

MACHINE LEARNING- SUPERVISED LEARNING

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SUPERVISED LEARNING

- Supervised learning as the name indicates the presence of a supervisor as a teacher. Basically supervised learning is a learning in which we teach or train the machine using data which is well labeled that means some data is already tagged with the correct answer. After that, the machine is provided with a new set of examples(data) so that supervised learning algorithm analyses the training data(set of training examples) and produces a correct outcome from labeled data.

- **For instance**, suppose you are given a basket filled with different kinds of fruits. Now the first step is to train the machine with all different fruits one by one like this:



- ◉ If shape of object is rounded and depression at top having color Red then it will be labelled as **-Apple**.
- ◉ If shape of object is long curving cylinder having color Green-Yellow then it will be labelled as **-Banana**.
- ◉ Now suppose after training the data, you have given a new separate fruit say Banana from basket and asked to identify it.



TEST: DIFFERENTIATE BETWEEN CRICKET BAT & TENNIS BAT



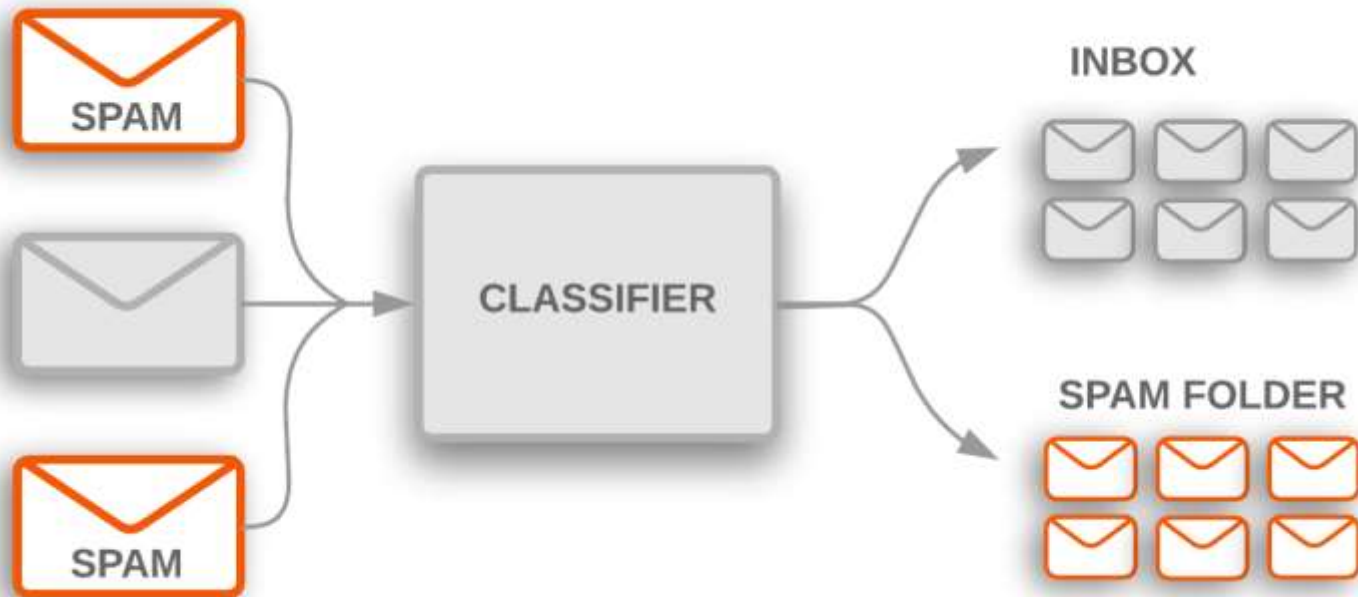
Cricket Bat

Tennis bat

EXAMPLES OF SUPERVISED LEARNING

- ◉ Supervised learning classified into two categories of algorithms:
- ◉ **Classification:** A classification problem is when the output variable is a category, such as “Red” or “blue” or “disease” and “no disease”.
- ◉ **Regression:** A regression problem is when the output variable is a real value, such as “dollars” or “weight”.

CLASSIFICATION



CLASSIFICATION

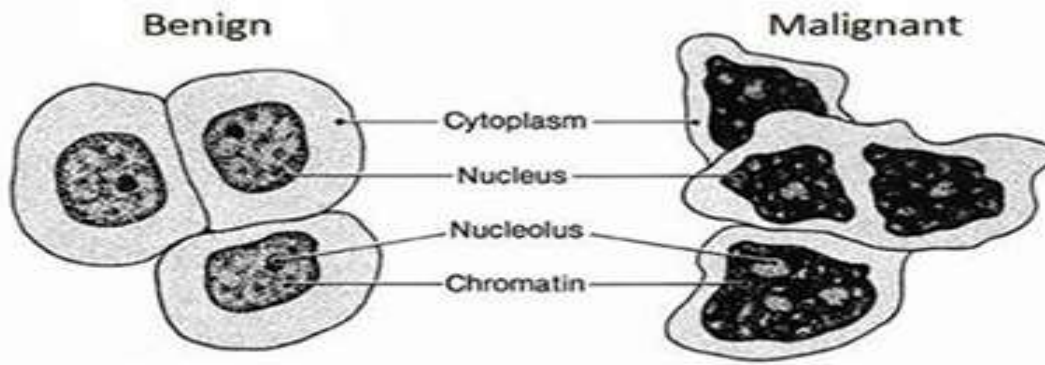
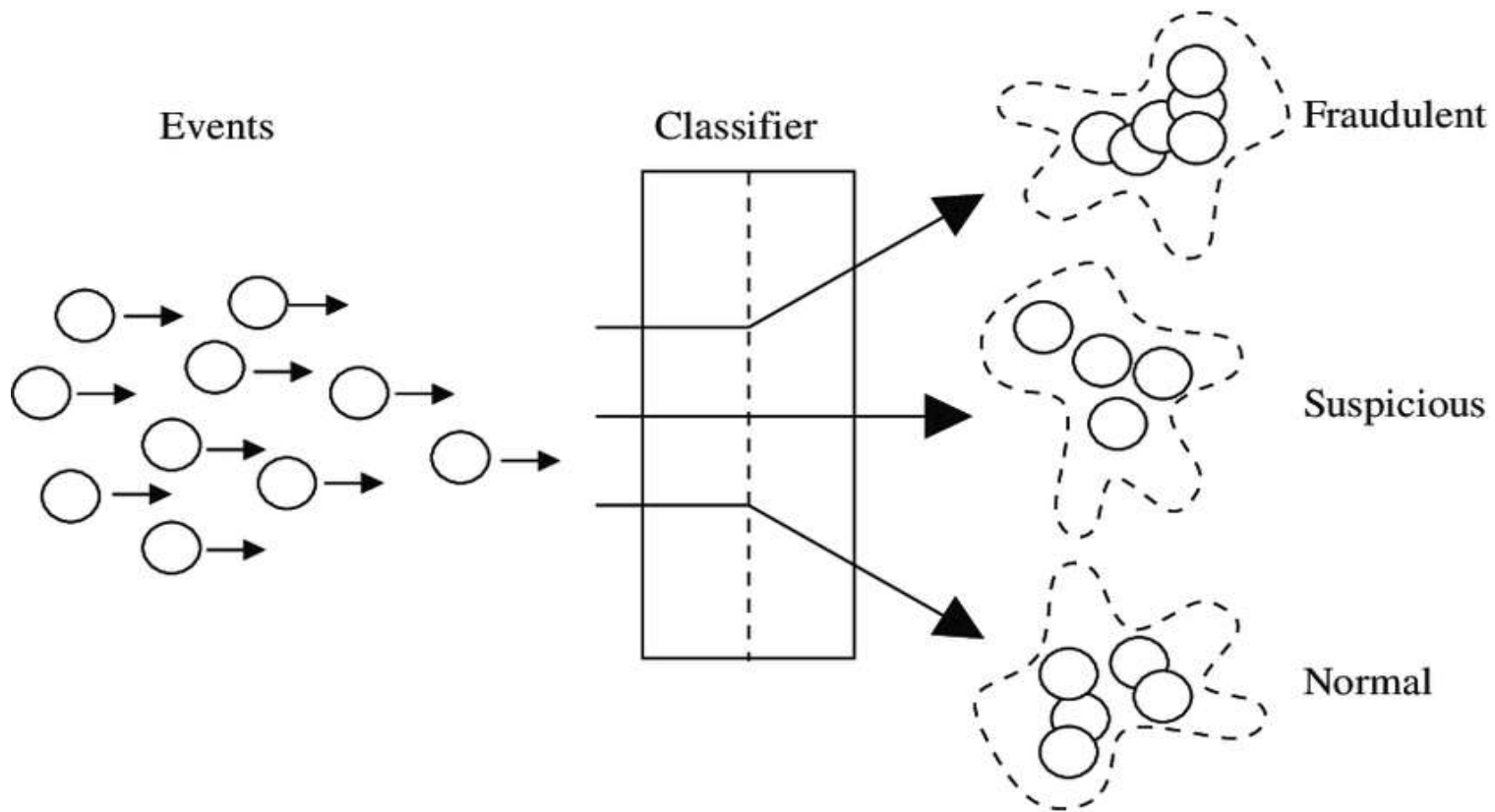


Figure 1 - Characteristics of benign and malignant cells

CLASSIFICATION



CLASSIFICATION

4	→ 4	2	→ 2	3	→ 3
4	→ 4	9	→ 9	0	→ 0
5	→ 5	7	→ 7	1	→ 1
9	→ 9	0	→ 0	3	→ 3
6	→ 6	7	→ 7	4	→ 4

REGRESSION

