Image Processing

EAN-13
⇓

$\begin{cases} \underline{12\ \text{Digits}} \to \text{Data} \\ \underline{1\ \text{Digit}} \to \text{Checksum} \end{cases}$

1) <u>Grey Scale image</u>

2) <u>RGB image</u>
   ↳ <u>3 channels</u>
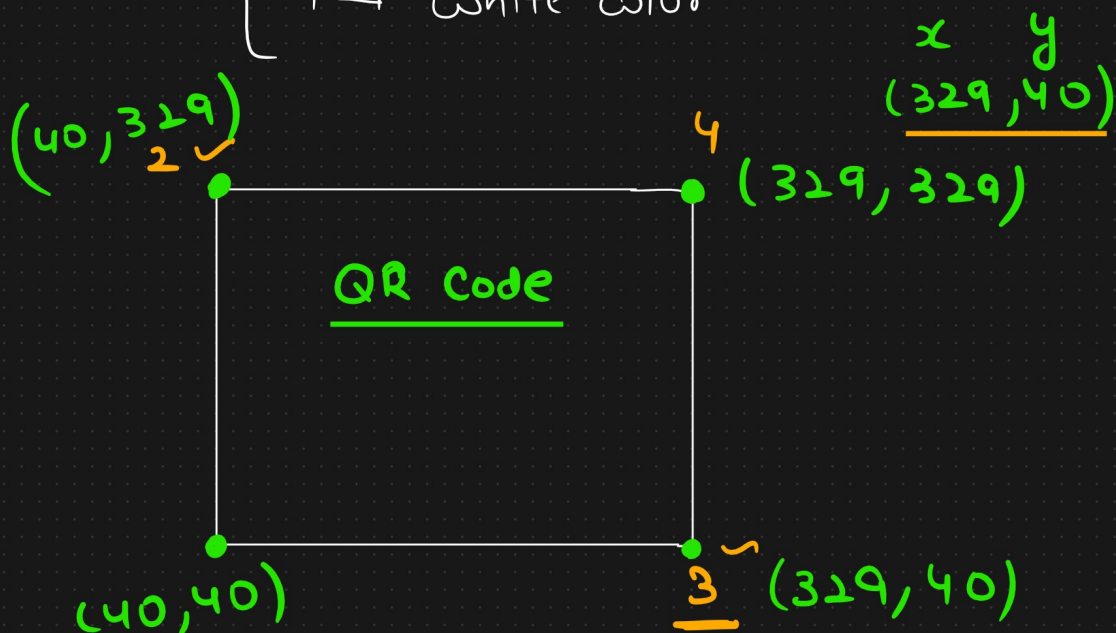   <u>(Red, Green, Blue)</u>

<u>Image</u> ⟹ <u>Pixels</u> → <u>0 to 255</u>

$\begin{cases} 0 \to \underline{\text{Black color}} \\ 255 \to \underline{\text{White color}} \end{cases}$

<u>After normalization</u>

$\begin{cases} 0 \to \text{Black color} \\ 1 \to \text{White color} \end{cases}$

x   y

$(40, 329)$ **2** ✓   **4** $\underline{(329, 40)}$

$(329, 329)$

<u>**QR Code**</u>

$(40, 40)$ **3** ⌣ $(329, 40)$

Matrix computation
↳ very high

↳ convert Pixel value → $\{0, 1\}$

$$\left\{ \begin{array}{l} \text{min val} \to 0/255 \longrightarrow 0 \\ \text{max val} \to 255/255 \longrightarrow 1 \end{array} \right.$$

Normalization

Machine Learning

① **Supervised**
↳ Labelled Data

② **Unsupervised**
↳ No Labelled Data

House Price
↑ Prediction

→ **Regression**
↳ Linear Regression

Spam or ham

Classification