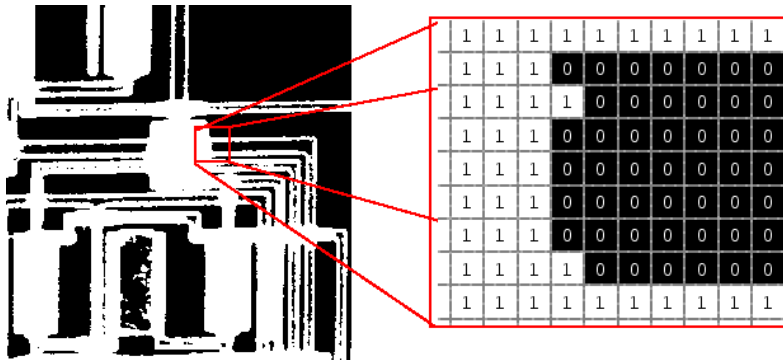


## Important Vocabulary to Know:

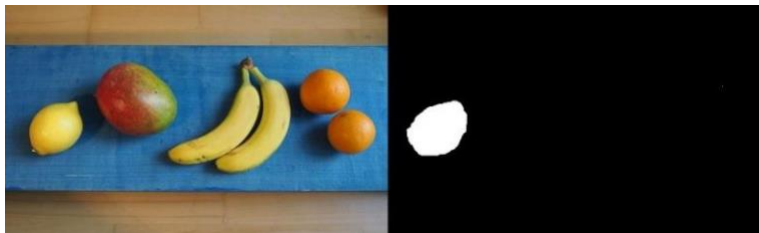
### 1. Binary Image:

A binary image is a black and white image which computers read as; 0 for black and 1 for white.



### 2. Mask:

A mask is binary image of a standard color image representing a specific segment of focus.



### 3. Masking:

Masking, in image processing, is the process of segmenting a specific section of an image to allow us to focus on a specific area or characteristic. Areas which we want to focus on will be represented as white (1) and area which we want to ignore will be marked as black (0).

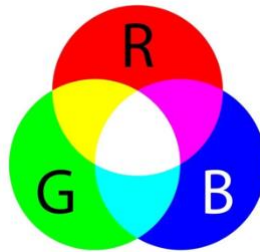


# FLORIDA POLYTECHNIC COUNTING M&MS

Vocabulary

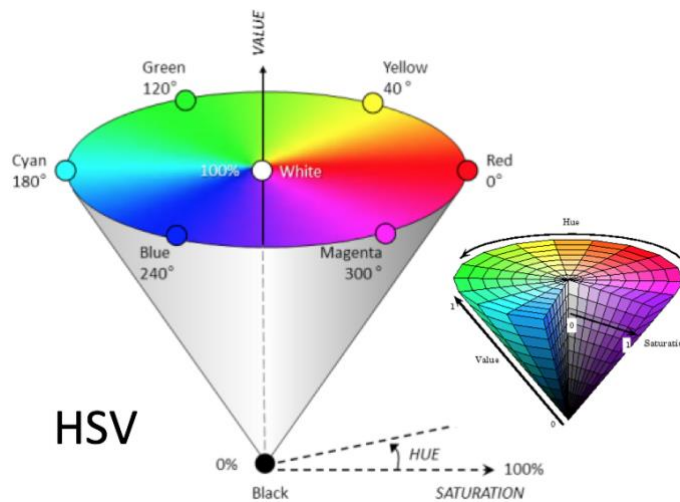
## 4. RGB:

RGB is a color scale that is widely used in computer screens due to the ability to represent a variety of colors by only using three primary colors: Red, Green, and Blue. Different colors can be displayed depending on the brightness of each color. If all colors are at 100 percent brightness, then the color will be white, if all are at 0 percent brightness, then the color will be black.



## 5. HSV:

Like RGB, HSV is also another color scale that is used. HSV uses Hue, which measures the color being worked on, such as red, yellow, blue, etc. Saturation, which measures the lightness of the color, and Value, which measures the darkness of the colors. HSV is widely used in color detection due to the ability to achieve shades of one color, thus we are able to detect the same color under different lighting conditions.



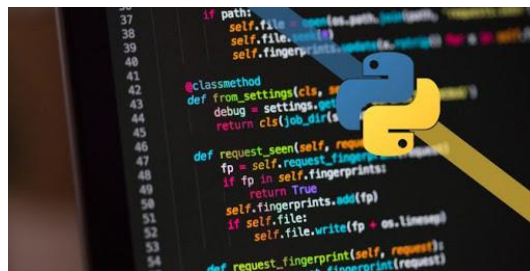
## 6. Thresholding:

Thresholding, in image processing, is the process of applying limits to pixel values of a non-binary image. For example, with HSV we have three values we can work with: hue, saturation, and value. Hue goes from 0 – 180, and both Saturation and value go from 0 – 255 in python. We can use these values to set limits to find specific colors, thus we are creating a threshold as how small or how large these values can be.



## 7. Python Language:

Python is a programming language that is widely used in the industry due to its simplicity and amount of libraries. Like programming languages, such as C++ and Java, python is an object orientated language.



## 8. Function:

A function, in computer programming, is a custom section of code that is design to receive parameters and perform a specific task and/or return a specific output. Functions are used to minimize the complexity and length of a program. For example, if one wants to find the area of a circle, rather than coddging the formula ( $A = \pi r^2$ ) every time the area is needed, one can create a function that will take a radius and in return calculate the area of a circle using the formula; this one function can just be called when the area is needed.

```
>>> def circle_area(radius):  
    area = math.pi * radius^2
```

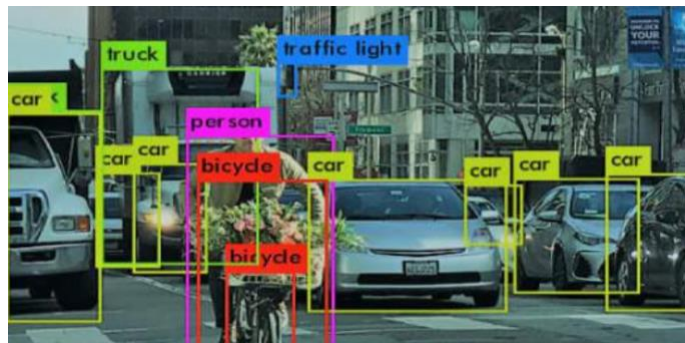
## 9. OpenCV:

OpenCV is open-source library that is use among many programming languages. The library is open source, meaning that it is available for free to developers under license. OpenCV is used primarily for real time computer vision, which helps developers teach computers about their surroundings.



## 10. Computer Vision:

Computer vision is the ability to teach a computer its surroundings through imaging processing and machine learning.



## 11. Contour:

Contours are lines/curves surrounding points of an image that share similar color and intensity values.

