What is machine learning?

- Field of study that gives computers the ability to learn w/o being explicitly programmed
- Limitations of explicit programming make it too complex to perform "human like cognition"

Supervised/Unsupervised Learning:

- Supervised learning – learning w/ labelled examples

  The labelled data is called a "training set"

  e.g. image classification (is this image a dog or cat?)

- Unsupervised learning - unlabelled data

  e.g. Things like word clustering or news grouping are hard to label

Common Supervised learning problem types

- Image labelling: learning from tagged images
- Email spam filter: learning from spam/ham labelled mail
- Predicting exam score: learning from prev. exam score and time spent

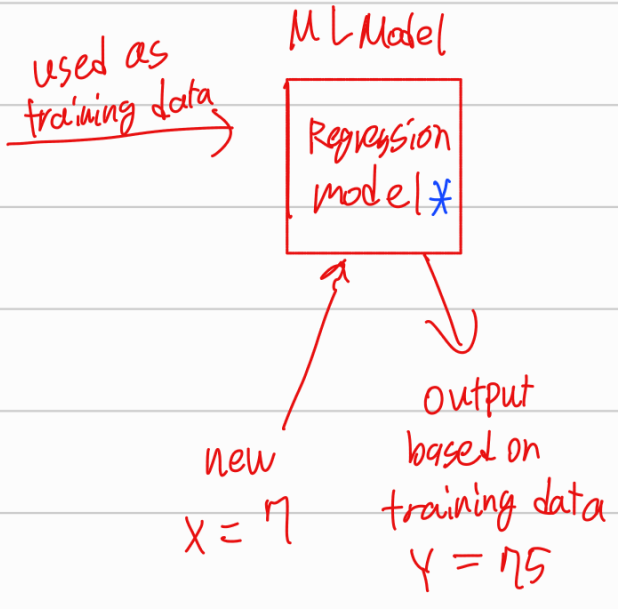
Types of supervised learning

Let's look at predicting exam score as an example

1. predicting final exam score (0~100) based on time spent.
   - Regression
2. pass/non-pass based on time spent
   - Binary classification
3. Letter grade based on time spent (A, B, C, D and F)
   - Multi-label classification

what would training data look like for case 1?

X (hours)	Y (score)
10	90
9	80
3	50
2	30



* Note that the model type in the above diagram will change to binary / multi-label classification if given cases 2 or 3, along with the format of training data given. However, process remains the same.