Machine Learning 101

▾ **What is machine Learning**

- Computer & What Programing Solves (Example: shortest path - Google Map)

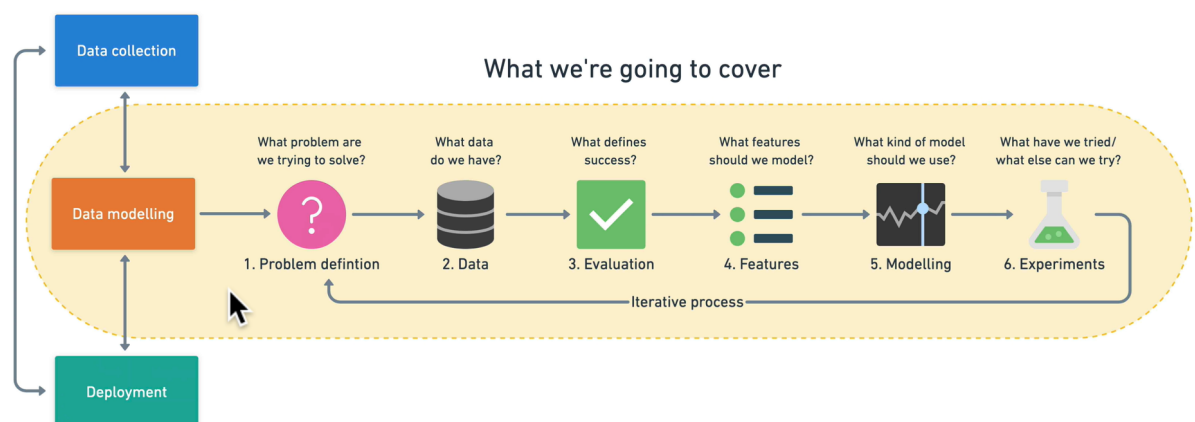- What Program was not able to solve like Is a person Angry? is this a cat?

▾ **Difference AI/ML/Deep Learning/Data Science**

- AI – human intelligence exhibited by machines Ex: NaroAI (Detecting Heart Disease by Images)

- ML is subset of AI (approach to try and achieve AI via systems that find patterns in sets of data)
  Science of getting computer to act without programming – Stanford

- Deep Learning/Deep Neural networks – subset of ML
  One of the techniques/algorithm

- Data Science – Analysing Data (Data Science and ML/AI go hand in hand)
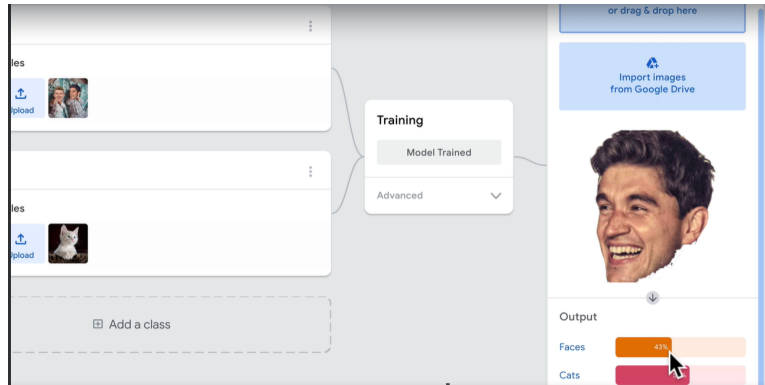
▾ **How did we get Here?**

- ❶ Advent of Computers and programs for faster tasks

- ❷ Spreadsheet - Business decision, forecasting sales

- ❸ RelationDBs

- ❹ BigData - NoSQL/MongoDB etc

- ❺ Machine Learning

Steps in a full machine learning project

Data collection

Data modelling

What we're going to cover

What problem are we trying to solve? — What data do we have? — What defines success? — What features should we model? — What kind of model should we use? — What have we tried/ what else can we try?

1. Problem defintion — 2. Data — 3. Evaluation — 4. Features — 5. Modelling — 6. Experiments

Iterative process

Deployment
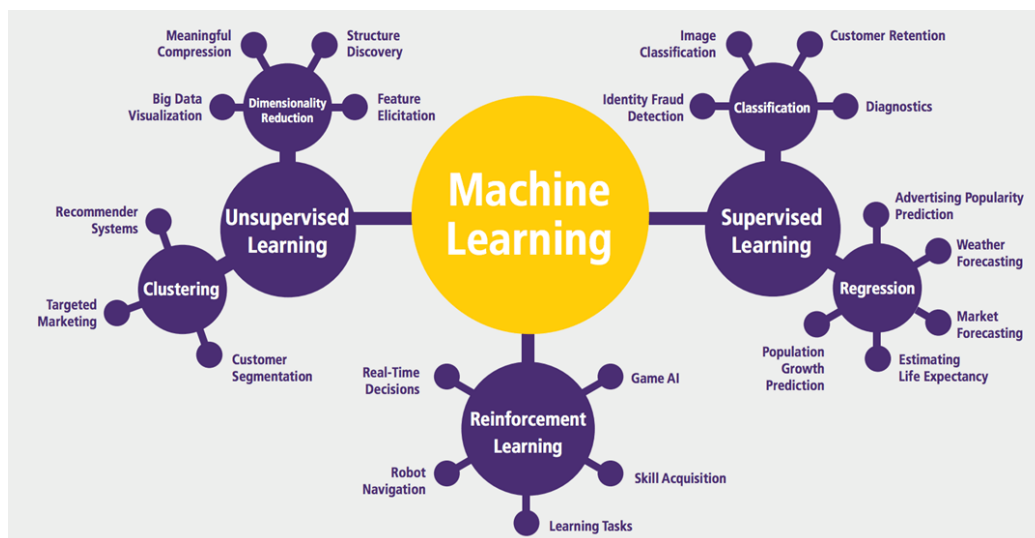
▾ **Exercise: ML Playground**

- Teachable by Google: Learn to train a model to detect face Vs Cat

Exercise: ML Playgroud YT video recommendation

- Bob's video recommendation using ml-playground.com

Types of machine learning

- Supervisied Learning
  - Classification
  - Regression
- Unsupervised Learning
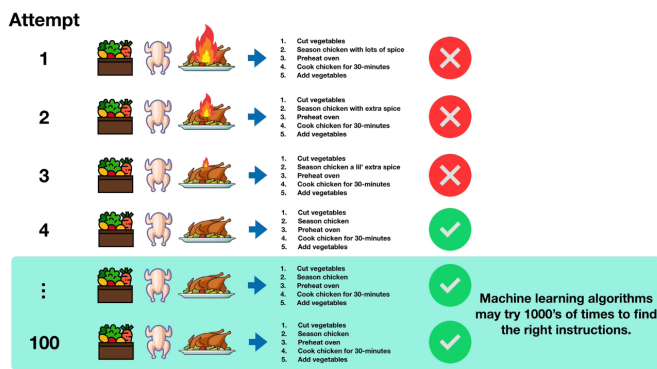 - Clustering
  - Association Rule Learning
- Reinforcement
  - Skill acquisition
  - Real Time learning

What is Machine Learning (Round 2)

- Using an Algo to learn different Patterns in data and taking it to predict similar data

- Machine learning Algo - Models

- Machine Learning Algo Vs Normal Computer program Algo is Learning aspect

  - Normal Algo: Chicken + Instruction = Dish

  - Machine Learning Algo: chicken + dish = predict Instruction

    - How ML (seeing patterns is differnt from Data Analysis and Data Science)

      - Data Analysis means understanding data using differnt features like graphs

      - Machine Learning: experiments on data with the hope of getting insights