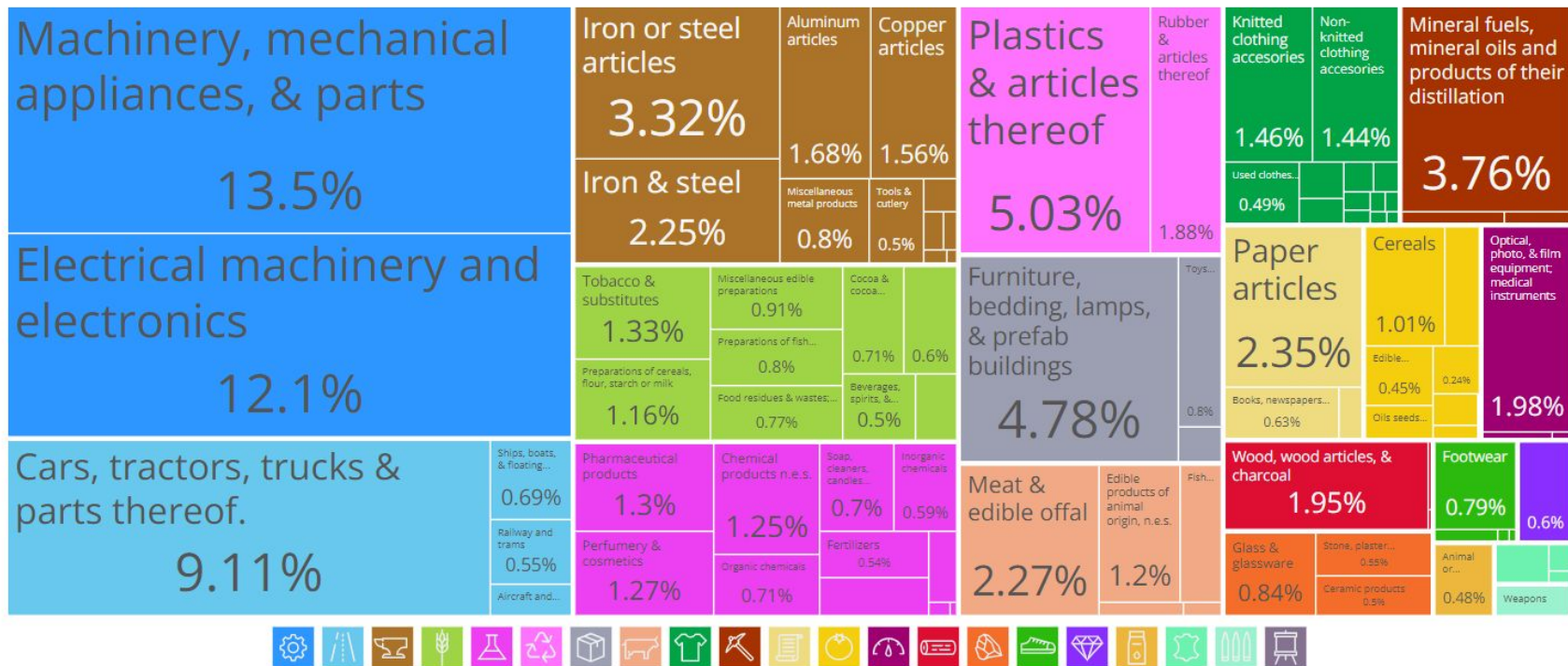
Treemap





What does Poland export? (2022)

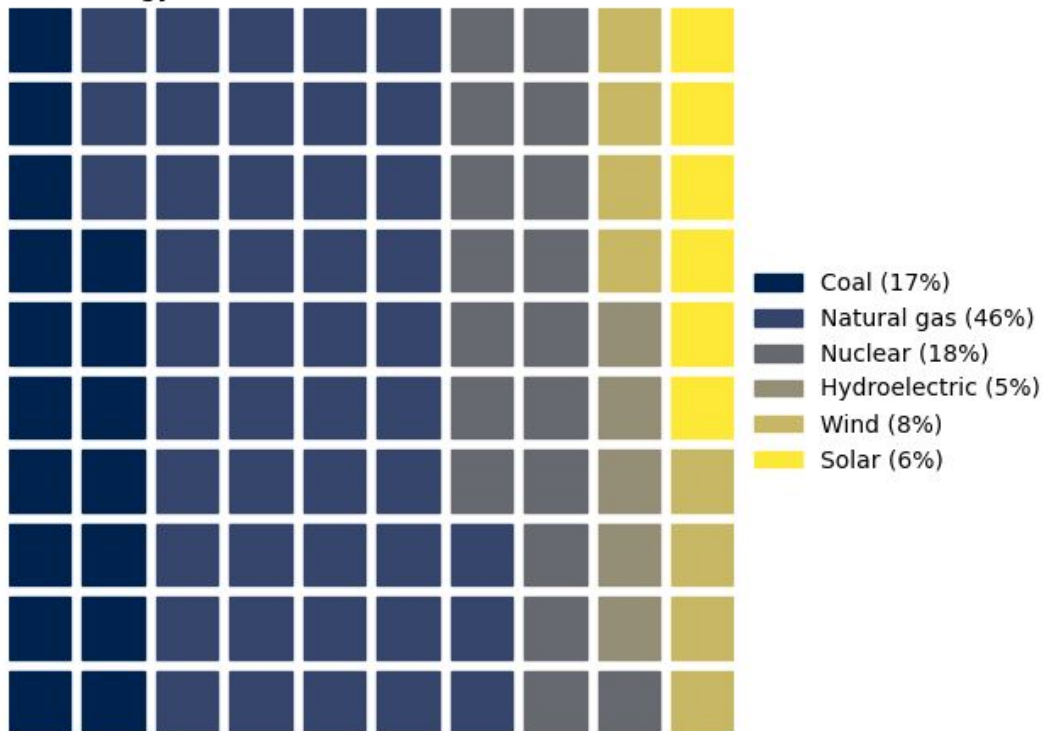
Total: \$346B





Waffle

USA energy mix

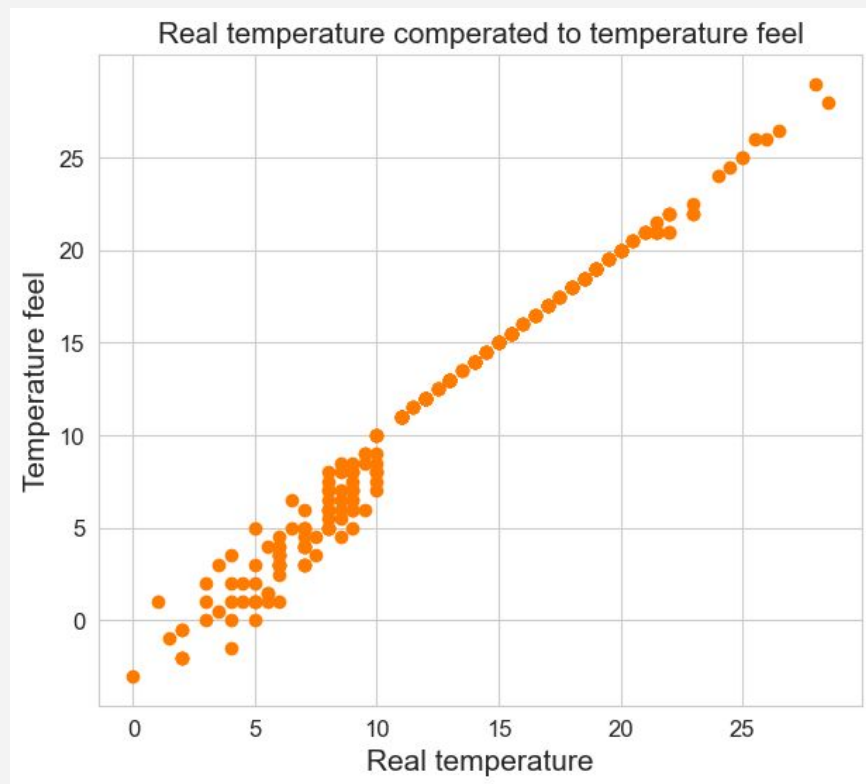




Connections

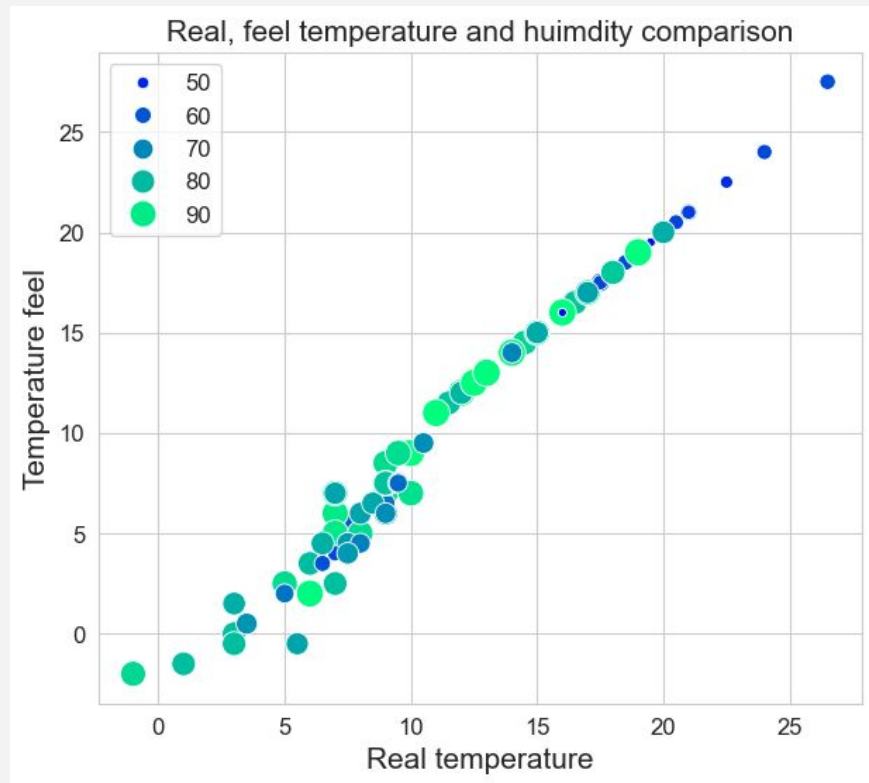


Scatter plot



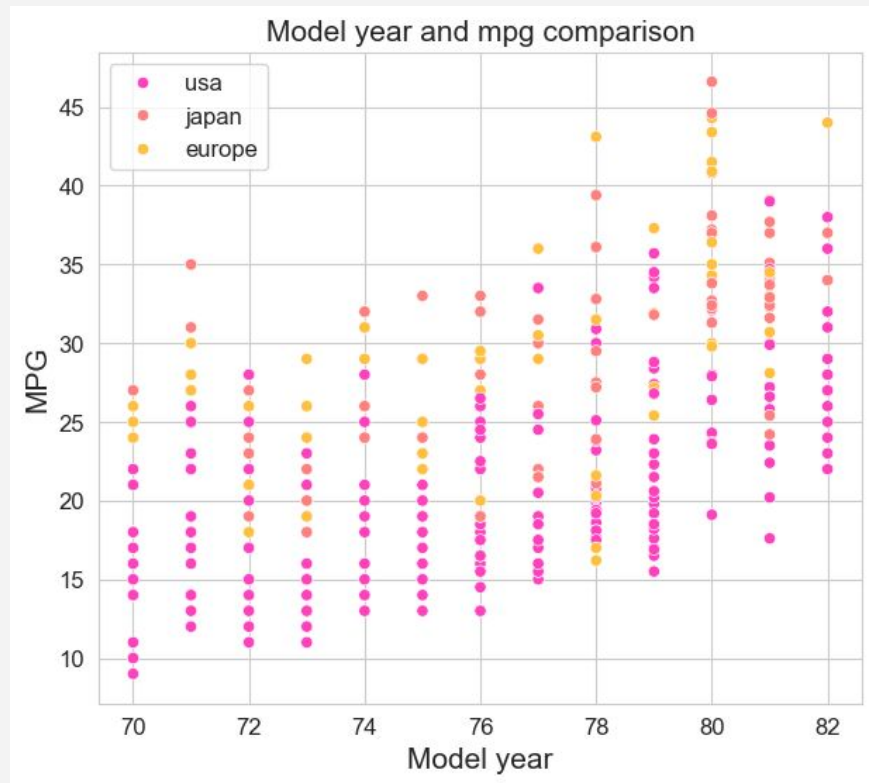


Bubble plot



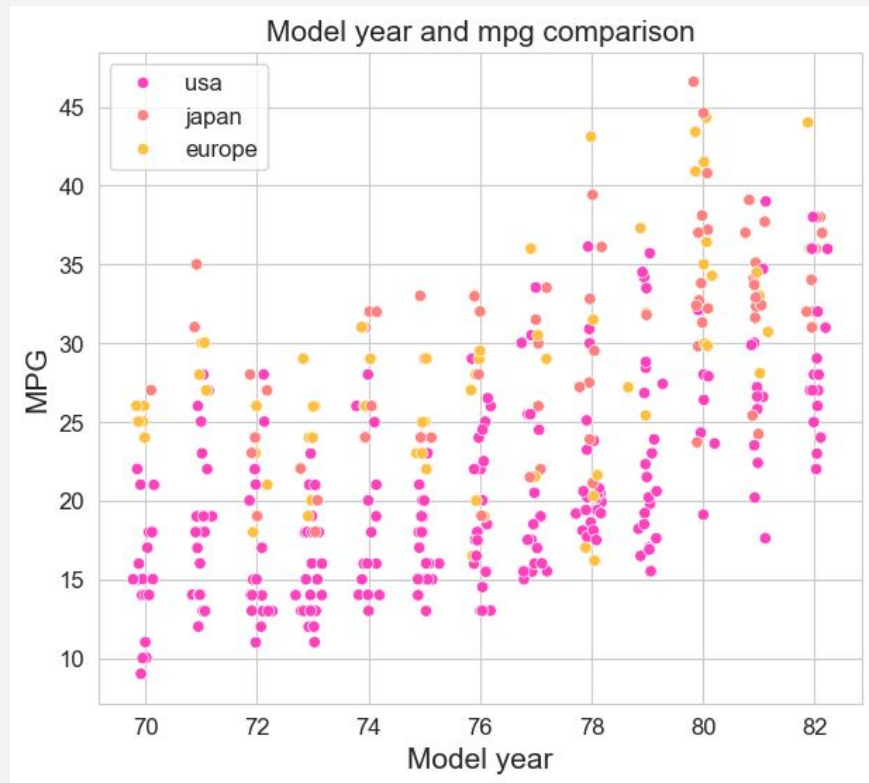


Jittering



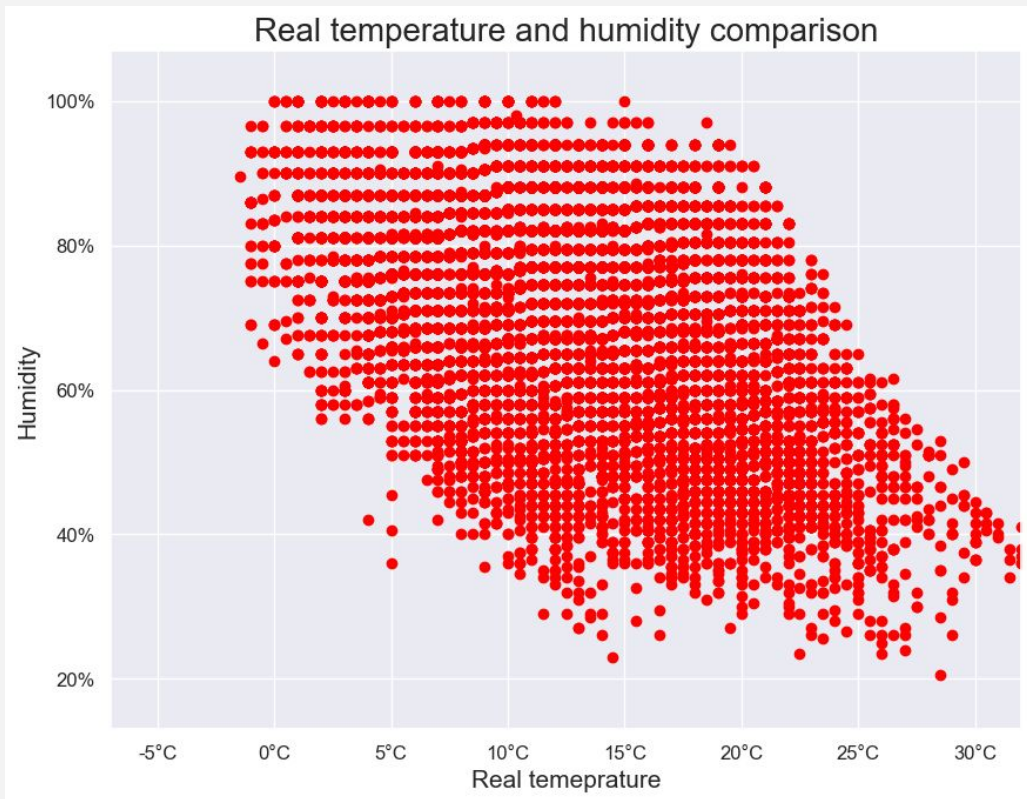


Jittering



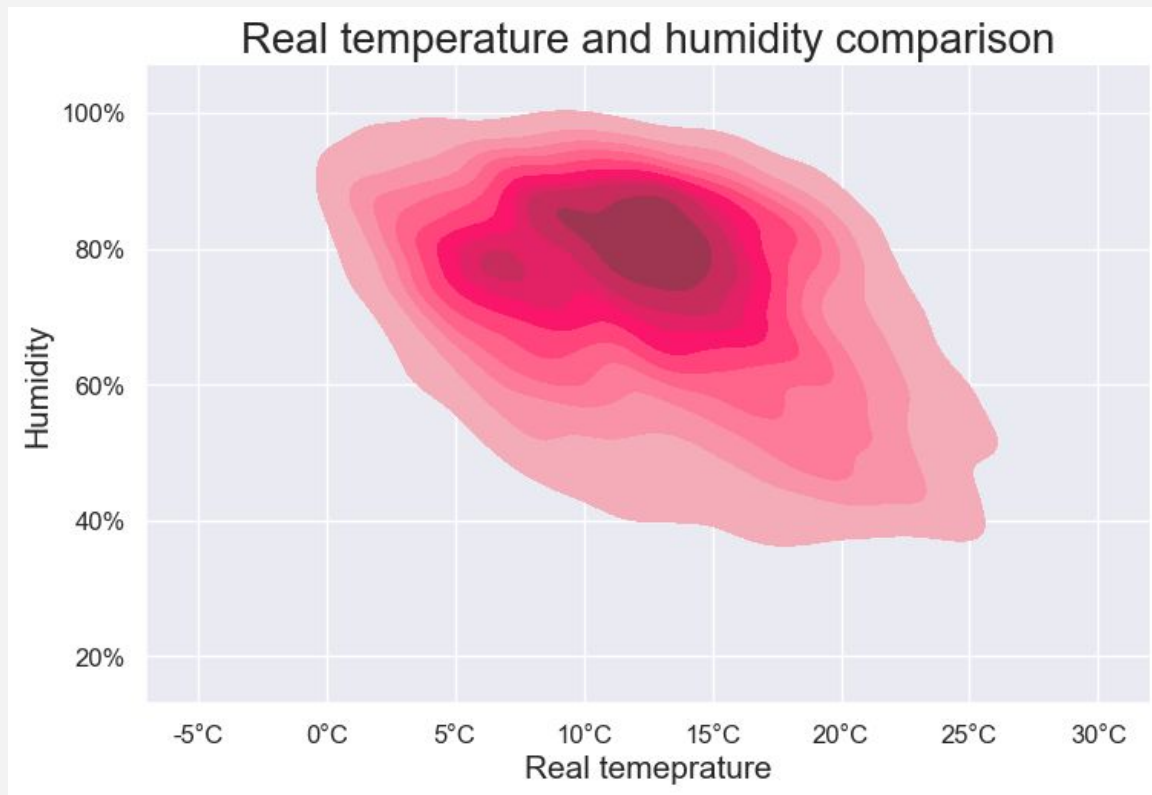


Overlapping points



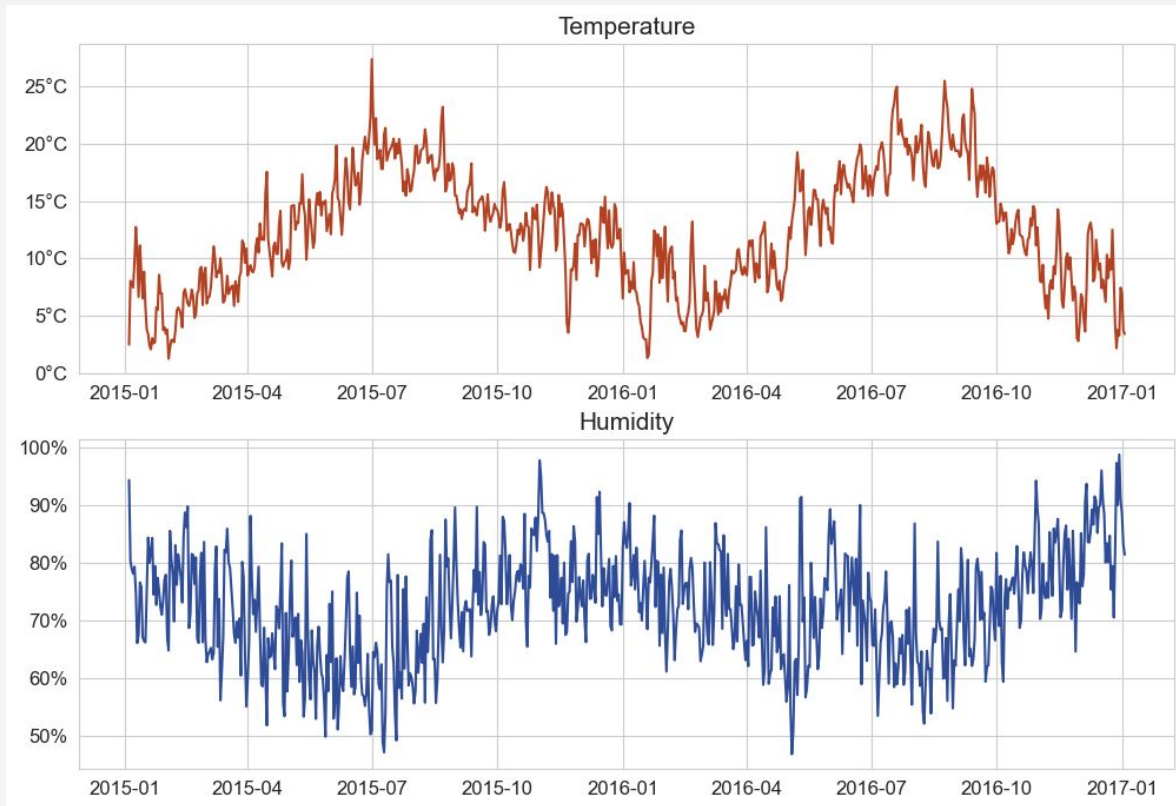


2D density graph



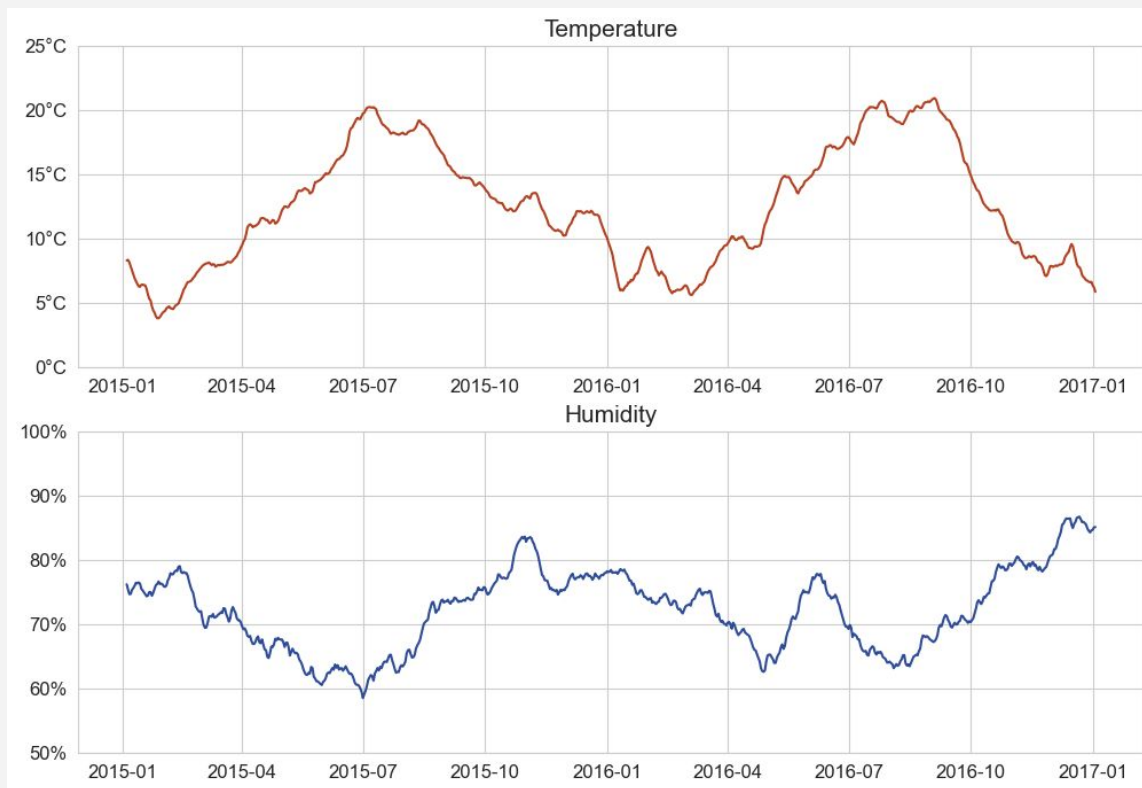


Line graph



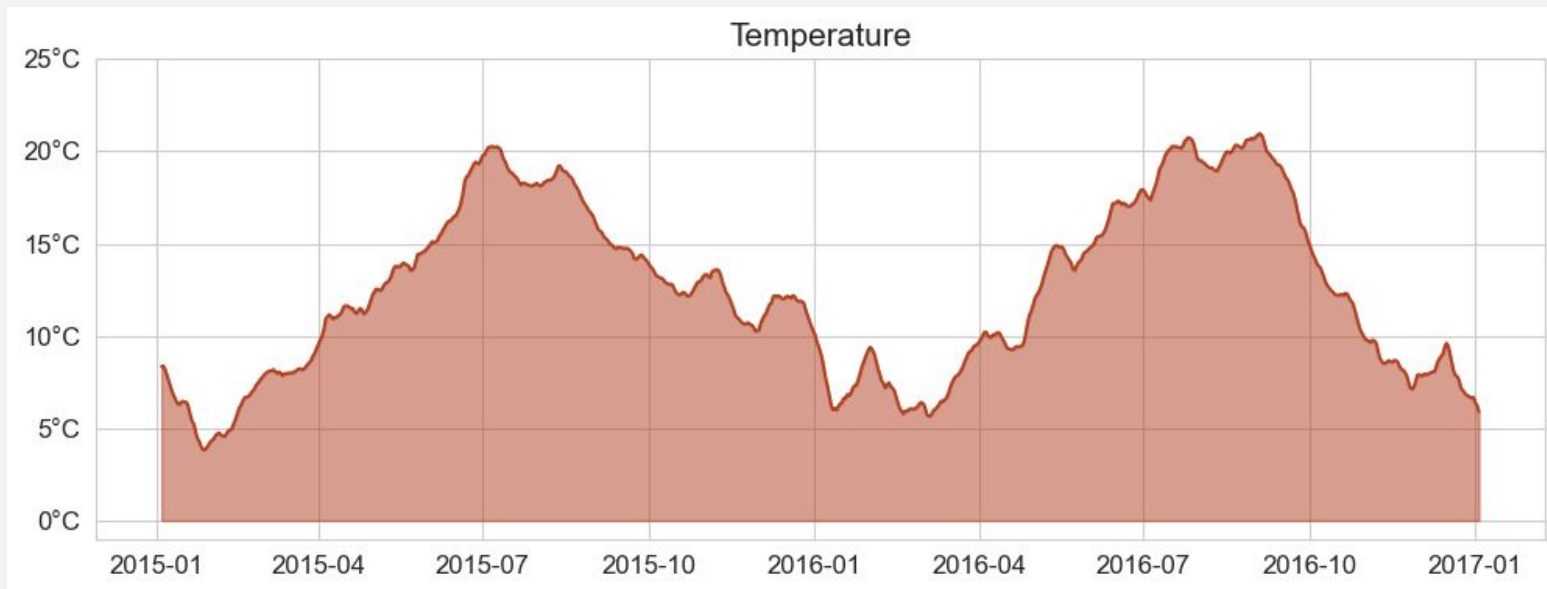


Line graph of data trend



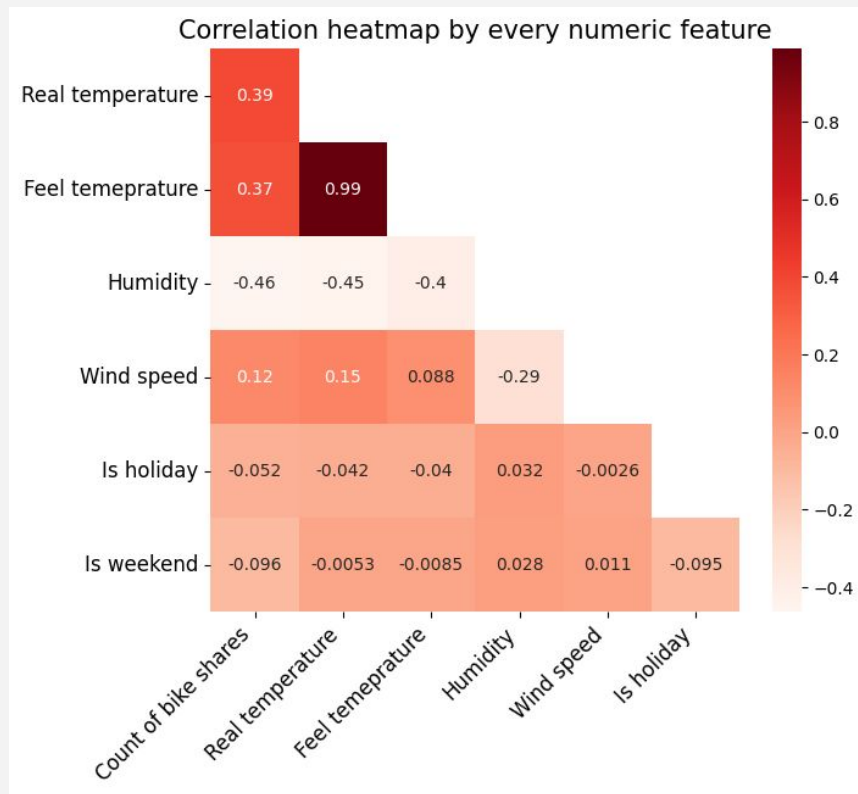


Area plot





Heatmap for correlation





Dimensionality reduction

How many features We
can fit on one graph



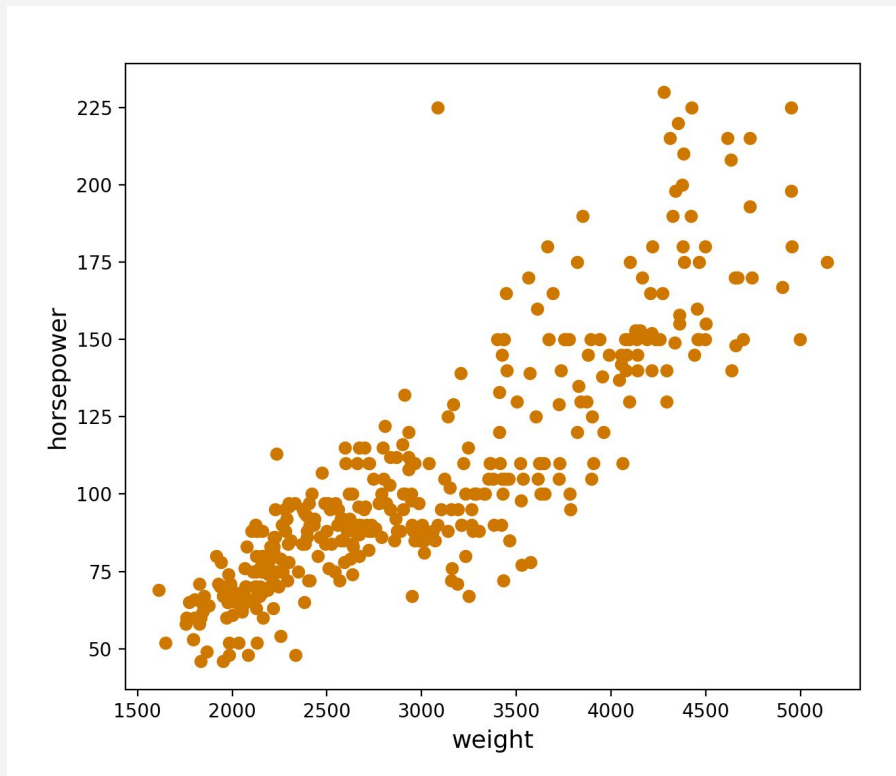


Dimensionality reduction

	cylinders	displacement	horsepower	weight	acceleration	model_year
0	8	307.0	130.0	3504	12.0	70
1	8	350.0	165.0	3693	11.5	70
2	8	318.0	150.0	3436	11.0	70
3	8	304.0	150.0	3433	12.0	70
4	8	302.0	140.0	3449	10.5	70

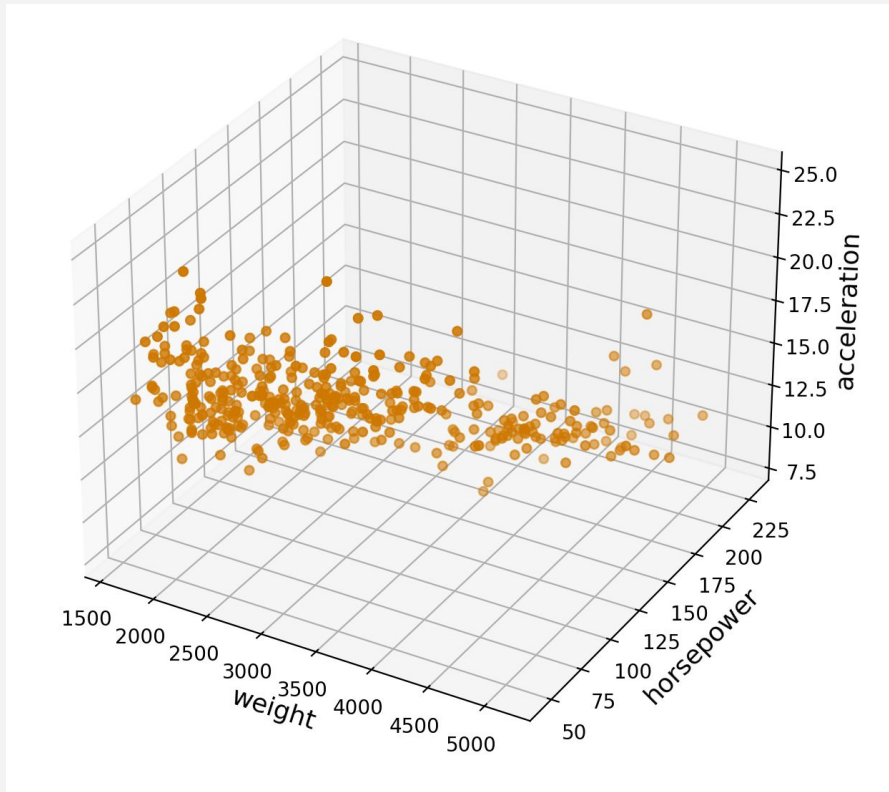


Dimensionality reduction



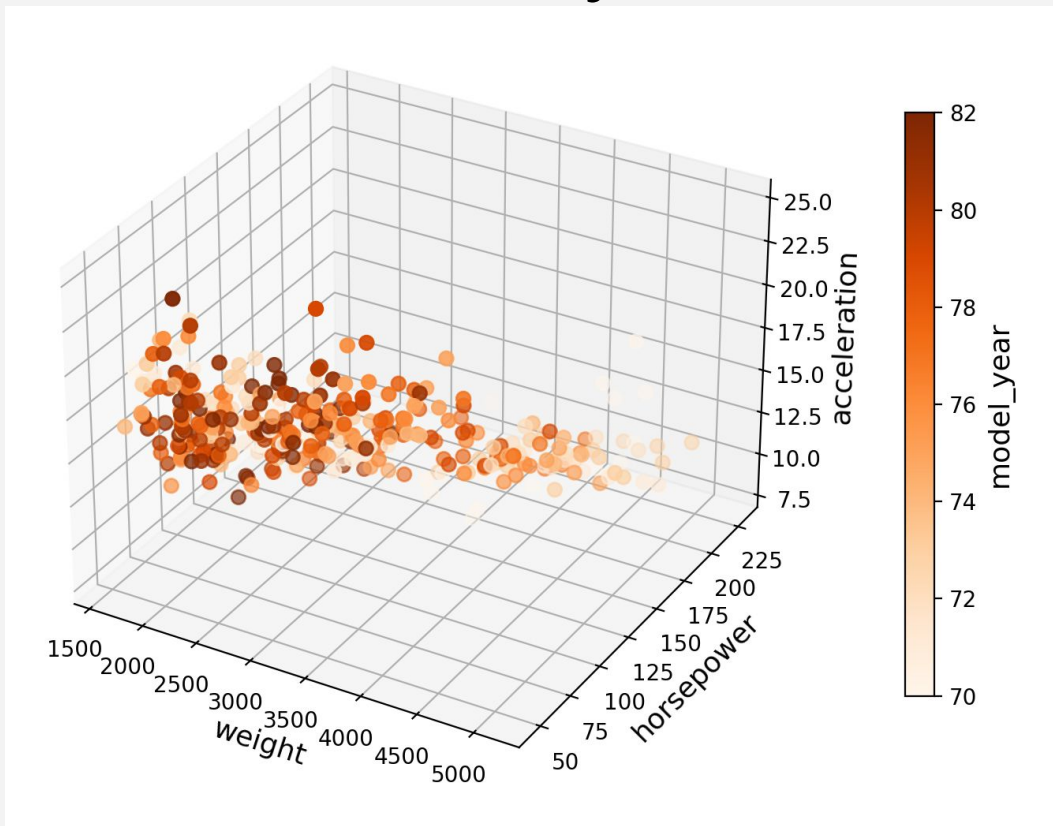


Dimensionality reduction





Dimensionality reduction





Principal component analysis

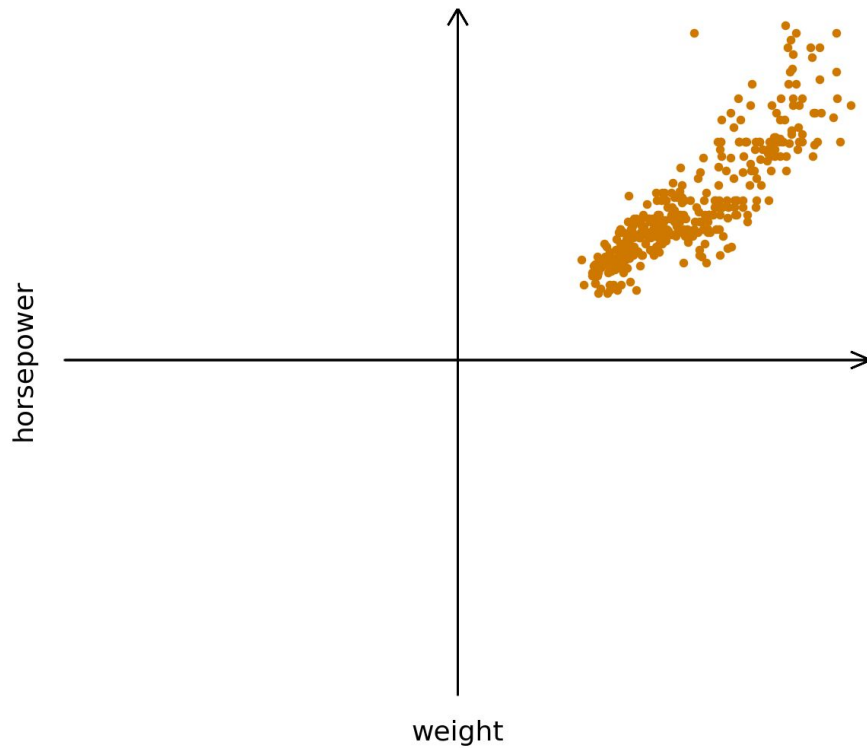


PCA



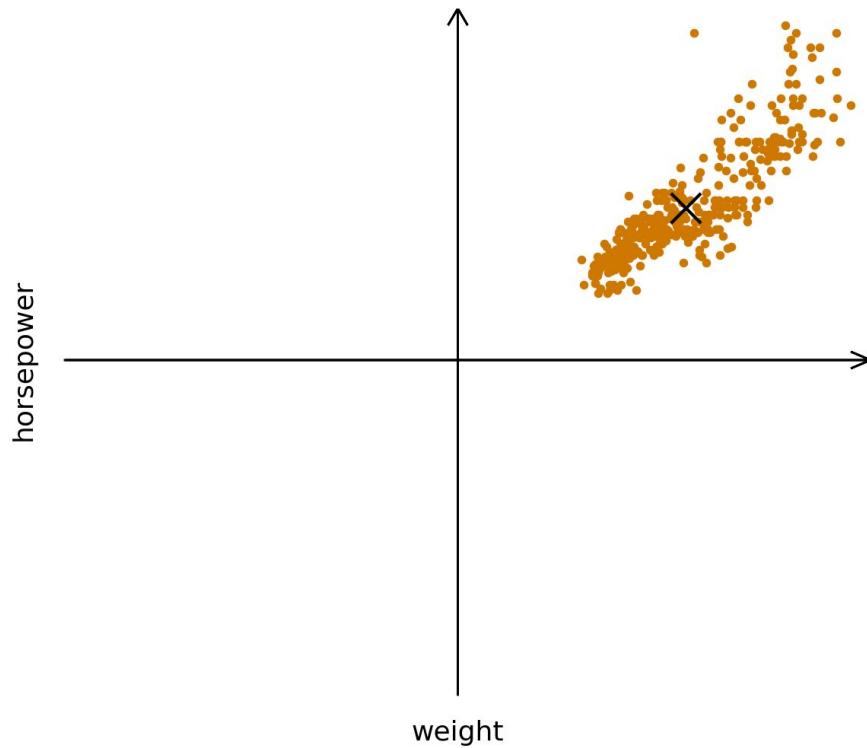


PCA



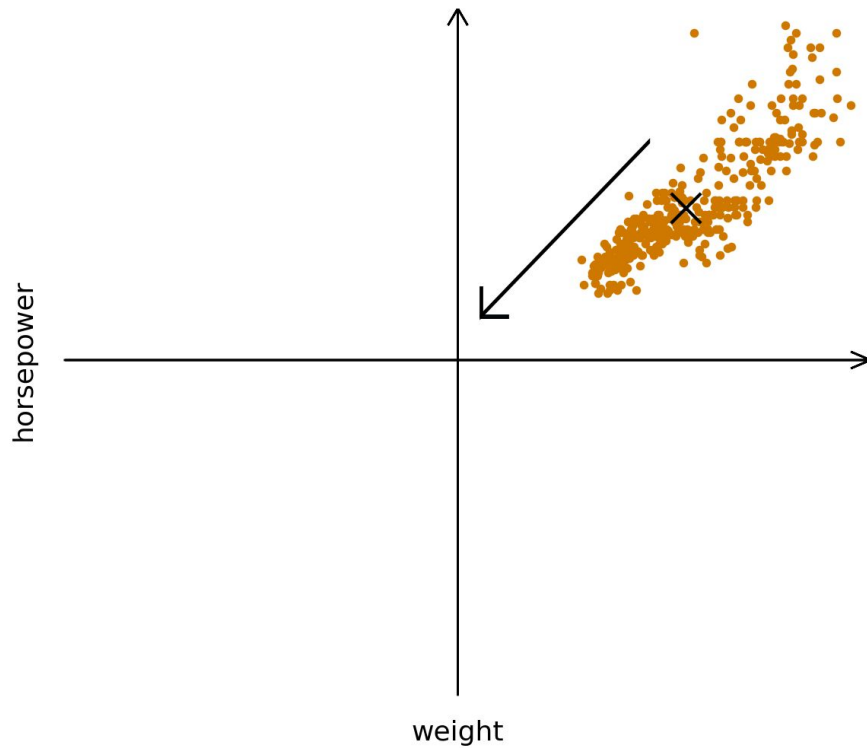


PCA





PCA

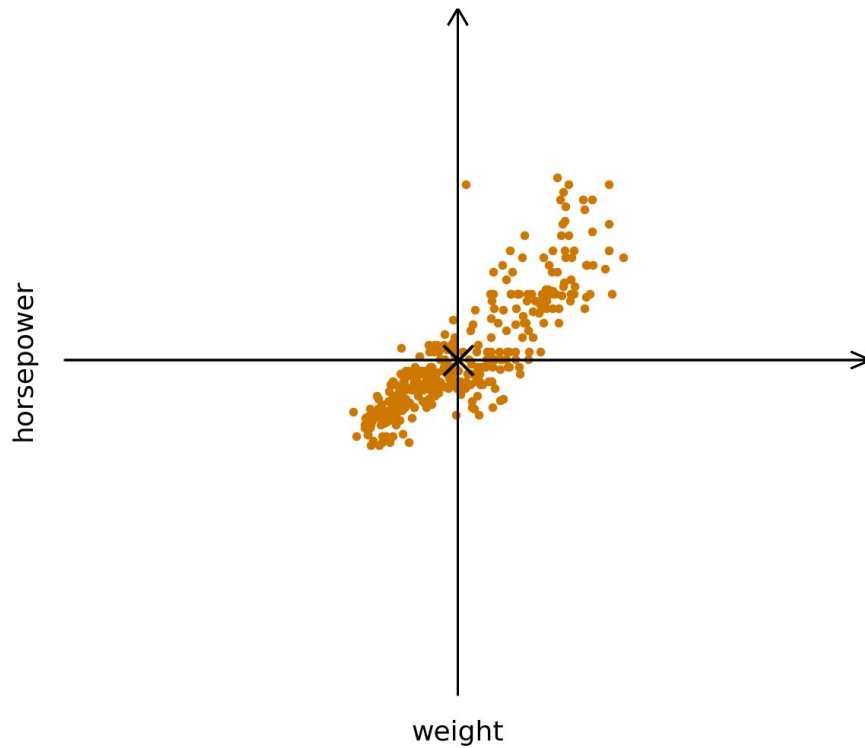




PCA

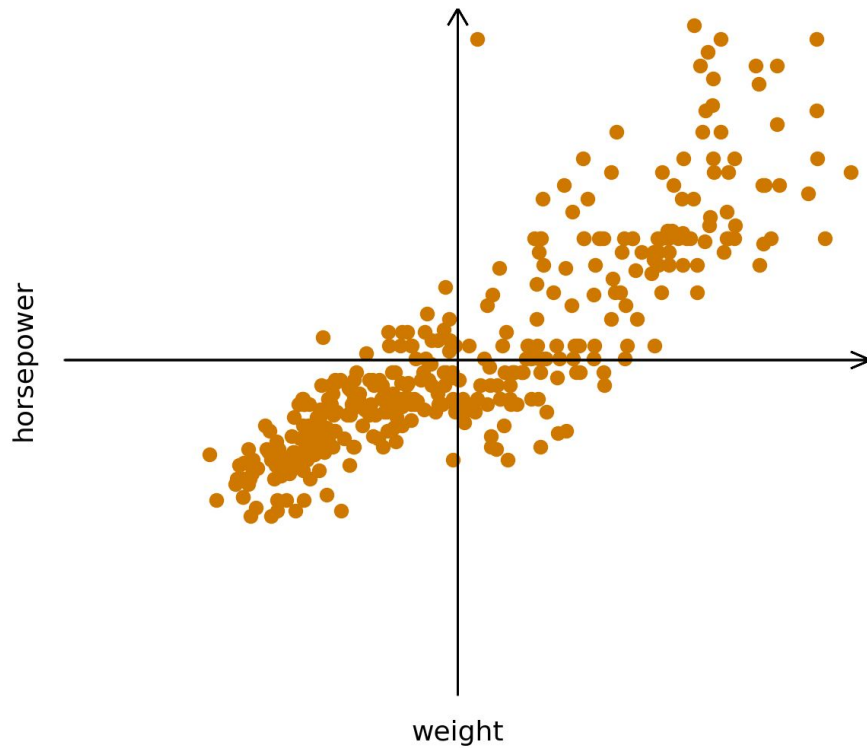


PCA



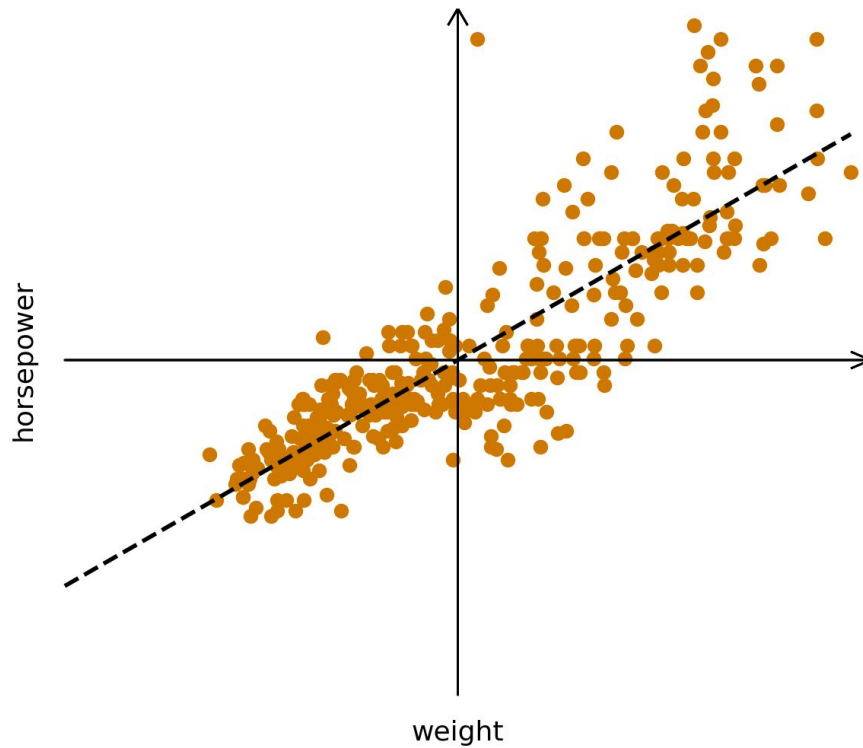


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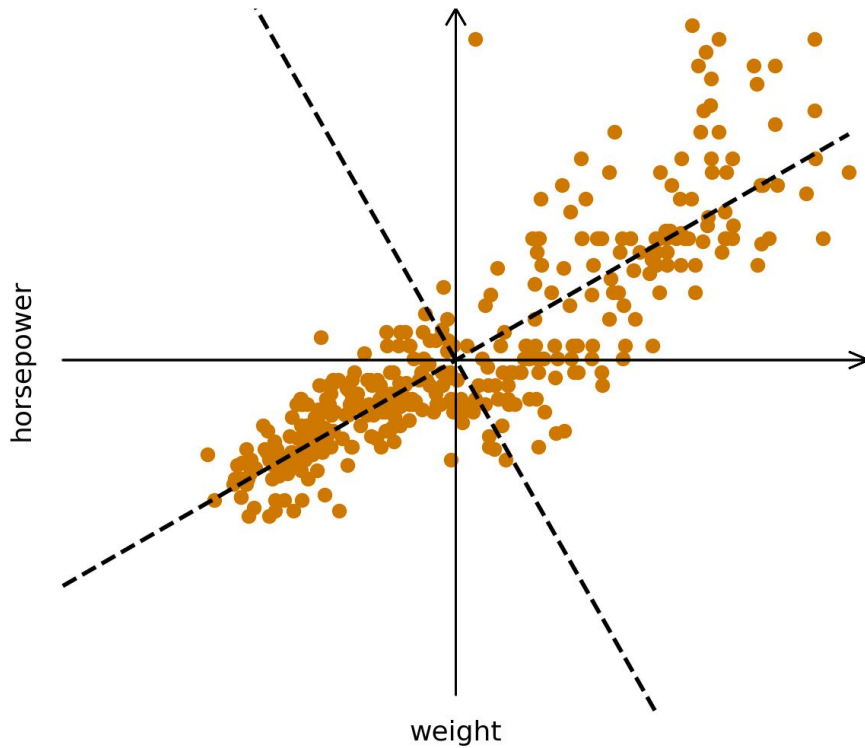


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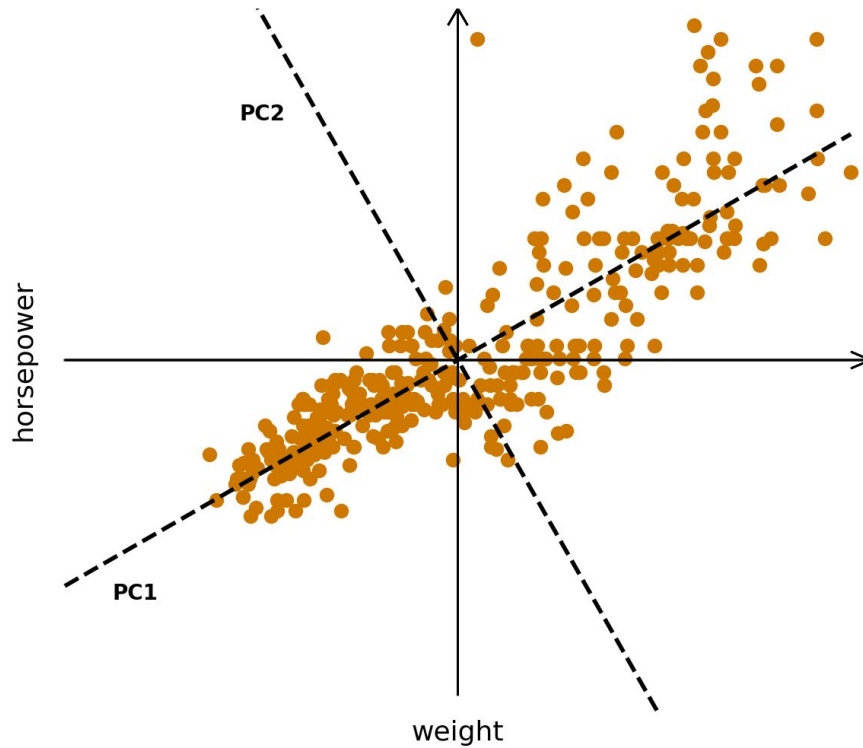


PCA



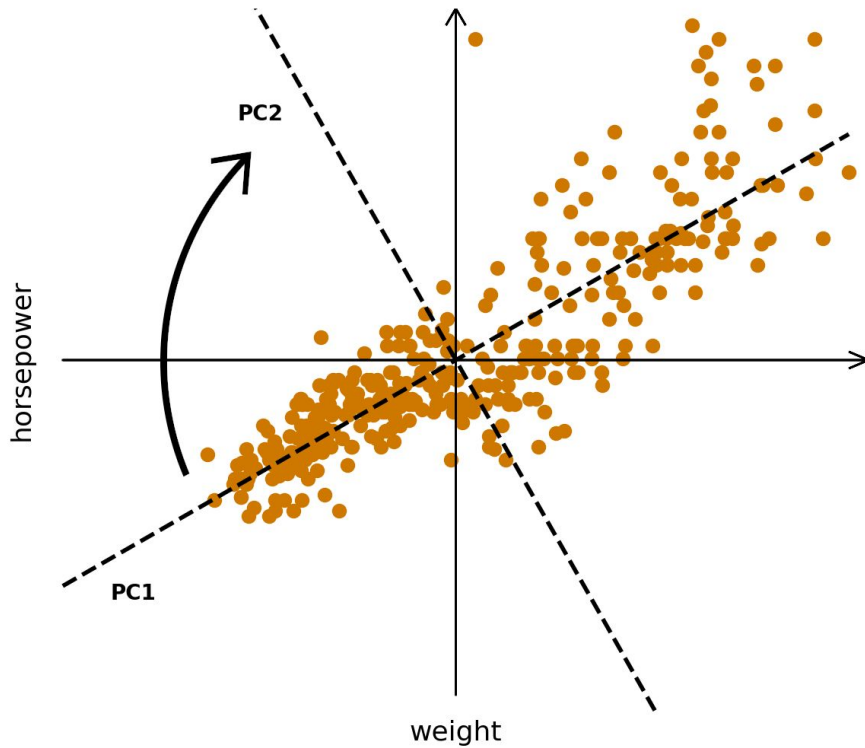


PCA



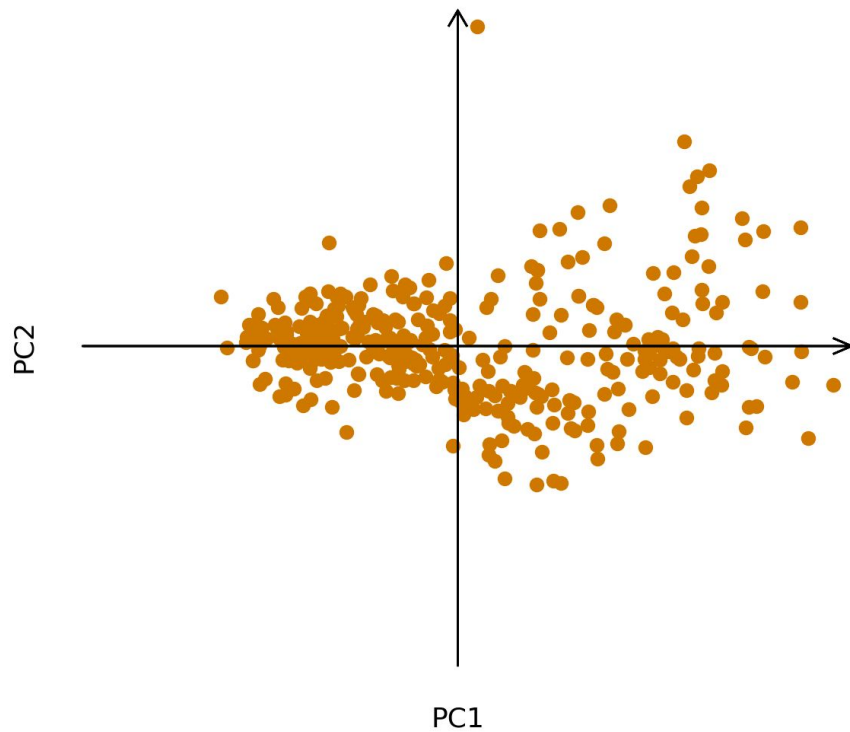


PCA





PCA





References

Information sources:

- [1] Wes McKinney, [Python for Data Analysis, 3E](#) (2022), Wes's Blog
- [2] Claus O. Wilke, [Fundamentals of Data Visualization](#) (2019), Claus Website

Data sources:

- [3] Sri Harsha Eedala, [Electricity Generated in US by Sector](#) (2023), Kaggle
- [4] Hristo Mavrodiev, [London bike sharing dataset](#) (2019), Kaggle

Other:

- [5] [My private notes about data visualization an examples](#)
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