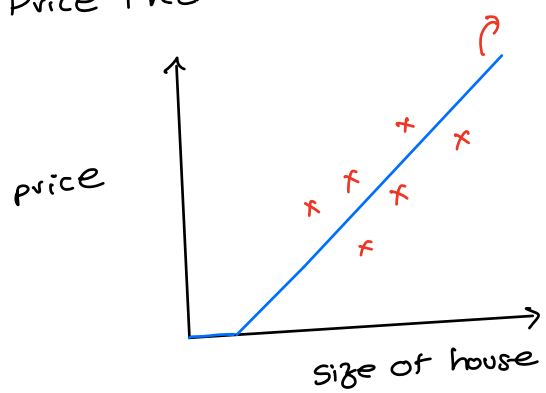
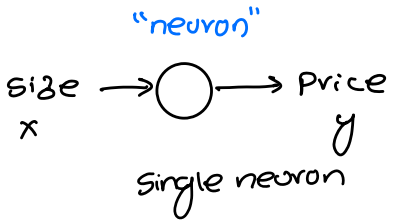
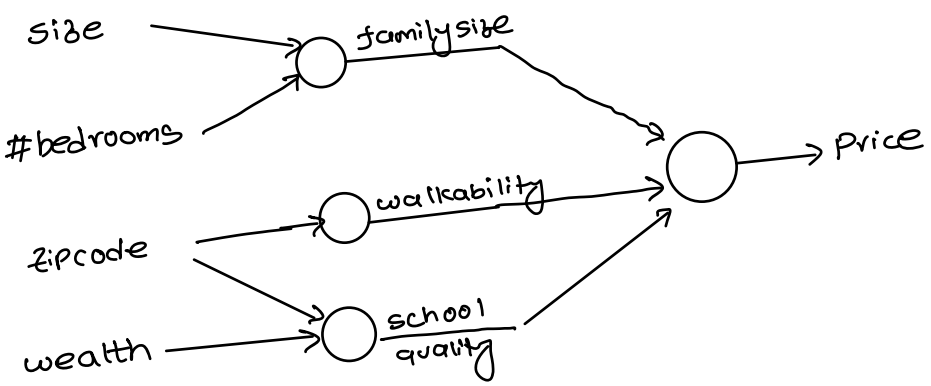
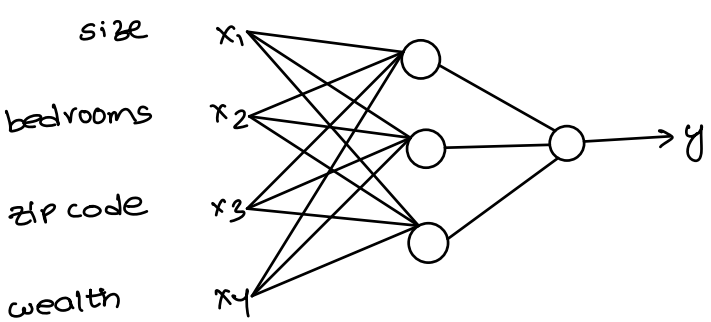
What is Neural Network: (Lec 1)

Housing Price Prediction:







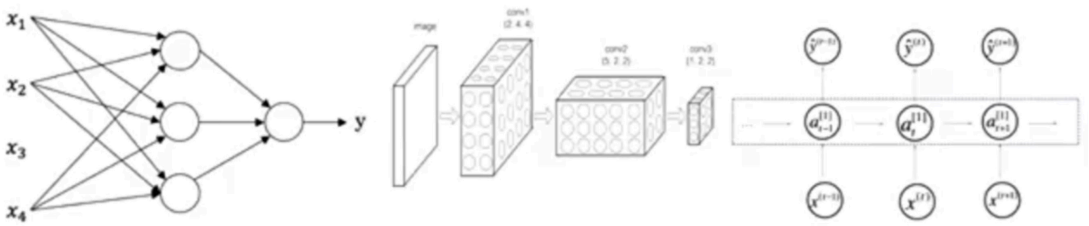


densely connected

Given enough training data between (x,y). Neural Networks are remarkably good at predicting $f(x) = y$.

Supervised learning with Neural Networks: (Lec-2)

Input X	output (y)	Application	
Home features	price	Real estate	} Standard NN
Ad, user info	click on ad (0/1)?	online advertising	
image	object (1, ..., 1000)	photo tagging	} CNN
Audio	Text transcript	speech recognition	} RNN
English	chinese	Machine translation	
Image	position of other cars	Autonomous driving	} custom, Hybrid NN



Standard NN | Convolutional NN | Recurrent NN

Structured Data

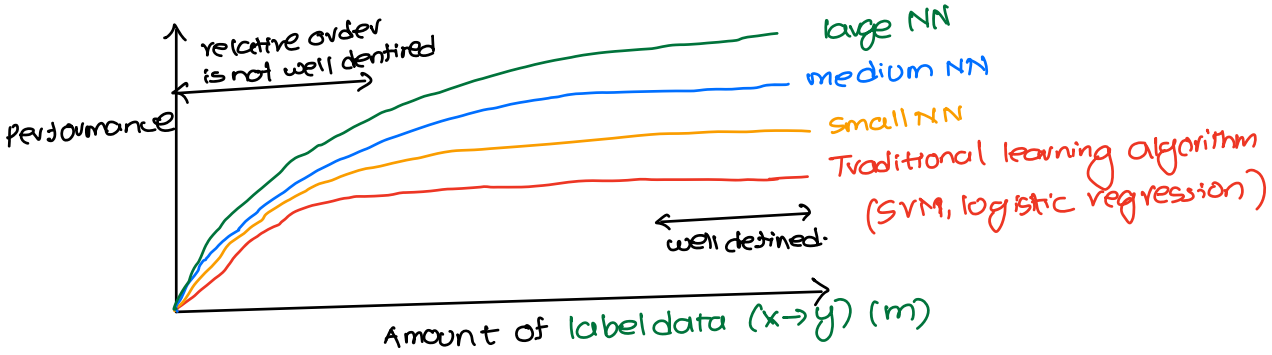
Size	#bedrooms	...	Price
2104	3		400K
:			
3000	4		500K

Unstructured Data

- Audio
- Image
- Text

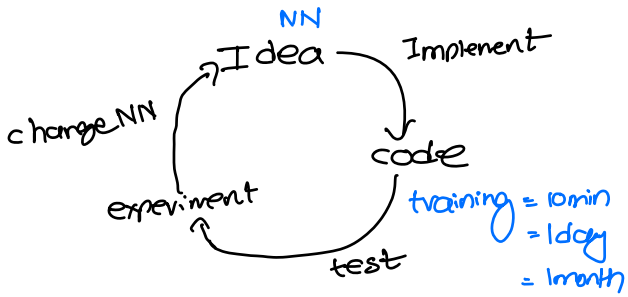
Why Deep Learning taking off? (Sec-3)

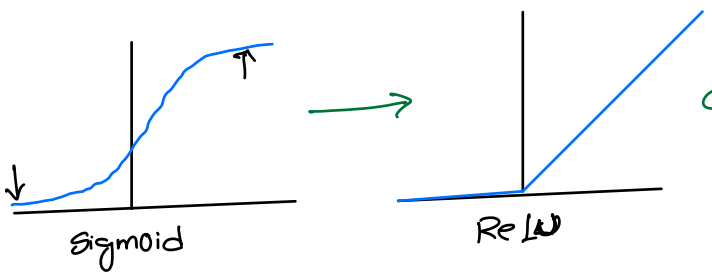
Scale drives deep learning progress



m- no of training examples

- Data
- computation
- Algorithms





gradient = 0
learning is slow

gradient = 1
learning is better.

Gradient descent Algorithm is much faster with ReLU.

About this Course:

Week 1 : Introduction

Week 2 : Basics of Neural Network programming

Week 3 : One hidden layer Neural Network

Week 4 : Deep Neural Network.