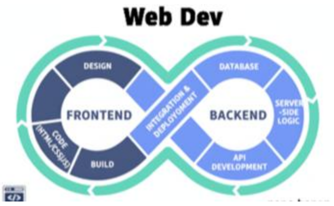
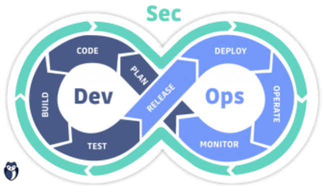




Day 4

“Web Development + Security”

Image:

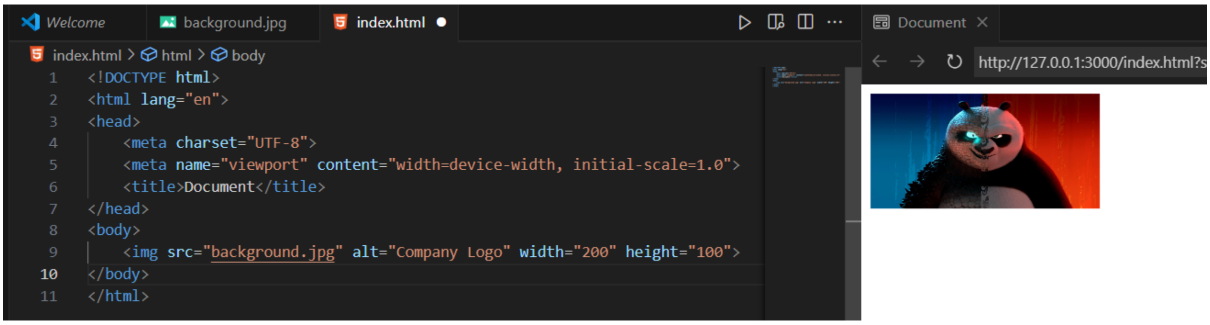
What is Image in HTML?

In HTML, an image is added to a web page using the <img> tag.

- The <img> tag is an empty element (it doesn’t have a closing tag).
- It requires at least the src attribute, which tells the browser the path (URL) of the image, and the alt attribute, which provides alternative text (important for accessibility and SEO).
- Other attributes like width, height, title, and loading help control the display, size, and behavior of the image.

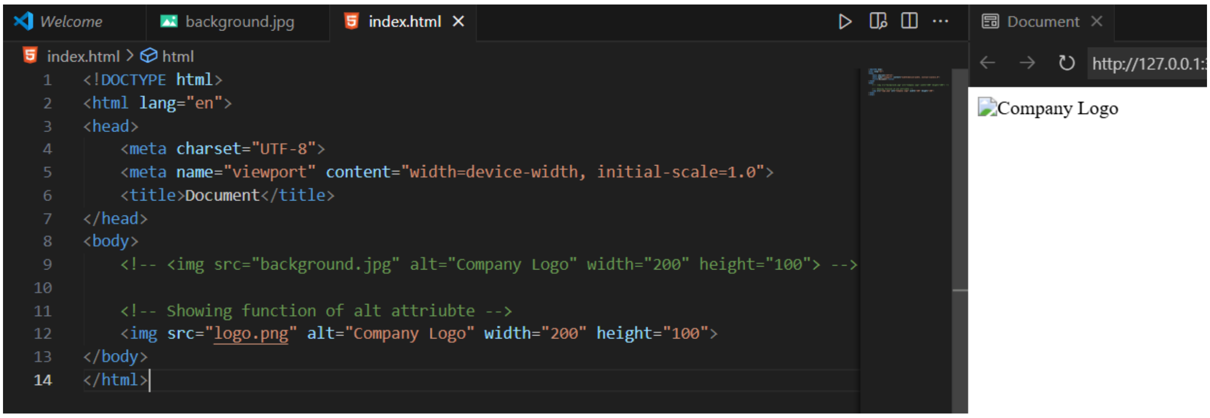
Attribute	**Use Case**	**Example**
src	Specifies the path/URL of the image	<img src="photo.jpg">
alt	Alternative text if image doesn’t load (also for screen readers & SEO)	<img src="photo.jpg" alt="Profile picture">
width	Sets the width of the image (in px or %)	<img src="photo.jpg" width="200">
height	Sets the height of the image	<img src="photo.jpg" height="150">
title	Tooltip text when hovering on the image	<img src="photo.jpg" title="My photo">
loading	Controls image loading (lazy, eager, auto)	<img src="photo.jpg" loading="lazy">
style	Apply inline CSS styles	<img src="photo.jpg" style="border:2px solid black;">
class	Assign CSS class for styling	<img src="photo.jpg" class="thumbnail">
id	Unique identifier for the image	<img src="photo.jpg" id="profile-pic">
usemap	Links image to an image map for clickable areas	<img src="map.png" usemap="#worldmap">

Example: image is shown



```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <img src="background.jpg" alt="Company Logo" width="200" height="100">
</body>
</html>
```

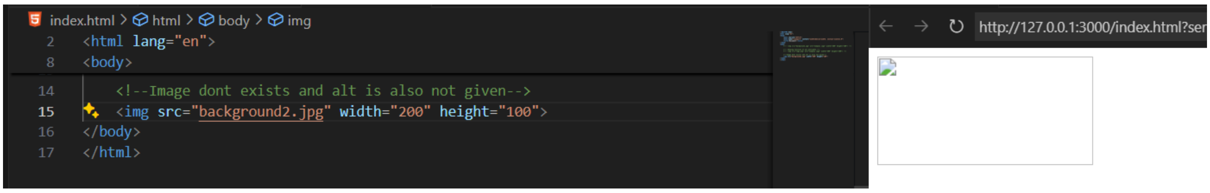
Example: image don’t exists, and hence alt text is printed



```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <!-- <img src="background.jpg" alt="Company Logo" width="200" height="100"> -->

    <!-- Showing function of alt attriubte -->
    <img src="logo.png" alt="Company Logo" width="200" height="100">
</body>
</html>
```

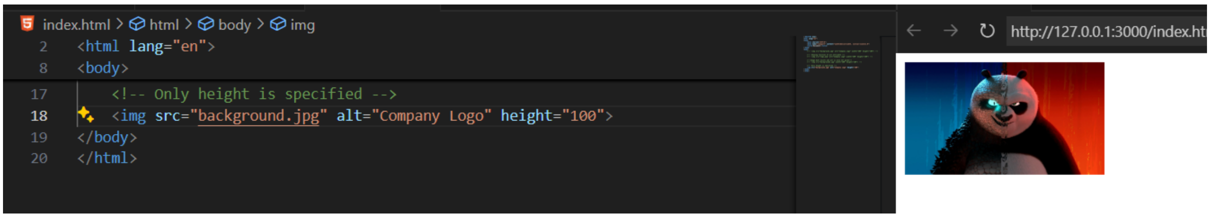
Company Logo

Example: image don’t exists and alt is also not given

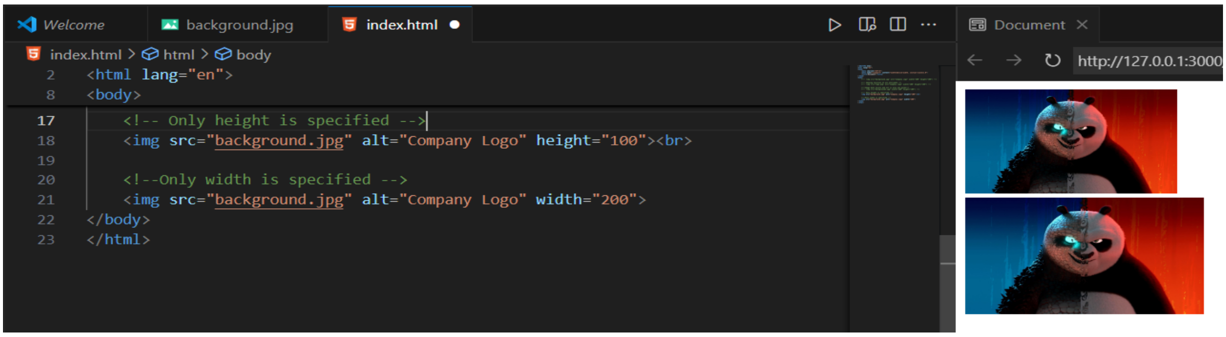

index.html > html > body > img
http://127.0.0.1:3000/index.html?ser

```html
<html lang="en">
<body>

    <!--Image dont exists and alt is also not given-->
    <img src="background2.jpg" width="200" height="100">
</body>
</html>
```

Example: auto adjustment of width / height, if only height is given width automatically get adjusted and same for height.


index.html > html > body > img
http://127.0.0.1:3000/index.ht

```html
<html lang="en">
<body>

    <!-- Only height is specified -->
    <img src="background.jpg" alt="Company Logo" height="100">
</body>
</html>
```



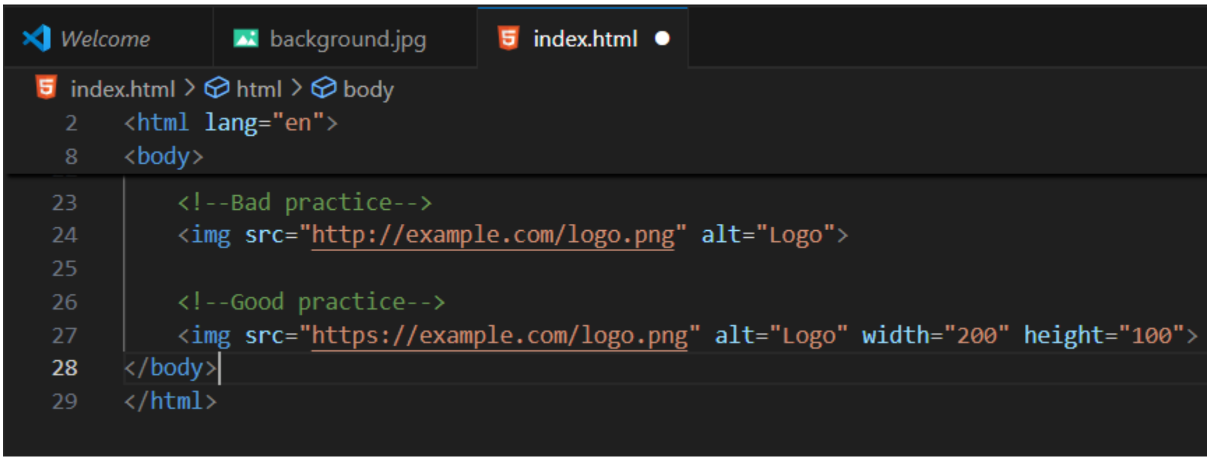
```html
<html lang="en">
<body>

    <!-- Only height is specified -->
    <img src="background.jpg" alt="Company Logo" height="100"><br>

    <!--Only width is specified -->
    <img src="background.jpg" alt="Company Logo" width="200">
</body>
</html>
```

Security Practices for <img>

1. Use HTTPS for images

If you load images over http://, attackers can intercept or tamper with them. Always use https:// to keep the connection secure.

Example: both good and bad practice is shown below

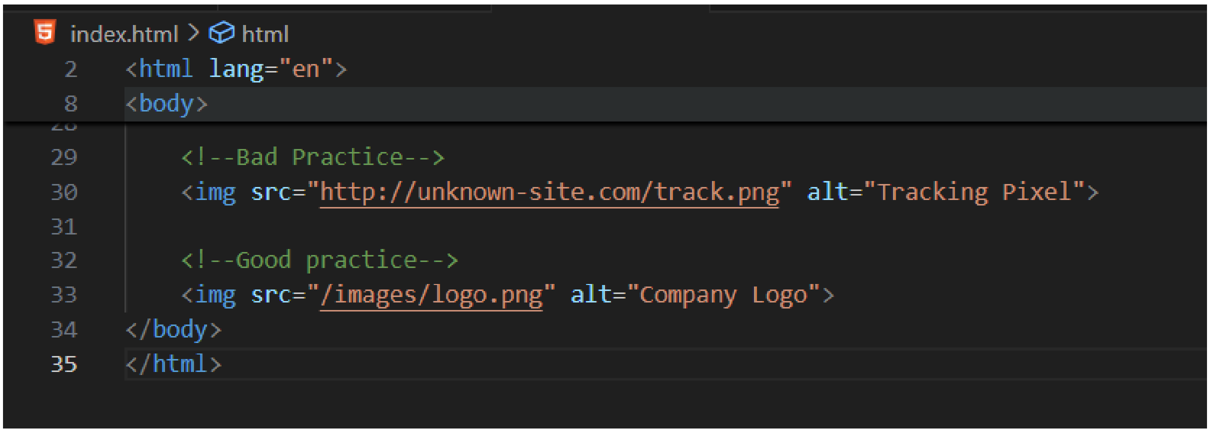


```html
<html lang="en">
<body>
    <!--Bad practice-->
    <img src="http://example.com/logo.png" alt="Logo">

    <!--Good practice-->
    <img src="https://example.com/logo.png" alt="Logo" width="200" height="100">
</body>
</html>
```

2. Host images yourself

Loading images from untrusted third-party sites can leak user info (like IP, referrer). Hosting them yourself is safer.

Example:

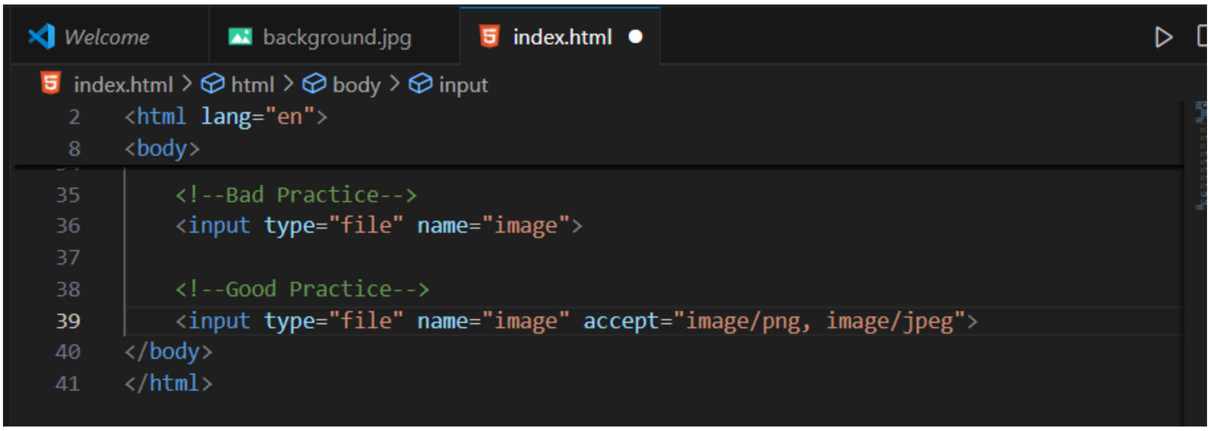


```html
<html lang="en">
<body>
    <!--Bad Practice-->
    <img src="http://unknown-site.com/track.png" alt="Tracking Pixel">

    <!--Good practice-->
    <img src="/images/logo.png" alt="Company Logo">
</body>
</html>
```

3. Validate & sanitize uploads

If users can upload images, attackers may upload fake images (like .php or massive files). Always check file type, size, and content.

Example:

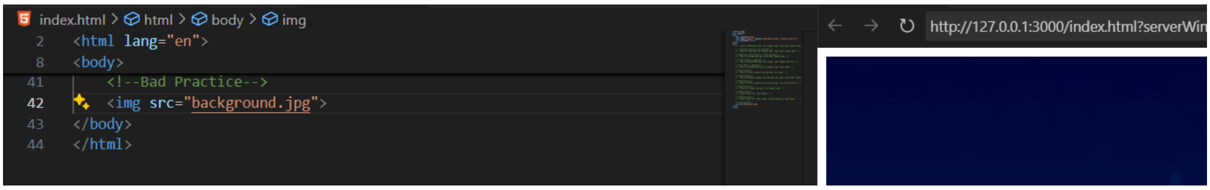


```html
<html lang="en">
<body>
    <!--Bad Practice-->
    <input type="file" name="image">

    <!--Good Practice-->
    <input type="file" name="image" accept="image/png, image/jpeg">
</body>
</html>
```

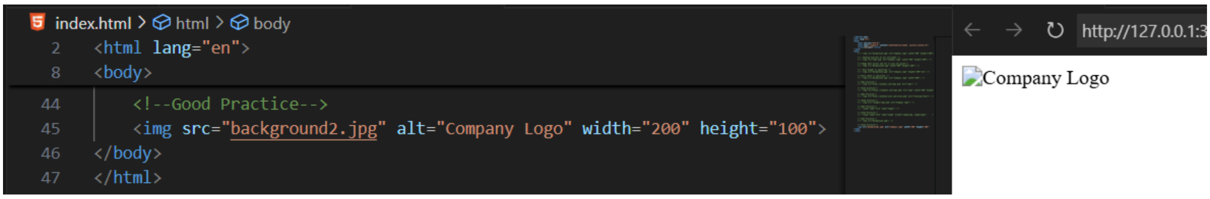
4. Use alt text

Not directly security, but alt helps screen readers and also prevents “broken image” confusion if the file is missing.

Example:


index.html > html > body > img
http://127.0.0.1:3000/index.html?serverWin

```html
<html lang="en">
<body>
    <!--Bad Practice-->
    <img src="background.jpg">
</body>
</html>
```

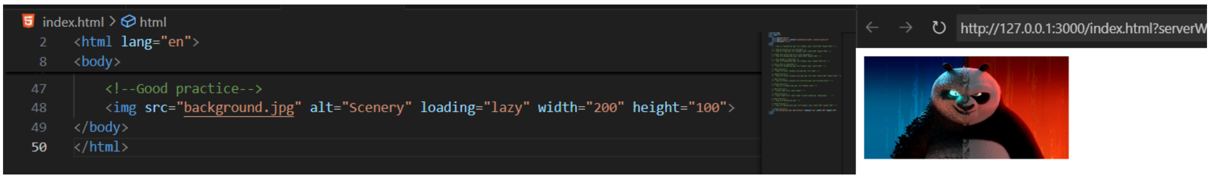


```html
<html lang="en">
<body>
    <!--Good Practice-->
    <img src="background2.jpg" alt="Company Logo" width="200" height="100">
</body>
</html>
```

5. Use loading="lazy"

Lazy loading ensures images load only when visible, improving performance and reducing unnecessary requests.

Example:

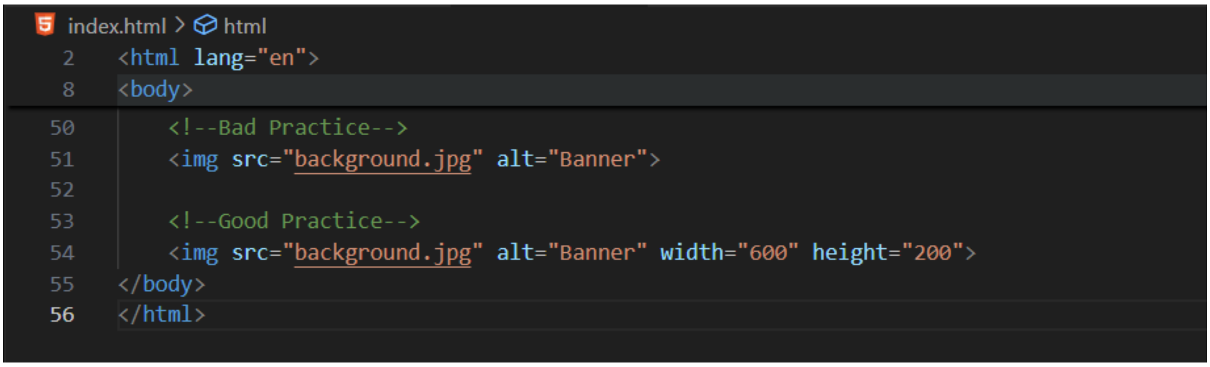


```html
<html lang="en">
<body>
    <!--Good practice-->
    <img src="background.jpg" alt="Scenery" loading="lazy" width="200" height="100">
</body>
</html>
```

6. Set size limits (width, height)

Without fixed dimensions, large or malicious images can break layouts or slow down pages.

Example:

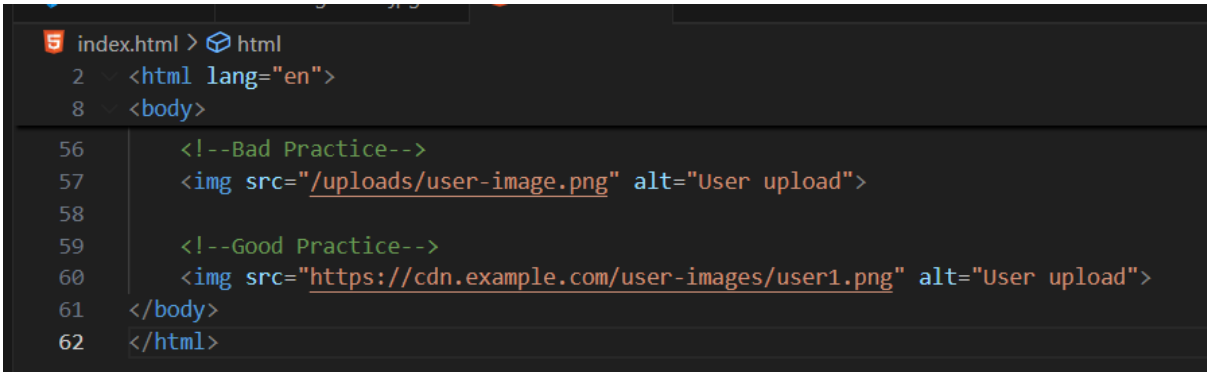


```html
<html lang="en">
<body>
    <!--Bad Practice-->
    <img src="background.jpg" alt="Banner">

    <!--Good Practice-->
    <img src="background.jpg" alt="Banner" width="600" height="200">
</body>
</html>
```

7. Use a CDN or separate domain for user uploads

If users upload images, serve them through a CDN or a separate domain so that even if malicious content slips through, it won't affect your main site.

Example:



```html
<html lang="en">
<body>
    <!--Bad Practice-->
    <img src="/uploads/user-image.png" alt="User upload">

    <!--Good Practice-->
    <img src="https://cdn.example.com/user-images/user1.png" alt="User upload">
</body>
</html>
```

--The End--