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LEARNING FOR THE DIGITAL AGE

DATA
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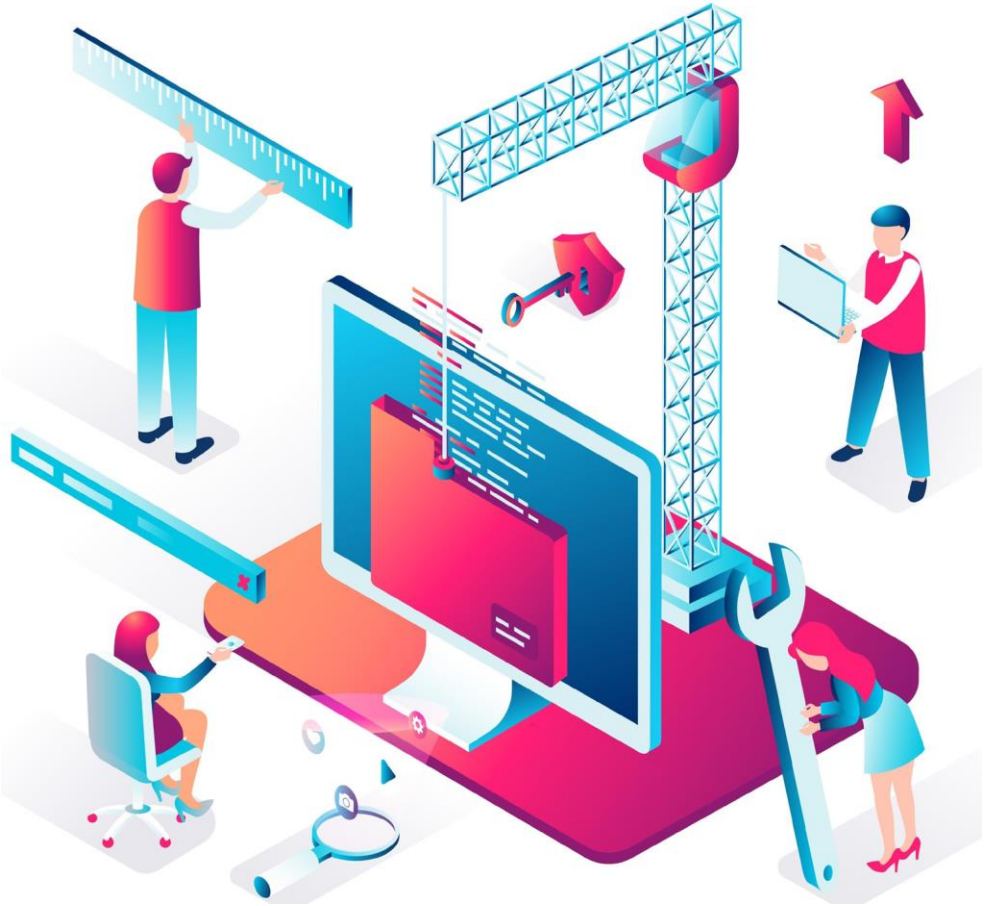
Lesson 5: Machine Learning



Topic 4 – Unsupervised Machine Learning Algorithms

Unsupervised ML - Clustering

The goal of clustering is to create groups of data points, that points in different clusters are dissimilar while points within a cluster are similar.

Clustering Use case

Marketing data provider Acxiom's has a life stage clustering system, Personicx. This service segments U.S. households into 70 distinct clusters within 21 life stage groups that are used by advertisers when targeting Facebook ads, display ads, direct mail campaigns, etc.

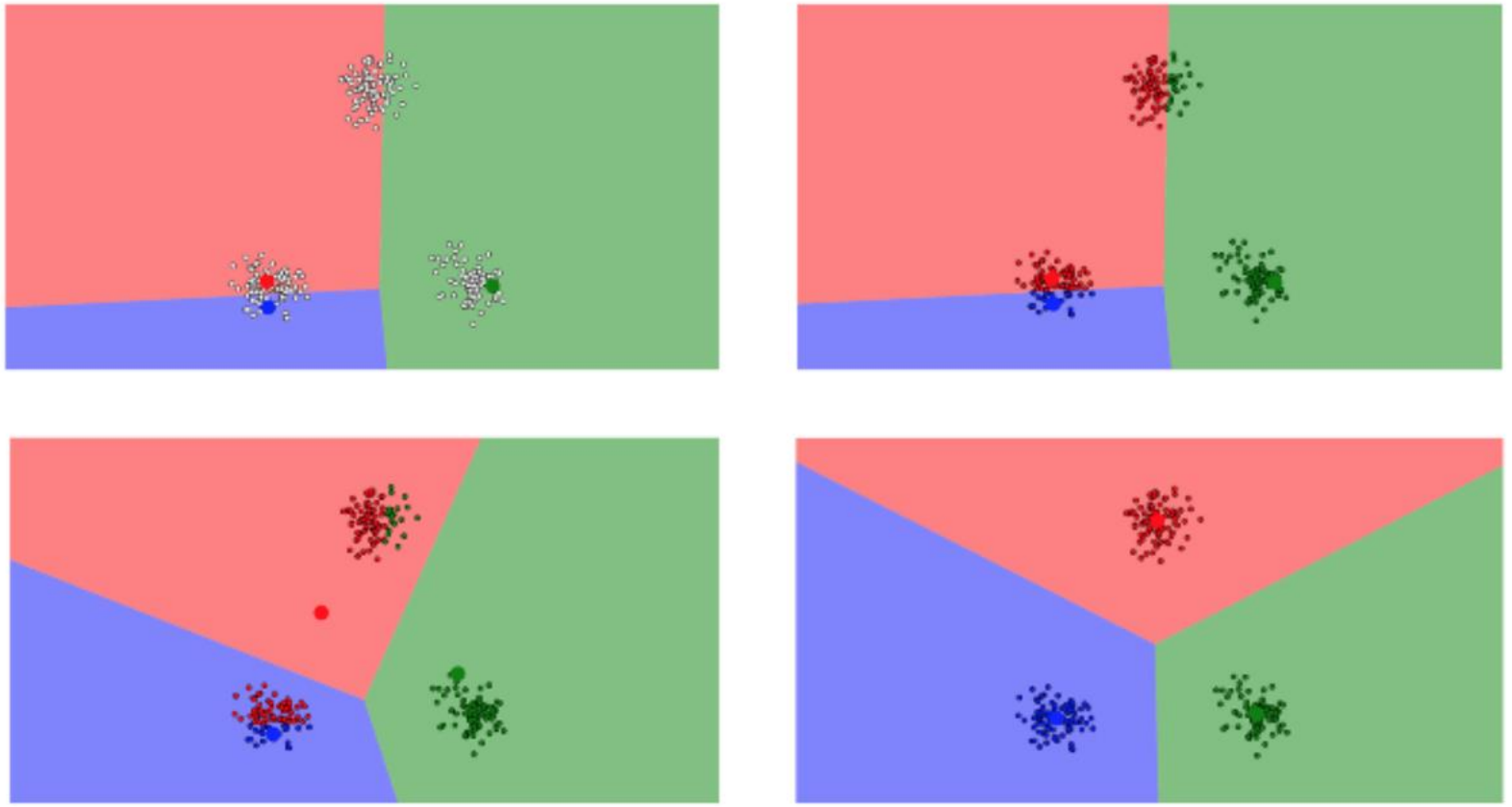
Here is a link to their tool - https://isapps.acxiom.com/personicx/personicx.aspx

Clustering customers can be useful for insurers who want to:

(1) understand their existing customer base and

(2) target potential new customers with relevant demographics, interests, and lifestyle.

Clustering



Check out this visualisation on k-means clustering.

Clustering Use Case (insurance)

Unsupervised Machine Learning
Given certain behavioural information, unsupervised machine learning algorithms can identify clusters of customer transactions that appear similar. For fraud detections, anything that appears different or rare could be flagged as an anomaly for further investigation. Unsupervised machine learning methods can identify both existing and new types of fraud. They are not restricted to predefined labels, so can quickly adapt to new and emerging patterns of dishonest behaviour.
Traditionally, insurers predict claim amount by taking similar groups of policies and analysing their historical development of losses. Actuaries can use unsupervised clustering methods, such as k-means to group similar policies in order to better perform claims prediction.