

# Machine Learning

## Introduction

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# What is Machine Learning?

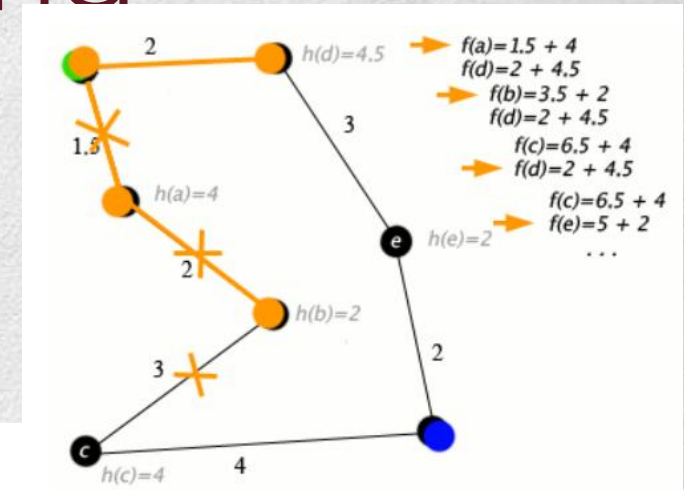
A subfield of artificial intelligence.

“learning from data and generalizing to unseen data to perform tasks without explicit instructions”



# AI vs Machine Learning

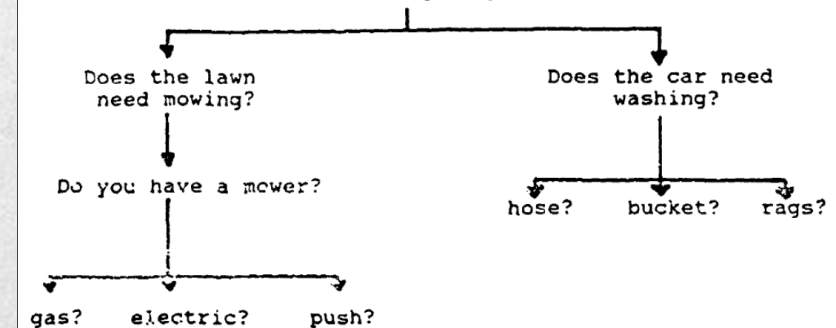
- AI (but not ML)
  - genetic and evolutionary algorithms
  - rule-based systems
  - fuzzy logic
  - search algorithms
  - logical inference
  - brute force (mimicking human behavior)



## BACKWARD CHAINING

GOAL: Make \$20.00

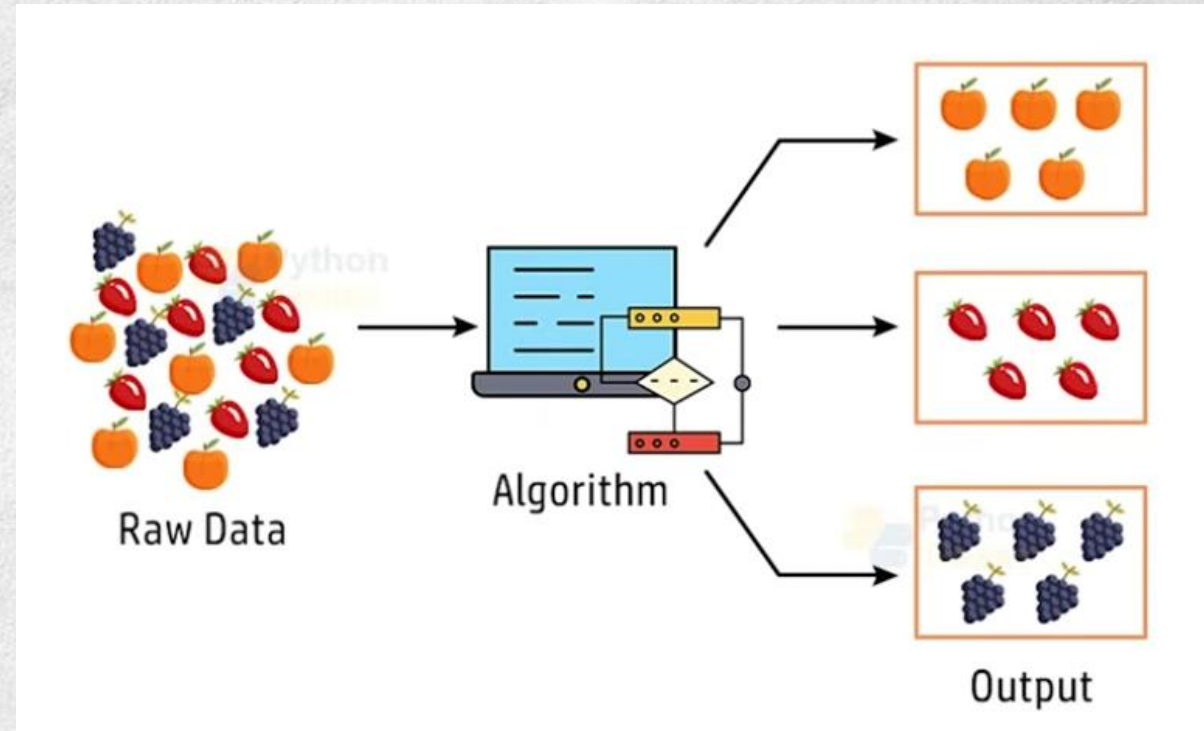
RULE: If the lawn is shaggy and  
the car is dirty and you mow  
the lawn and wash the car,  
then Dad will give you \$20.00



\*\*\*The inference engine will test each rule or ask the user for additional information.

# Machine Learning vs Deep Learning

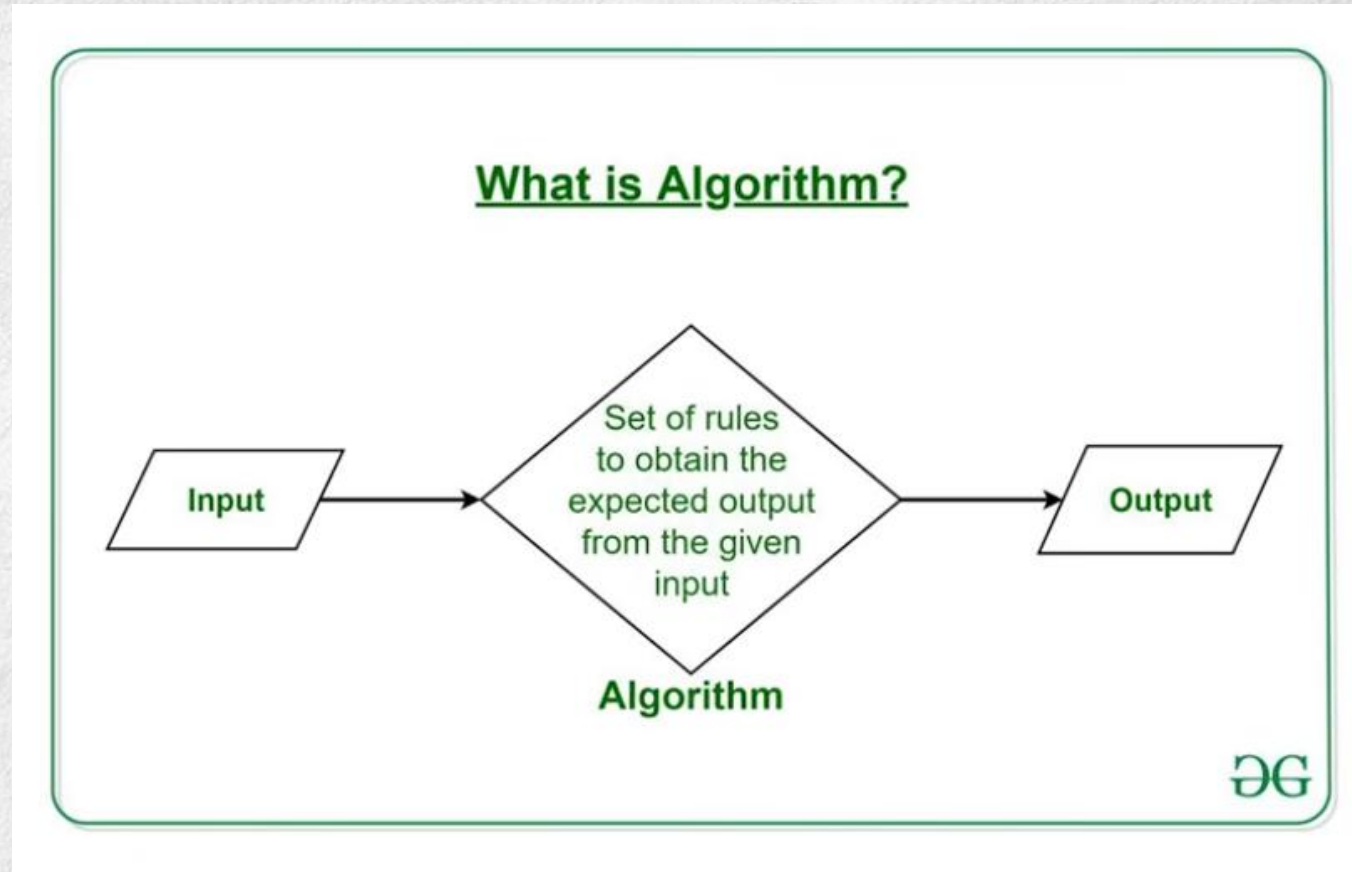
- ML (but not DL)
  - linear regression
  - random forests
  - SVM
  - clustering
- DL
  - multilayer neural networks





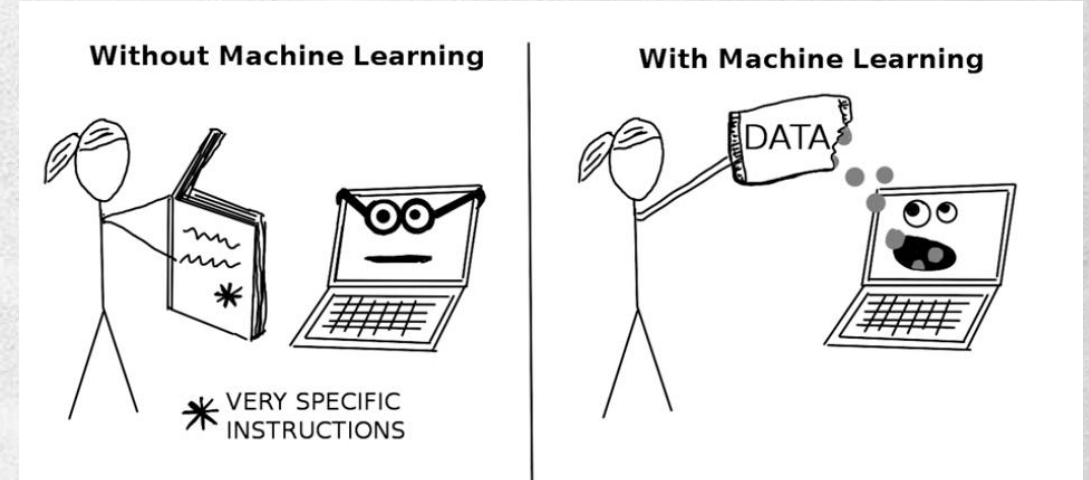
# Algorithm

- Sorting
- Searching
- Arithmetic
- Sandwich making
- Encryption
- Compression



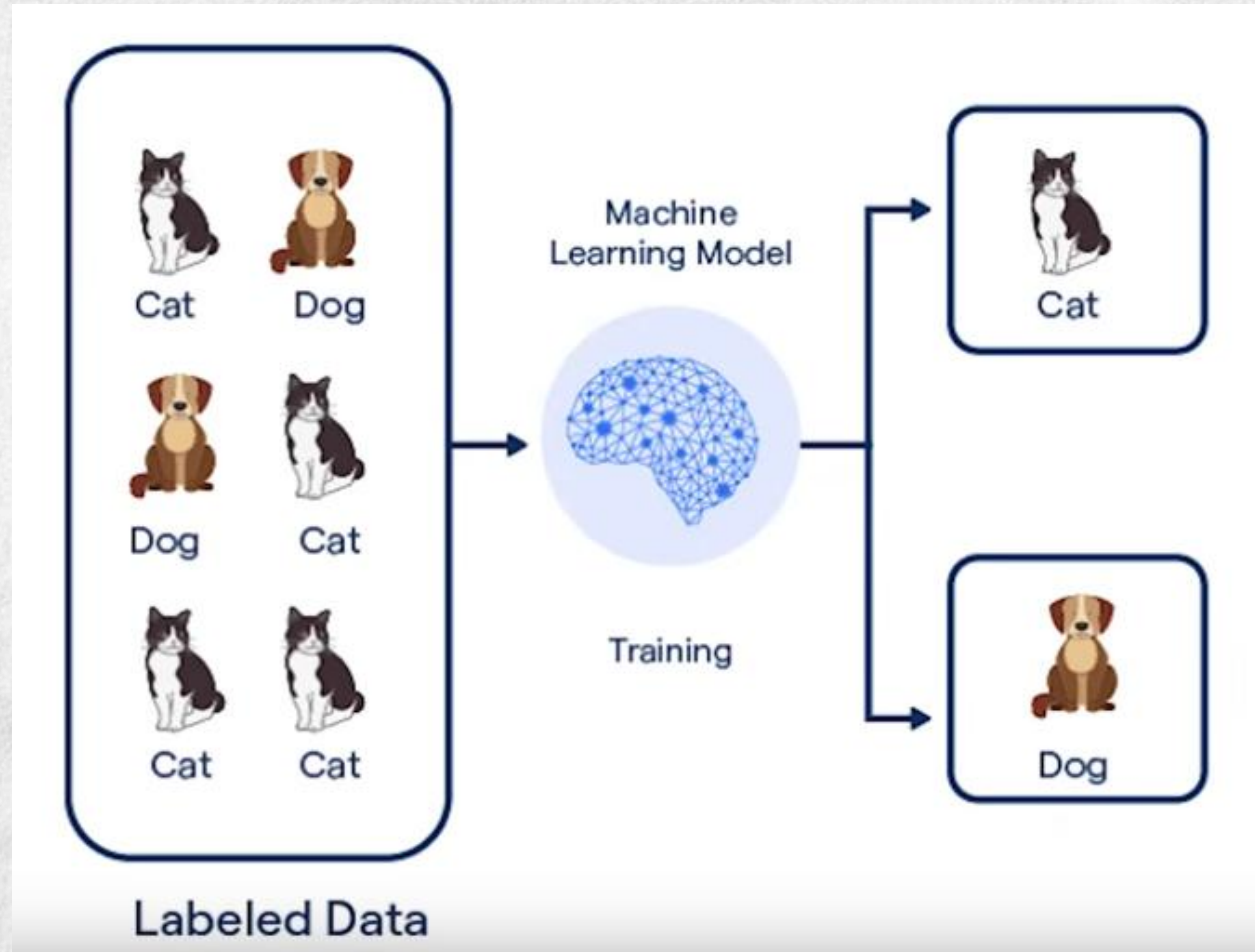
# Data

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01/01/20	112-5248654	MIULEE Set of 2, 12x20 Pillow Inserts S	HOME_BED_AND_B	B07M8RTF3G	52120000	Miulee Home	\$15.99
01/01/20	112-5248654	Krispy Kreme Classic Keurig Single-Ser	GROCERY	B0798LF9DX	50000000	Amazon.com	\$12.94
01/01/20	112-5248654	MIULEE Pack of 2, Velvet Soft Soil De	HOME_BED_AND_B	B07JPR33GL	52121512	Miulee Home	\$11.99
01/09/20	112-2797108	The Confidential - Pack of 5 Moldable N	BEAUTY	B075FV78W8	53131600	Little Peam	\$11.02
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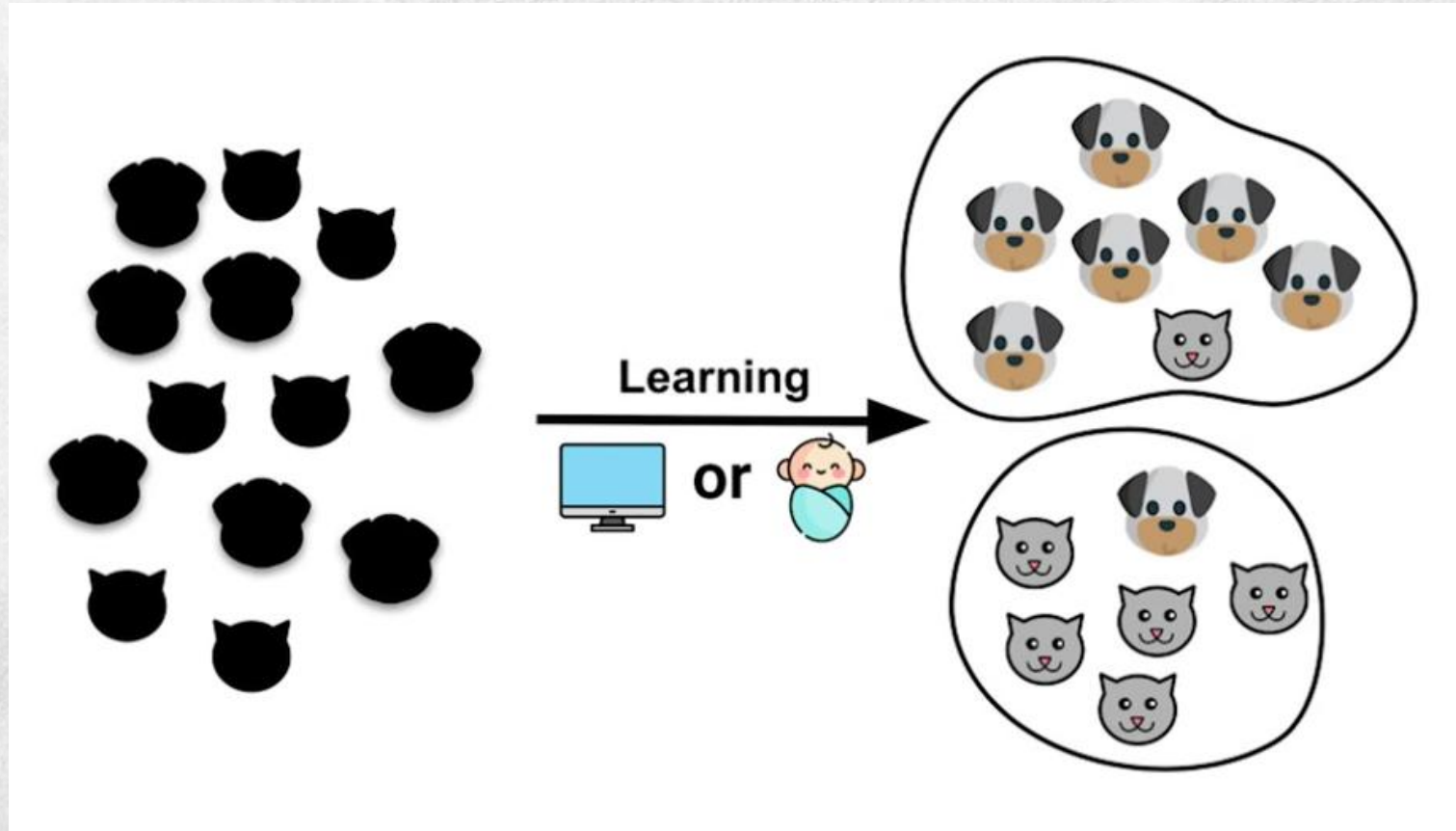




# Supervised Learning

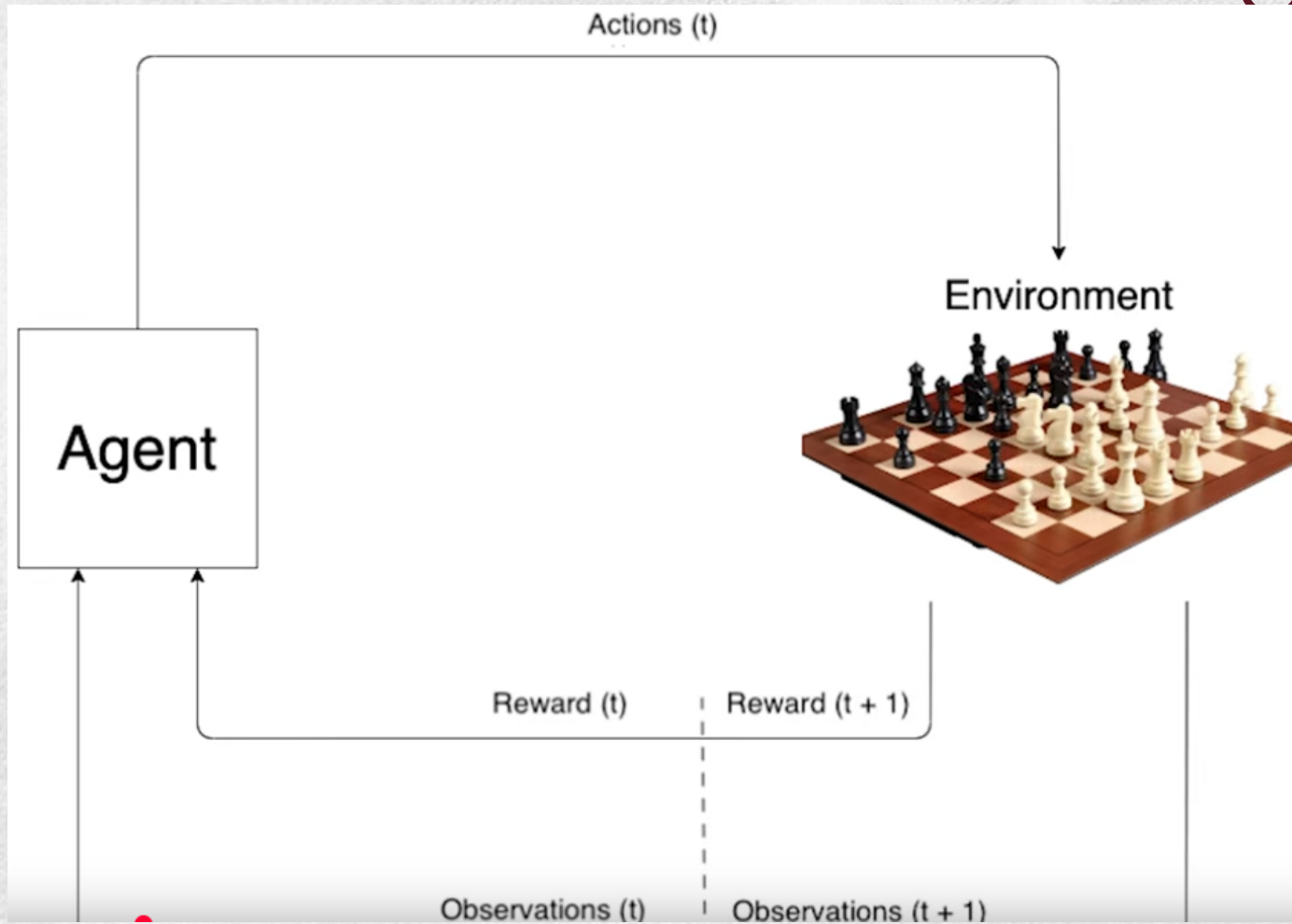


# Unsupervised Learning

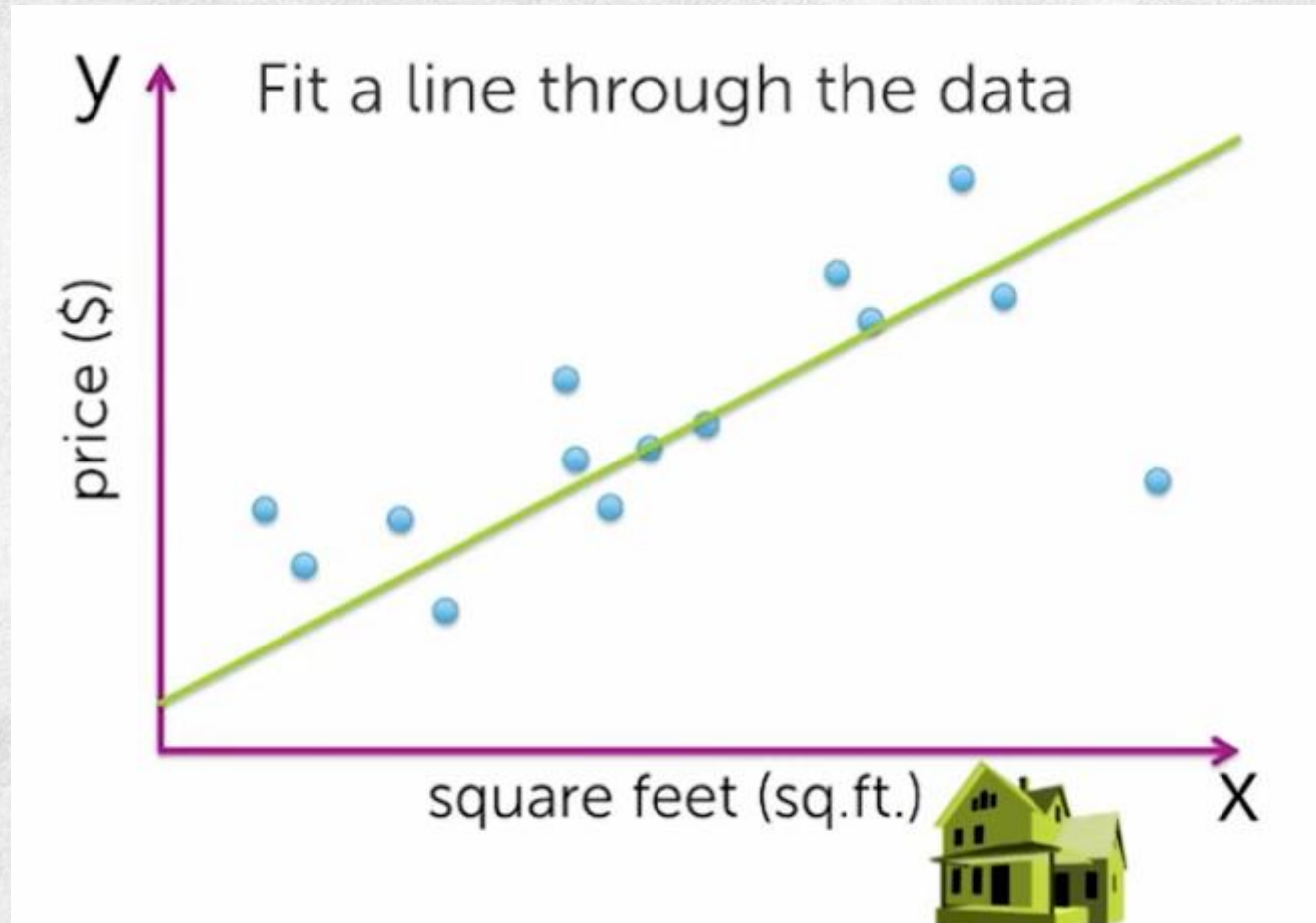




# Reinforcement Learning



# Linear Regression





# Linear Regression

