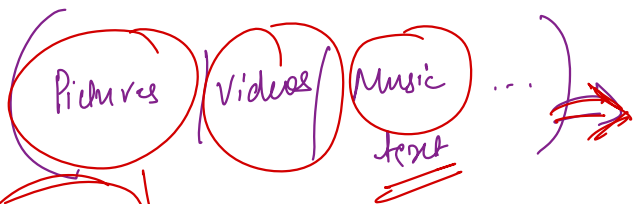


→

→ Structured Data
Classical

95%



ChatGPT

2017-18
DATE

Generative AI

Application pictures (Pictures)



→ Number

Videos] VFX, CGI, Interior designing,
Self driving car, ADAS

Music → Composing Music, Voice to text, Audio
Noise separation, ANC, building
stems []

Shreezan

Base of deep learning

Mathematics (Derivation, Matrix calculation, BODMAS)
↳ 90% → from mathematics
+ logic

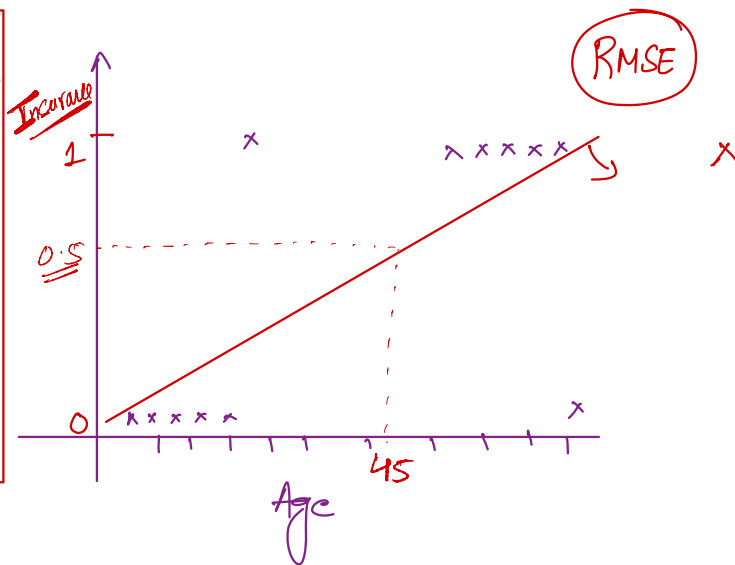
Age	Insurance
20	0
24	0
28	1
23	1
27	0
30	1
32	1
35	0

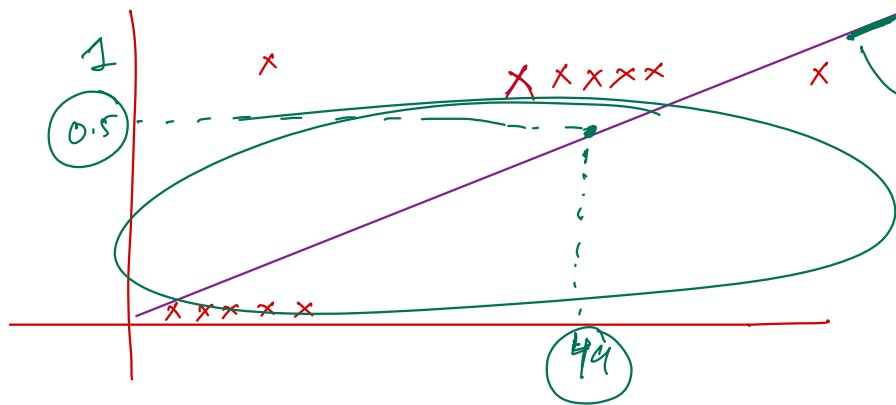
Mn { 42 }

error = Actual - prediction

loss
Calculate the error
for 1 data point

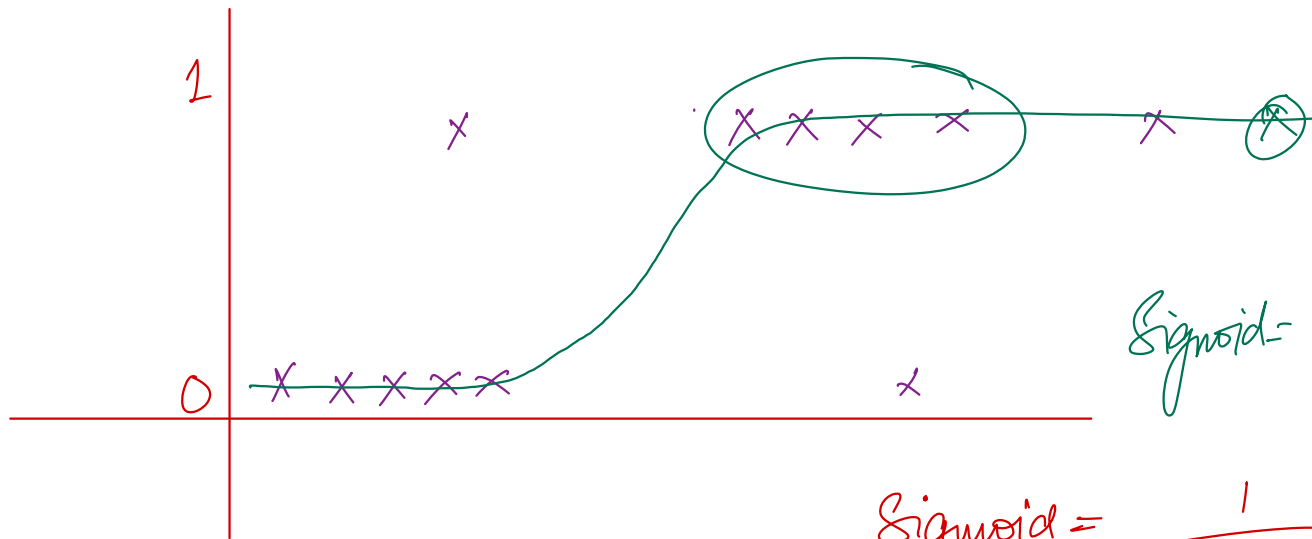
cost
Calculate the
error for all
training set





$$y = \underline{\underline{mx + b}}$$

$$\rightarrow [-\infty, \infty]$$



$$y = ?$$

Sigmoid = $[0, 1]$
probability

$$\text{Sigmoid} = \frac{1}{1 + e^{-y}}$$

✓ ①

$$y = mx + b \quad (\text{linear})$$

✓ ②

Applying sigmoid

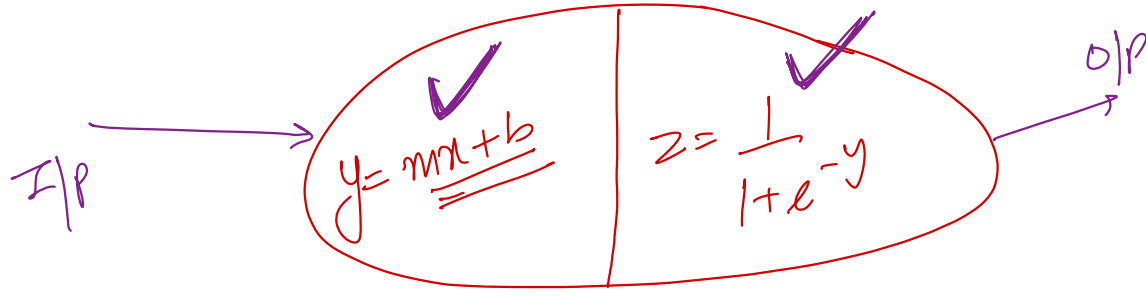
$$z = \frac{1}{1 + e^{-y}}$$

↓
Prob the person will buy
the insurance.

Optimization

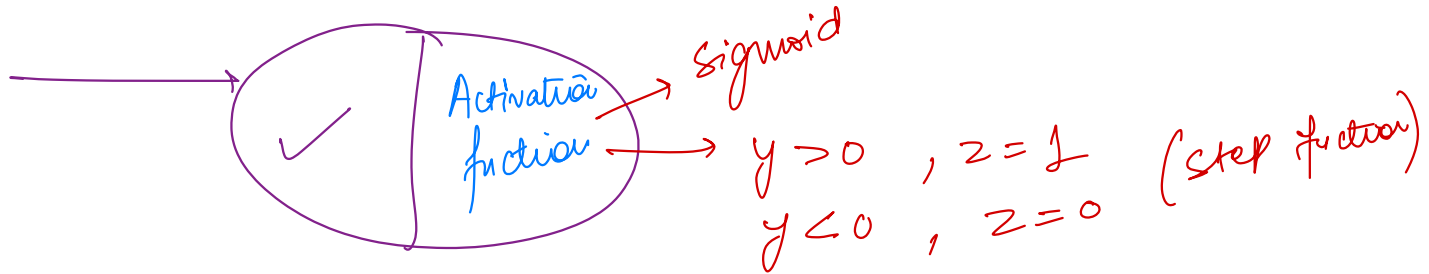
$$\log \text{loss} = -\frac{1}{n} \sum_{i=1}^n y_i \log(p_i) + (1 - y_i) \log(1 - p_i)$$

Exactly is this figure called



Neuron

Neural networks, multiple neurons working in conjunction to give the output



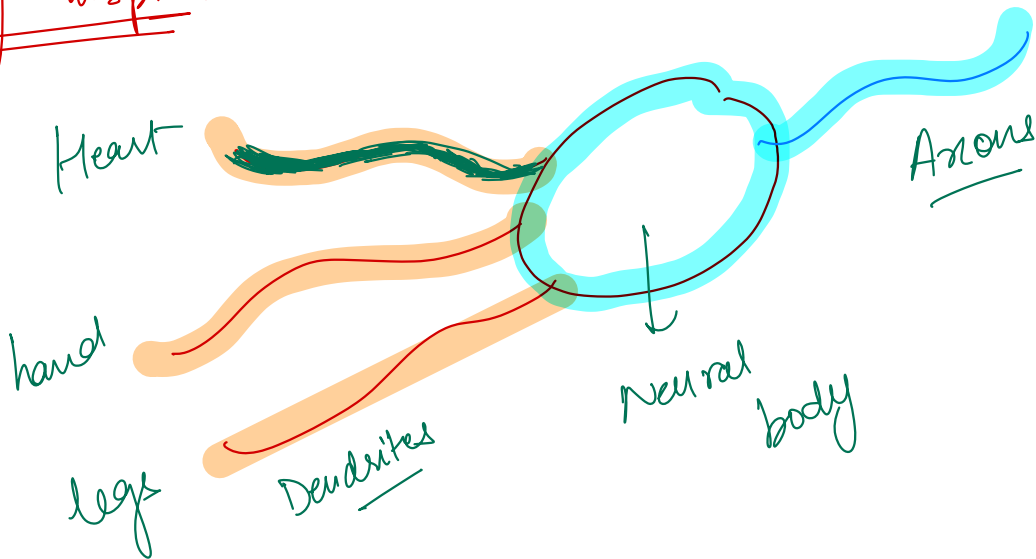
Step fiction

1970

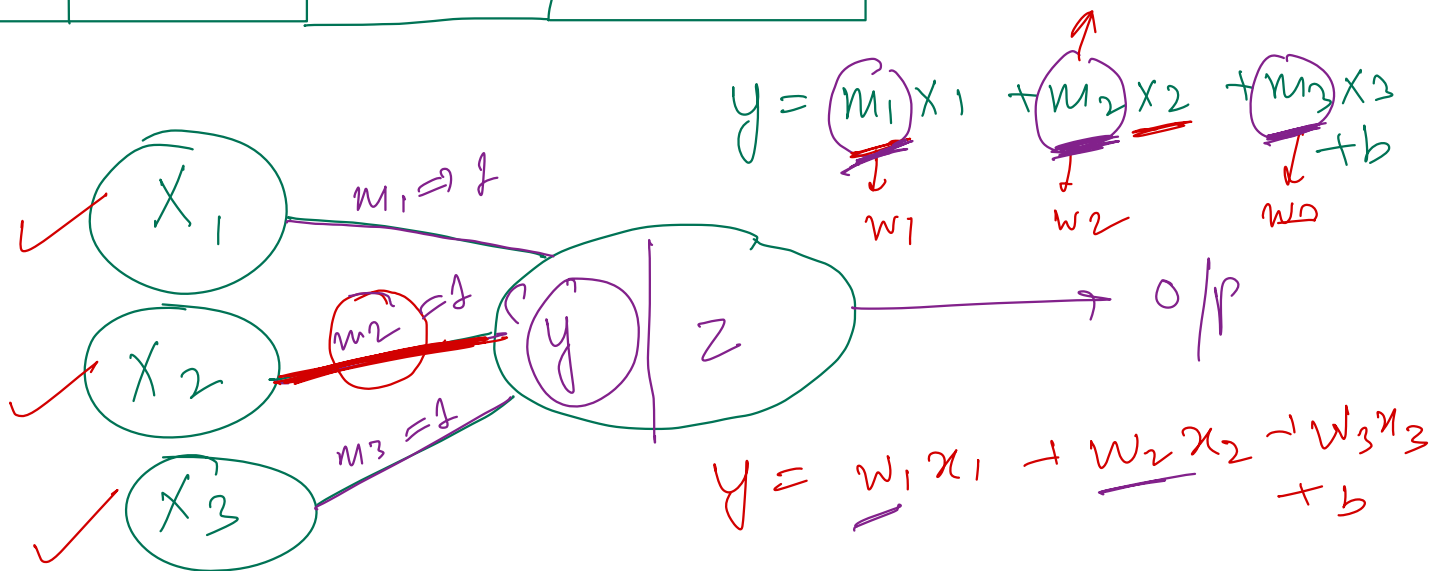
Perceptron

step
f

loosely inspired

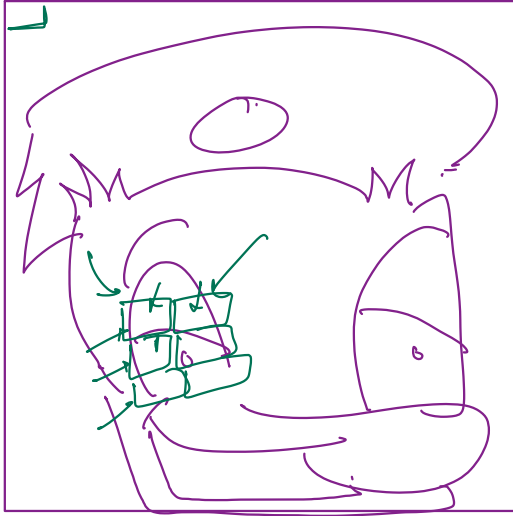


Age	Education	Income	Insurance



$$\left[\text{For } \underline{\underline{1 \text{ neuron}}} \rightarrow y = \sum_{i=0}^n w^i x^i + b \right]$$

25



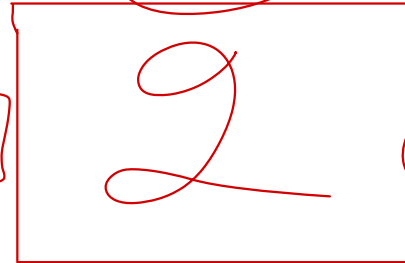
25

Classification model
to tell whether
the given image
is Donald duck or
not.

1028 x 1028

No. of pixels.

1028



1028

16



625 inputs

$$y = m_1 x_1 + m_2 x_2 + \dots + m_{625} x_{625} + b$$

x_1

x_2

x_2

x_1

\vdots

eye

$$y_1 = 0.000 x_1 + \dots + 0.2 x_{70} + 0.3 x_{75} + 0.2 x_{78} + \dots$$

y_1

$$m_1 x_1 + m_2 x_2 + \dots$$

whether the eyes is of donald duck or not

$$m_{100} x_{100}$$

$$= 0.7$$

yes

y_2

no

y_3

1st layer

2nd layer

Hidden layer

Donald Duck

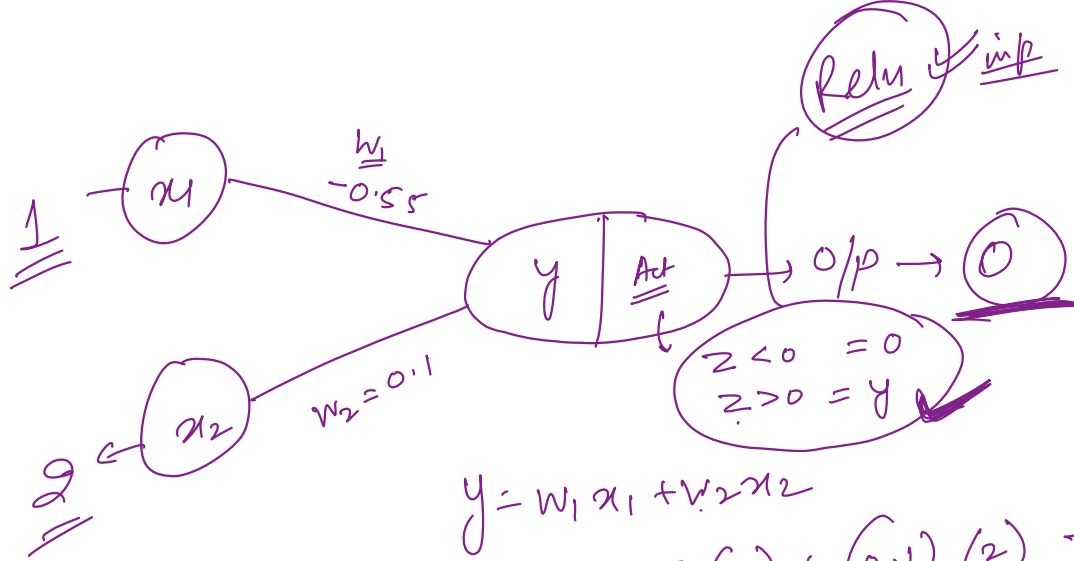
0.8

0.6

output layer

625 i/p

Input layer



$$y = w_1 x_1 + w_2 x_2$$

$$= -0.55(1) + (0.1)(2) + 1$$

$$y = -0.55 + 0.2 = -0.35 + 1$$

$$\Rightarrow -0.35 \Rightarrow 0.65$$

Activation

$$z = 0$$

$$z = 0.65$$

Someone wants to buy a house.

Education

Income

Age

Savings

→ Emotional

→ Awareness

→ SMZ ✓

Structure

