Practise Exercise
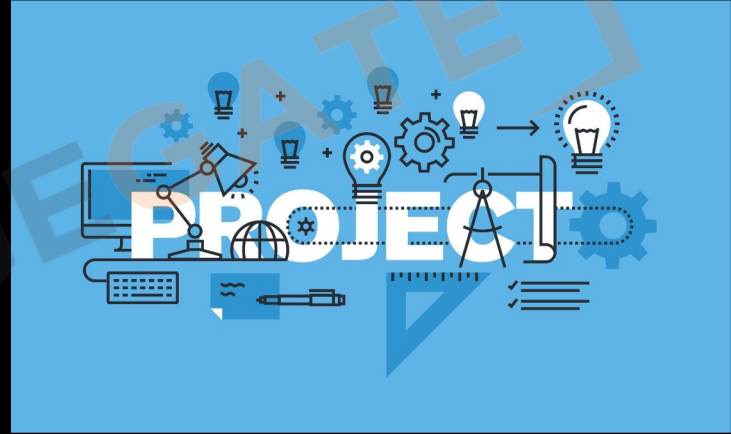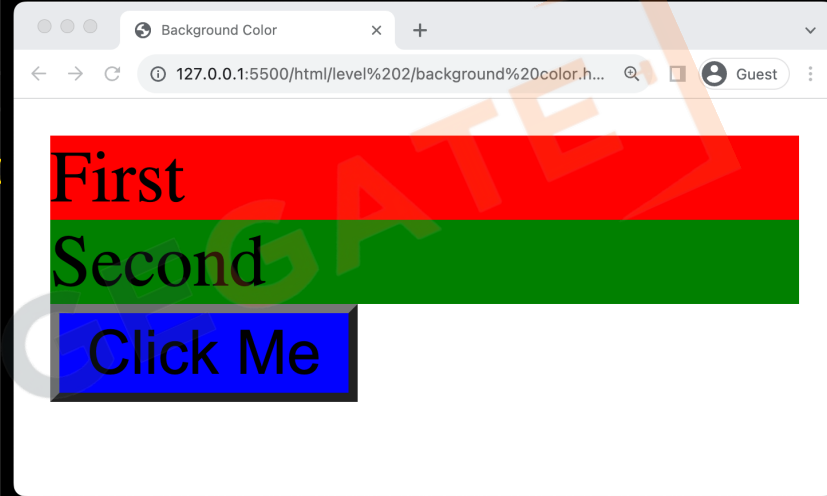## HTML Core Concepts

1. Create a page with header, footer, main(section, article, aside tag).
2. Make sure the project from level 3 has correct folder structure.
3. Create groupings of multiple tags using div.
4. Create navigation to important sections of your page.

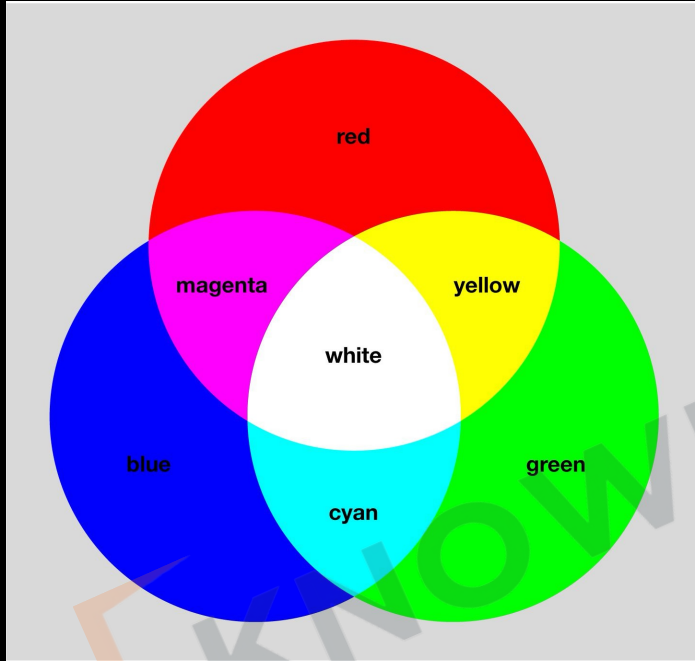# Background Color

```html
<head>
    <title>Background Color</title>
    <style>
        #first { color: ☐black; background-color: ☐red; }
        #second { color: ☐black; background-color: ☐green; ]
        button { color: ☐black; background-color: ☐blue; }
    </style>
</head>
<body>
    <div id="first">First</div>
    <div id="second">Second</div>
    <button>Click Me</button>
</body>
```

Browser window — URL: 127.0.0.1:5500/html/level%202/background%20color.h...
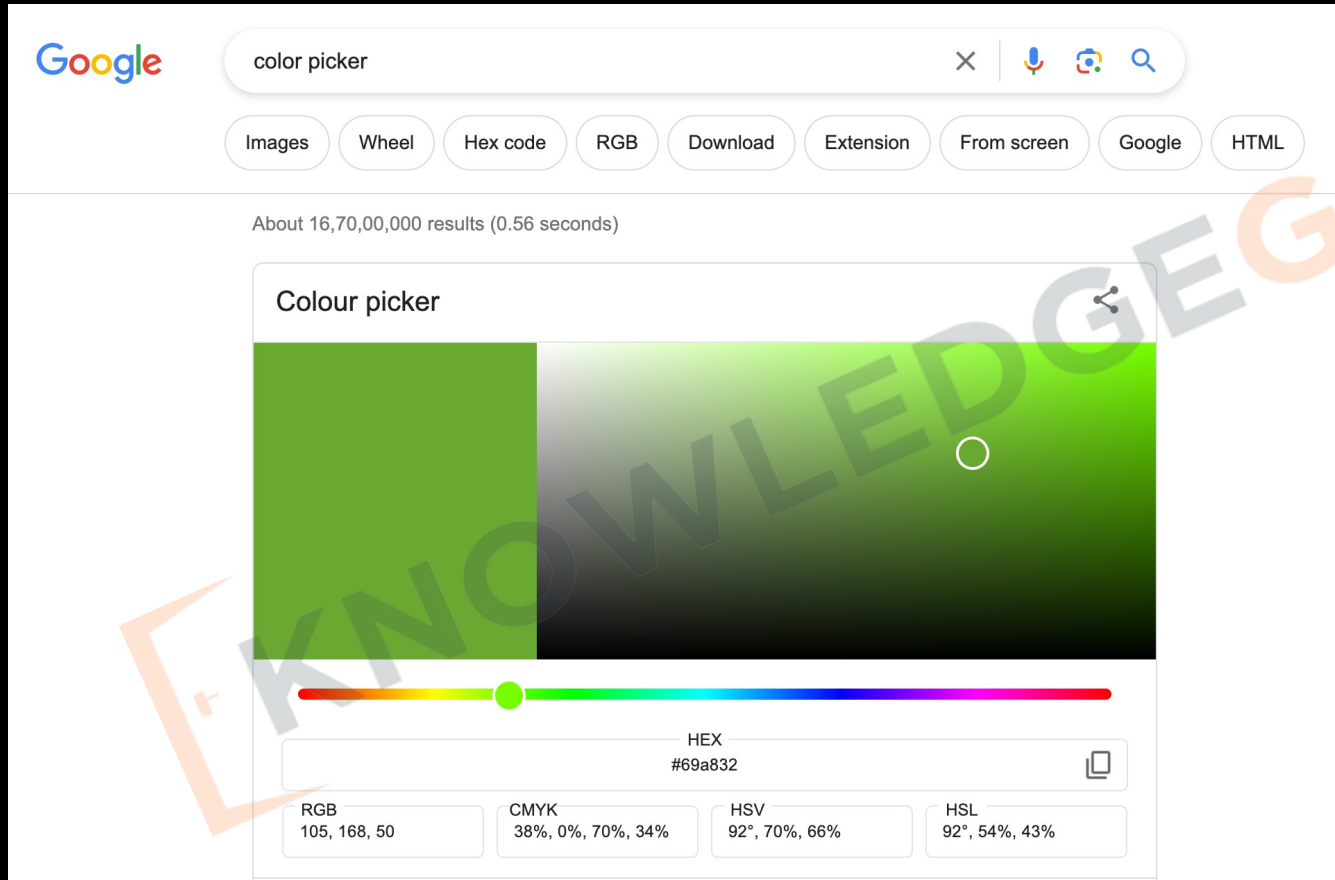
First
Second
Click Me

- **Definition**: Sets the background color of an element.
- **Syntax**: Utilized as background-color: color;
- **Visual Appeal**: Enhances the visual appeal and contrast of webpage elements.
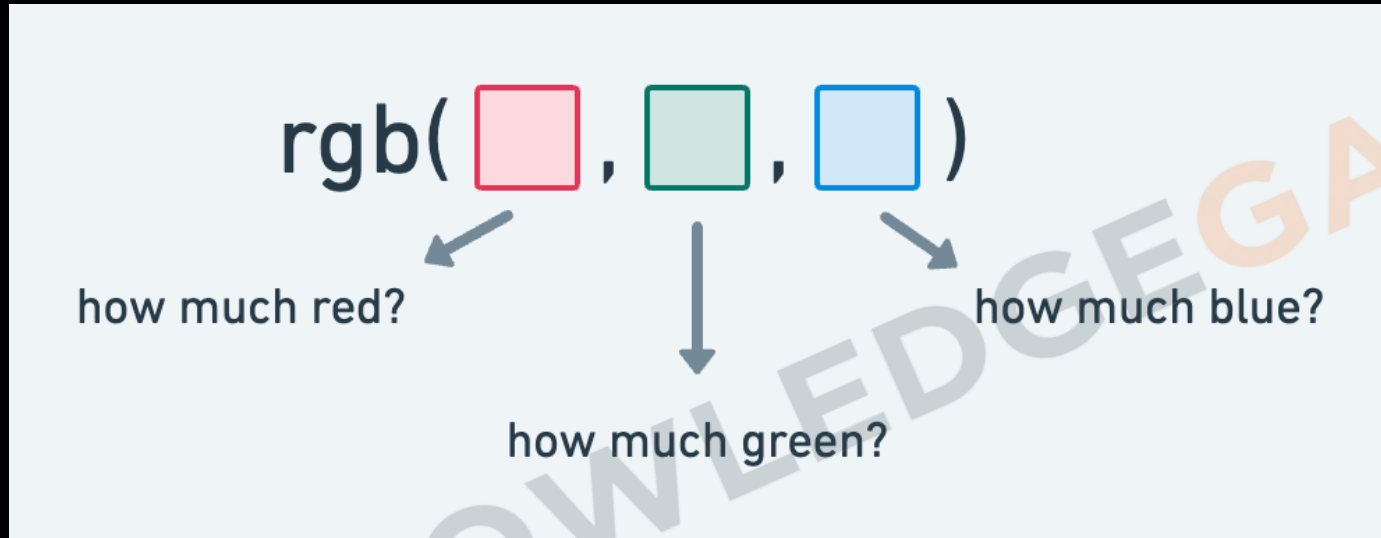
Color System (Color Theory)

- **RGB Model**: Creates colors by mixing Red (R), Green (G), and Blue (B) light sources.
- **Additive Model**: More light means increased brightness.
- **Primary Colors**: R, G, and B are the foundational colors.
- **White & Black**: All combined yield white; absence equals black.
- **Color Depth**: Allows for millions of color variations.

Color System (color picker)

Color System (RGB Color Model)

rgb(▢ , ▢ , ▢)

how much red?

how much green?

how much blue?

- **Three Channels**: Consists of Red (R), Green (G), and Blue (B) channels to create a variety of colors.
- **Syntax**: Utilized as rgb(r, g, b) where r, g, and b are values between 0 and 255.

Color System (RGB Color Model)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>RGB Color</title>
</head>
<body>
    <div style="background-color: ▮rgb(255,0,0);">First</div>
    <div style="background-color: ▮rgb(0,255,0);">Second</div>
    <div style="background-color: ▮rgb(0,0,255);">Third</div>
    <div style="background-color: ▮rgb(29, 133, 48);">Fourth</div>
</body>
</html>
```
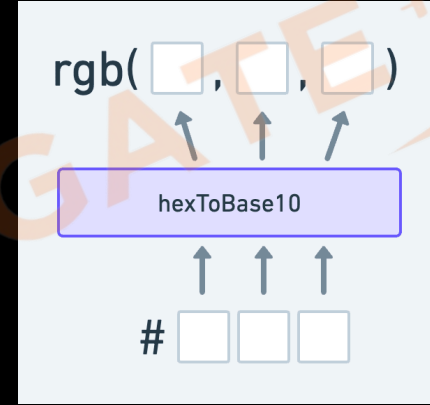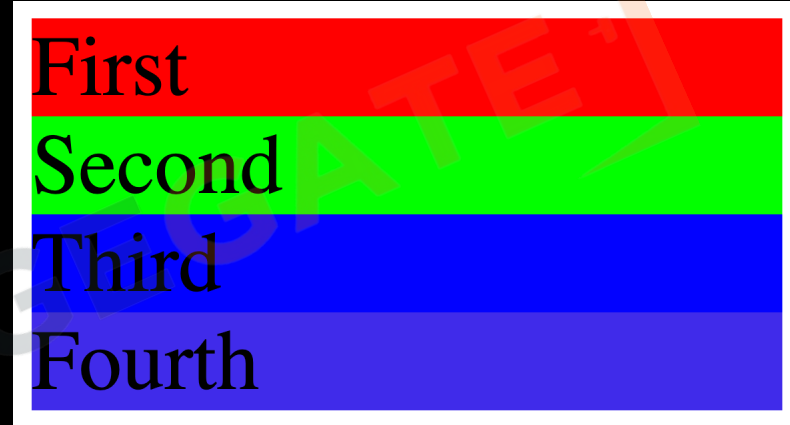
First
Second
Third
Fourth

Color System (HEX Color Model)

- **Hexadecimal Codes**: Represents colors using hexadecimal values, consisting of 6 digits combined from numbers and letters (A-F).
- **Syntax**: Written as #RRGGBB
- **Easy Color Matching**: Facilitates easy color matching with graphic design tools and branding colors.
- **Web Standards**: Widely supported and a common standard for defining colors in web design

Color System (HEX Color Model)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Hex Color</title>
</head>
<body>
    <div style="background-color: #ff0000">First</div>
    <div style="background-color: #00ff00">Second</div>
    <div style="background-color: #0000ff">Third</div>
    <div style="background-color: #402ae9">Fourth</div>
</body>
</html>
```
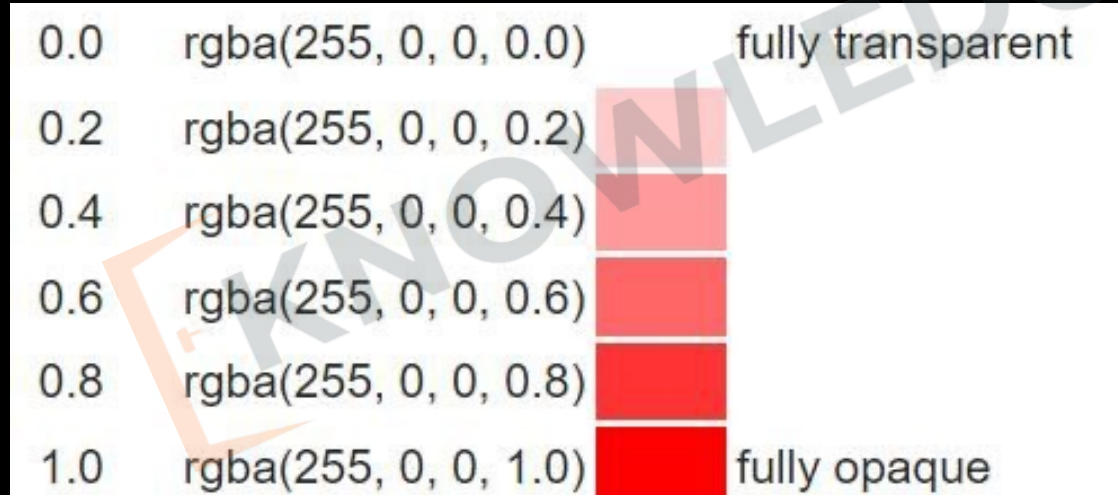
First
Second
Third
Fourth

Color System (Alpha Channel)

- **RGBA**: RGB's extension, includes alpha for opacity control (0-1 range).
- **Transparency Control**: Facilitates the adjustment of transparency levels in colors.
- **Visual Effects**: Enables the creation of visual effects like shadows and overlays.
- **Layering**: Assists in layering elements with varying degrees of visibility.

0.0	rgba(255, 0, 0, 0.0)	fully transparent
0.2	rgba(255, 0, 0, 0.2)	
0.4	rgba(255, 0, 0, 0.4)	
0.6	rgba(255, 0, 0, 0.6)	
0.8	rgba(255, 0, 0, 0.8)	
1.0	rgba(255, 0, 0, 1.0)	fully opaque

Color System (Alpha Channel)

```html
<h1 style="color: rgb(255,0,0,0.1);">First</div>
<h1 style="color: rgb(255,0,0,0.25);">First</div>
<h1 style="color: rgb(255,0,0,0.5);">First</div>
<h1 style="color: rgb(255,0,0,0.75);">First</div>
<h1 style="color: rgb(255,0,0,1.0);">First</div>
```
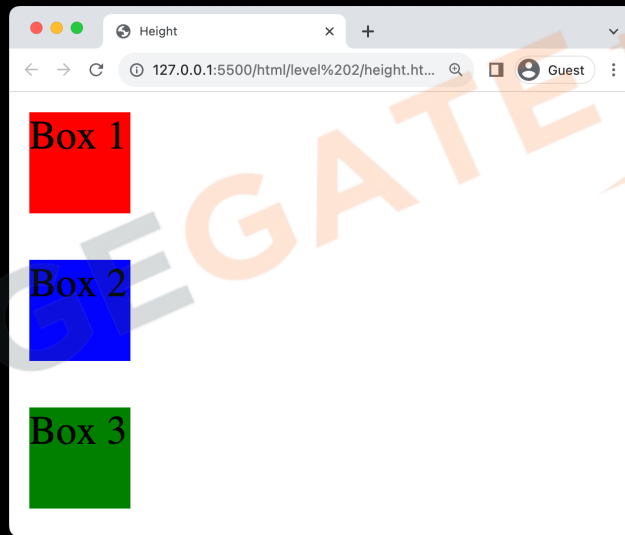
First
First
First
First
First

Absolute Units

- **Definition**: Pixels (px) are fixed-size units, representing a dot on a computer screen.
- **Precision**: Allows for precise control over element dimensions.
- **Graphics & Web Design**: Commonly used in graphics and web design for setting font sizes, margins, and more.
- **Cross-Browser Consistency**: Provides consistency across different browsers.
- **High-DPI Displays**: Can vary in appearance on high-DPI (dots per inch) displays.

Height & Width Property

```
<head>
    <title>Height</title>
    <style>
        .box { height: 40px; width: 40px;}
        #box1 {background-color: ■red;}
        #box2 {background-color: ■blue;}
        #box3 {background-color: ■green;}
    </style>
</head>
<body>
    <div id="box1" class="box">Box 1</div> <br>
    <div id="box2" class="box">Box 2</div> <br>
    <div id="box3" class="box">Box 3</div>
</body>
```


- **Dimensions Control**: Used to specify the height and width of elements.
- **Unit Variability**: Can use units like pixels (px)
- **Box Model Component**: Influences padding, border, and margin.
- **Min and Max Values**: Can utilize min-height, max-height, min-width, and max-width to set restrictions on dimensions.
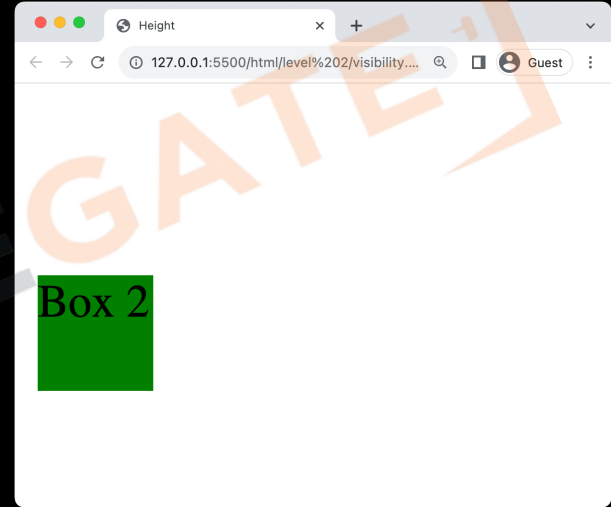
Background image Property

- **Usage**: Adds an image as a background to elements.
- **Syntax**: Defined using background-image: url('path/to/image');.
- **Repetition**: Control image repetition using background-repeat.
- **Positioning**: Adjust image position using background-position.
- **Size Control**: Manipulate image size using background-size.
- **Background-Attachment**: Sets whether the background image scrolls with the element or remains fixed.
- Shorthand (color, image, repeat, attachment, position)

```
<head>
    <title>Background Image</title>
    <style>
        #box1 {
            background-image: url(../../images/css.png);
            height: 500px;
            width: 500px;
        }
    </style>
</head>
<body>
    <div id="box1"></div>
</body>
```

Visibility Property

```html
<head>
    <title>Visibility</title>
    <style>
        .box { height: 40px; width: 40px;}
        #box1 {background-color: ■red; visibility: hidden;}
        #box2 {background-color: ■green; visibility: visible;}
    </style>
</head>
<body>
    <div id="box1" class="box">Box 1</div> <br>
    <div id="box2" class="box">Box 2</div> <br>
</body>
```

- **Usage**: Controls the visibility of elements without changing the layout.
- **Values**: Can take visible, hidden, or collapse as values.
- **Space Occupancy**: Even when hidden, the element occupies space.
- **Interactivity**: Hidden elements are not accessible to user interactions.

Practice Set

Color System, Background & Text

- Create a div bar with text and background color with opacity
- Change the color of the main content
- Add background image to one div
- Use background shorthand property