Training Images

Image

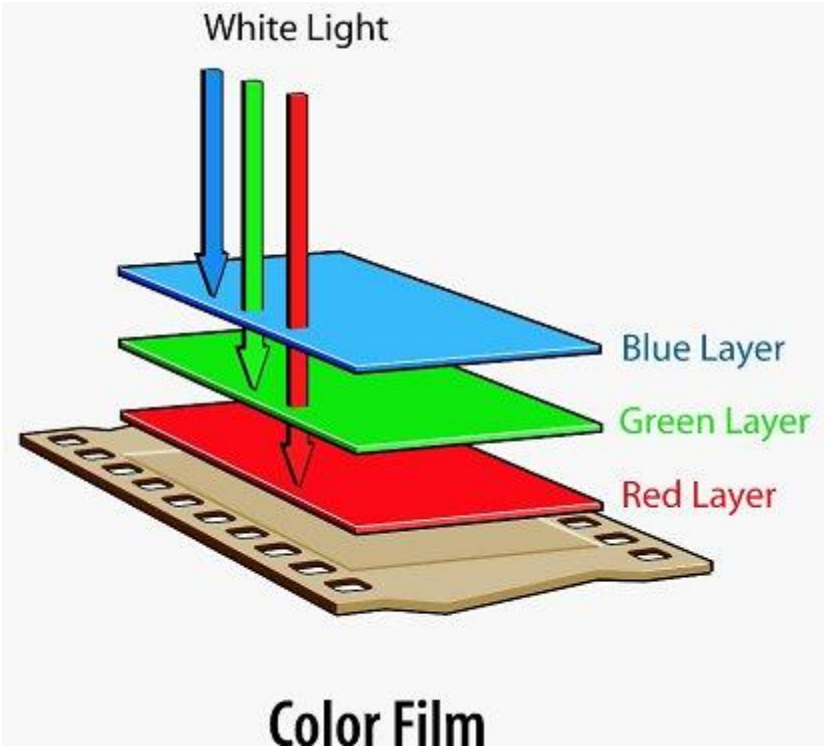
- An image is a picture that has been created by combination of ***vectors*** or ***values***.
- An image can be described in terms of ***vector graphics*** or ***raster graphics***.
- An image stored in raster form is sometimes called a **bitmap.**

Color Space

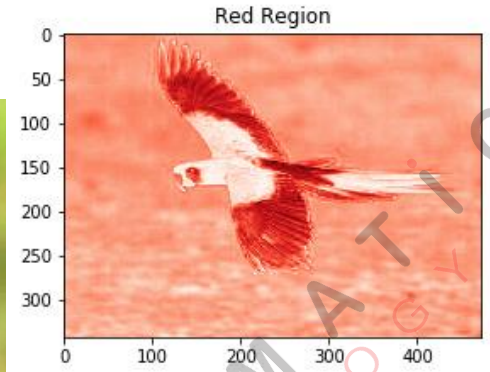
- Color image is combination of three channel
  - Red Channel
  - Green Channel
  - Blue Channel

Basics of Image Processing

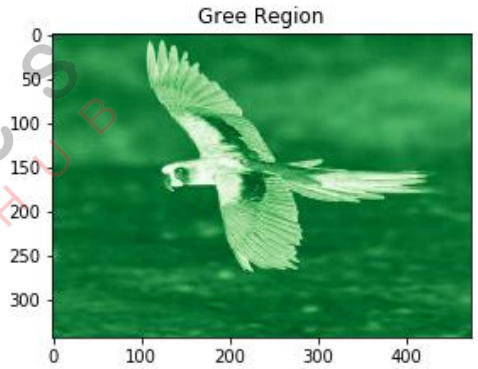
(343, 473 , 3)



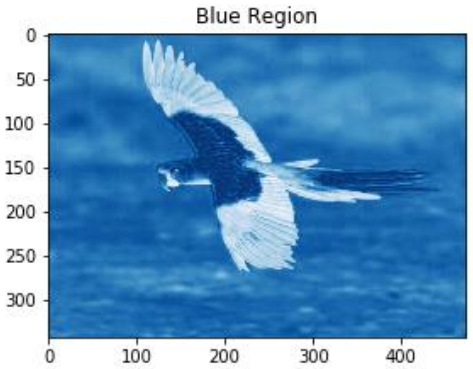
(343, 473 , 3)



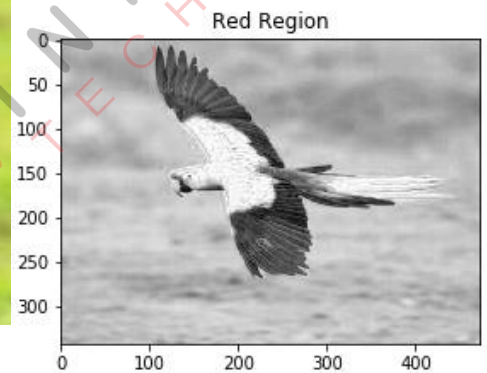
(343, 473)



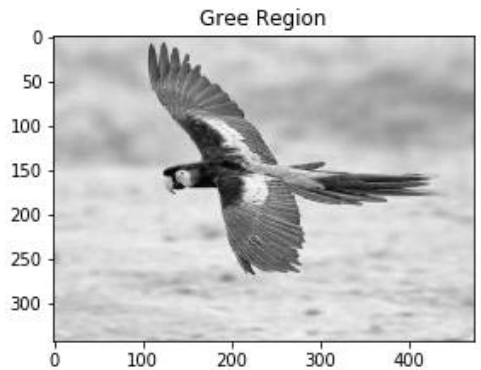
(343, 473)



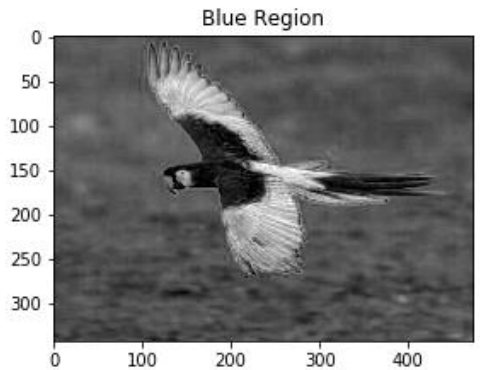
(343, 473)



(343, 473)



(343, 473)



(343, 473)

Use of Grayscale image

(343, 473 , 3)

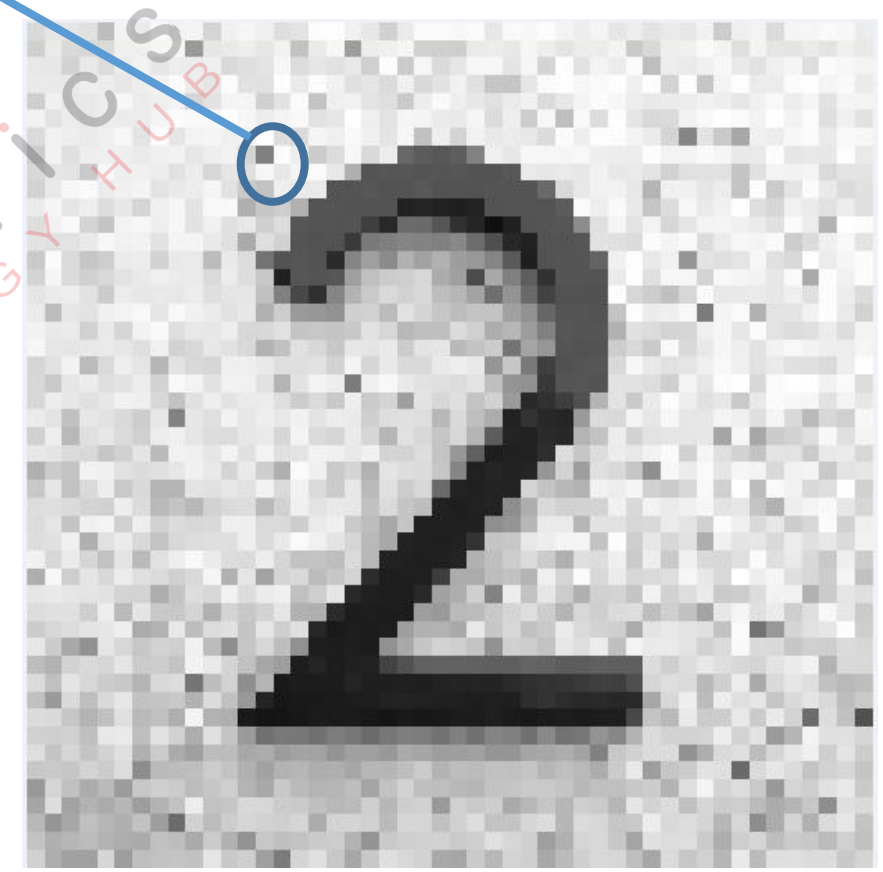
(343, 473)

Length of matrix or array reduce by 3 times hence the computation time

Deeper into Image

(1200 , 1200)

PIXELS



PIXELS

- Pixels are also called values
  - Range from **0 – 2^n**

Eg: for 8 bit image : n = 8

range of pixel values is **0 – 255**

PIXELS

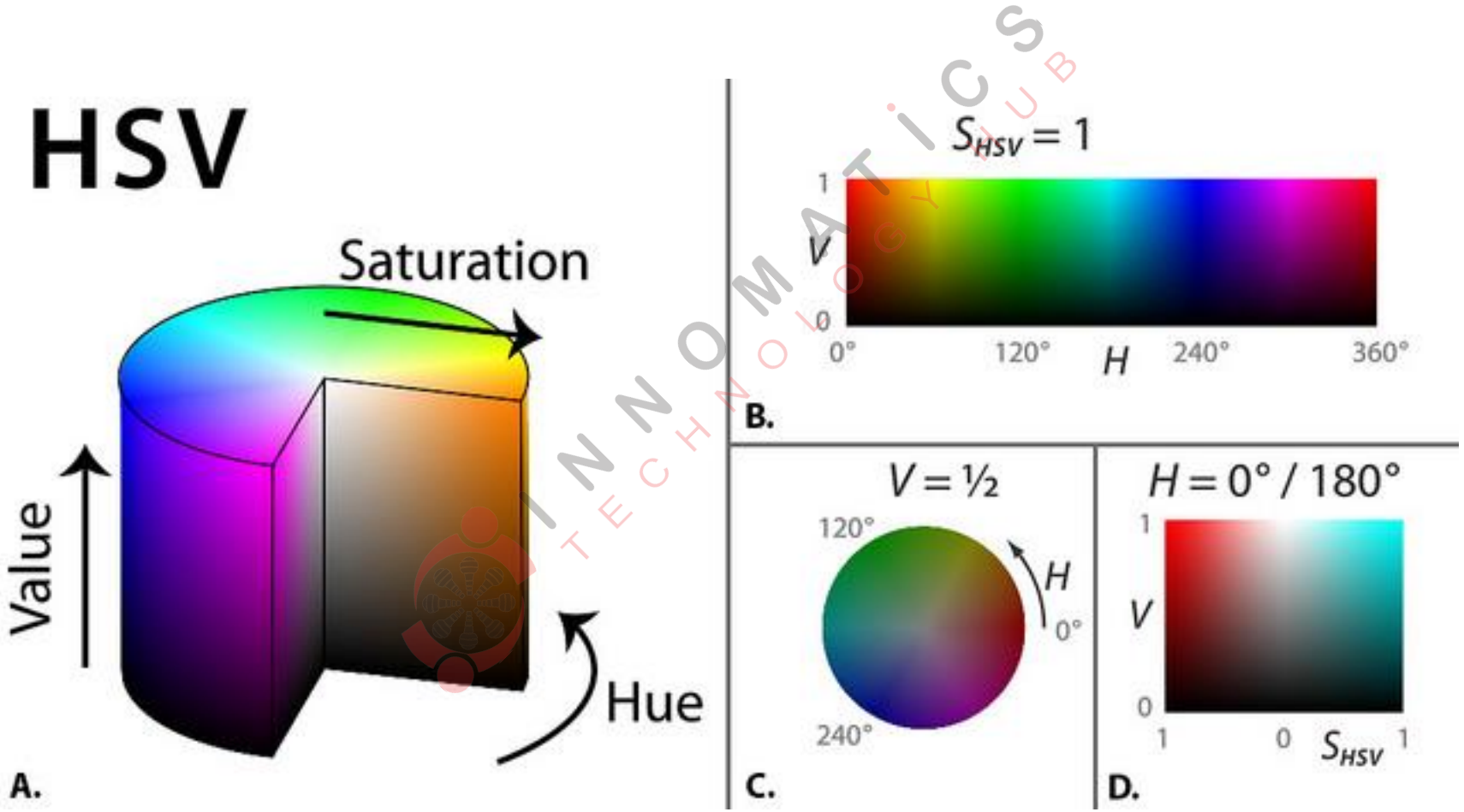
- Lower the value ***darker*** the color

Eg: black color for gray scale image

- Higher the value ***lighter*** the color

Eg: White color for gray scale image

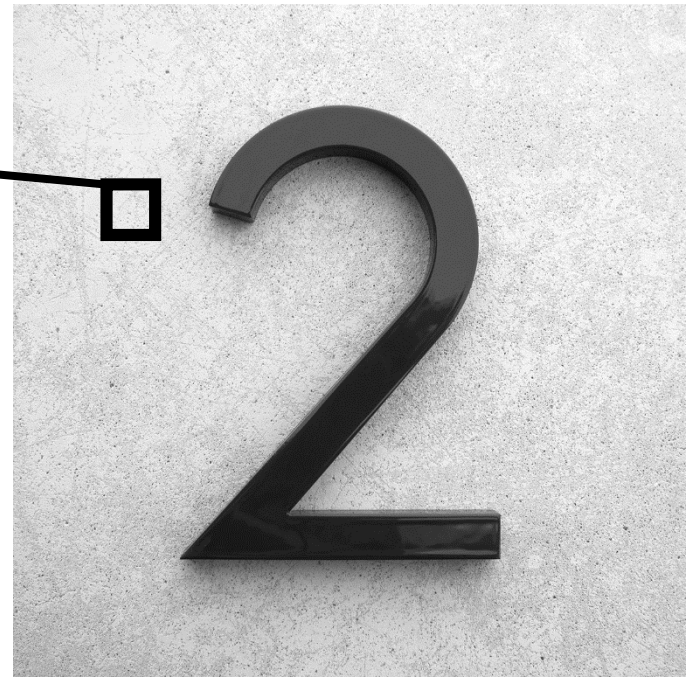
Color Space


HSV
Saturation
Value
Hue
A.
$S_{HSV} = 1$
1
V
0
0°
120°
H
240°
360°
B.
$V = ½$
120°
H
0°
240°
C.
$H = 0° / 180°$
1
V
0
1
0
S_{HSV}
1
D.

Array in graphical representation

- Image is matrix and representation in graphical manner

0	230	255	53	235
255	20	240	255	0
255	70	255	100	120



Information in Image

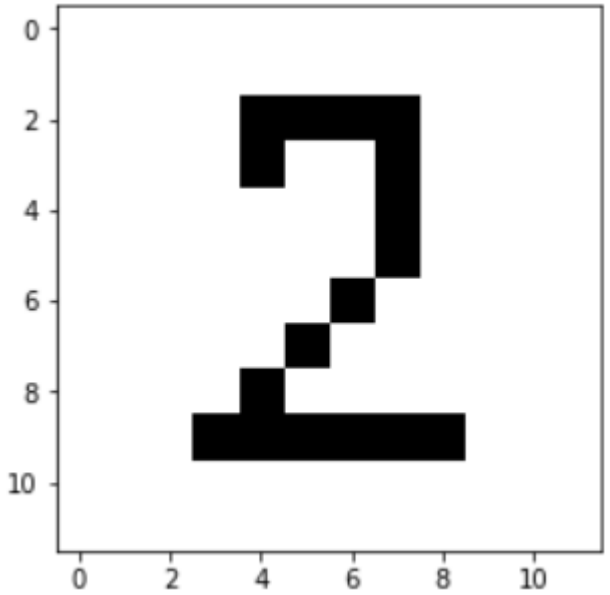
- Skill of extraction information or knowledge from data is called Data Science

  - ❑ Transformation
  - ❑ Analysis
  - ❑ Modeling

(1200, 1200)

Data Transformation

- Transforming the data into structured
  - Resize {Bring the all image into same shape}



(10, 10)

- Reshaping
  - Converting into either row matrix or column matrix

(1, 100)

Analysis

- Number of black bars
- Distance between each bars
- Width of each bars
- Position or index of bars

(1, 100)

Train images or arrays