Java Script and XHTML Documents and Dynamic documents with JavaScript

JavaScript and XHTML documents – The JavaScript Execution Environment, The Document Object Model.

The JavaScript execution environment

A browser displays an XHTML document in a window on the screen of the client.
Every Window object has a property named document, which is a reference to the Document object that the window displays.

Every Document object has a forms array**,** each element of which represents a form in the document.

Each forms array element has an elements array as a property, which contains the objects that represent the XHTML form elements, such as buttons and menus.

Document objects also have property arrays for anchors, links, images, and applets. There are many other objects in the object hierarchy below a Window object.

The Document Object Model

The Document Object Model (DOM) motivation was to provide a specification that would allow **Java programs and JavaScript scripts** that deal with XHTML documents to be **portable among various browsers.** DOM is a **standard** that maps HTML,XHTML and XML documents into **objects for manipulation** by scripting languages like **Javascript**

The DOM is an **application programming interface (API)** that defines an interface between XHTML documents and application programs.

Different Versions of DOM are

- **DOM 0** It is supported by all **JavaScript-enabled browsers**. It is implemented in the Netscape 3.0 and Internet Explorer 3.0 browsers. DOM 0 is supported by all JavaScript-enabled browsers.
- **DOM 1** focused on the **XHTML and XML** document model.
- **DOM 2** specified a **style-sheet object model** and defined how style information attached to a document can be manipulated. It also includes **document traversals , document validation, and document views and formatting,** as well as key **events and event groups**. DOM 2 supported by **FX3.**

Documents in the DOM have a treelike structure, but there can be more than one tree in a document In the JavaScript binding to the DOM, **the elements of a document are objects**, with both data and operations. The **data** are called **properties**, and the **operations are** called **methods**.

For example, the following XHTML element would be represented as an object with two properties, type and name, with the values “text” and “address”, respectively:

<input type = “text” name = “address”>

Consider the following simple document:

```
      A simple table to demonstrate DOM trees
      -->
<html xmlns = "http://www.w3.org/1999/xhtml">
  <head> <title> A simple table </title>
  </head>
  <body>
    <table border = "border">
      <tr>
        <th> </th>
        <th> Apple </th>
        <th> Orange </th>
      </tr>
      <tr>
        <th> Breakfast </th>
        <td> 0 </td>
        <td> 1 </td>
      </tr>
    </table>
  </body>
</html>
```

The documents complete DOM tree structure is shown in Fig.

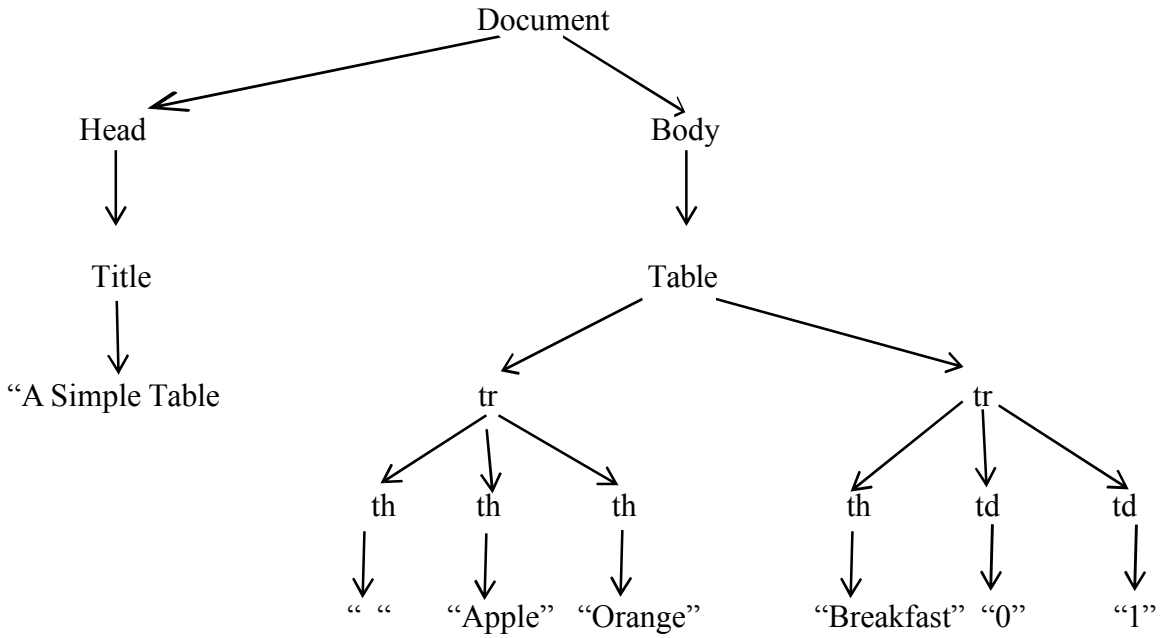

Figure 5.1 The DOM structure of sample document

Each item in the tree is called a **Node.** There are different kinds of Node corresponding to HTML Elements, text strings and even comments. They are

Node type	Description	Example
Element	An XHTML or XML Element	.....
	An attribute of XHTML or XML Element	border=”border”
Text	A fragment of Text that is enclosed in XHTML or XML Element	Apple, Orange
Comment	An XHTML comment	<!-- This is a Comment-->
Document	The Root Document Object, The top Element in the Tree	<HTML>