Give Long answers to the following Extended Responses Questions (ERQs).

1) What is Document Object Model? Explain with the help of an example.

Answer: The Document Object Model (DOM) is a programming interface for HTML and XML documents. It represents the document as a tree-like [1] structure of objects, where each part of the document (e.g., elements, attributes, text) is a node in the tree. The DOM allows scripts (like JavaScript) to access and manipulate the content, structure, and style of the document dynamically.

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>DOM Example</title>
</head>
<body>
  <h1 id="heading">Hello World!</h1>
  <button onclick="changeText()">Click Me</button>
  <script>
    function changeText() {
      document.getElementById("heading").innerText = "Text Changed!";
    }
  </script>
</body>
</html>
```

Output:

1.

2.

2) Write code to differentiate between different types of headings in HTML.

Answer: HTML provides six levels of headings, from `<h1>` (most important) to `<h6>` (least important). They are used to organize content in a clear and structured way.

Code:

```
<!DOCTYPE html>
<html>
<head>
 <title>Headings Example</title>
</head>
<body>
 <h1>Heading Level 1</h1>
 <h2>Heading Level 2</h2>
 <h3>Heading Level 3</h3>
 <h4>Heading Level 4</h4>
 <h5>Heading Level 5</h5>
 <h6>Heading Level 6</h6>
</body>
</html>
```

Output:

Heading Level 1

Heading Level 2

Heading Level 3

Heading Level 4

Heading Level 5

Heading Level 6

3) Elaborate/Explain the steps and provide code to load a background image in a webpage.

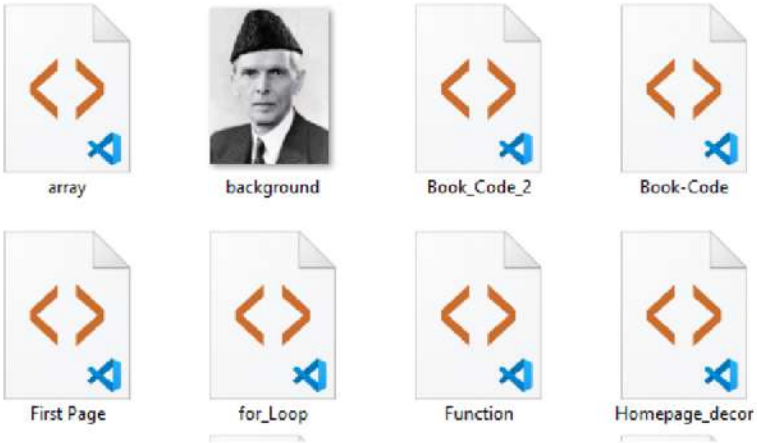
Answer: Steps:

1. Have the image file (e.g., background.jpg) in your project directory or accessible via a URL.
2. Use the background-image CSS property to set the image.

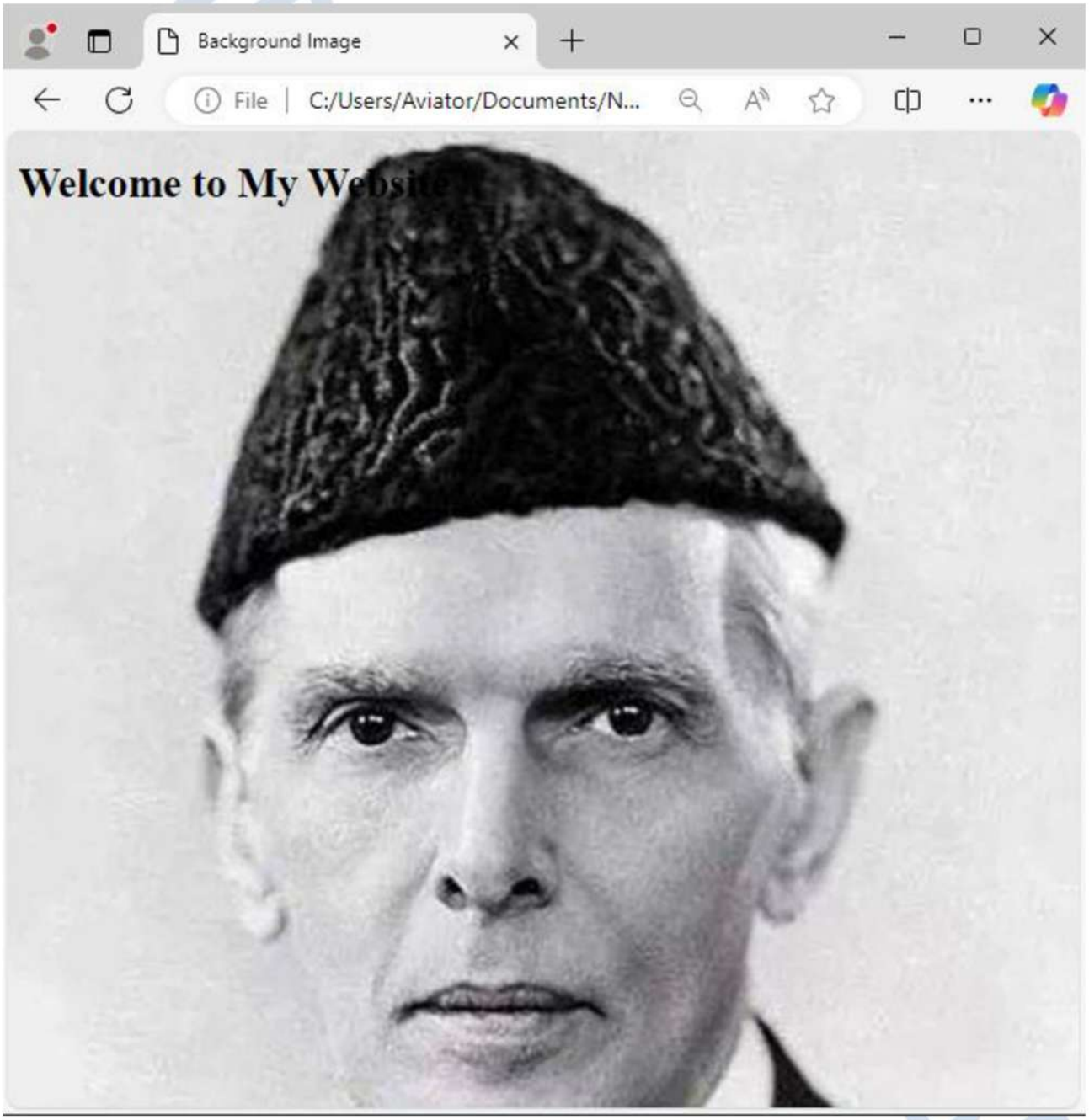
Code:

```
<!DOCTYPE html>
<html>
<head>
 <title>Background Image</title>
 <style>
  body {
   background-image: url('background.jpg');
   background-size: cover;
  }
 </style>
</head>
<body>
 <h1>Welcome to My Website</h1>
</body>
</html>
```

Directory View:



Background-image Output:



4) With the help of sample code, highlight different methods to incorporate CSS code in a HTML webpage.

Answer: Methods to add CSS:

1. Inline CSS:

```
<p style="color: red;">This is a red paragraph.</p>
```

2. Internal CSS:

```
<style>
  p { color: blue; }
</style>
```

3. External CSS:

```
//Add Reference in HTML.
<link rel="stylesheet" href="styles.css">
```

```
//CSS File Code
div {
  border: 1px solid blue;
  padding: 10px;
}
```

5) Sketch steps and provide code to apply border and color to a table in a webpage.

Answer:

Steps:

1. Use the <table>, <tr> (table row), <th> (table header), and <td> (table data) tags to create the table structure.
2. Use CSS properties like border, border-collapse, background-color, and color to style the table.

Code:

```
<!DOCTYPE html>
<html>
<head>
 <title>Styled Table</title>
 <style>
  table {
   border: 2px solid black;
   border-collapse: collapse;
  }
  td {
   background-color: lightblue;
   padding: 10px;
  }
 </style>
</head>
<body>
 <table>
  <tr>
   <td>Row 1, Cell 1</td>
   <td>Row 1, Cell 2</td>
  </tr>
  <tr>
   <td>Row 2, Cell 1</td>
   <td>Row 2, Cell 2</td>
  </tr>
 </table>
</body>
</html>
```

5) Sketch steps and provide code to apply border and color to a table in a webpage.

Answer:

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  }
  td {
   background-color: lightblue;
   padding: 10px;
  }
 </style>
</head>
<body>
 <table>
  <tr>
   <td>Row 1, Cell 1</td>
   <td>Row 1, Cell 2</td>
  </tr>
  <tr>
   <td>Row 2, Cell 1</td>
   <td>Row 2, Cell 2</td>
  </tr>
 </table>
</body>
</html>
```

Output of Table:

Row 1, Cell 1	Row 1, Cell 2
Row 2, Cell 1	Row 2, Cell 2

Give Long answers to the following Extended Responses Questions (ERQs).

6) Discuss the functionality JavaScript can provide in a webpage with the help of a suitable example code.

Answer: JavaScript adds interactivity to webpages, such as dynamic content updates, animations, and form validation.

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>JavaScript Example</title>
</head>
<body>
  <p id="demo">This is a paragraph.</p>
  <button onclick="changeContent()">Click Me</button>
  <script>
    function changeContent() {
      document.getElementById("demo").innerHTML = "You clicked the button!";
    }
  </script>
</body>
</html>
```

Output:

1.

This is a paragraph.

Click Me

2.

You clicked the button!

Click Me

7) Articulate steps and write code to create a scrolling text on a webpage.

Answer: Use the <marquee> tag (though it's deprecated, it still works in many browsers for simple scrolling). For more modern and customizable scrolling, use CSS animations or JavaScript.

Code (using <marquee>):

```
<!DOCTYPE html>
<html>
<head>
<title>Scrolling Text</title>
</head>
<body>

<marquee behavior="scroll" direction="left" scrollamount="5">This is scrolling text.</marquee>

</body>
</html>
```

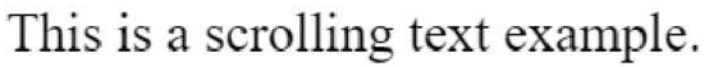
Output:

This is scrolling text.

Code (using CSS):

```html
<!DOCTYPE html>
<html>
<head>
  <title>Scrolling Text</title>
  <style>
    .scrolling-text {
      width: 100%;
      white-space: nowrap;
      overflow: hidden;
      box-sizing: border-box;
    }
    .scrolling-text span {
      display: inline-block;
      padding-left: 100%;
      animation: scroll 10s linear infinite;
    }
    @keyframes scroll {
      0% { transform: translateX(0); }
      100% { transform: translateX(-100%); }
    }
  </style>
</head>
<body>
  <div class="scrolling-text">
    <span>This is a scrolling text example.</span>
  </div>
</body>
</html>
```

Output of CSS.



8) Enlist steps to add a video clip in a website which starts playing as the web page loads.

Answer:

Steps:

1. Use the <video> tag.
2. Set the src attribute to the video file path.
3. Add the autoplay attribute to start playback automatically.
4. (Optional) Add controls to display video controls.

Code:

```
<!DOCTYPE html>
<html>
<head>
 <title>Autoplay Video</title>
</head>
<body>
 <video width="320" height="240" autoplay>
  <source src="video.mp4" type="video/mp4">
  </video>
</body>
</html>
```

9) Cite steps on compiling the result of your last examination in a tabular form and display it in a webpage.

Answer: Steps:

1. Create an HTML table structure.
2. Fill the table with examination data.

Code:

```
<!DOCTYPE html>
<html>
<head>
  <title>Exam Results</title>
</head>
<body>
  <table border="1">
    <tr>
      <th>Subject</th>
      <th>Marks</th>
    </tr>
    <tr>
      <td>Math</td>
      <td>90</td>
    </tr>
    <tr>
      <td>Science</td>
      <td>85</td>
    </tr>
  </table>
</body>
</html>
```

Output:

Subject	Marks
Math	90
Science	85

10) In context of Fig. 40(d), add another button namely 'Revert' which when pressed, it will reverse both the color and index values.

Answer: Steps:

1. Printing numbers in ascending and descending order.
2. Changing the background color dynamically.
3. Adding a "Revert" button to reset the changes.

Code:

```
<!DOCTYPE html>
<html>
 <body>
  <script type="text/javascript">
   document.write("For-Loop Starts After This ...<br />");
   for (index = 0; index <= 9; index++) {
    document.write("Index No.: " + index + "<br />");
   }
   document.write("For-Loop Stopped!");

   function descOrder() {
    for (index = 9; index >= 0; index--) {
     document.write("Index No.: " + index + "<br />");
    }
   }

   function revert() {
    location.reload(); // Reload the page to revert to the original state
   }
  </script>
  <p id="dynamicContent">
   Click the button to change output to Descending Order.
  </p>
  <button onclick="descOrder()">Descending Order</button>
  <button onclick="revert()">Revert</button>
 </body>
</html>
```