CSS Colors

1. **CSS Colors:**
    a. CSS Colors are an essential part of web design, providing the ability to bring your HTML elements to life.

2. **Defining Color Values:**
    a. Color Name
    b. RGB Format
    c. RGBA Format
    d. Hexadecimal Notation (HEX)
    e. HSL
    f. HSLA

3. **Color Name:**
    a. In CSS a color can be specified by using a predefined color name.
    b. For Example ⇒ red, blue, green, etc.
    c. **Syntax:**

```
h1 {
    color: color-name;
}
```

4. **RGB:**
    a. An RGB color represents (*Red*, *Green*, *Blue*) light sources.

b. The RGB (*Red*, *Green*, *Blue*) format is used to define the color of an HTML element by specifying the R, G, B values range between **0** to **255**.
c. Each parameter (red, green, blue) defines the intensity of the color between **0** to **255**.
d. Syntax ⇒ rgb (red, green, blue)
    i. rgb (255, 0, 0) ⇒ red
    ii. rgb (0, 255, 0) ⇒ green
    iii. rgb (0, 0, 255) ⇒ blue
    iv. rgb (0, 0, 0) ⇒ black
    v. rgb (255, 255, 255) ⇒ white

5. RGBA:

a. RGBA color values are an extension of RGB colors values with an ***alpha*** value which specifies the ***opacity*** for a color.
b. **Syntax** ⇒ rgba (*red, green, blue, alpha*)
c. The alpha parameter is a number between **0** to **1**.
d. Fully transparent ⇒ 0
e. Not transparent at all ⇒ 1

6. HEX:

a. The hexadecimal color format begins with **#** symbol followed by 6 characters each ranging from **0** to **F**.
b. A hexadecimal color is specified with #RRGGBB
c. Where RR (red), GG (green), BB (blue) hexadecimal integers specify the components of the color.
d. Syntax ⇒ #rrggbb
e. For Example ⇒ #ff0000 → **red** because red is set to its highest value (ff) and the others are set to lowest value 00.

f. To display black, set all values to 00 #000000
g. To display white, set all the values to ff ⇒ #ffffff
h. The range between HEX colors values lies in between **0 (zero)** to **f (alphabet)**.

7. 3 Digit HEX Value:

a. Sometimes you will see a 3-digit hex code in the CSS source.
b. The 3-digit hex code is a shorthand for some 6-digit hex codes.
c. ***NOTE*** ⇒ The 3 digit HEX code only be used when both the values RR, GG, BB are the same for each component.
d. So if we have #ff00cc, it can be written like this : #foc
e. Some Examples ⇒
    i. #fc9 ⇒ same as #ffcc99
    ii. #f0f ⇒ same as #ff00ff
    iii. #b58 ⇒ same as #bb5588

8. HSL:

a. HSL stands for Hue, Saturation, and Lightness.
b. **Syntax** ⇒ hsl (hue, saturation, lightness)
c. **Hue:**
    i. Hue is a degree on the color wheel from **0** to **360** degree.
    ii. 0 deg ⇒ red
    iii. 120 deg ⇒ green
    iv. 240 deg ⇒ blue

d. **Saturation**:

i. Saturation can be described as the intensity of a color.
ii. It is always given in *percentage* value from **0%** to **100%** .
iii. It provides the shades of grey color.
iv. 0% is completely gray; you can no longer see the color.
v. 50% is 50% gray, but you can still see the color.
vi. 100% is full color, no shades of gray.

e. **Lightness**:

i. The lightness of a color can be described as how much light you want to give the color.
ii. Lightness is also provided in the form of percentage.
iii. where 0% means no light (dark)
iv. 50% means 50% light (neither dark nor light)
v. 100% means full light

9. HSLA:

a. HSLA color values are an extension of HSL color values, with an Alpha value- which specifies the opacity for a color.
b. Syntax ⇒ hsla (hue, saturation, lightness, alpha)
c. The alpha parameter is a number between 0.0 (fully transparent) and 1.0 (not transparent at all).