

Types of Classification Problems

Supervised

Classification Types

- Binary Classification
- Multi-Class Classification
- Multi-Label Classification

Binary Classification

- There can be only two possible outcomes
- Only one class category can occur at a given instance
- e.g.
 - Customer Buys or doesn't
 - Defaults or doesn't default
 - Fraud or not fraud

Muti-Class Classification

- There can be more than two classes
- Only one class category can occur at a given instance
- e.g.
 - Flower seen in the image can be of anyone of the species
 - A customer may opt for anyone of the types of homes she buys

Multi-Label Classification

- There can be more than two classes
- Any number of classes can occur at a given instance
- e.g.
 - In a particular image there can be a human, a car and a dog, or nobody
 - A particular piece can have any number of defects

Multi-Label Example

Image	Human	Dog	Cat	Horse	Car	Scooter	Bike
Horse, Human	1	0	0	1	0	0	0
Car, Bike	0	0	0	0	1	0	1
Dog, Car	0	1	0	0	1	0	0