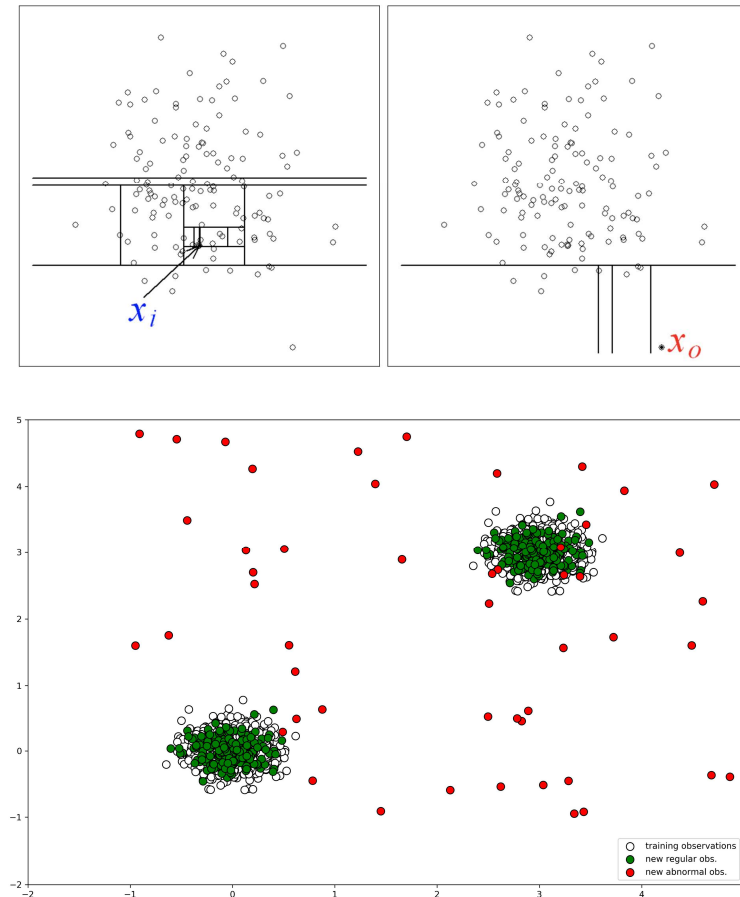


ExtraTrees

- ExtraTrees is named for (Extremely Randomized Trees).
- builds multiple trees with **bootstrap = False** by default, which means it samples without replacement
- nodes are split based on **random** splits among a **random subset** of the features selected at every node
- In Extra Trees, randomness doesn't come from bootstrapping of data, but rather comes from the random splits of all observations.
- **(Low Variance)**

Isolation forest

- Used for outlier/anomaly detection
- Similar to RF but splitting based on random split value between the minimum and maximum value of the selected feature
- Each observation is given an anomaly score and the following decision can be made on its basis:
 - A score close to 1 indicates anomalies
 - Score much smaller than 0.5 indicates normal observations
 - If all scores are close to 0.5 then the entire sample does not seem to have clearly distinct anomalies



Voting classifier

- Multiple different estimators
- Lets say LR, SVM and DT
- Two voting methods Hard/Soft
- Hard $\rightarrow [0,0,1]$, final = $\text{argmax}[0,0,1]=0$
- Soft $\rightarrow C1:(0.6,0.4), C2:(0.3,0.7), C3(0.1,0.9)$
- Final = $\max \{(w1*0.6+w2*0.3+w3*0.1)/3, (w1*0.4+w2*0.7+w3*0.9)/3\}$