The DOM (Document Object Model) tree structure represents the hierarchical organization of elements in an HTML document. Each element, attribute, and text in the HTML document is a node in this tree, and they are organized in a parent-child relationship.

html

Copy code

<!DOCTYPE html>

<html>

<head>

<title>Sample Page</title>

</head>

<body>

<h1 id="main-title">Welcome</h1>

<p>This is a sample paragraph.</p>

</body>

</html>

DOM Tree Structure for the Document

***The tree structure would look like this:***

Document

<html> (Element Node)

<head> (Element Node)

<title> (Element Node)

"Sample Page" (Text Node)

└── <body> (Element Node)

<h1> (Element Node, with "id" attribute)

"Welcome" (Text Node)

<p> (Element Node)

"This is a sample paragraph." (Text Node)

Explanation of Nodes in the DOM Tree

Document Node: This is the top-level root node representing the entire HTML document. In the tree above, it’s the “Document” node.

**Element Nodes:** These nodes represent HTML elements like <html>, <head>, <body>, <h1>, <title>, and <p>. They contain the structure of the document and can have other nodes (elements, attributes, and text) as their children.

**Attribute Nodes:** Attributes are properties set within elements, providing additional information. In this example, <h1 id="main-title"> has an attribute id="main-title". Attributes are attached to the element nodes they belong to, although they are not shown as separate nodes in the basic DOM structure

**Text Nodes:** These nodes represent the actual text content within an element. For instance, "Sample Page" in <title>Sample Page</title> is a text node, as are "Welcome" and "This is a sample paragraph.".