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## Course: Web Programming Lab

### Experiment No. 2

**Title:** Practical –2

Styling a Photo Gallery:

Task: Develop a webpage with a grid layout to display a collection of images

Requirements:

1. Apply CSS to style the gallery, including image borders, margins, and spacing
2. Implement hover effects to highlight images on mouse over.
3. Make the gallery responsive and ensure it looks good on both desktop and mobile devices

**Aim:**

To create a visually appealing photo gallery webpage using HTML and CSS, implementing a grid layout that includes styled images, hover effects, and responsive design.

**Objective:**

1. Develop a grid layout to display images in an organized manner.
2. Apply CSS styles for image borders, margins, and spacing.
3. Implement hover effects to enhance user interaction.
4. Ensure the gallery is responsive for optimal viewing on both desktop and mobile devices.

**Software:**

- **Visual Studio Code (VSCode):** A code editor used for writing HTML and CSS.
- **Web Browser:** For testing and viewing the webpage.

**Theory:**

A photo gallery is a collection of images presented in a structured format. The grid layout is commonly used for galleries, allowing multiple images to be displayed in rows and columns. CSS plays a critical role in styling the gallery, including defining the appearance of images, their spacing, and interactivity through hover effects. Responsive design ensures that the gallery adjusts to different screen sizes, enhancing usability on mobile devices.

#### 1. Develop a Grid Layout to Display Images

A grid layout is an effective way to organize content in a structured manner, especially for visual elements like images. CSS Grid Layout allows developers to create complex responsive layouts using rows and columns, making it ideal for galleries.



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### Key Concepts:

- **Grid Container:** The parent element that contains grid items, serving as the structure for the layout.
- **Grid Items:** The child elements (in this case, images) within the grid container.
- **Grid-template-rows**

The grid-template-rows property specifies the heights of the rows in a grid. Here are a few examples:

#### Equal Row Heights:

grid-template-rows: auto auto;

#### Fixed Heights:

grid-template-rows: 50px 100px;

#### Flexible Row Heights:

grid-template-rows: repeat(3, 1fr);

This creates three rows of equal height, each taking up an equal fraction of the available space.

- **Grid Template Columns:** This defines the number of columns and their width. For example, using `grid-template-columns: repeat(auto-fill, minmax(200px, 1fr));` allows the grid to adjust the number of columns based on the available width, creating a flexible layout.

Examples:

1. grid-template-columns: auto auto;
  2. grid-template-columns: auto auto auto;
  3. grid-template-columns: 50px 100px;
- **Gap:** The space between grid items, which visually separates images and enhances the overall appearance.

## 2. Apply CSS Styles for Image Borders, Margins, and Spacing

CSS provides a wide range of properties to style images effectively, enhancing both functionality and aesthetics.

### Key Concepts:

- **Borders:** Adding borders to images can create a framed effect. Using properties like `border` and `border-radius` can soften the edges and improve visual appeal.

For example, `border: 5px solid #ddd;` gives a subtle outline to the images.



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- **Margins:** Margins are the space outside an element. They help to separate images from other content and each other. By adjusting margin values, we can create uniform spacing around images, making the layout look clean and organized.
- **Padding:** While padding applies space within the border of an image, it is more commonly used for container elements.

By applying these styles, we enhance the user experience by ensuring that images are visually appealing and clearly distinguished from one another and the surrounding content.

### 3. Implement Hover Effects to Enhance User Interaction

Hover effects are a crucial aspect of web design, providing visual feedback to users and enhancing interactivity.

#### Key Concepts:

- **Transition:** The `transition` property allows for smooth changes between different states of an element. For example, `transition: transform 0.3s, opacity 0.3s;` enables images to scale and fade smoothly when hovered over, creating a visually appealing effect.
- **Transform:** This property alters the scale or position of an element. By using `transform: scale(1.05);`, the image slightly enlarges on hover, drawing attention and creating a sense of interaction.
- **Opacity:** Adjusting the opacity can create a layered effect, adding visual depth. For instance, an opacity change on hover, like `opacity: 0.9;`, signals to users that the image is being interacted with.

### 4. Responsiveness in Web Design

Responsive design is a crucial aspect of modern web development, ensuring that websites look and function well across a wide range of devices, from large desktop monitors to small mobile screens. A responsive website adjusts layout, images, and interactions to accommodate different screen sizes.

To create a responsive website, add the following `<meta>` tag to all your web pages:

```
<meta name="viewport" content="width=device-width,  
initial-scale=1.0">
```



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Without the viewport meta tag:



With the viewport meta tag:



## Responsive Images

Responsive images are images that scale nicely to fit any browser size.

### Using the width Property

If the CSS width property is set to 100%, the image will be responsive and scale up and down:

```

```

## CSS STYLE

```
body {  
  
    font-family: Arial, sans-serif;  
  
    background-color: #f7f7f7;  
  
    padding: 20px;
```



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}

/\* Grid Container \*/

.gallery {

display: grid;

grid-template-columns: repeat(auto-fill, minmax(200px, 1fr)); /\* Flexible column layout \*/

gap: 15px; /\* Gap between grid items \*/

margin-top: 20px;

}

/\* Grid Items (images) \*/

.gallery img {

width: 100%;

height: auto;

border-radius: 8px;

box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);

transition: transform 0.3s ease, opacity 0.3s ease;

}

/\* Hover Effects \*/

.gallery img:hover {

transform: scale(1.05); /\* Slight zoom on hover \*/

opacity: 0.9; /\* Reduce opacity for interaction feedback \*/

}

}

### Conclusion:

The project successfully created a visually appealing photo gallery using HTML and CSS, featuring a grid layout, hover effects, and responsive design. The use of **Visual Studio Code**



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(VSCode) and a web browser ensured optimal development and testing for both desktop and mobile devices.

### Sample Questions:

1. How will you structure your HTML to accommodate a grid layout for displaying images?
2. What CSS properties will you use to create a responsive grid layout?
3. What types of hover effects (e.g., scaling, opacity changes) will you implement to enhance user interaction with the images?
4. What CSS techniques will you use to ensure the gallery looks good on both desktop and mobile devices?
5. How will you test the responsiveness of your gallery on different screen sizes?

### References:

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