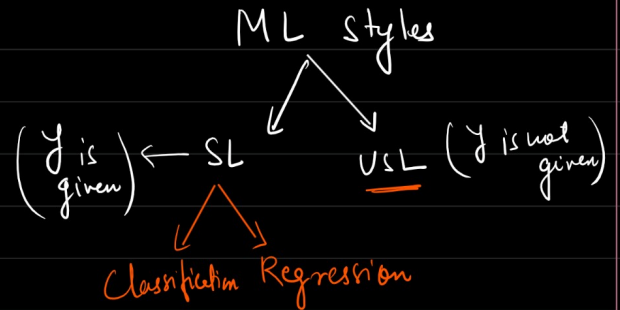# Introduction to Unsupervised learning

* Target variable is Not given
  (y)

* USL groups/segments your data
  (Finds pattern in the data)

ML styles

$\left(\begin{array}{c} y \text{ is} \\ \text{given} \end{array}\right) \leftarrow$ SL   USL $\left(\begin{array}{c} y \text{ is not} \\ \text{given} \end{array}\right)$

Classification Regression

Examples Zara store

Customer Purchase amount	Customer Salary in lakes
2500	10
—	—
—	—
—	—
—	—

Cust↑ Amount

SL PA↓
×× ×④
↗ ×

① S↑ PA↑
×× ×

③ S↓ PA↓
× ×
↗ ↗

② S↑ PA↓
× ×
↗ ↗

Salary

Clothes mixup

Shop Keeper is blind → Will try to touch the cloth and understand the pattern, different recks

To increase revenue → Group 2 customers should be focussed more.

→ Group 1 → loyalty card & Extra discont.

* depends on you how you want interpret the groups and bring business.

Motivation

→ Need to launch a campaign based on income/sales.
→ Different ways of fraud/money laundering.
→ Grouping of images/Patterns of specific image
→ Document/Article Analysis.
→ Cohort Analysis.

* In higher dimensions, you cannot identify groups/Patterns manually. Therefor you need USL.

USL

① K-means Clustering
② Hierarchical Clustering
③ DBSCAN.