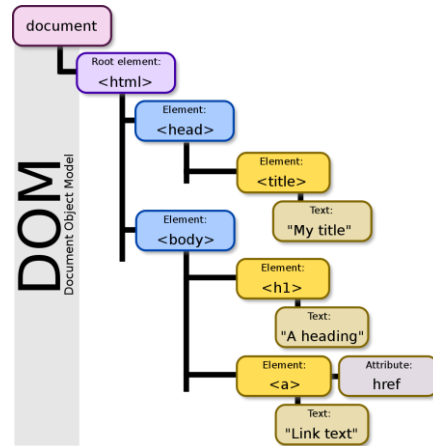


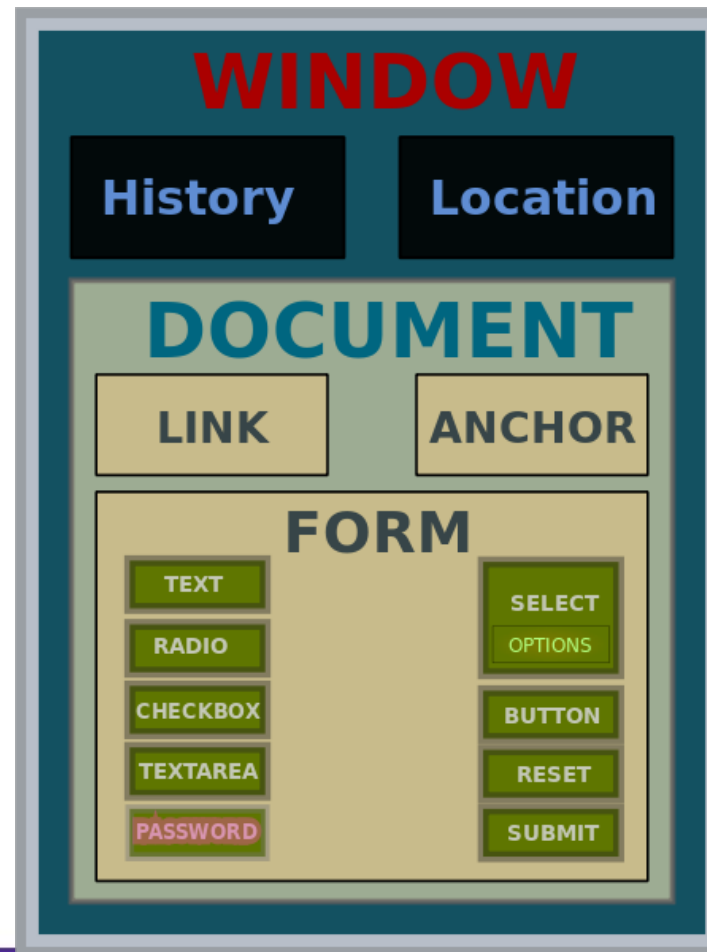
Interactive Web Technologies

Core Web 2.0 Technologies

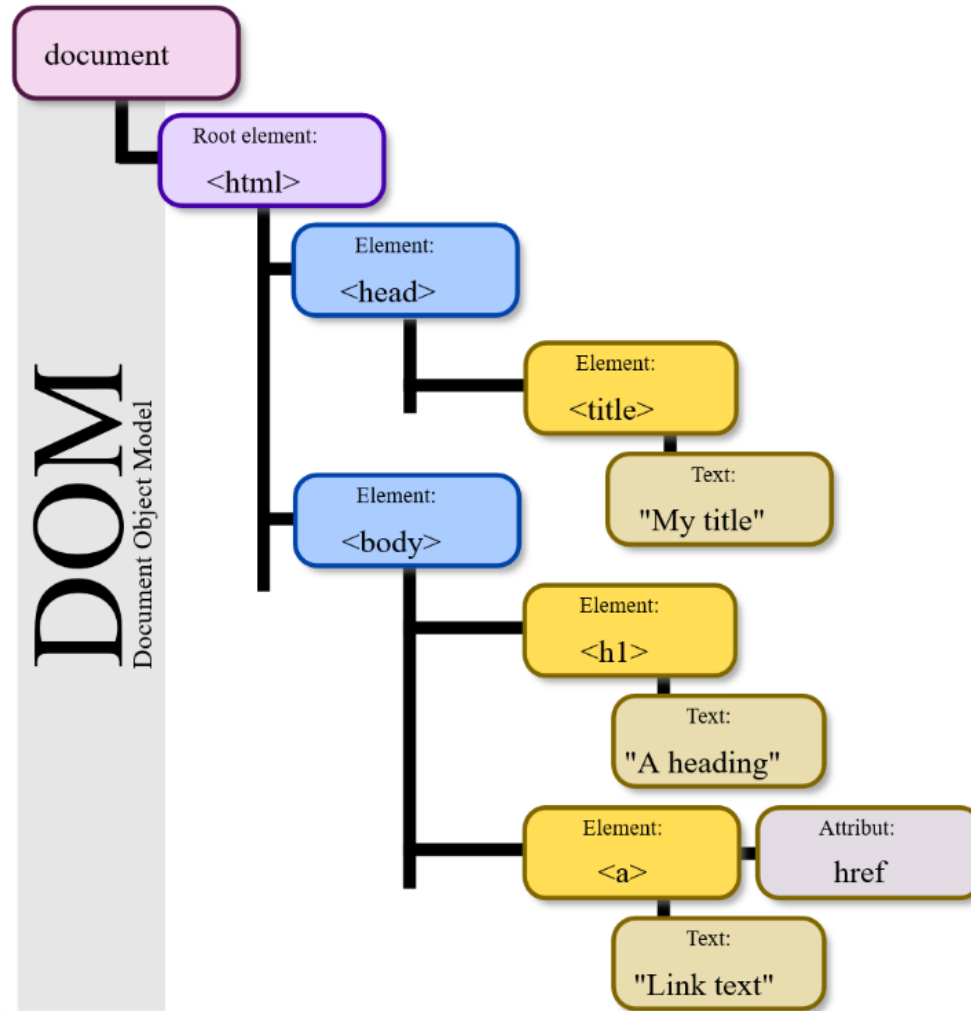
- DOM
- JavaScript
- AJAX
- JSON



Document Object Model (DOM)



Document Object Model (DOM)



HTML – tictactoe.html

```
<!DOCTYPE html>
<html>
  <head>
    <title>Tic Tac Toe</title>
    <link href="fancy.css" type="text/css" rel="stylesheet"/>
  </head>
  <body>
    <h1>Play TicTacToe</h1>
    <!-- table goes here -->
  </body>
</html>
```

HTML – tictactoe.html

```
<table>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

HTML – fancy.css

```
td {  
  border: 5px solid black;  
  width: 100px;  
  height: 100px;  
  font-size: 80px;  
  text-align: center;  
  font-family: sans;  
}
```

HTML – fancy.css

```
td:nth-child(1) {  
  border-left: none;  
}  
  
td:nth-child(3) {  
  border-right: none;  
}  
  
tr:nth-child(1) > td {  
  border-top: none;  
}  
  
tr:nth-child(3) > td {  
  border-bottom: none;  
}
```


HTML – tictacktoe.html

```
<!DOCTYPE html>
<html>
  <head>
    <title>Tic Tac Toe</title>
    <link href="fancy.css" type="text/css" rel="stylesheet"/>
  </head>
  <body>
    <h1>Play TicTacToe</h1>

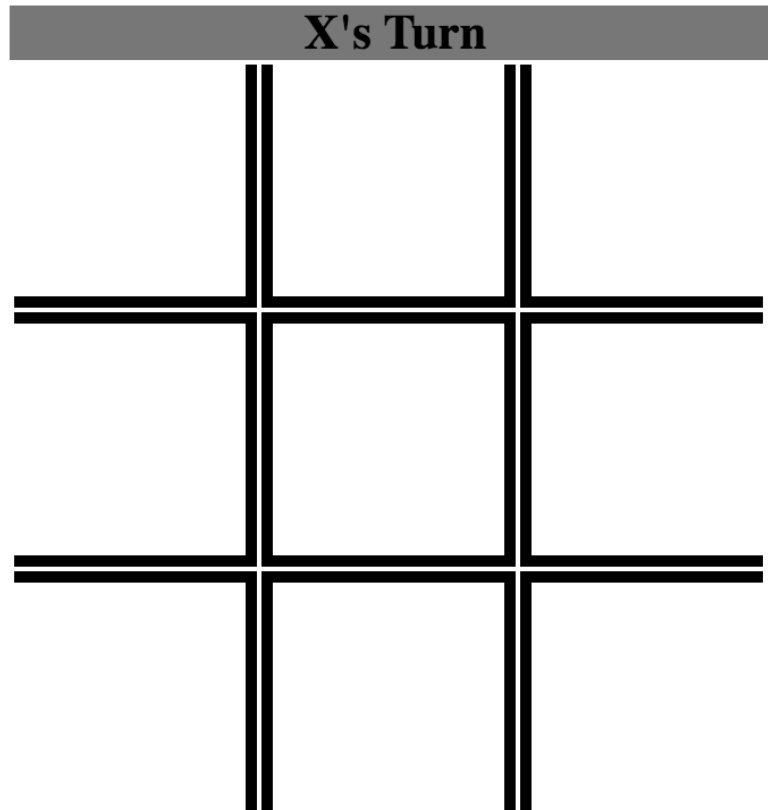
    <div id="turn">x's Turn</div>

    <table>
      <!-- rest of table here -->
    </table>
  </body>
</html>
```

HTML – fancy.css

```
td {  
  border: 5px solid black;  
  width: 100px;  
  height: 100px;  
  font-size: 80px;  
  text-align: center;  
  font-family: sans;  
}  
  
#turn {  
  font-weight: bold;  
  text-transform: capitalize;  
  text-align: center;  
  font-size: 16pt;  
  background-color: #777777;  
  width: 340px;  
}
```

Play TicTacToe



Brendan Eich



JavaScript (1995)

- Originally called "LiveScript"
- Used to manipulate the DOM after the page has loaded
- Makes the web page much more interactive for the user
- Unrelated to the Java programming language

JQuery (2006)

- Cross-Platform JavaScript Library
- Much easier to use than raw JavaScript
- Designed to aid in manipulating the DOM
- Has many plugins and libraries available

HTML – tictacktoe.html

.....

```
<body>
```

```
  <h1>Play TicTacToe</h1>
```

```
  <div id="turn">x's Turn</div>
```

```
  <table>
```

```
    <!-- rest of table here -->
```

```
  </table>
```

```
  <script src="http://code.jquery.com/jquery-3.1.1.js"></script>
```

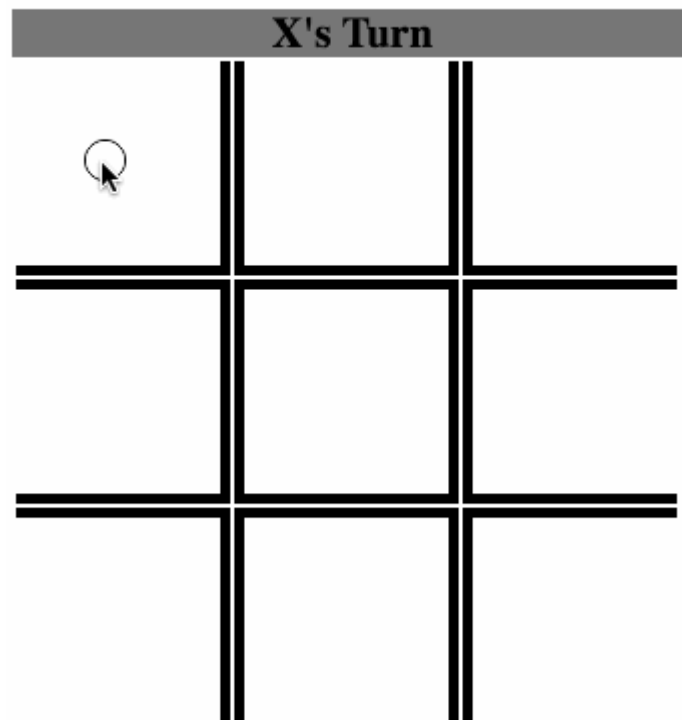
```
  <script src="script.js" type="text/javascript"></script>
```

.....

HTML – script.js

```
var turn = "x";
$('td').on('click', function(){
  var $square = $(this);
  if($square.text() == ""){
    $square.text(turn);
    if(turn == "x"){
      turn = "o";
    }else{
      turn = "x";
    }
    $('#turn').text(turn + "'s turn");
  }
});
```


Play TicTacToe



AJAX (2005)

- Asynchronous Javascript and XML
- Allows scripts on a webpage to send and receive data in the background without reloading the page
- XML not required; may use JSON instead

Extensible Markup Language (XML)

```
<person>
  <firstName>John</firstName>
  <lastName>Smith</lastName>
  <age>25</age>
  <address>
    <city>New York</city>
    <postalCode>10021</postalCode>
    <state>NY</state>
    <streetAddress>21 2nd Street</streetAddress>
  </address>
  <phoneNumbers>
    <element>
      <number>212 555-1234</number>
      <type>home</type>
    </element>
    <element>
      <number>646 555-4567</number>
      <type>fax</type>
    </element>
  </phoneNumbers>
</person>
```

JavaScript Object Notation (JSON)

```
{  
  "firstName": "John",  
  "lastName": "Smith",  
  "age": 25,  
  "address": {  
    "streetAddress": "21 2nd Street",  
    "city": "New York",  
    "state": "NY",  
    "postalCode": 10021  
  },  
  "phoneNumbers": [  
    {  
      "type": "home",  
      "number": "212 555-1234"  
    },  
    {  
      "type": "fax",  
      "number": "646 555-4567"  
    }  
  ]  
}
```

Frameworks



The Machine is Us/ing Us

