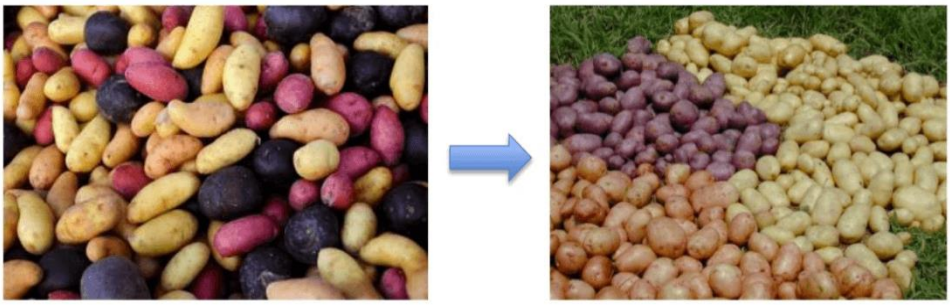
2. Unsupervised Learning

No labels are given to the learning algorithm, leaving it on its own to find structure in its input (discovering hidden patterns in data).
Example: imagine having data about all cars and their buyers. The system can find patterns and identify that, for example, people in the suburbs prefer SUVs with petrol engines, but people who live near to downtown, prefer smaller electrical cars. Knowing this can help the system predict who will buy which car.

Types of Unsupervised Learning

Unsupervised learning problems further grouped into clustering and association problems.

Clustering



sample Cluster/group

Clustering is an important concept when it comes to unsupervised learning. It mainly deals with finding a structure or pattern in a collection of uncategorized data. Clustering algorithms will process your data and find natural clusters(groups) if they exist in the data. You can also modify how many clusters your algorithms should identify. It allows you to adjust the granularity of these groups.

Association

Association rules allow you to establish associations amongst data objects inside large databases. This unsupervised technique is about discovering interesting relationships between variables in large databases. For example, people that buy a new home most likely to buy new furniture.
Other Examples:

- A subgroup of cancer patients grouped by their gene expression measurements
- Groups of shopper based on their browsing and purchasing histories
- Movie group by the rating given by movies viewers