COURSEWARE

Transform

Contents

Overview

In this module, we will be exploring the transform property.

What is the `transform` property?

The `transform` property applies a 2D or 3D transformation to an element. This property allows you to rotate, scale, move, skew, etc., elements. It modifies the coordinate space of the CSS visual formatting model .

`transform-origin` Property

The `transform-origin` property allows you to change the position of transformed elements.
Note: This property must be used together with the `transform` property.

2D vs 3D Transformation

2D transformations can change the x- and y-axis of an element by using the following methods:

- `transformMethodX()` - This will transform along the X-axis
- `transformMethodY()` - This will transform along the Y-axis

3D transformations can also change the z-axis of an element, by using the following method:

- `transformMethodZ()` - This will transform along the Z-axis

Rotating

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

If the degree specified is positive the element will rotate clockwise; else, if negative the element will rotate counter-clockwise.

We can also rotate along a specified axis by using one of the following methods:

- `rotateX()`
- `rotateY()`
- `rotateZ()`

Translate

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

We can also translate along a specified axis by using one of the following methods:

- `translateX()`
- `translateY()`
- `translateZ()`

Scale

The `scale()` method increases or decreases the size of an element (according to the parameters given for the width and height).

We can also scale along a specified axis by using one of the following methods:

- `scaleX()`
- `scaleY()`
- `scaleZ()`

Skew

The `skew()` method skews an element along the X and Y-axis by the given angles.
If the second parameter is not specified, it has a zero value.

We can also skew along a specified axis by using one of the following methods:

- `skewX()`
- `skewY()`
- `skewZ()`

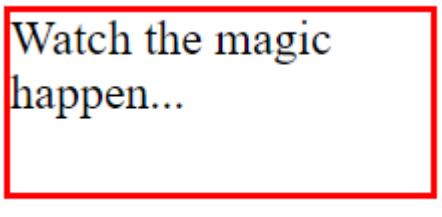
Tutorial

In this tutorial, we are going to apply the transformations listed above to a HTML element and observe the behaviour.

1. Create the following HTML Document:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>CSS: Transform</title>
    <style>
        div {
            border: solid red;
            width: 140px;
            height: 60px;
        }
    </style>
</head>
<body>
    <div>Watch the magic happen...</div>
</body>
</html>
```

The output should look something like this:



2. Rotate the div 20 degrees clockwise - to apply a rotation to the div, we use the `translate` property along with the `rotate()` attribute and specify the degree as a parameter.

```
div {
    ...
    transform: rotate(20deg);
}
```

> Change the angle to `-20deg` and observe the output.

3. Change the position of the transformed element to `left` - Set the transform-origin property to `left`

```
div {
    ...
    transform-origin: left;
}
```

4. Now, rotate the same div 90 degrees around it's z-axis - To do this we use the `rotateZ()` method and pass in the degree as parameter.

```
div {
    ...
    transform: rotate(20deg) rotateZ(90deg);
}
```

5. Move the element 200 pixels to the right and 100 pixels down from its current position - to achieve this, we use the `translate()` method.

```
div {
    ...
    transform: rotate(20deg) translate(200px,100px);
}
```

6. Increase the size of the div 2 times of its original width, and three times of its original height - We need to use the `scale(w,h)` method and supply the width and height change as parameters.

```
    div {
        ...
        transform: rotate(20deg) translate(200px,100px) scale(2,3);
    }
    ```
```

7. Skew the `&lt;div&gt;` element along the X-Axis, and 10 degrees along the Y-axis.

```
 div {
         ...
         transform: rotate(20deg) translate(200px,100px) scale(2,3)
skew(20deg,10deg);
     }
```

Exercises

1. Compare the two images below and apply the relevant transformations to achieve the output below.

   Original:
```

Output:

▶ Solution