Basics of Neural Network Programming

Binary Classification

deeplearning.ai

Binary Classification

64

64

$\longrightarrow$ 1 (cat) vs 0 (non cat)

y

Blue
Green
Red

255	134	93	22
255	134	202	22	2
255	231	42	22	4	30
123	94	83	2	192	124
34	44	187	92	34	142
34	76	232	124	94
67	83	194	202

64

64
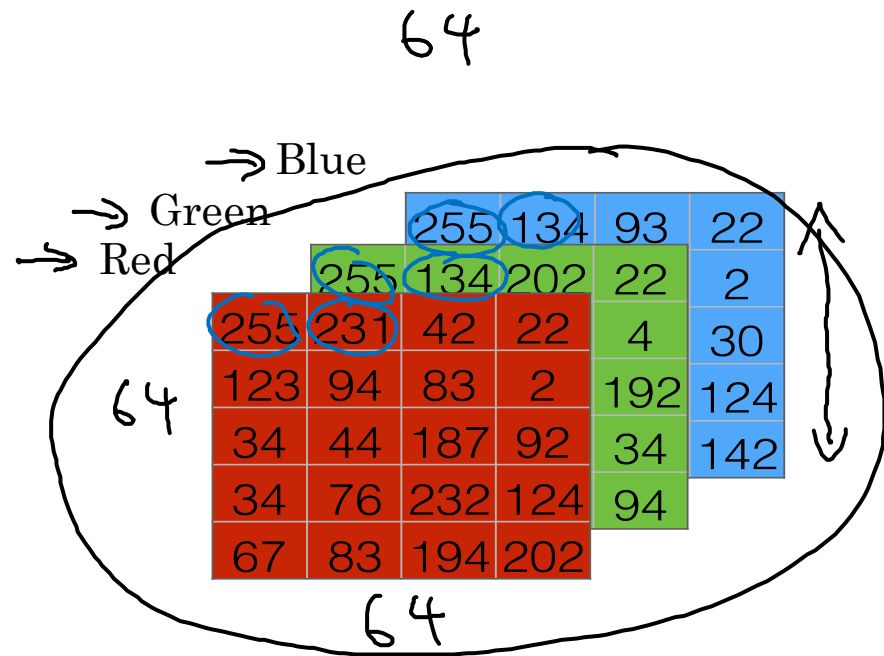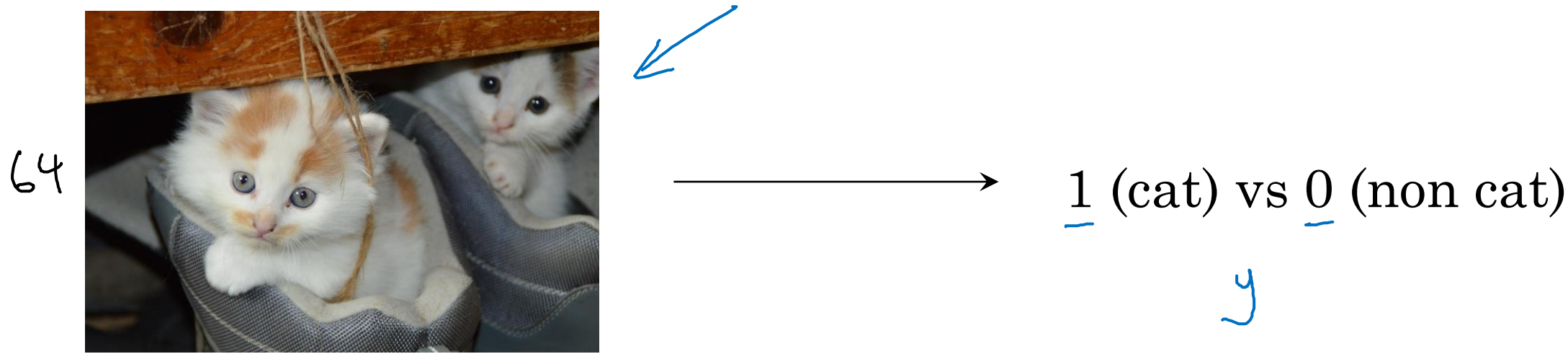
$$x = \begin{bmatrix} 255 \\ 231 \\ \vdots \\ 255 \\ 134 \\ \vdots \end{bmatrix}$$

$64 \times 64 \times 3 = 12288$

$n = n_x = 12288$

$x \longrightarrow y$

Andrew Ng

Notation

(x, y) $\qquad$ $x \in \mathbb{R}^{n_x}, y \in \{0, 1\}$

m trainig examples: $\{(x^{(1)}, y^{(1)}), (x^{(2)}, y^{(2)}), \ldots, (x^{(m)}, y^{(m)})\}$

$\qquad m = m_{train}$ $\qquad\qquad M_{test} = \#test$ examples.
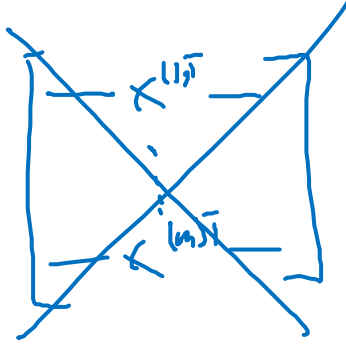
$$X = \begin{bmatrix} | & | & & | \\ x^{(1)} & x^{(2)} & \ldots & x^{(m)} \\ | & | & & | \end{bmatrix} \updownarrow n_x$$

$\overset{\longleftarrow m \longrightarrow}{}$

$X \in \mathbb{R}^{n_x \times m}$ $\qquad$ $X.shape = (n_x, m)$

$Y = \begin{bmatrix} y^{(1)} & y^{(2)} & \ldots & , y^{(m)} \end{bmatrix}$

$Y \in \mathbb{R}^{1 \times m}$

$Y.shape = (1, m)$