

Machine Learning

Strategic Data Science (SDS)

Machine Learning in Social Science

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In practice, this means developing computer programs that can make predictions based on data. Just as humans can learn from experience, so can computers, where:
data = experience

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- Obermeyer, Z. and Emanuel, E.J., 2016

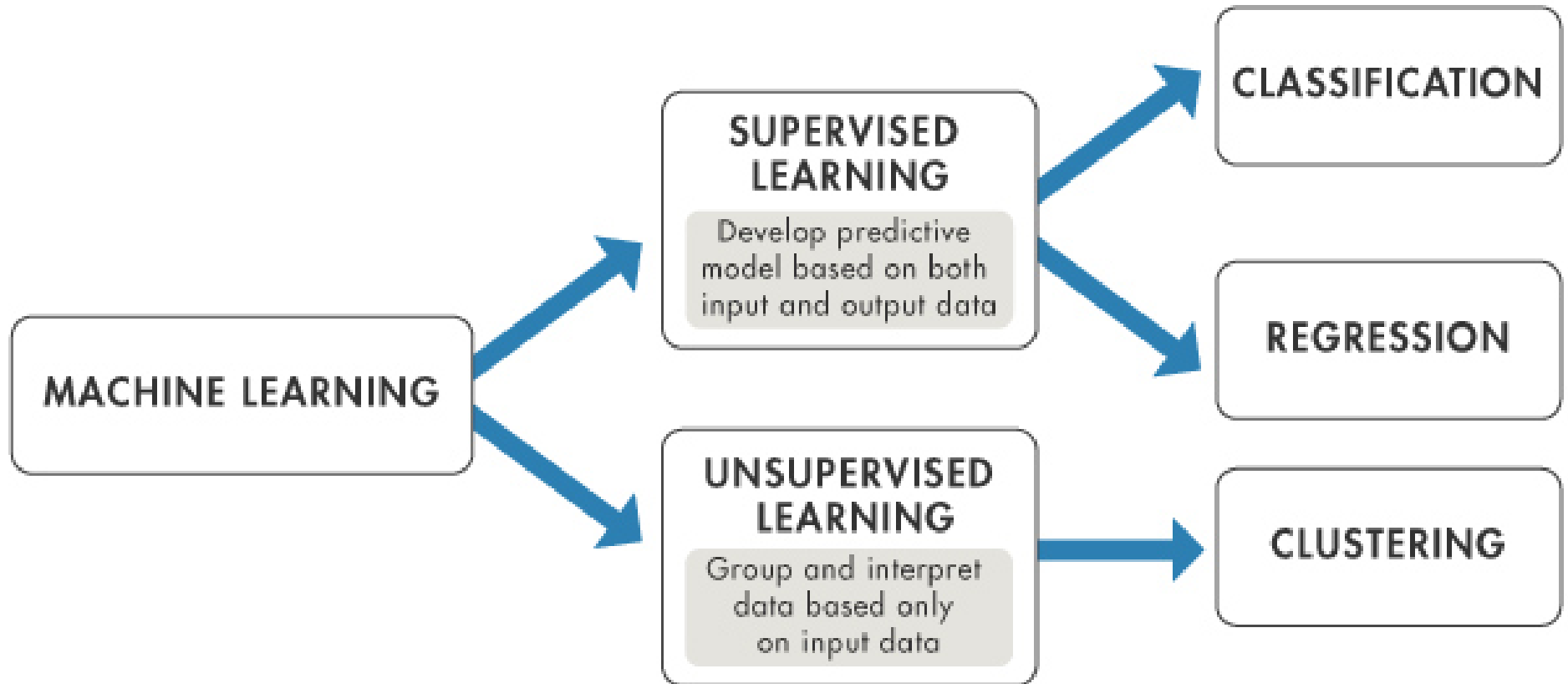
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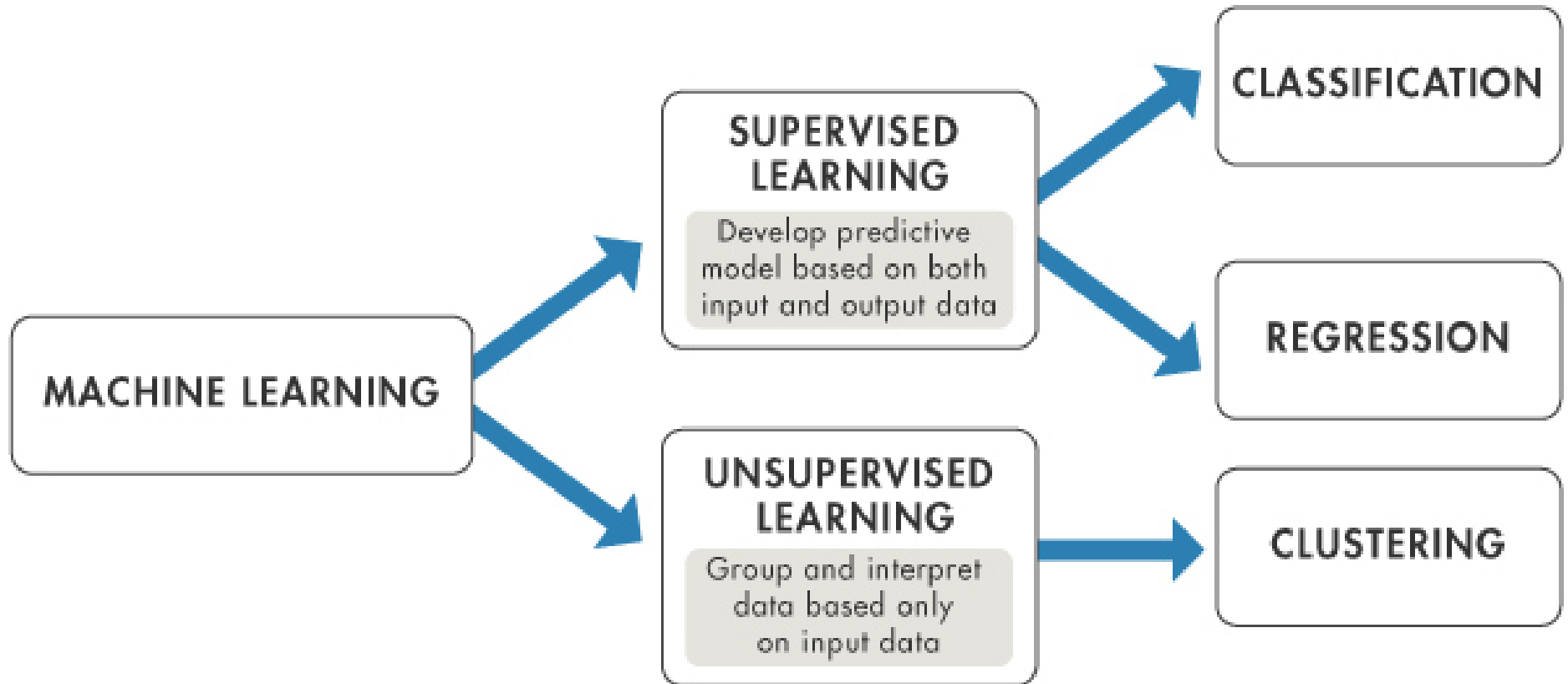
Starting with patient-level observations, algorithms sift through vast numbers of variables, looking for combinations that reliably predict outcomes...where machine learning shines is in handling enormous numbers of predictors—sometimes, remarkably, more predictors than observations—and combining them in nonlinear and highly interactive ways.”

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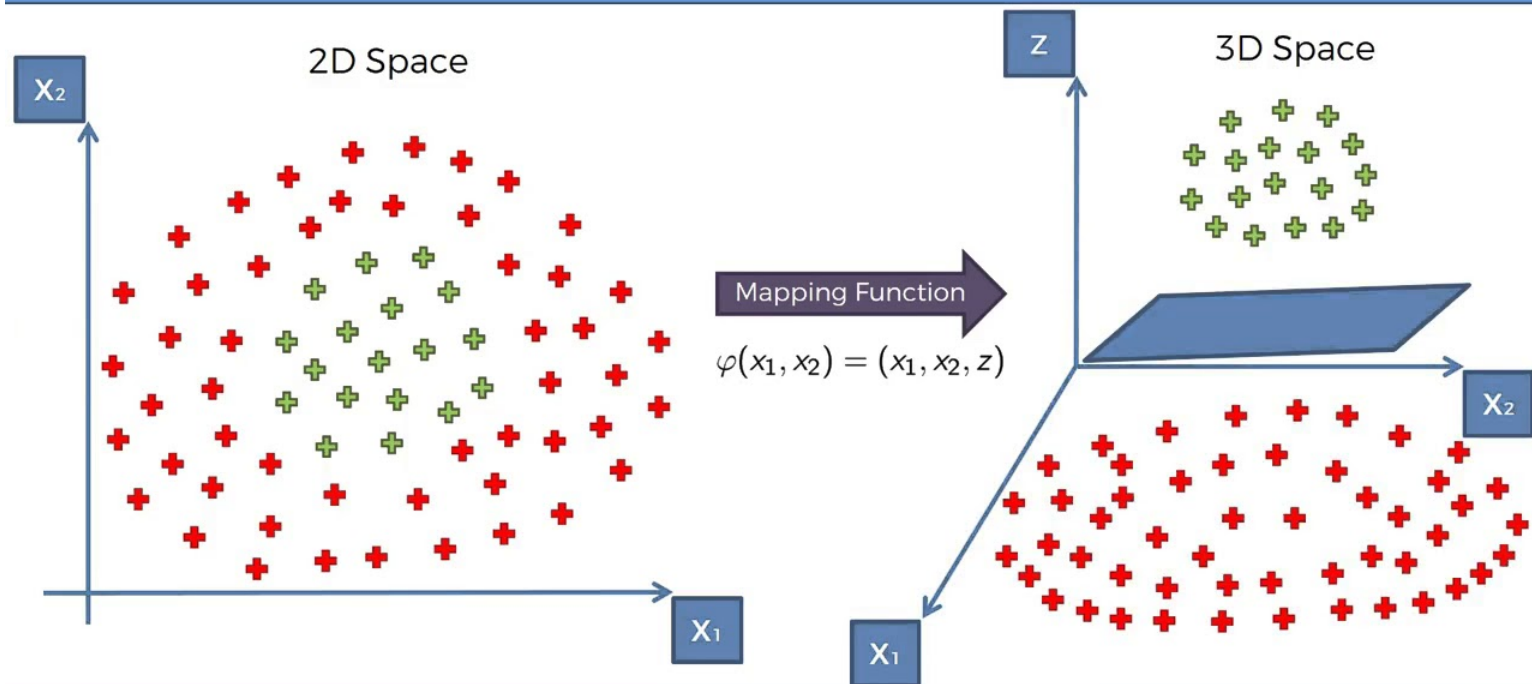


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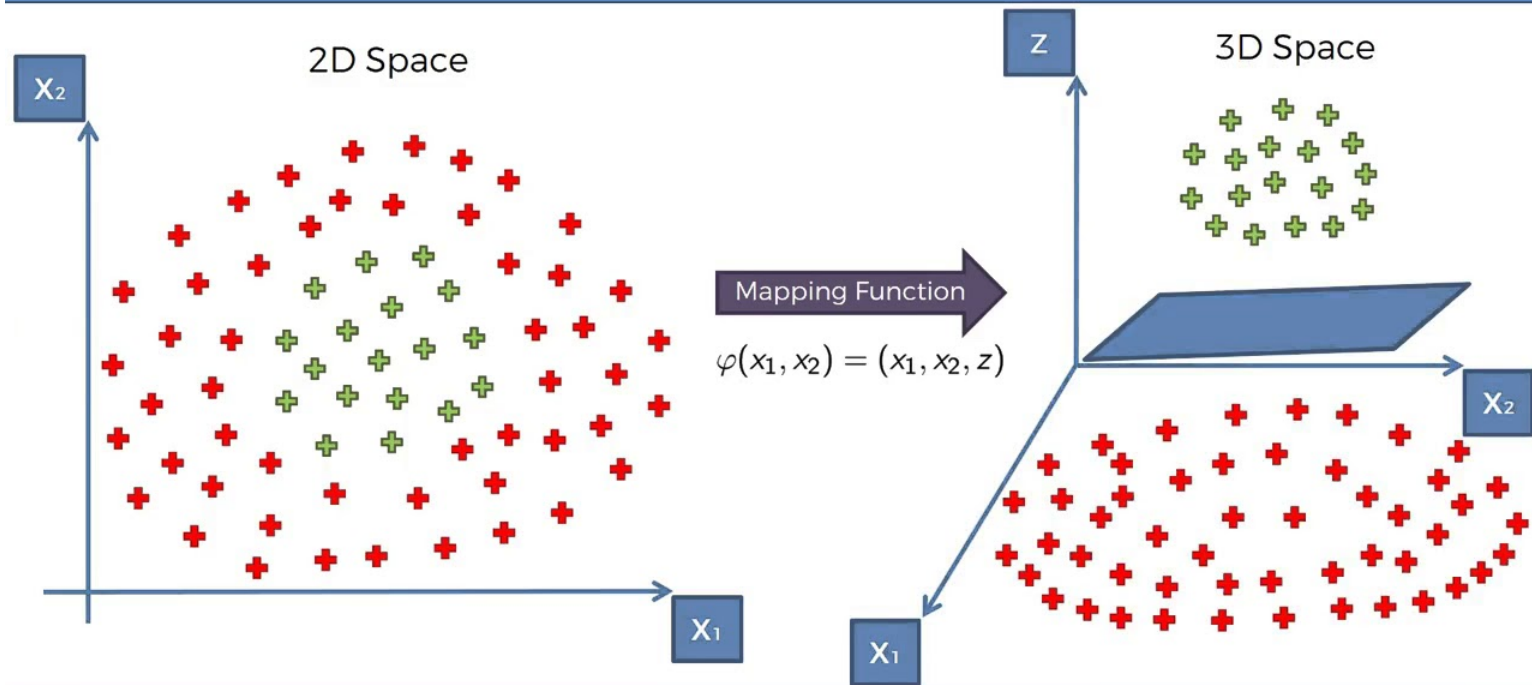
Source: <https://www.mathworks.com>

Mapping to a Higher Dimension



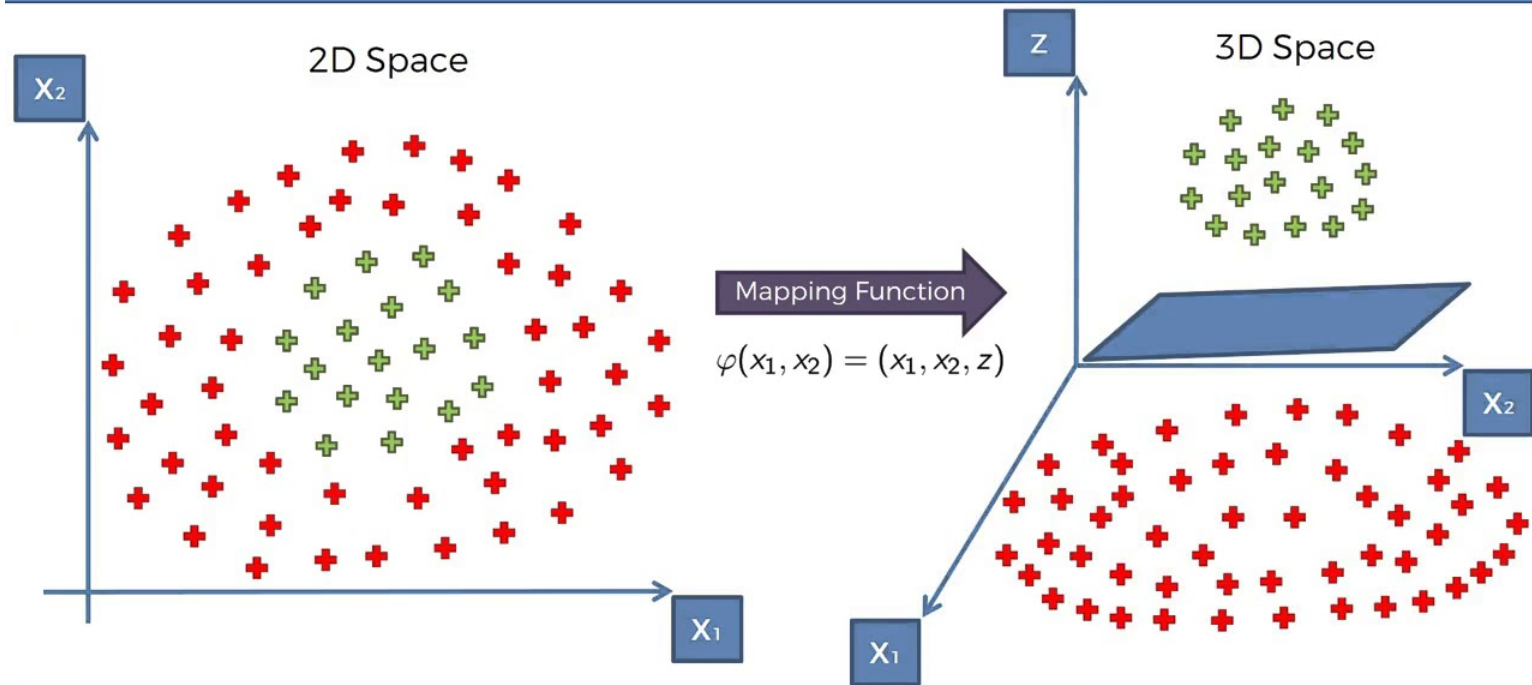
Machine learning: Dimension

Mapping to a Higher Dimension



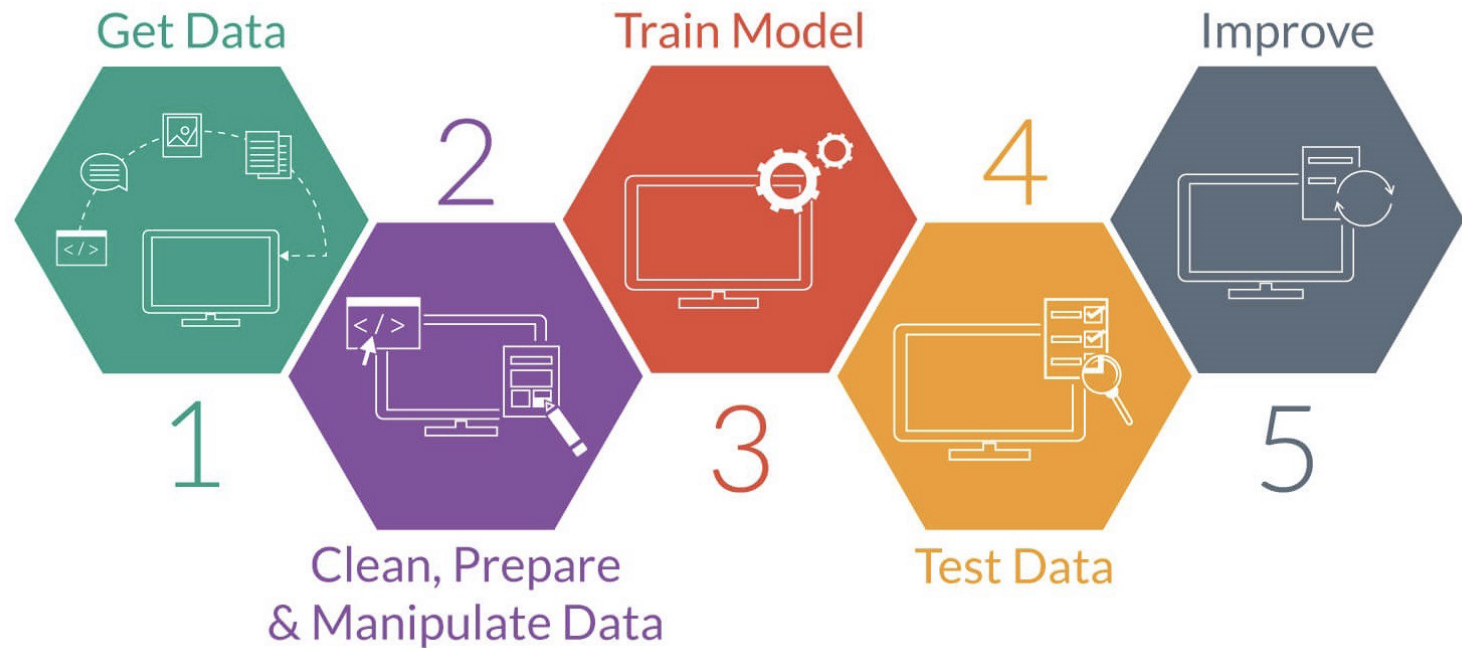
Machine learning: Dimension

Mapping to a Higher Dimension

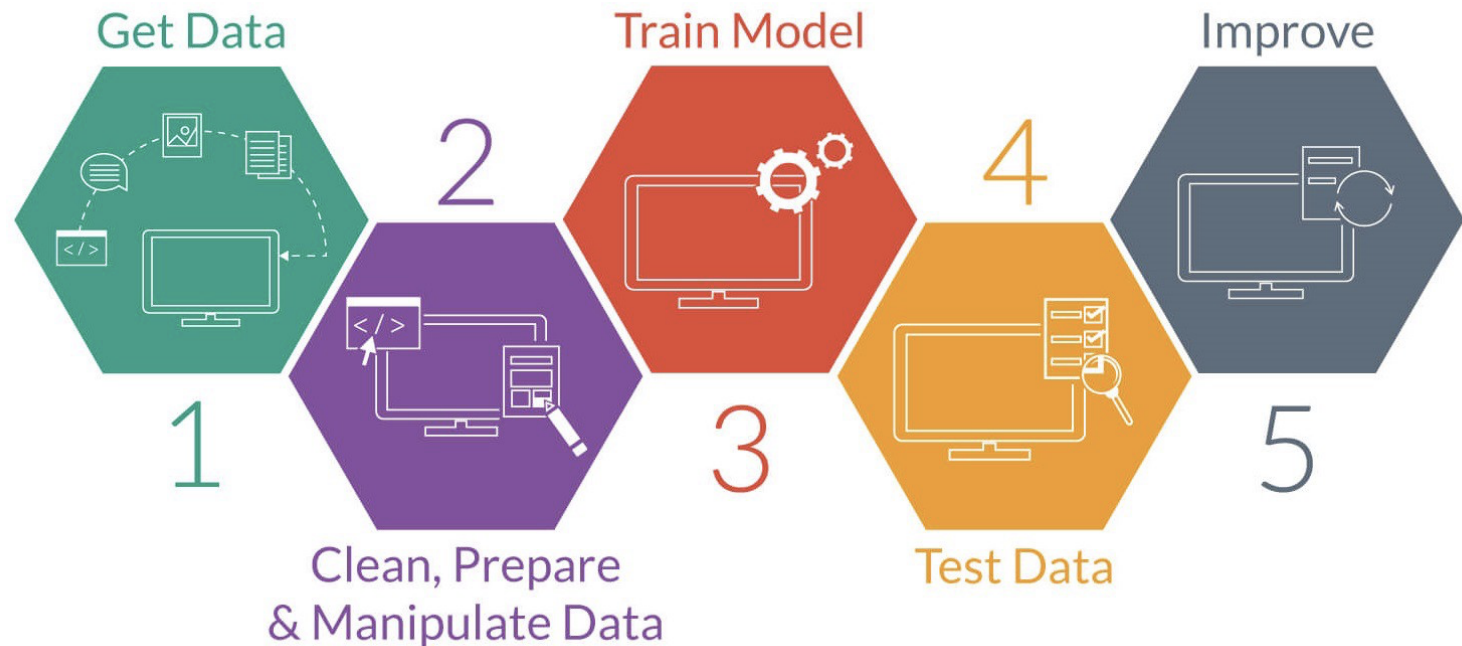


Steps of machine learning workflow

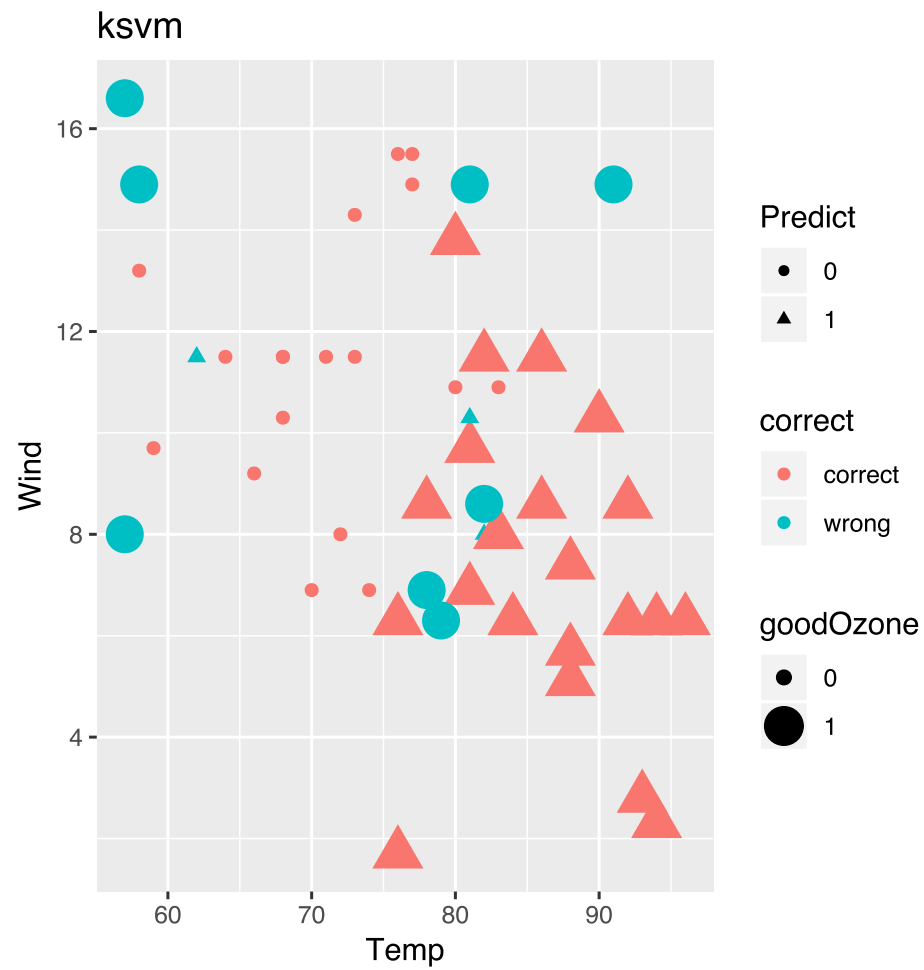
Steps of machine learning workflow



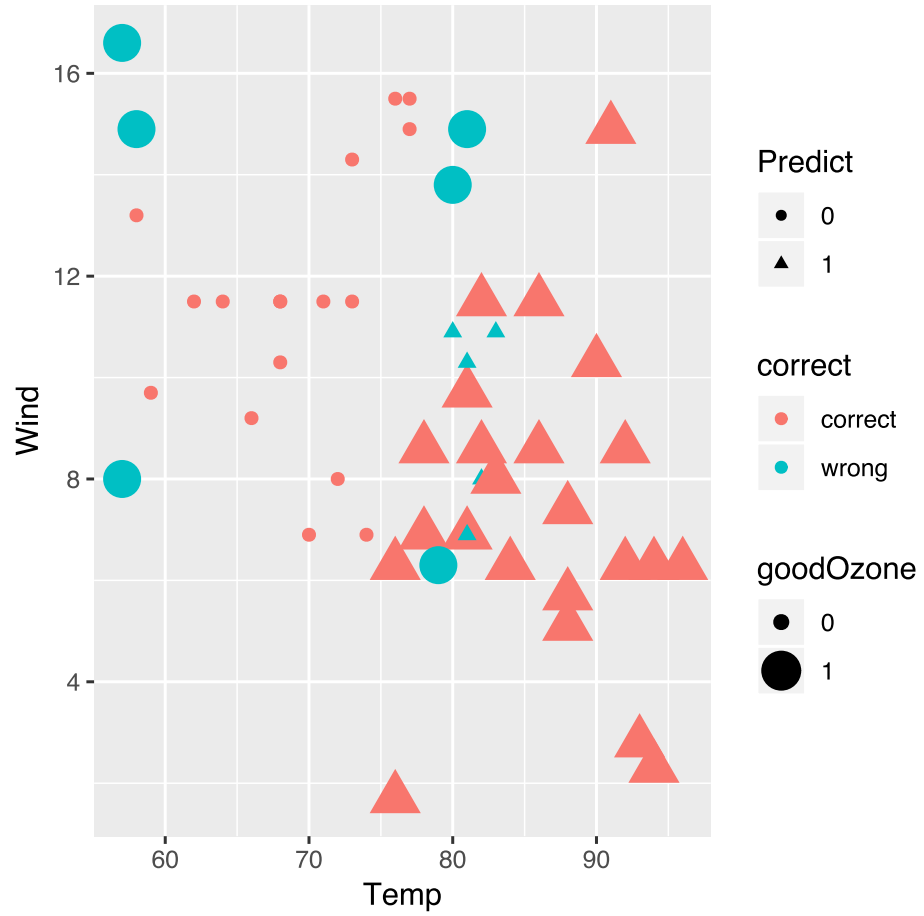
Steps of machine learning workflow



Source: UPX academy (<https://upxacademy.com/introduction-machine-learning/>)



Naive Bayes



Reference

Obermeyer, Z. and Emanuel, E.J., 2016. Predicting the future—big data, machine learning, and clinical medicine. *The New England journal of medicine*, 375(13), p.1216.