

Ex. No. 05	JAVASCRIPT – DOM Elements and Events
09.02.2024	

Aim

To create a web page which demonstrates dynamic actions for user interactions using JavaScript document object model methods and events.

Description

Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser.

Document Object Model:

A Document object represents the HTML document that is displayed in that window. The Document object has various properties that refer to other objects which allow access to and modification of document content. The way a document content is accessed and modified is called the Document Object Model, or DOM. When a web page is loaded, the browser creates a Document Object Model of the page. The HTML DOM model is constructed as a tree of Objects:

Finding HTML Element by Id

```
var myElement = document.getElementById("intro");
```

Finding HTML Elements by Tag Name

```
var x = document.getElementsByTagName("p");
```

Finding HTML Elements by Class Name

```
var x = document.getElementsByClassName("intro");
```

Finding HTML Elements by CSS Selectors

```
var x = document.querySelectorAll("p.intro");
```

JavaScript Events:

JavaScript's interaction with HTML is handled through events that occur when the user or the browser manipulates a page.

Event	Description
onload	Triggers when the document loads
onclick	Triggers when an element changes
onkeyup	Triggers when a key is released
onkeydown	Triggers when a key is pressed
onmouseover	Triggers when the mouse pointer moves over an element
onmousedown	Triggers when a mouse button is pressed
onsubmit	Triggers when a form is submitted

Source code:

3. Create a web page using HTML, CSS and JavaScript program to develop currency convertor. Keep at least 4 currencies via drop down list box (<select> Element) as given in the sample output. [Use onchange event]

Code:

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Document</title>

  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">

  <link rel="stylesheet" href="style.css">

</head>
```

```
<body>

  <header class="header">

    Simple Currency Converter

  </header>

  <div class="container">

    <p class="title">Exchange Rate</p>

    <h2 id="answer"></h2>

    <label for="amount" class="amount">Amount</label>

    <input type="number" id="amount" name="amount">

    <div class="ft">

      <label for="fromCurrency" id="fromLabel">From</label>

      <label for="toCurrency" id="toLabel">To</label>

    </div>

    <div class="fromto">

      <div class="from">

        <select name="fromCurrency" id="fromCurrency" onchange="updateFlag('from')">

          <option value="INR">INR</option>

          <option value="USD">USD</option>

          <option value="CAD">CAD</option>

          <option value="EUR">EUR</option>

        </select>

      </div>

    </div>

  </div>

</body>
```

```
<div class="swap" onclick="swapCurrencies()">

  <i class="fa fa-exchange"></i>

</div>

<div class="to">

  <select name="toCurrency" id="toCurrency" onchange="updateFlag('to')">

    <option value="USD">USD</option>

    <option value="INR">INR</option>

    <option value="CAD">CAD</option>

    <option value="EUR">EUR</option>

  </select>

</div>

</div>

<button class="button" onclick="convertCurrency()">Convert</button>

</div>

<script src="script.js"></script>

<script>

function convertCurrency() {

  var rates = {

    "USD": { "INR": 83, "EUR": 0.85, "CAD": 1.25 },

    "INR": { "USD": 0.012, "EUR": 0.011, "CAD": 0.017 },

    "EUR": { "USD": 1.18, "INR": 88.6, "CAD": 1.47 },

    "CAD": { "USD": 0.80, "INR": 60.2, "EUR": 0.68 }

  };

  var amount = parseFloat(document.getElementById('amount').value);
```

```
var fromCurrency = document.getElementById('fromCurrency').value;

var toCurrency = document.getElementById('toCurrency').value;

var result = document.getElementById('answer');

var convertedAmount = amount * rates[fromCurrency][toCurrency];

result.innerHTML = amount + " " + fromCurrency + " = " + convertedAmount.toFixed(2) + " "
+ toCurrency;

}

function swapCurrencies() {
    var fromCurrencySelect = document.getElementById('fromCurrency');
    var toCurrencySelect = document.getElementById('toCurrency');
    var tempValue = fromCurrencySelect.value;
    var tempText = fromCurrencySelect.options[fromCurrencySelect.selectedIndex].text;
    fromCurrencySelect.value = toCurrencySelect.value;
    fromCurrencySelect.options[fromCurrencySelect.selectedIndex].text =
toCurrencySelect.options[toCurrencySelect.selectedIndex].text;
    toCurrencySelect.value = tempValue;
    toCurrencySelect.options[toCurrencySelect.selectedIndex].text = tempText;

    var fromCurrencyCode = fromCurrencySelect.value;
    var toCurrencyCode = toCurrencySelect.value;
    document.getElementById('fromFlag').src = getFlagImageUrl(fromCurrencyCode);
    document.getElementById('toFlag').src = getFlagImageUrl(toCurrencyCode);
}
```

```
}

function updateFlag(type) {
    var currencyCode;

    if (type === 'from') {
        currencyCode = document.getElementById('fromCurrency').value;
        document.getElementById('fromFlag').src = getFlagImageURL(currencyCode);
    } else if (type === 'to') {
        currencyCode = document.getElementById('toCurrency').value;
        document.getElementById('toFlag').src = getFlagImageURL(currencyCode);
    }
}

function getFlagImageURL(currencyCode) {
    var flagURLs = {
        "INR": "ind.jpg",
        "USD": "usa.jpg",
        "CAD": "cad.jpg",
        "EUR": "eur.jpg"
    };

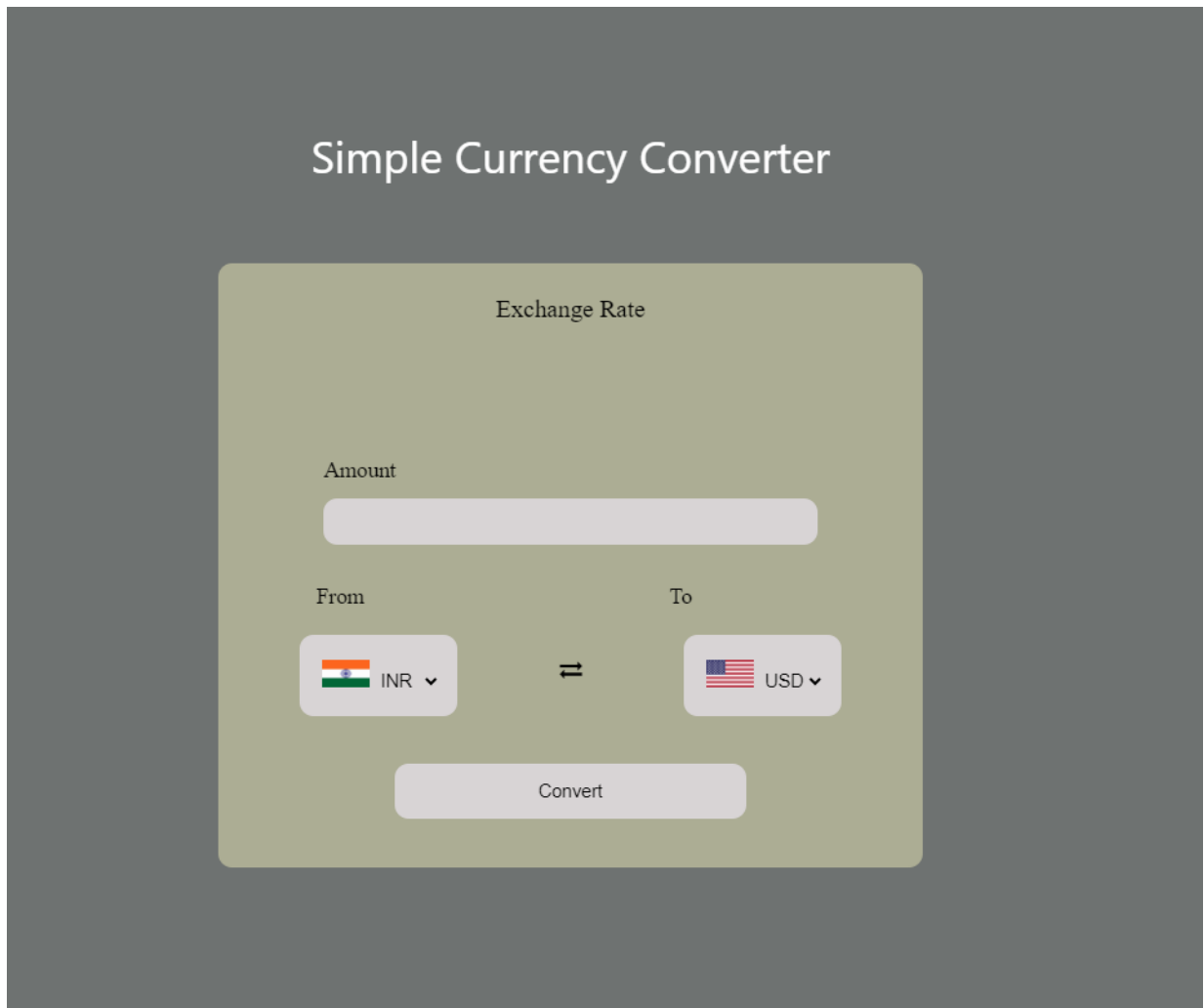
    return flagURLs[currencyCode];
}

</script>

</body>

</html>
```

Output:



The image shows a web application titled "Simple Currency Converter". It features a central light green box on a dark gray background. Inside the box, the title "Simple Currency Converter" is at the top. Below it is the label "Exchange Rate". A text input field for "Amount" is positioned below the label. Underneath the input field are two dropdown menus: "From" and "To". The "From" dropdown is set to "INR" with the Indian flag icon, and the "To" dropdown is set to "USD" with the US flag icon. A double-headed arrow icon is placed between the two dropdowns. At the bottom of the box is a "Convert" button.

4.Design a webpage using HTML, CSS and JavaScript as per the following design and perform the Cake order calculation using JavaScript. [use onclick event] Code:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Pizza Order</title>

<link rel="stylesheet" href="style.css">

</head>

<body>

  <div class="container">

    <div class="img">

      <input type="checkbox" id="pizza" name="pizza" value="180" />

      <label for="pizza">Rs.180</label><br><br>

      <input type="checkbox" id="vegpizza" name="toppings" value="120" />

      <label for="vegpizza">Rs.120</label><br><br>

      <input type="checkbox" id="burger" name="toppings" value="140" />

      <label for="burger">Rs.140</label><br><br>

    </div>

    <div class="order-details">

      <label for="email">Email</label><br>

      <input type="email" id="email" required /><br><br>

    </div>

  </div>

</body>

</html>
```



```
<input type="checkbox" id="terms" name="terms" required />I agree to the terms and conditions.<br><br>
```

```
<button onclick="order()">Order Now!</button>
```

```
<div id="bill"></div>
```

```
</div>
```

```
</div>
```

```
<script >
```

```
function order() {
```

```
    let terms = document.getElementById("terms").checked;
```

```
    if (!terms) {
```

```
        alert("Please agree to the terms and conditions.");
```

```
        return;
```

```
    }
```

```
    let slices = parseInt(document.getElementById("slices").value);
```

```
    let size = document.querySelector('input[name="size"]:checked').value;
```

```
    let toppings = document.querySelectorAll('input[name="toppings"]:checked');
```

```
    let taxRate = 0.09;
```

```
    let tipRate = Math.floor(Math.random() * (11) + 10) / 100;
```

```
    let basePrice = 0;
```

```
    switch (size) {
```

```
        case "8-inch":
```

```
            basePrice = 180;
```

```
            break;
```

```
    case "10-inch":
        basePrice = 200;
        break;
    case "12-inch":
        basePrice = 220;
        break;
    case "14-inch":
        basePrice = 240;
        break;
    default:
        basePrice = 0;
}

let toppingsCost = toppings.length * 0.1 * basePrice
let subtotal = (basePrice + toppingsCost) * slices
let tax = subtotal * taxRate;
let totalCost = subtotal + tax;

let tip = totalCost * tipRate;

let grandTotal = totalCost + tip;

let billDetails = "Subtotal: Rs. " + subtotal.toFixed(2) +
    "<br>Tax: Rs. " + tax.toFixed(2) +
    "<br>Tip: Rs. " + tip.toFixed(2) +
```

```
"<br>Grand Total = Rs. " + grandTotal.toFixed(2);

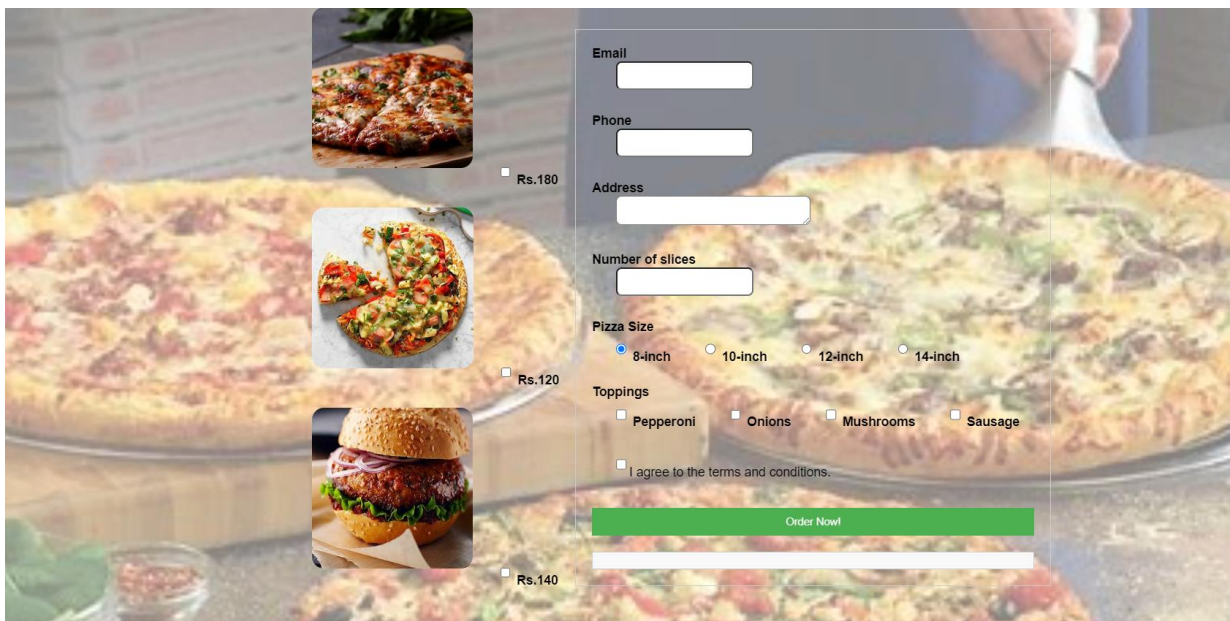
document.getElementById("bill").innerHTML = billDetails;

}

</script>

</body>

</html>
```

Output:**Result**

Therefore, we have successfully designed a web page which demonstrates dynamic actions for user interactions using JavaScript document object model methods and events.