LAB 03 – ADVANCED CSS

1/. CSS Gradient

CSS gradients let you display smooth transitions between two or more specified colors.

CSS defines three types of gradients:

- Linear Gradients (goes down/up/left/right/diagonally)
- Radial Gradients (defined by their center)
- Conic Gradients (rotated around a center point) a/. CSS Linear Gradients

To create a linear gradient you must define at least two color stops. Color stops are the colors you want to render smooth transitions among. You can also set a starting point and a direction (or an angle) along with the gradient effect.

Syntax:

```
background-image: linear-gradient(direction, color-stop1, color-stop2, ...);
```

Direction:

- Top to Bottom (this is default)

- Left to Right (to right), Right to Left (to left)

- Diagonal (to bottom right, to top left)

If you want more control over the direction of the gradient, you can define an angle, instead of the predefined directions (to bottom, to top, to right, to left, to bottom right, etc.). A value of 0deg is equivalent to "to top". A value of 90deg is equivalent to "to right". A value of 180deg is equivalent to "to bottom".

The repeating-linear-gradient() function is used to repeat linear gradients.

b/. CSS Radial Gradients

A radial gradient is defined by its center.

To create a radial gradient you must also define at least two color stops.

Syntax:

```
background-image: radial-gradient(shape size at position, start-color, ..., lastcolor);
```

- Evenly Spaced Color Stops (this is default)
- Differently Spaced Color Stops (change by %)
- Set Shape: The shape parameter defines the shape. It can take the value circle or ellipse. The default value is ellipse.

c/. CSS Conic Gradients

A conic gradient is a gradient with color transitions rotated around a center point.

To create a conic gradient you must define at least two colors.

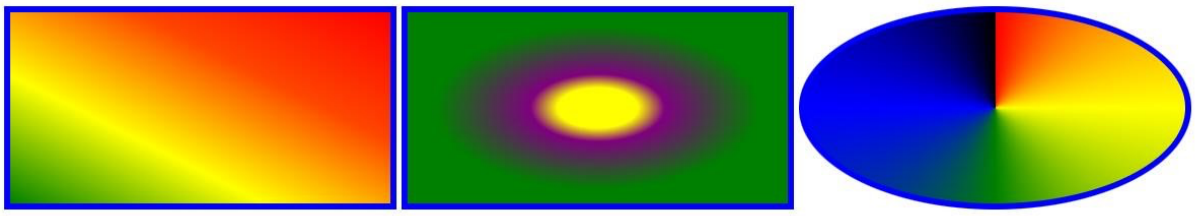
By default, angle is 0deg and position is center. If no degree is specified, the colors will be spread equally around the center point.

Syntax:

```
background-image: conic-gradient([from angle] [at position,] color [degree], color [degree], ...);
```

You can see more at: https://www.w3schools.com/css/css3_gradients.asp Example:

I want to design like this. How can you do that?



You can try:

```
<style>
    #div01 {
        width: 300px;
        height: 150px;
        border: 5px solid blue;
        display: inline-block;
        background-image: linear-gradient(to bottom left, red, orangered, yellow, green);
    }
    #div02 {
        width: 300px;
        height: 150px;
        border: 5px solid blue;
        display: inline-block;
        background-image: radial-gradient(yellow 15%, purple 25%, green 60%);
    }
    #div03 {
        width: 300px;
        height: 150px;
        border: 5px solid blue;
        display: inline-block;
        background-image: conic-gradient(red, yellow, green, blue, black);
        border-radius: 50%;
    }
</style>
```

2/. CSS Shadow

With CSS you can add shadow to text and to elements.

a/. CSS Text Shadow

The CSS text-shadow property applies shadow to text.

To add more than one shadow to the text, you can add a comma-separated list of shadows.

b/. CSS Box Shadow

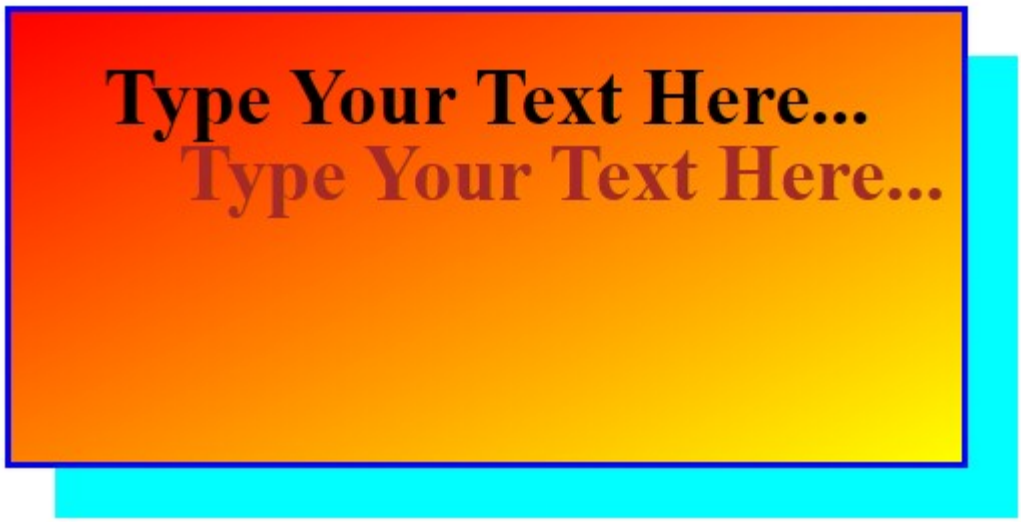
The CSS box-shadow property is used to apply one or more shadows to an element.

- Horizontal and a Vertical Shadow

- Color for the Shadow

- Blur Effect to the Shadow - Spread Radius of the Shadow Example:

I want to design like this. How can you do that?



You can try:

```
    <style>
        div {
            width: 350px;
            height: 150px;
            border: 3px solid blue;
            background-image: linear-gradient(to bottom right, red, yellow);
            text-align: center;
            font-size: 200%;
            padding: 15px;
            color: black;
            font-weight: bold;
            text-shadow: 30px 30px brown;
            box-shadow: 20px 20px cyan;
        }
    </style>
</head>
<body>
    <div>
        Type Your Text Here...
    </div>
</body>
```

3/. CSS Web Fonts

Web fonts allow Web designers to use fonts that are not installed on the user's computer.

When you have found/bought the font you wish to use, just include the font file on your web server, and it will be automatically downloaded to the user when needed.

Your "own" fonts are defined within the CSS @font-face rule.

You can add fonts to your website in two ways:

- Use the font provided by google

- Use your own font to embed on the website

Link google fonts: https://fonts.google.com/

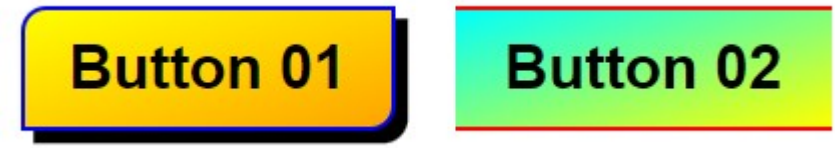
You can see more at: https://www.w3schools.com/css/css3_fonts.asp

4/. CSS Button

You can design a button by adjusting color, background image, size, border, margin, padding, shadow, disable button,...

Example:

I want to design like this. How can you do that?



You can try:

```
<style>
    #btn01 {
        margin: 10px;
        width: 150px;
        height: 50px;
        border-radius: 10px 0;
        font-size: x-large;
        font-weight: bold;
        background-image: linear-gradient(to top left, orange, yellow);
        border: 2px solid blue;
        box-shadow: 5px 5px;
    }
    #btn02 {
        margin: 10px;
        width: 150px;
        height: 50px;
        font-size: x-large;
        font-weight: bold;
        border: none;
        border-top: 2px solid red;
        border-bottom: 2px solid red;
        background-image: linear-gradient(to right bottom, cyan, yellow);
    }
</style>
```

5/. CSS Pagination

If you have a website with lots of pages, you may wish to add some sort of pagination to each page.

- Active and Hoverable Pagination

- Rounded Active and Hoverable Buttons

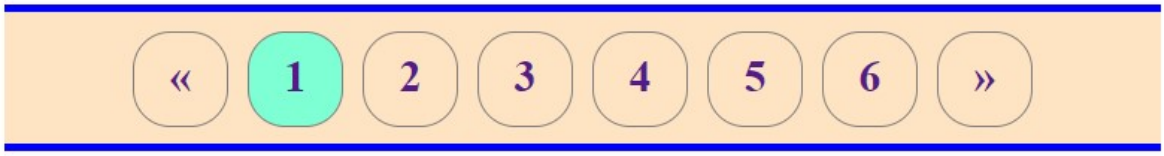
- Bordered Pagination

- Pagination Size

- Centered Pagination

You can see more example at:
https://www.w3schools.com/css/css3_pagination.asp# Example:

I want to design like this. How can you do that?



I want to change color brown when I mouse over pagination. How can I do?

You can try:

```
<body>
    <div id="div01">
        <a href="#">&laquo;</a>
        <a href="#" class="active">1</a>
        <a href="#">2</a>
        <a href="#">3</a>
        <a href="#">4</a>
        <a href="#">5</a>
        <a href="#">6</a>
        <a href="#">&raquo;</a>
    </div>
</body>
```

```
<style>
    a {
        display: inline-block;
        text-decoration: none;
        font-size: x-large;
        border: 1px solid gray;
        margin: 0 3px;
        padding: 10px;
        width: 30px;
        height: 30px;
        font-weight: bold;
        border-radius: 20px;
    }
    #div01 {
        border-top: 4px solid blue;
        border-bottom: 4px solid blue;
        width: 600px;
        height: 50px;
        text-align: center;
        padding: 10px;
        background-color: bisque;
    }
    .active {
        background-color: aquamarine;
    }

    a:hover {
        background-color: brown;
    }
</style>
```

6/. CSS Transform, Transition, Animation a/.

CSS Transform

CSS 2D Transforms: CSS transforms allow you to move, rotate, scale, and skew elements.

+ The translate() method moves an element from its current position (according to the parameters given for the X-axis and the Y-axis).

+ The rotate() method rotates an element clockwise or counter-clockwise according to a given degree.

+ The scale() method increases or decreases the size of an element (according to the parameters given for the width and height). We also have scaleX() and scaleY() for width and height scaling.

+ The skew() method skews an element along the X and Y-axis by the given angles.

+ The matrix() method combines all the 2D transform methods into one.

The matrix() method take six parameters, containing mathematic functions, which allows you to rotate, scale, move (translate), and skew elements.

b/. CSS Transition

CSS transitions allows you to change property values smoothly, over a given duration.

To create a transition effect, you must specify two things:

- The CSS property you want to add an effect to
- The duration of the effect

- Specify the Speed Curve of the Transition:

The transition-timing-function property specifies the speed curve of the transition effect.

The transition-timing-function property can have the following values:

- ease: specifies a transition effect with a slow start, then fast, then end slowly (this is default)
- linear: specifies a transition effect with the same speed from start to end
- ease-in: specifies a transition effect with a slow start

- ease-out: specifies a transition effect with a slow end
- ease-in-out: specifies a transition effect with a slow start and end
- cubic-bezier(n,n,n,n): lets you define your own values in a cubic-bezier function

- Delay the Transition Effect:

The transition-delay property specifies a delay (in seconds) for the transition effect.

c/. Animation

CSS allows animation of HTML elements without using JavaScript or Flash!

An animation lets an element gradually change from one style to another.

You can change as many CSS properties you want, as many times as you want.

When you specify CSS styles inside the @keyframes rule, the animation will gradually change from the current style to the new style at certain times.

+ The animation-duration property defines how long an animation should take to complete. If the animation-duration property is not specified, no animation will occur, because the default value is 0s (0 seconds).

+ The animation-delay property specifies a delay for the start of an animation.

+ The animation-iteration-count property specifies the number of times an animation should run.

+ The animation-direction property specifies whether an animation should be played forwards, backwards or in alternate cycles.

The animation-direction property can have the following values:

- normal - The animation is played as normal (forwards). This is default
- reverse - The animation is played in reverse direction (backwards)
- alternate - The animation is played forwards first, then backwards
- alternate-reverse - The animation is played backwards first, then forwards You can see more at: https://www.w3schools.com/css/css3_animations.asp Example:

I have a recording about animation and I want to show it on my webpage. How can I do? Can you help me?

(A recording about animation will be placed in “Resources” folder in LAB03. You can see it in this folder) You can try this code:

```
<style>
    #parent {
        width: 350px;
        height: 300px;
        border: 2px solid blue;
        padding: 20px;
        animation-name: change-color;
        animation-duration: 8s;
        animation-delay: 5s;
        animation-iteration-count: infinite;
        animation-direction: alternate;
    }
    #child {
        width: 200px;
        height: 100px;
        border: 2px solid blue;
        background-color: antiquewhite;
        animation-name: moving-on;
        animation-duration: 8s;
        position: relative;
        animation-delay: 5s;
        animation-iteration-count: infinite;
        animation-direction: alternate;
    }
    @keyframes moving-on {
        0% {background-color: antiquewhite; left:0px; top:0px;}
        25% {background-color: yellow; left:200px; top:0px; border-radius: 50%;}
        50% {background-color: green; left:200px; top:200px; width: 100px; border-radius: 50%;}
        75% {background-color: red; left:0px; top:200px;}
        100% {background-color: purple; left:0px; top:0px;}
    }
```

```
    @keyframes change-color {
        0% {background-color: antiquewhite;}
        25% {background-color: yellow;}
        50% {background-color: green;}
        75% {background-color: red;}
        100% {background-color: purple;}
    }
</style>
</head>
<body>
    <div id="parent">
        <div id="child"></div>
    </div>
</body>
```