Color Detection using Python - OpenCV and Pandas

In [1]:

```
import cv2
import pandas as pd
```

In [2]:

```
img_path = r'colorpic.jpg'
img = cv2.imread(img_path)
```

declaring global variables (are used later on)

In [3]:

```
clicked = False
r = g = b = x_pos = y_pos = 0
```

Reading csv file with pandas and giving names to each column

In [4]:

```
index = ["color", "color_name", "hex", "R", "G", "B"]
csv = pd.read_csv('colors.csv', names=index, header=None)
```

Function to calculate minimum distance from all colors and get the most matching color

In [5]:

```
def get_color_name(R, G, B):
    minimum = 10000
    for i in range(len(csv)):
        d = abs(R - int(csv.loc[i, "R"])) + abs(G - int(csv.loc[i, "G"])) +
            abs(B - int(csv.loc[i, "B"]))
        if d <= minimum:
            minimum = d
            cname = csv.loc[i, "color_name"]
    return cname
```

function to get x,y coordinates of mouse double click

In [6]:

```
def draw_function(event, x, y, flags, param):
    if event == cv2.EVENT_LBUTTONDBLCLK:
        print("Double-click detected at:", x, y)
        global b, g, r, x_pos, y_pos, clicked
        clicked = True
        x_pos = x
        y_pos = y
        b, g, r = img[y, x]
        b = int(b)
        g = int(g)
        r = int(r)

cv2.namedWindow('image')
cv2.setMouseCallback('image', draw_function)
```

In [7]:

```
while True:
    cv2.imshow("image", img)

    if clicked:
        # cv2.rectangle(image, start point, endpoint, color, thickness)-1 fills entire r
        cv2.rectangle(img, (20, 20), (750, 60), (b, g, r), -1)
        # Creating text string to display( Color name and RGB values )
        text = get_color_name(r, g, b) + 'R=' + str(r) + 'G=' + str(g) + 'B=' + str(b)
        # cv2.putText(img,text,start,font(0-7),fontScale,color,thickness,lineType )
        cv2.putText(img, text, (50, 50), 2, 0.8, (255, 255, 255), 2, cv2.LINE_AA)
        # For very light colours we will display text in black colour
        if r + g + b >= 600:
            cv2.putText(img, text, (50, 50), 2, 0.8, (0, 0, 0), 2, cv2.LINE_AA)
        clicked = False

    # Break the loop when user hits 'esc' key
    if cv2.waitKey(20) & 0xFF == 27:
        break

cv2.destroyAllWindows()
```

```
Double-click detected at: 884 629
```


Golden Yellow R=251 G=224 B=21