Lab 8: CSS Transform Properties

Overview

In this lab, you will create an interactive underwater image gallery showcasing CSS transform properties and HTML tables. The lab focuses on creating engaging hover effects and informative data display. You'll work on two main components: an interactive image grid with hover transform effects and a table that highlights information when specific images are hovered over.

Getting Started

1. Download these starter files from Canvas and save them to your lab8 folder:
    - hover-info-display.html: HTML structure with some components already set up
    - styles.css: CSS file with partial styling
    - images folder containing underwater images (anchovies.jpg, jellyfish1.jpg, bluejellyfish.jpg, seadragon.jpg)
2. Preview the starter code using Live Server:
    - If images are not displaying:
        - Verify the images folder is in the same directory as your HTML file
        - Check that image filenames match exactly with the HTML src attributes
        - Make sure all image files were downloaded successfully
3. Review the starter code:
    - Open hover-info-display.html in your code editor
    - Look for TODO comments indicating where you need to add code
    - Open styles.css in your code editor
    - Find the sections marked with TODO comments
    - Note the existing styles that are already in place
4. Verify file structure:

```
lab8/
├── hover-info-display.html
├── styles.css
└── images/
    ├── anchovies.jpg
    ├── jellyfish1.jpg
    ├── bluejellyfish.jpg
    └── seadragon.jpg
```

Task 1: Complete the HTML Structure

Step 1: Add Remaining Images with Figcaptions

In hover-info-display.html, you'll notice that only the first image (anchovies) is added. You need to:

1. Following the same pattern as the first `<li>` element, add the remaining three underwater images.
2. Use the image filenames: jellyfish1.jpg, bluejellyfish.jpg, and seadragon.jpg
3. Assign them the IDs: img2, img3, and img4 respectively
4. For the alt text and figcaption, use:
    - "Translucent jellyfish" for bluejellyfish.jpg
    - "Yellow seadragon" for seadragon.jpg
    - "Orange jellyfish" for jellyfish1.jpg

Look at the existing image to understand the structure - each image should be wrapped in a figure element with an anchor tag and figcaption.

Step 2: Add Remaining Table Rows

At the bottom of the HTML file, you'll find a table with only one row populated. Before adding content, let's understand the HTML table structure:

HTML Table Tags Explained:

- `<table>`: The container for the entire table

- `<thead>`: Groups the header content in a table

- `<tbody>`: Groups the body content in a table

- `<tr>`: Defines a table row

- `<th>`: Defines a table header cell (typically used in the `<thead>`)

- `<td>`: Defines a table data cell (typically used in the `<tbody>`)

Proper Table Structure:

```
<table>
  <thead>
    <tr>
      <th>Header 1</th>
      <th>Header 2</th>
    </tr>
  </thead>
  <tbody>
    <tr>
```

```
      <td>Data 1</td>
      <td>Data 2</td>
    </tr>
    <tr>
      <td>Data 3</td>
      <td>Data 4</td>
    </tr>
  </tbody>
</table>
```

How it would render:

Header 1	Header 2
Data 1	Data 2
Data 3	Data 4

As you can see in the rendered example:

- The `<th>` elements create the header row with bold, centered text

- Each `<tr>` creates a new row in the table

- The `<td>` elements create cells within each row

- The columns are formed by cells aligned vertically across different rows

Important to Note:

- Rows are created using `<tr>` tags

- Columns are created by adding `<td>` or `<th>` cells within a row

- Tables are built row by row, not column by column

- Each row can contain multiple cells, but all cells in a row must be within that single `<tr>` tag

- The number of cells (`<td>` or `<th>`) in each row determines the number of columns

Now that you understand the table structure, you need to:

1. Following the pattern of the first table row, add three more `<tr>` elements to the `<tbody>` section
2. Each row should have a class of “info-row” plus “row2”, “row3”, or “row4” respectively
3. Within each row, include three `<td>` cells:
    - First cell: Image name (“Translucent Jellyfish”, “Yellow Seadragon”, “Orange Jellyfish”)
    - Second cell: CSS transform value being applied:

        - "rotate(5deg) scale(1.5)" for row2
        - "rotate(-7deg) scale(1.5)" for row3
        - "rotate(2deg) scale(1.5)" for row4
    - Third cell: A description of the effect:
        - "Rotates clockwise and enlarges to 150% of original size" for row2
        - "Rotates more counterclockwise and enlarges to 150% of original size" for row3
        - "Rotates slightly clockwise and enlarges to 150% of original size" for row4

Task 2: Complete the CSS Styling

Step 1: Add Figcaption Styling

In styles.css, you need to add styling for the figcaption element. Your styles should include the following properties and values:

- `text-align: center;` to center the text

- `margin-top: 5px;` to add space between the image and caption

- `font-style: italic;` to make the text appear in italics

- `color: #333;` for a dark gray color instead of pure black

Step 2: Add Remaining Image Hover Effects

The CSS file already includes hover effects for the first image (img1). Examine this existing rule:

```
a:hover #img1, a:focus #img1 {
    transform: rotate(-3deg) scale(1.5);
}
```

This rule does the following:

- Targets the image with id "img1" when its parent anchor is hovered or focused

- Applies a transform that rotates the image

-3 degrees (slightly counterclockwise)

- Scales the image to 1.5 times its original size

You need to create similar rules for the other three images following this exact pattern:

1. Create a rule for img2 that rotates it 5 degrees (clockwise) and scales it to 1.5

2. Create a rule for img3 that rotates it -7 degrees (more counterclockwise) and scales it to 1.5

3. Create a rule for img4 that rotates it 2 degrees (slightly clockwise) and scales it to 1.5

Additionally, there's one more rule to add that affects all images when hovered:

- Target all img elements inside anchor tags when hovered

- Set their box-shadow to 6px 6px 6px rgba(0,0,0,.3) for a stronger shadow effect

Make sure to use the same selector pattern (a:hover #imgN, a:focus #imgN) for consistency and accessibility.

Step 3: Add Table Styling

The table in your HTML needs styling to create a professional, readable data display. You need to add several CSS rules:

For the main table (.info-table):

- Use `border-collapse: collapse;` to remove double borders between cells

- Set `width: 100%;` to make the table fill its container

- Add `margin-top: 40px;` to create space above the table

For table cells (both headers and data cells):

- Target both th and td elements within .info-table

- Add `border: 1px solid #ddd;` for a light gray border

- Set `padding: 8px;` to create comfortable space inside cells

- Use `text-align: left;` to align the text to the left edge of cells

For table headers specifically:

- Target just the th elements within .info-table

- Add extra padding at the top and bottom: `padding-top: 12px;` and `padding-bottom: 12px;`

- Set `background-color: #4682B4;` to create a blue header background (this is Steel Blue)

- Use `color: white;` to make the header text white for contrast

These styles will create a clean, professional table that properly displays the information about each image's transform effects.

Step 4: Add Remaining Row Highlighting Rules

The CSS file already includes a rule for highlighting row1 when the first list item is hovered. Examine this existing rule:

```
li:nth-child(1):hover ~ .table-container .row1,
li:nth-child(1):focus-within ~ .table-container .row1 {
    background-color: #e6f3ff;
    box-shadow: 0 0 8px rgba(70, 130, 180, 0.5);
}
```

This rule does the following:

- Uses the `nth-child(1)` selector to target the first list item

- Applies styles when that item is either hovered or focused

- Uses the general sibling combinator (~) to affect an element that follows the list item

- Changes the background color to light blue (#e6f3ff)

- Adds a subtle blue box shadow for a highlight effect

You need to create similar rules for the other three rows following this exact pattern:

1. Create a rule for row2 that activates when the second list item (nth-child(2)) is hovered or focused

2. Create a rule for row3 that activates when the third list item (nth-child(3)) is hovered or focused

3. Create a rule for row4 that activates when the fourth list item (nth-child(4)) is hovered or focused

Use the same background color and box shadow values for consistency across all rows.

Testing Your Implementation

Image Hover Testing

1. Hover over each image:
    - Images should rotate according to their specific degrees
    - Images should scale to 150% of original size
    - Box shadow should increase
    - Transition should be smooth and take 0.3 seconds

Table Highlight Testing

1. Hover over each image:
    - The corresponding table row should highlight in light blue
    - The highlighted row should have a subtle blue box shadow
    - Only one row should highlight at a time
    - When no image is hovered, no row should be highlighted

Accessibility Testing

1. Test keyboard navigation:
    - Tab through the images and ensure focus styles match hover styles
    - When an image has focus, its corresponding table row should highlight

Validation Requirements

HTML Validation

1. Use the W3C Markup Validation Service (https://validator.w3.org):
    - Go to "Validate by File Upload"
    - Upload your hover-info-display.html file
    - Fix any validation errors or warnings

CSS Validation

1. Use the W3C CSS Validation Service (https://jigsaw.w3.org/css-validator/):
    - Go to "File Upload" tab
    - Upload your styles.css file
    - Fix any validation errors or warnings

Submission Requirements

1. Files to Submit:
    - Completed hover-info-display.html
    - Completed styles.css
    - Images folder with all required images
2. Code Requirements:
    - All TODO comments addressed
    - Proper indentation
    - Consistent naming conventions
    - Meaningful comments
    - No broken image links

Grading Criteria

- Image Transform Effects (40%)
- Table Styling and Row Highlighting (40%)
- Code Organization and Comments (20%)

Notes

- The CSS transform property combines both rotation and scaling
- The transition property ensures smooth animations
- The sibling selector (~) is crucial for relating hovered images to table rows
- Accessibility is important - all hover effects should also work with keyboard focus

Challenge

For extra practice (not graded):

- Add a subtle CSS transition to the table row highlighting
- Try adding additional transform effects like skew or translate
- Experiment with different transition timing functions

Good luck with your lab assignment!