## Standard Data Science Tasks

1. Clustering (or segmentation): (k-means is most common algorithm)
   1. Marketing: Identifying customer groups for marketing campaigns
   2. Education: Analyze students in a course to identify students who need extra support or prefer different learning approaches
   3. Writing: Identify groups of similar documents in a corpus
   4. Biology/Medicine: Analyze gene sequences in microarray-analysis
2. Anomaly (or outlier) detection (common algorithms: one-class classifiers, one-class SVM)
   1. Finance: Analyze financial transactions in order to identify fraudulent activities (credit card fraud)
   2. Insurance: identify claims that are not in keeping with a company’s typical claims
   3. Cybersecurity: identify network intrusions by detecting possible hacking or untypical behaviour by employees
   4. Medicine: Identify anomalies in medical records to diagnose disease and study treatments and their effects on the body
   5. IoT: monitor data and alert when abnormal sensor events occur
3. Association-rule mining (main algorithm: Apriori algorithm)
   1. Marketing/Retail: Market-basket analysis
   2. Telecommunications: Analyze customer usage to design how to bundle different services together into packages
   3. Insurance: Analyze if there are associations between products and claims
   4. Medicine: Check if there are interactions between existing and new treatments and medicines
   5. Banking and finance: See what products customers typically have and whether these products can be applied to new or existing customers
   6. Association rules through time:
      1. Purchases
      2. Maintenance schedules
      3. Replacement of parts
      4. Service calls
      5. Financial products
4. Prediction
   1. Classification:
      1. Customer Churn
   2. Regression:
      1. Price Prediction
      2. Calculating:
         1. Profit
         2. Value and volume of sales
         3. Sizes
         4. Demand
         5. Distances
         6. Dosage
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7. Association-rule mining (main algorithm: Apriori algorithm)
   1. Marketing/Retail: Market-basket analysis
8. Prediction
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Tachlis

* One on customer churn
* One on finding fraud