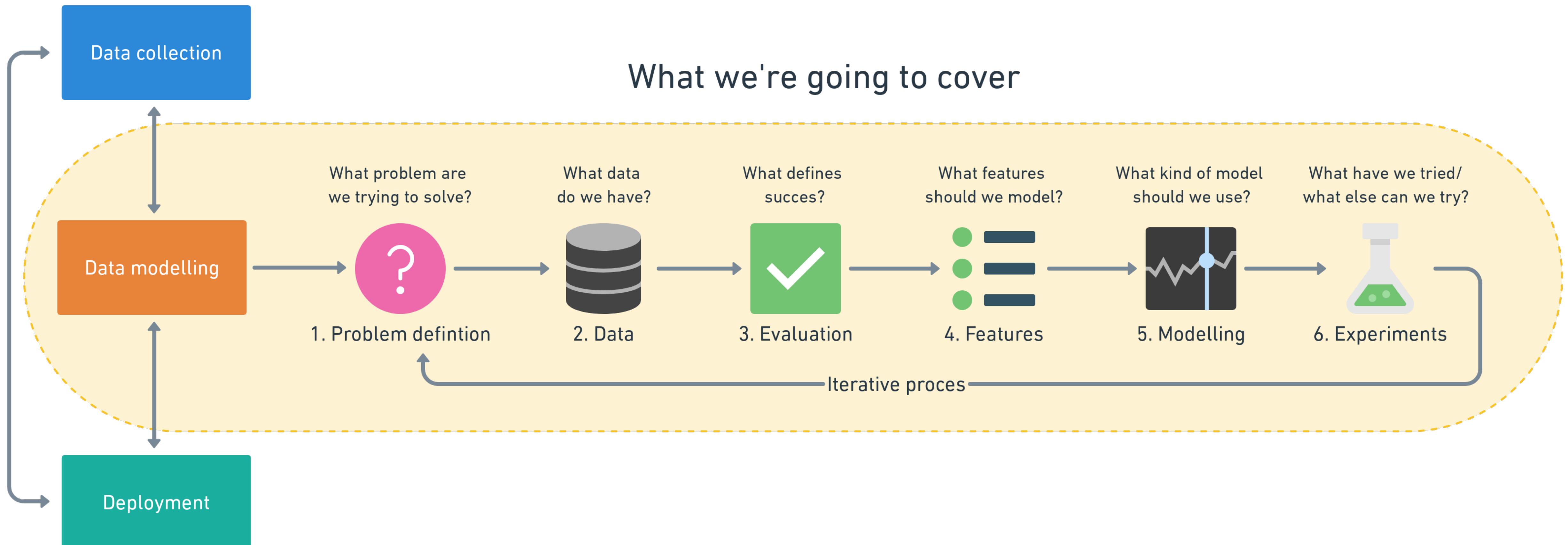


## Steps in a full machine learning project



## What we're going to cover

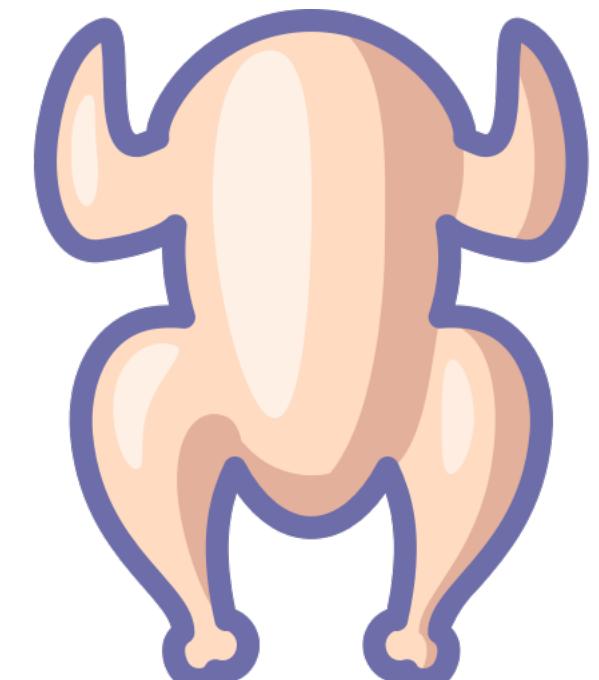
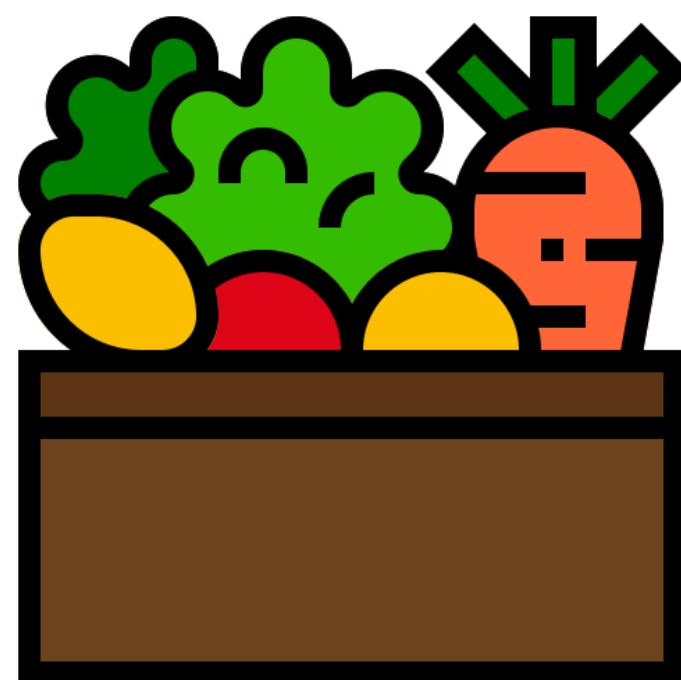
# 1. Problem definition



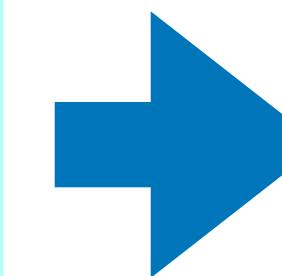
**“What problem are we trying to solve?”**

# When shouldn't you use machine learning?

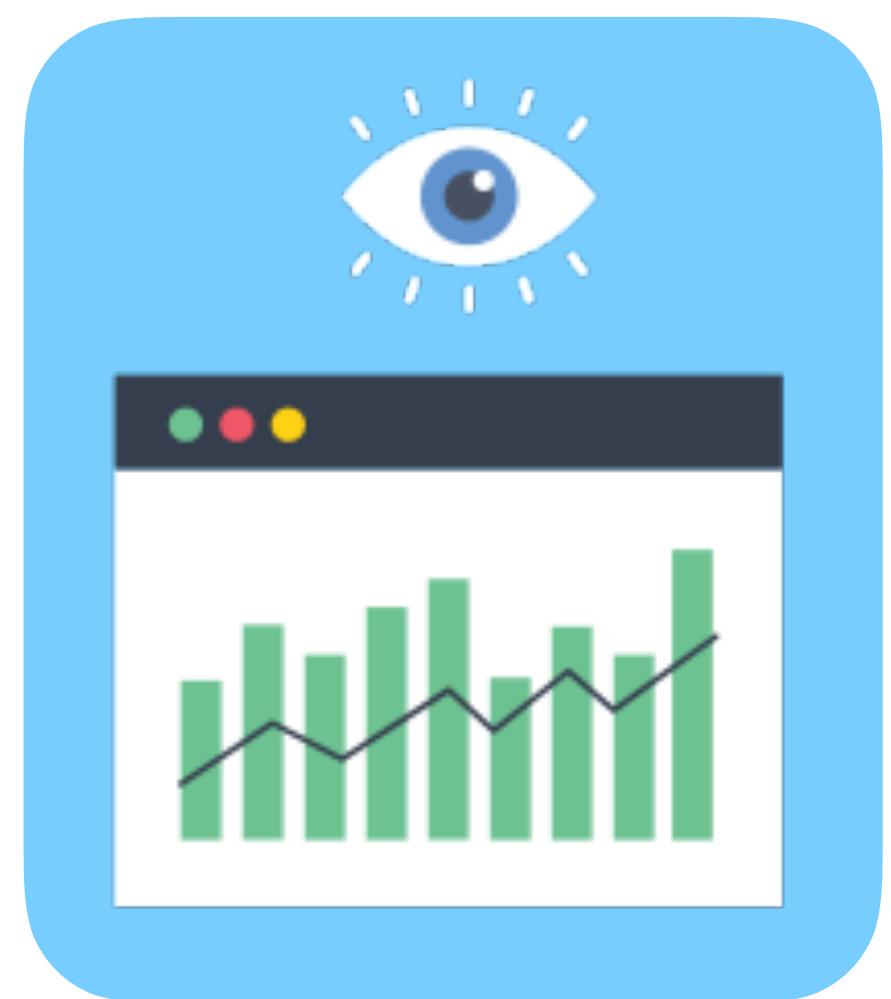
- Will a simple hand-coded instruction based system work?



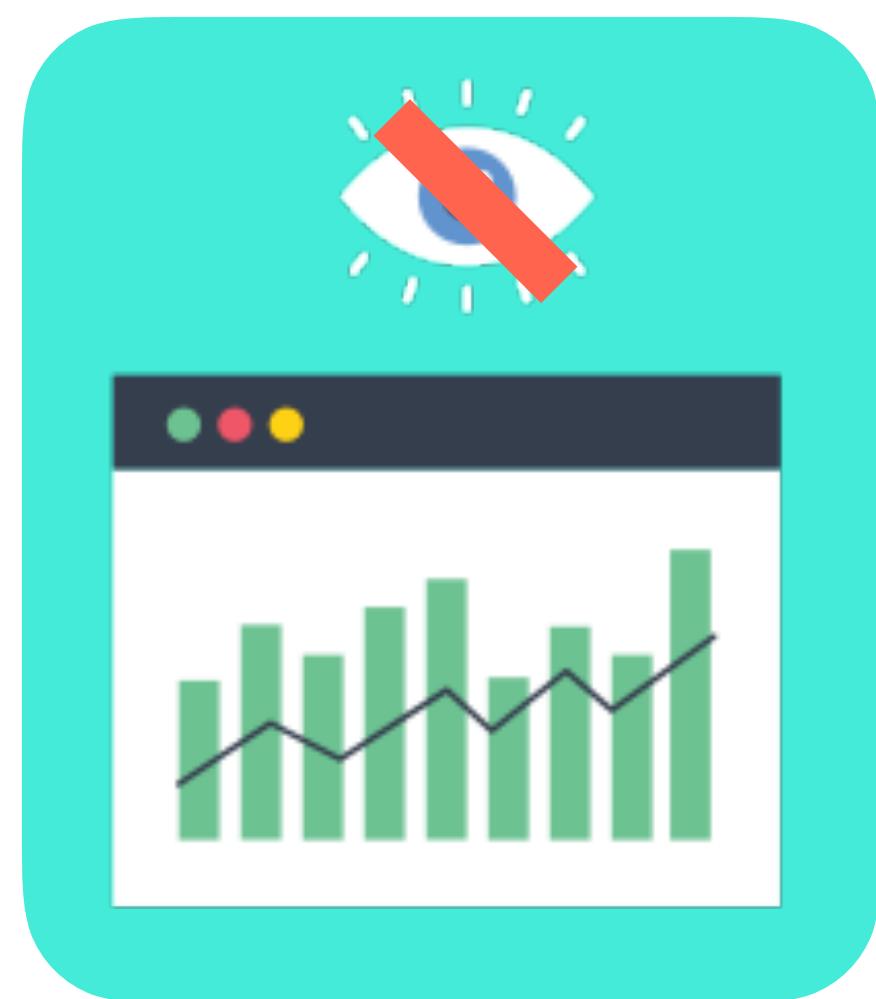
1. Cut vegetables
2. Season chicken
3. Preheat oven
4. Cook chicken for 30-minutes
5. Add vegetables



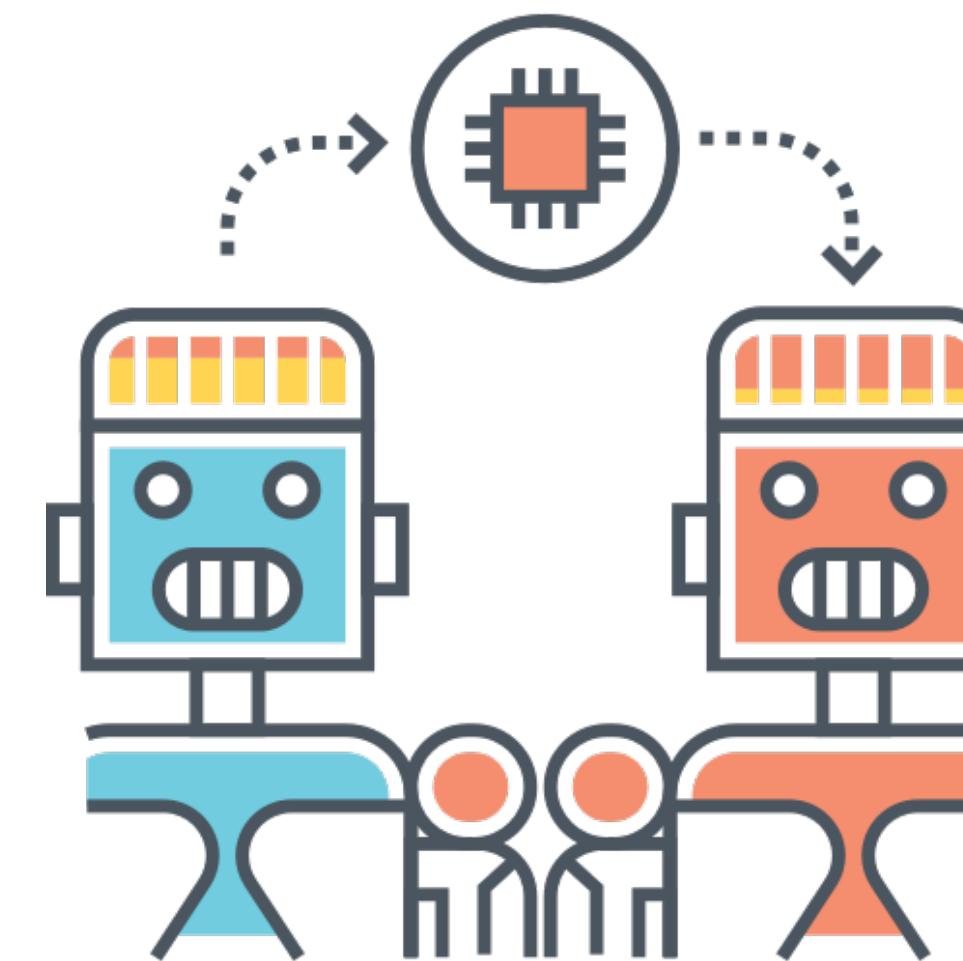
# Main types of machine learning



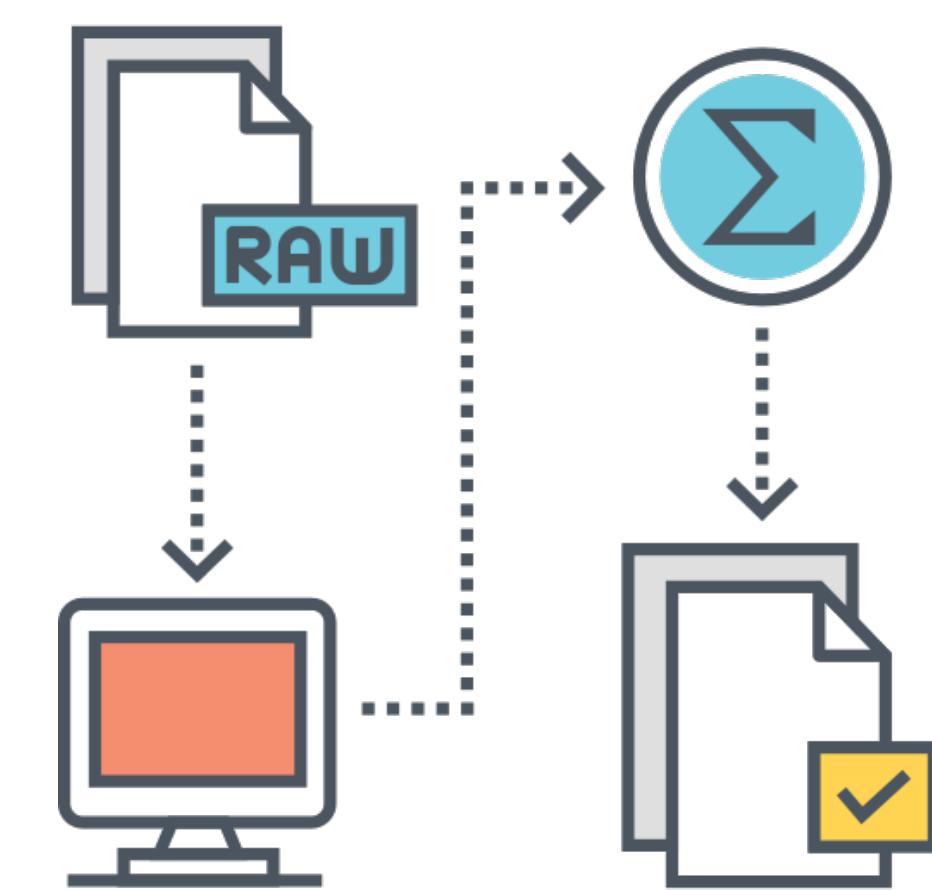
**Supervised  
Learning**



**Unsupervised  
Learning**

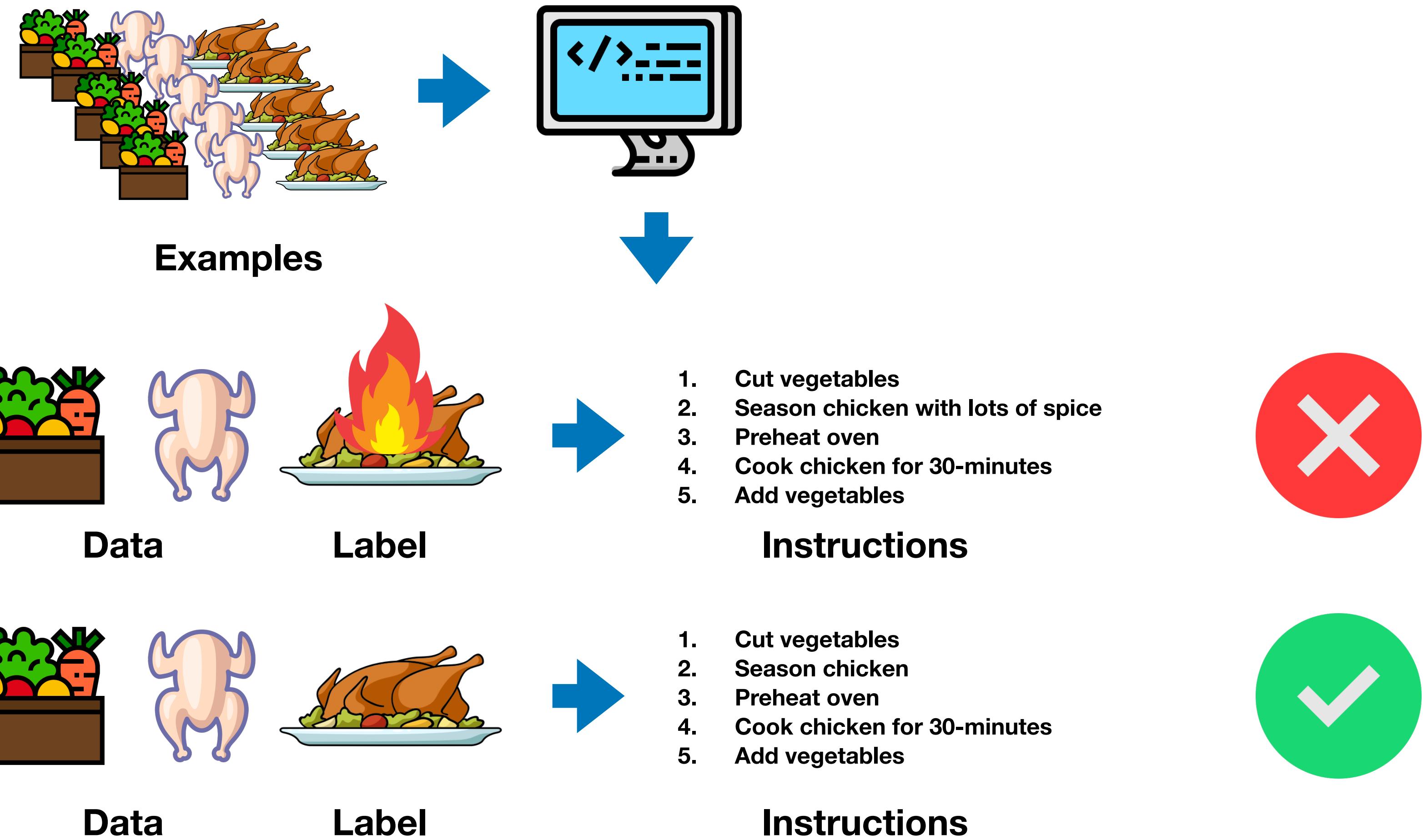


**Transfer  
Learning**



**Reinforcement  
Learning**

# Supervised learning



# Supervised learning



## Classification

- “Is this example one thing or another?”
- Binary classification = two options
- Multi-class classification = more than two options

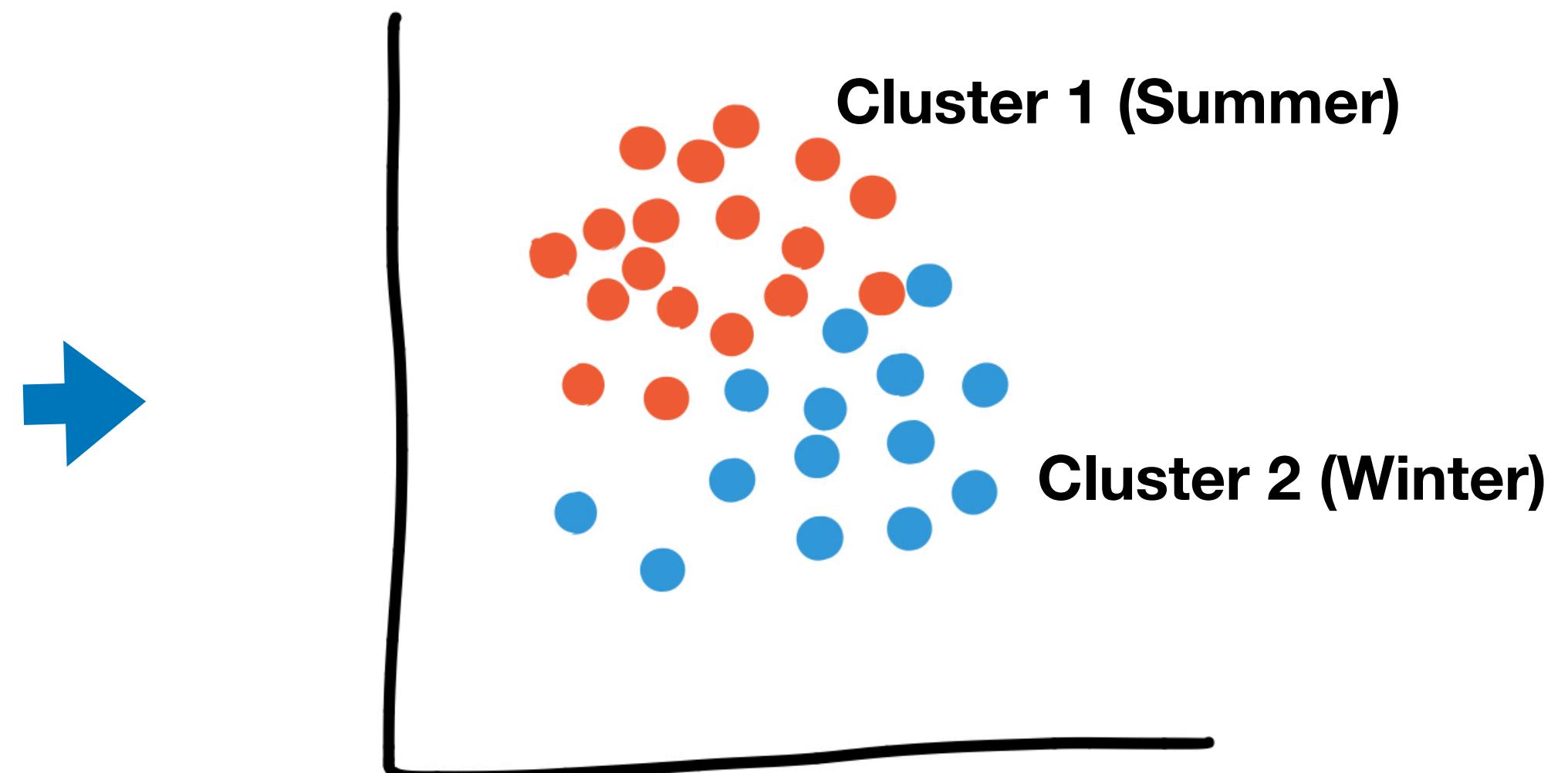


## Regression

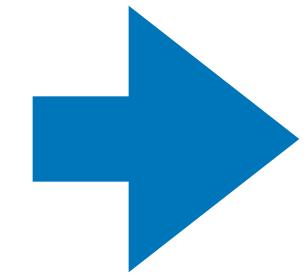
- “How much will this house sell for?”
- “How many people will buy this app?”

# Unsupervised learning

Customer ID	Purchase 1	Purchase 2
1	Sunglasses	Singlet
2	Jacket	Snow boots
3	Sunscreen	Beach towel

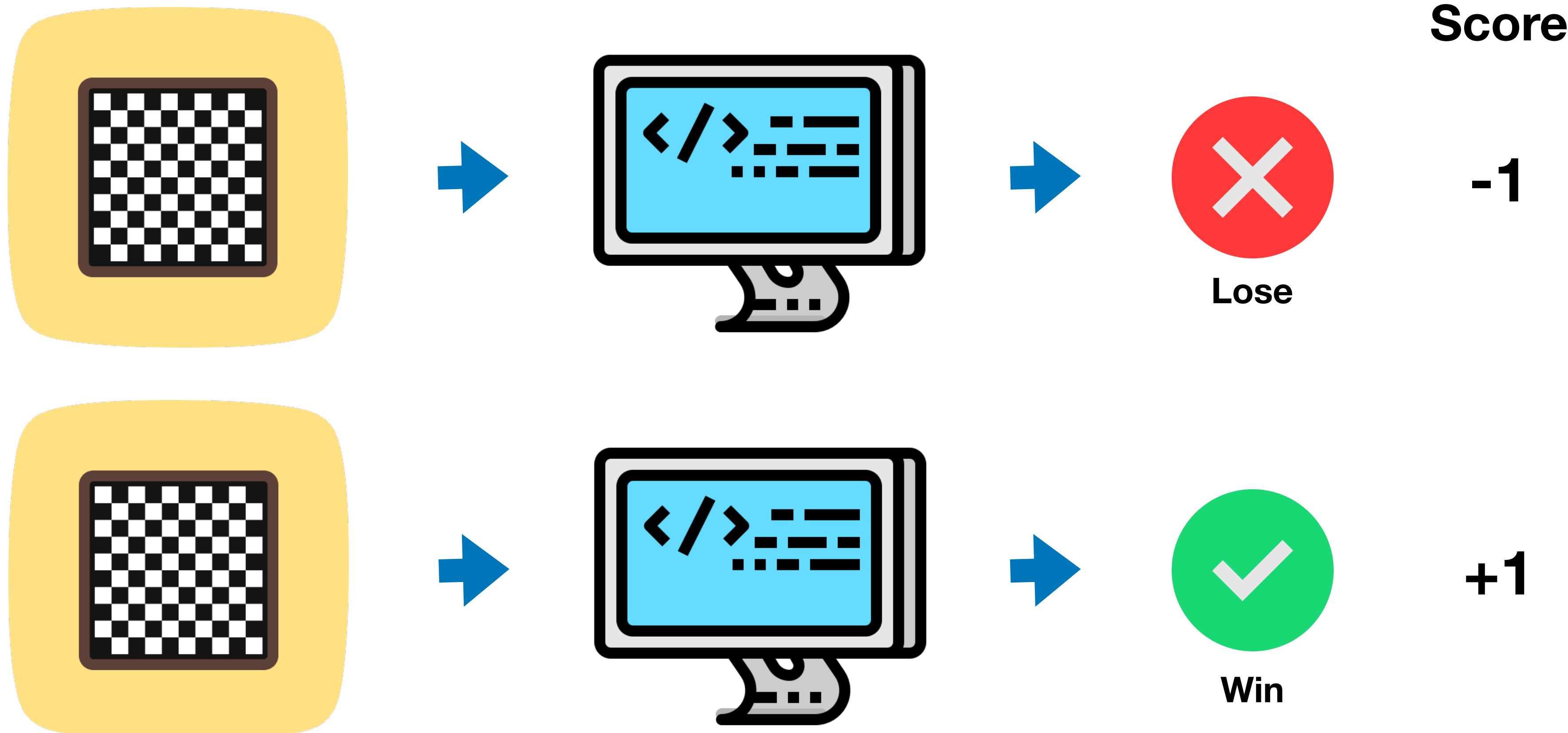


# Transfer learning

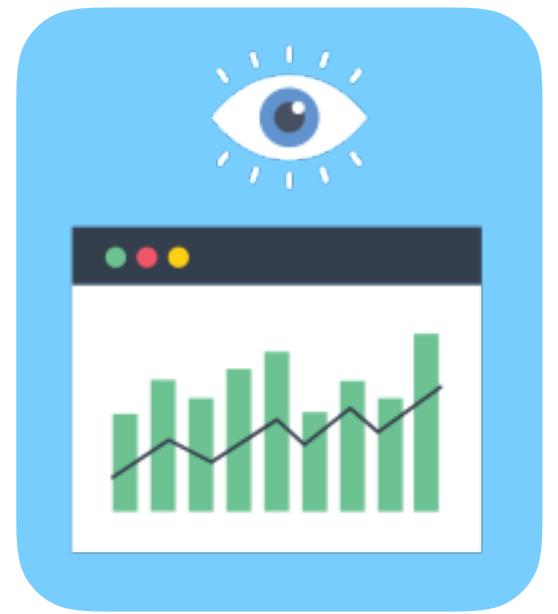


**Use what a model has learned in one domain, to help in another domain.**

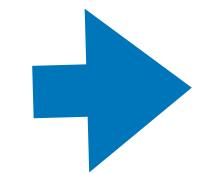
# Reinforcement learning



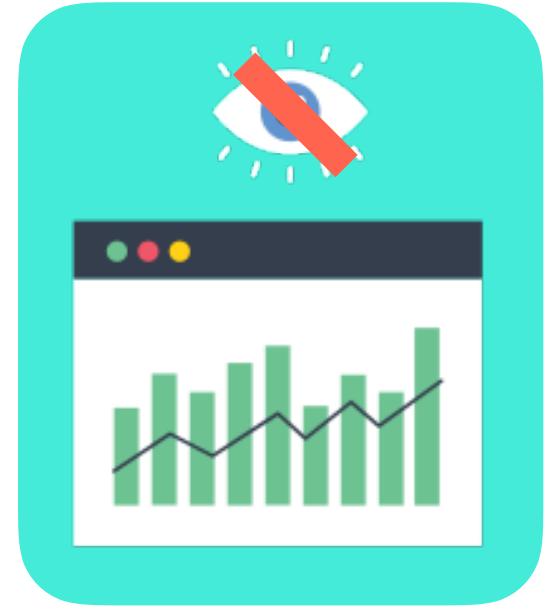
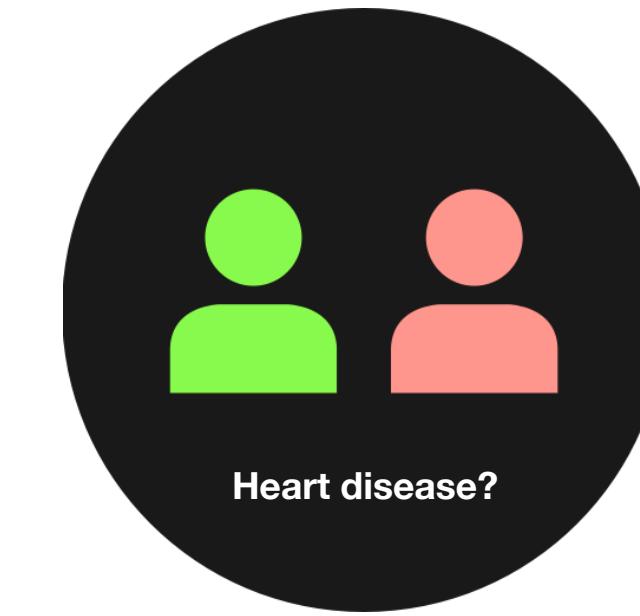
# Matching your problem



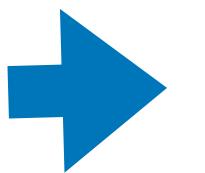
Supervised  
Learning



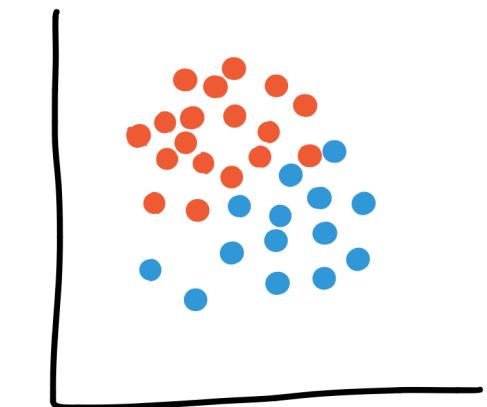
**“I know my inputs and outputs.”**



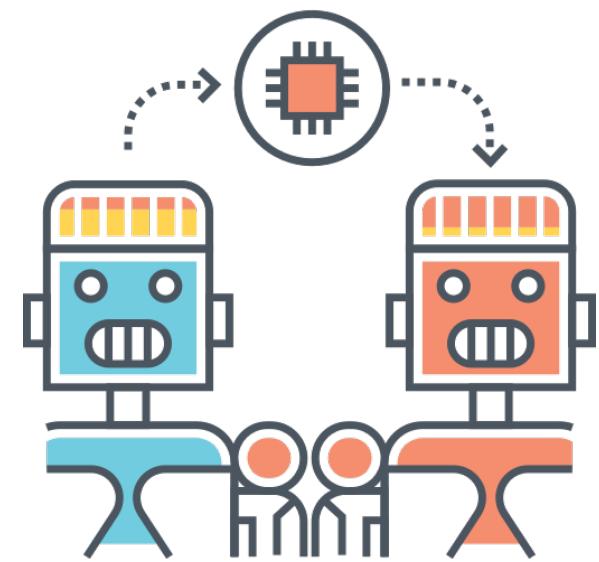
Unsupervised  
Learning



**“I’m not sure of the outputs but I have inputs.”**



# Matching your problem



→ “I think my problem may be similar to something else.”

**Transfer  
Learning**