- **What are the new tags added in HTML5?**

1. <article> : Used to represent an article or blog post.

   Example:

   ```
   <article>
     <h2>Article Title</h2>
     <p>Article content goes here...</p>
   </article>
   ```

2. <aside> : Used to define content that is tangentially related to the content around it.

   Example:

   ```
   <aside>
     <h3>Related Content</h3>
     <ul>
       <li>Related item 1</li>
       <li>Related item 2</li>
       <li>Related item 3</li>
     </ul>
   </aside>
   ```

3. <audio> : Used to embed audio files into web pages.

   Example:

   ```
   <audio controls>
     <source src="audiofile.mp3" type="audio/mpeg">
     Your browser does not support the audio tag.
   </audio>
   ```

4. <canvas> : Used to create graphics and animations on a web page.

   Example:

   ```
   <canvas id="myCanvas"></canvas>

   <script>
     var canvas = document.getElementById("myCanvas");
     var ctx = canvas.getContext("2d");
     ctx.fillStyle = "red";
     ctx.fillRect(10, 10, 50, 50);
   ```

```
</script>
```

5. <datalist> : Used to provide a list of suggestions to the user when filling out a form field.

   Example:

```
<label for="myInput">Select a fruit:</label>
<input type="text" id="myInput" list="fruits">

<datalist id="fruits">
  <option value="Apple">
  <option value="Banana">
  <option value="Cherry">
  <option value="Grape">
</datalist>
```

6. <details> : Used to create a disclosure widget that reveals content when clicked.

   Example:

```
<details>
  <summary>Click to view more...</summary>
  <p>Hidden content goes here...</p>
</details>
```

7. <figcaption> : Used to provide a caption or description for an image or media element.

   Example:

```
<figure>
  <img src="image.jpg" alt="An image">
  <figcaption>Caption for the image</figcaption>
</figure>
```

8. <figure> : Used to group images, videos, and captions together.

   Example:

```
<figure>
  <img src="image1.jpg" alt="Image 1">
  <figcaption>Caption for Image 1</figcaption>
</figure>
<figure>
  <img src="image2.jpg" alt="Image 2">
```

```
  <figcaption>Caption for Image 2</figcaption>
</figure>
```

9. <footer> : Used to define the footer section of a web page.

   Example:

```
<footer>
  <p>&copy; 2023 My Website Name</p>
</footer>
```

10. <header> : Used to define the header section of a web page.

    Example:

```
<header>
  <h1>My Website Name</h1>
  <nav>
    <ul>
      <li><a href="#">Home</a></li>
      <li><a href="#">About</a></li>
      <li><a href="#">Contact</a></li>
    </ul>
  </nav>
</header>
```

11. <main> : Used to indicate the main content of a web page.

    Example:

```
<main>
  <h2>Main Content</h2>
  <p>Content goes here...</p>
</main>
```

12. <nav> : Used to define a navigation menu.

    Example:

```
<nav>
  <ul>
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
    <li><a href="#">Contact</a></li>
  </ul>
</nav>
```

13. <progress> : Used to show the progress of a task or process.

    Example:

    ```
    <progress value="50" max="100"></progress>
    ```

14. <section> : Used to define a section of a web page.

    Example:

    ```
    <section>
      <h2>Section Title</h2>
      <p>Content goes here...</p>
    </section>
    ```

15. <video> : Used to embed video files into web pages.

    Example:

    ```
    <video controls>
      <source src="videofile.mp4" type="video/mp4">
    ```

- # How to embed audio and video in a webpage?

  - ## Audio:

    - ✓ To embed audio in HTML, we use the <audio> tag.
    - ✓ Before HTML5, audio cannot be added to web pages in the Internet Explorer era.
    - ✓ To play audio, we used web plugins like Flash. After the release of HTML5, it is possible.
    - ✓ This tag supports Chrome, Firefox, Safari, Opera, and Edge in three audio formats – MP3, WAV, OGG. Only Safari browser doesn't support OGG audio format.
    - ✓ **Syntax :**

      ```
      <audio>
         <source src="file_name" type="audio_file_type">
      </audio>
      ```

- ✓ **Example :**

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>
<h2> Audio</h2>
<audio src="test.mp3" controls></audio>
</body>
</html>
```

- **Video :**

- ✓ To embed video in HTML, we use the <video> tag.
- ✓ It contains one or more video sources at a time using <source> tag.
- ✓ It supports MP4, WebM, and Ogg in all modern browsers. Only Ogg video format doesn't support in Safari browser.
- ✓ **Syntax :**

```
<video>
   <source src="file_name" type="video_file_type">
</video>
```

- ✓ **Example :**

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>
<h2>Video</h2>
<video src="./test.mp4" controls></video>
</body>
</html>
```

- ## Semantic element in HTML5?

  - In HTML5, semantic elements are HTML tags that provide meaning and structure to the content of a web page.
  - These elements describe the purpose or role of the content they enclose, making it easier for both humans and search engines to understand the page's structure and content.

Some commonly used semantic elements in HTML5 include:

1. <header> : Represents the introductory content or a container for a group of introductory content in a document or section.

2. <nav> : Defines a section of navigation links.

3. <main> : Specifies the main content of a document or section.

4. <article> : Represents a self-contained composition within a document, such as a blog post, a news story, or a forum post.

5. <section> : Defines a standalone section of a document, often with a heading.

6. <aside> : Represents content that is tangentially related to the main content, such as sidebars or pull quotes.

7. <footer> : Defines the footer of a document or section, typically containing information about the author, copyright information, or links to related documents.

  - These semantic elements help improve accessibility, SEO (Search Engine Optimization), and maintain a clear document structure.
  - They also provide a more meaningful representation of the content, which can be beneficial for assistive technologies used by people with disabilities.

Example :

```
<!DOCTYPE html>
<html>
<head>
  <title>Semantic Elements Example</title>
</head>
<body>
  <header>
    <h1>Welcome to My Website</h1>
    <nav>
      <ul>
        <li><a href="#">Home</a></li>
        <li><a href="#">About</a></li>
        <li><a href="#">Services</a></li>
        <li><a href="#">Contact</a></li>
      </ul>
    </nav>
  </header>

  <main>
    <section>
      <h2>About</h2>
      <p>This section provides information about the company and its history.</p>
    </section>

    <section>
      <h2>Services</h2>
      <p>Here are the services we offer:</p>
      <ul>
        <li>Web Design</li>
```

```
      <li>Graphic Design</li>
      <li>Content Writing</li>
    </ul>
  </section>

  <aside>
    <h3>Featured Article</h3>
    <p>Check out our latest blog post on the importance of web accessibility.</p>
  </aside>
 </main>

 <footer>
   <p>&copy; 2023 My Website. All rights reserved.</p>
 </footer>
</body>
</html>
```

- # Canvas and SVG tags

  - ## SVG:

    - ✓ The Scalable Vector Graphics (SVG) is an XML-based image format that is used to define two-dimensional vector-based graphics for the web.
    - ✓ Unlike raster image (Ex .jpg, .gif, .png, etc.), a vector image can be scaled up or down to any extent without losing the image quality.

  - ## Canvas:

    - ✓ The HTML element is used to draw graphics on the fly, via scripting (usually JavaScript).
    - ✓ The element is only a container for graphics.
    - ✓ You must use a script to actually draw the graphics.

- ✓ Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

SVG	Canvas
Vector based (composed of shapes)	Raster based (composed of pixel)
SVG has better scalability. So it can be printed with high quality at any resolution.	Canvas has poor scalability. Hence it is not suitable for printing on higher resolution.
SVG gives better performance with smaller number of objects or larger surface.	Canvas gives better performance with smaller surface or larger number of objects.
SVG can be modified through script and CSS.	Canvas can be modified through script only.
Multiple graphical elements, which become the part of the page's DOM tree.	Single element similar to <img> in behavior. Canvas diagram can be saved to PNG or JPG format.

- **Example:**

SVG

```
<!DOCTYPE html>
<html>
<head>
 <style>
        #svgelem {
                position: relative;
                left: 50%;
                -webkit-transform: translateX(-20%);
                -ms-transform: translateX(-20%);
                transform: translateX(-20%);
        }
```

```
</style>
<title>HTML5 SVG</title>
</head>
<body>
<h2 align="center">
        SVG Circle
</h2>
<svg id="svgelem" height="200">
        <circle id="greencircle" cx="60"
                cy="60" r="50" fill="green" />
</svg>
</body>
</html>
```

Canvas :

```
<!DOCTYPE html>
<html>
<head>
<title>HTML5 Canvas Tag</title>
</head>
<body>
<h2>Canvas Square</h2>
<canvas id="newCanvas" width="100" height="100"
        style="border:1px solid #000000;">
</canvas>
<script>
        var c = document.getElementById('newCanvas');
        var ctx = c.getContext('2d');
        ctx.fillStyle = '#7cce2b';
        ctx.fillRect(0, 0, 100, 100);
```

```
 </script>
</body>
</html>
```