

HTML Form Validation and DOM Manipulation

Name:	M Badri Narayanan
Reg No:	185002018
Semester:	VI
Exercise Number:	2
Date:	March 2, 2021

Aim

To validate a user created form using HTML & Regular Expression and also perform DOM Manipulation.

Procedure

- An HTML form is used to collect user input.
- The HTML **<form>** element is used to create an HTML form for user input.
- The **<form>** element is a container for different types of input elements, such as
 - Text Fields
 - Check Boxes
 - Radio buttons
 - Submit Buttons
- Different form elements
 - One of the most used form element is the **<input>** element.
 - The **<label>** element defines a label for several form elements.
 - The **<select>** element defines a drop-down list.
 - The **<textarea>** element defines a multi-line input field.
 - The **<button>** element defines a clickable button.
 - The **<fieldset>** element is used to group related data in a form.
 - The **<legend>** element defines a caption for the **<fieldset>** element.
 - The **<datalist>** element specifies a list of pre-defined options for an **<input>** element.
 - Users will see a drop-down list of the pre-defined options as they input data.
 - The **<output>** element represents the result of a calculation.
- Different input attributes
 - The input **value** attribute specifies an initial value for an input field.
 - The input **pattern** attribute specifies a regular expression that the input field's value is checked against, when the form is submitted.
 - The input **placeholder** attribute specifies a short hint that describes the expected value of an input field.
 - The input **required** attribute specifies that an input field must be filled out before submitting the form.

- The input **readonly** attribute specifies that an input field is read-only.
 - The input **disabled** attribute specifies that an input field should be disabled.
 - The input **size** attribute specifies the visible width, in characters, of an input field.
 - The input **min** and **max** attributes specify the minimum and maximum values for an input field.
 - The input **multiple** attribute specifies that the user is allowed to enter more than one value in an input field.
- 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.
 - To access an element We find the id of an element by using the **getElementById** method.
 - The **innerHTML** property is useful for getting or replacing the content of HTML elements.
-

Tags

```

<input>
<label>
<select>
<textarea>
<button>
<fieldset>
<legend>
<datalist>
<output>
<option>
<optgroup>

<input type="button">
<input type="checkbox">
<input type="date">
<input type="email">
<input type="image">
<input type="number">
<input type="password">
<input type="submit">
<input type="tel">
<input type="text">

<form method="post" action="#">
  <label for = "title">Title</label><br>
    <input type = "text" name = "title" id = "title" placeholder = "Mr"
      ↳ pattern = "[a-zA-Z\s]*$" required><br>
  <label for = "fname">First Name</label><br>
    <input type = "text" name = "firstname" id = "fname" placeholder =
      ↳ "John" pattern = "[a-zA-Z\s]*$" required><br>
  <label for = "lname">Last Name</label><br>
    <input type = "text" name = "lastname" id = "lname" placeholder =
      ↳ "Doe" pattern = "[a-zA-Z\s]*$" required><br>
  <label for="mobile">Phone Number</label><br>
    <input type = "mobile" id = "mobile" name = "mobile"
      ↳ placeholder = "9876543210" pattern="[0-9]{10}"
      ↳ required><br>
  <label for = "email">Email</label><br>
    <input type = "text" name = "email" id = "email" placeholder =
      ↳ "johndoe@xyz.com" pattern =
      ↳ "[a-z0-9._%+~]+@[a-z0-9.-]+\.[a-z]{2,}" required><br>
  <label for = "message">Message</label><br>

```

```

        <textarea name = "message" id="message" placeholder = "Write your
        ↪ message..." style="margin: 0px; width: 168px; height: 91px;"
        ↪ required></textarea><br><br>
    <input type = "submit" value = "Send Message">
</form>

<script>

    document.getElementById(if)
    document.getElementsByTagName(name)
    document.getElementsByClassName(name)

    element.innerHTML = "New Content"
    element.attribute = "New Value"
    element.style.property = "New Style"
    element.setAttribute(attribute, value)

    document.createElement(element)
    document.removeChild(element)
    document.appendChild(element)
    document.replaceChild(new, old)
    document.write(text)
</script>

```

Experiment Name: HTML Form Validation Exercise Number: 2A Date: March 2, 2021
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Validating the form created in the previous exercise using HTML and Regular Expression.

HTML Code

```

<!DOCTYPE>
<html lang = "en">
<head>

    <meta charset="UTF-8">
    <meta name="description" content="Portfolio Web Page">
    <meta name="keywords" content="HTML5, CSS3, JavaScript">
    <meta name="author" content="M Badri Narayanan">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My Second Web Page</title>
    <link rel="icon" type="image/x-icon" href="images/favicon.ico" />
    <link rel="stylesheet" href="style.css">

<style>
    p.static
    {
        position: static;
        text-align: center;
        color: red;
    }
    p.border
    {
        width: 11em;
    }

```

```

        border-style: groove;
        word-wrap: break-word;
    }
    div.transition
    {
        width: 70px;
        height: 70px;
        background: navy;
        color: white;
        transition: width 2s, height 4s;
    }
    div.transition:hover
    {
        width: 100px;
        height: 100px;
    }
    canvas
    {
        display : inline-block;
    }
</style>
<body>

    <header>
        <h5>M Badri Narayanan Curriculum Vitae</h5><br>
        <div id = "animated_div">Badri</div>
        <audio controls>
            <source src="Audio.mp3" type="audio/mpeg">
            Your browser does not support the audio element.
        </audio>
        <video height = 200 video = 200 controls>
            <source src="Video.mp4" type="video/mp4">
            Your browser does not support the video tag.
        </video>
        <br>
        <br>
        <button onclick = "getLocation()">Click Here To Get Your
        ↪ Location</button>
        <p id = "location"></p>
        <script>
            var x = document.getElementById("location");

            function getLocation()
            {
                if (navigator.geolocation)
                {
                    navigator.geolocation.
                        getCurrentPosition(showPosition);
                }
                else
                {
                    x.innerHTML = "Geolocation is not
                    ↪ supported by this browser.";
                }
            }
            function showPosition(position)
            {
                const name="<iframe
                ↪ src='http://maps.google.com/maps?q=';
                const name2="&z=16&output=embed' height='450'
                ↪ width='600'>";
                x.innerHTML= name+position.coords.latitude+', '

```

```

        +position.coords.longitude+name2;
    }
</script>
</header>

<h1 class = "header" style="color:navy;">M Badri Narayanan</h1>

<img src = "Profile.png" alt = "My Profile Picture" usemap="#profile"
↳ height = "200" width = "200"></img><br>

<map name="profile">
    <area shape = "rect" coords="0,0,100,100" alt = "My GitHub
↳ Profile" href="https://github.com/MBadriNarayanan"
↳ target="_blank">
    <area shape = "rect" coords="100,100,200,200" alt = "My
↳ LinkedIn Profile"
↳ href="https://www.linkedin.com/in/mbadrinarayanan"
↳ target="_blank">
</map>

<h3>My Social Networking Sites</h3>
<ol>
    <li><a href="https://github.com/MBadriNarayanan"
↳ target="_blank">GitHub</span></a></li>
    <li><a href="https://www.linkedin.com/in/mbadrinarayanan"
↳ target="_blank">LinkedIn</a></li>
</ol>

<iframe src="https://mbadrinarayanan.github.io/" width="400"
↳ height="280" title="My existing portfolio website"></iframe>

<h3>Summary</h3>

<p class = "static">I am currently pursuing my bachelors in
↳ Information Technology from SSN College of Engineering, Chennai. I
↳ am interested in the fields of Machine Learning , Deep Learning,
↳ Natural Language Processing, Computer Vision and Data Science.I
↳ would like to work in the aforementioned fields and develop real
↳ world solutions. I am also an avid sports fan and my hobbies
↳ include playing cricket, listening to music, watching movies and
↳ reading books.</p>

<a href = #EducationDetails>My Education Details</a><br>
<a href = #ExtraCurricular>Extra Curricular</a><br>
<a href = #Awards>Awards</a><br>
<a href = #Contact>Contact</a>

<a name = "EducationDetails"></a>
<h4>My Education Details</h4>
<table border="1" align="left" width="40%">
    <tr><td>College / School</td><td>Grade</td><td>Marks
↳ Obtained</td></tr>
    <tr><td>SSN College of Engineering, Chennai</td><td>BTech
↳ Information Technology</td><td>Current GPA : 8.828 (V
↳ Semester)</td></tr>
    <tr><td>Vidya Mandir Senior Secondary School,
↳ Chennai</td><td>12<sup>th</sup> Grade, Computer Science
↳ Group</td><td>94.4 %</td></tr>

```

```

        <tr><td>Vidya Mandir Senior Secondary School,
        ↳ Chennai</td><td>10<sup>th</sup>
        ↳ Grade</td><td>8.8</td></tr>
</table>

<a name = "ExtraCurricular"></a>
<h4>Extra Curricular</h4>
<ul>
    <li>Volunteering with Chennai Volunteers to teach spoken
    ↳ English classes for Tamil medium students.</li>
    <li>Captained the school cricket team</li>
    <li>Represented the college cricket team</li>
</ul>

<a name = "Awards"></a>
<h4>Awards</h4>
<ul>
    <li>Won the 2<sup>nd</sup> best project in Computer Science in
    ↳ 12<sup>th</sup> grade.</li>
    <li>Stood school 3<sup>rd</sup> in Chemistry in
    ↳ 12<sup>th</sup> grade.</li>
</ul>

<a name = "Contact"></a>
<h4>Contact</h4>
<form method="post" action="#">
    <label for = "title">Title</label><br>
    <input type = "text" name = "title" id = "title"
    ↳ placeholder = "Mr" pattern = "[a-zA-Z\s]*$"
    ↳ required><br>
    <label for = "fname">First Name</label><br>
    <input type = "text" name = "firstname" id = "fname"
    ↳ placeholder = "John" pattern = "[a-zA-Z\s]*$"
    ↳ required><br>
    <label for = "lname">Last Name</label><br>
    <input type = "text" name = "lastname" id = "lname"
    ↳ placeholder = "Doe" pattern = "[a-zA-Z\s]*$"
    ↳ required><br>
    <label for="mobile">Phone Number</label><br>
    <input type = "mobile" id = "mobile" name = "mobile"
    ↳ placeholder = "9876543210" pattern="[0-9]{10}"
    ↳ required><br>
    <label for = "email">Email</label><br>
    <input type = "text" name = "email" id = "email"
    ↳ placeholder = "johndoe@xyz.com" pattern =
    ↳ "[a-z0-9._%+]+@[a-z0-9.-]+\.[a-z]{2,}$"
    ↳ required><br>
    <label for = "message">Message</label><br>
    <textarea name = "message" id="message" placeholder =
    ↳ "Write your message..." style="margin: 0px; width:
    ↳ 168px; height: 91px;" required></textarea><br><br>
    <input type = "submit" value = "Send Message">
</form>

<footer>
    <div class = "transition">M Badri Naryanan</div><br>
    <svg width="100" height="100">
        <circle cx="50" cy="50" r="40" stroke="green"
        ↳ stroke-width="4" fill="red" />

```

```

        <a href="https://mbadrinarayanan.github.io/" target
        ↪ = "_blank"><text x="18" y="53">Click
        ↪ Here</text></a>
    </svg>
    <p class = "border">Web Page created for Web Programming Lab
    ↪ in the VI Semester.</p>
    <canvas id="Canvas" width="200" height="100" style="border:1px
    ↪ solid #d3d3d3;">Your browser does not support the HTML
    ↪ canvas tag.</canvas>
    <br>
    <button onclick = "changedom()">Click Here To Perform DOM
    ↪ Manipulation.</button>
    <p id = "dom">DOM Manipulation.</p>
    <script>
        var x = document.getElementById("dom");

        function changedom()
        {
            x.innerHTML = "Text changed by DOM
            ↪ Manipulation.";
        }
    </script>
    <script>
        var c = document.getElementById("Canvas");
        var ctx = c.getContext("2d");

        var grd = ctx.createRadialGradient(75,50,5,90,60,100);
        grd.addColorStop(0,"red");
        grd.addColorStop(1,"white");

        ctx.fillStyle = grd;
        ctx.fillRect(10,10,150,80);
    </script>
</footer>

</body>
</html>

```

CSS Code

```

body
{
    background-color: linen;
}
ul
{
    background-color: lightblue;
    width: 20%;
    padding: 25px;
}
.header
{
    background-color: rgb(255, 253, 208);
    padding: 20px;
    text-align: center;
}
#animated_div{
    width:70px;

```

```

    height:47px;
    background: #92B901;
    color: white;
    position: relative;
    font-weight:bold;
    font-size:20px;
    padding:10px;
    animation:animated_div 5s 1;
    -moz-animation:animated_div 5s 1;
    -webkit-animation:animated_div 5s 1;
    -o-animation:animated_div 5s 1;
    border-radius:5px;
    -webkit-border-radius:5px;
}

@keyframes animated_div
{
0% {transform: rotate(0deg);left:0px;}
25% {transform: rotate(20deg);left:0px;}
50% {transform: rotate(0deg);left:500px;}
55% {transform: rotate(0deg);left:500px;}
70% {transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {transform: rotate(-360deg);left:0px;}
}

@-webkit-keyframes animated_div
{
0% {-webkit-transform: rotate(0deg);left:0px;}
25% {-webkit-transform: rotate(20deg);left:0px;}
50% {-webkit-transform: rotate(0deg);left:500px;}
55% {-webkit-transform: rotate(0deg);left:500px;}
70% {-webkit-transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {-webkit-transform: rotate(-360deg);left:0px;}
}

@-moz-keyframes animated_div
{
0% {-moz-transform: rotate(0deg);left:0px;}
25% {-moz-transform: rotate(20deg);left:0px;}
50% {-moz-transform: rotate(0deg);left:500px;}
55% {-moz-transform: rotate(0deg);left:500px;}
70% {-moz-transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {-moz-transform: rotate(-360deg);left:0px;}
}

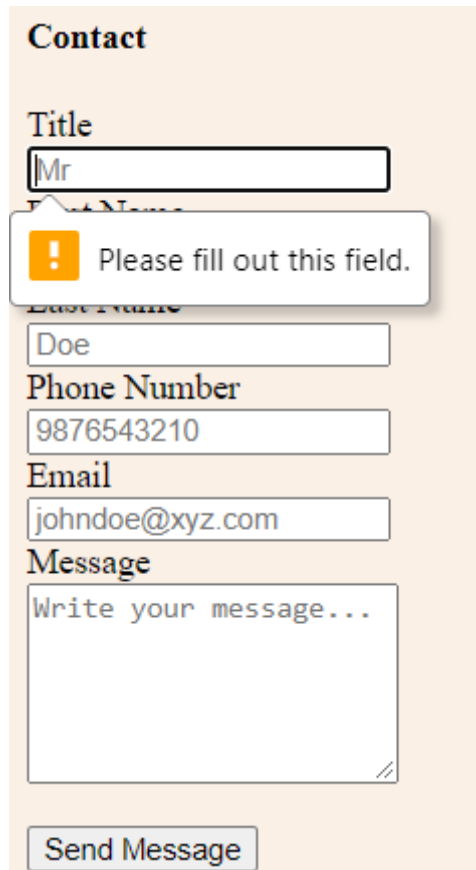
@-o-keyframes animated_div
{
0% {transform: rotate(0deg);left:0px;}
25% {transform: rotate(20deg);left:0px;}
50% {transform: rotate(0deg);left:500px;}
55% {transform: rotate(0deg);left:500px;}
70% {transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {transform: rotate(-360deg);left:0px;}
}

```

Output

Figure 1: HTML Form Validation Output Part 1

(a)



Contact


Title

First Name

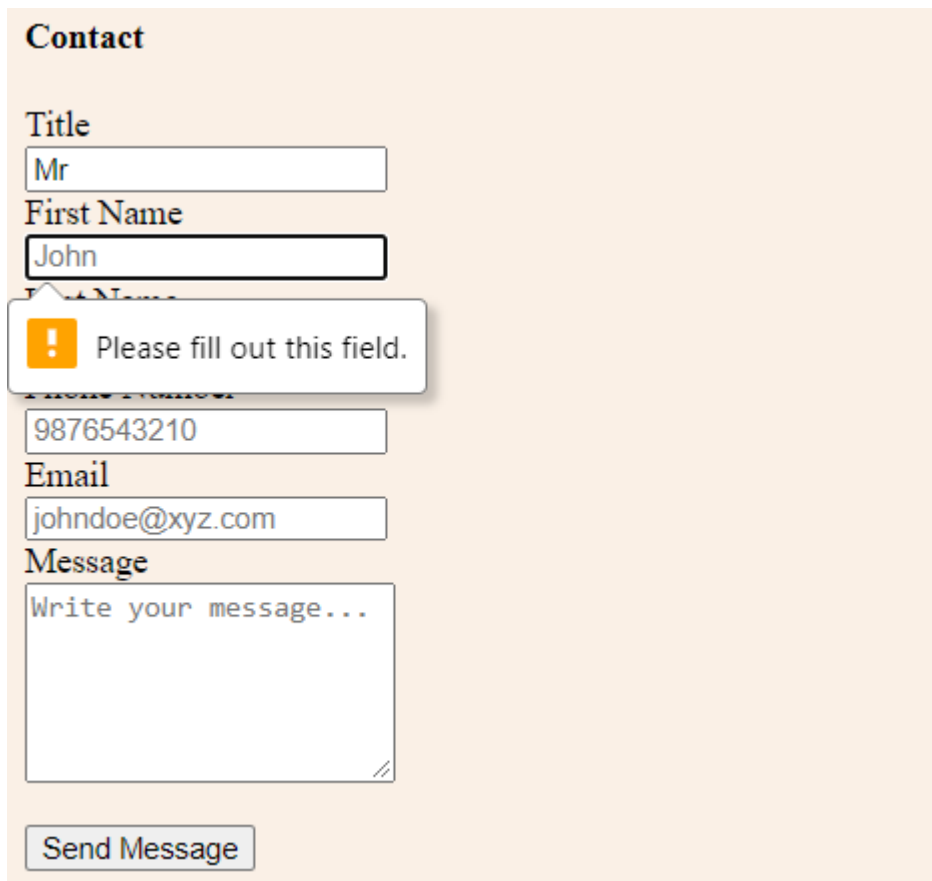
Phone Number

Email

Message

A validation error message is displayed over the First Name field:  Please fill out this field.

(b)



Contact

Title

First Name

Phone Number

Email

Message


A validation error message is displayed over the First Name field:  Please fill out this field.

Figure 2: HTML Form Validation Output Part 2

(a)

Contact

Title


First Name

Last Name

Phone Number

Email

Message

 Please fill out this field.

(b)

Contact

Title

First Name

Last Name

Phone Number

Email

Message


 Please fill out this field.

Figure 3: HTML Form Validation Output Part 3

(a)

Contact


Title

First Name

Last Name

Phone Number

Email

 Please fill out this field.

(b)

Contact

Title


First Name

Last Name

Phone Number

Email

Message

 Please fill out this field.

Experiment Name: DOM Manipulation
Exercise Number: 2B
Date: March 2, 2021

Perform DOM Manipulation on the HTML Document.

HTML Code

```
<!DOCTYPE>
<html lang = "en">
<head>

    <meta charset="UTF-8">
    <meta name="description" content="Portfolio Web Page">
    <meta name="keywords" content="HTML5, CSS3, JavaScript">
    <meta name="author" content="M Badri Narayanan">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My Second Web Page</title>
    <link rel="icon" type="image/x-icon" href="images/favicon.ico" />
    <link rel="stylesheet" href="style.css">

<style>
    p.static
    {
        position: static;
        text-align: center;
        color: red;
    }
    p.border
    {
        width: 11em;
        border-style: groove;
        word-wrap: break-word;
    }
    div.transition
    {
        width: 70px;
        height: 70px;
        background: navy;
        color: white;
        transition: width 2s, height 4s;
    }
    div.transition:hover
    {
        width: 100px;
        height: 100px;
    }
    canvas
    {
        display : inline-block;
    }
</style>
<body>

    <header>
        <h5>M Badri Narayanan Curriculum Vitae</h5><br>
```

```

<div id = "animated_div">Badri</div>
<audio controls>
    <source src="Audio.mp3" type="audio/mpeg">
    Your browser does not support the audio element.
</audio>
<video height = 200 video = 200 controls>
    <source src="Video.mp4" type="video/mp4">
    Your browser does not support the video tag.
</video>
<br>
<br>
<button onclick = "getLocation()">Click Here To Get Your
    ↪ Location</button>
<p id = "location"></p>
<script>
    var x = document.getElementById("location");

    function getLocation()
    {
        if (navigator.geolocation)
        {
            navigator.geolocation.
                getCurrentPosition(showPosition);
        }
        else
        {
            x.innerHTML = "Geolocation is not
            ↪ supported by this browser.";
        }
    }
    function showPosition(position)
    {
        const name="<iframe
        ↪ src='http://maps.google.com/maps?q=";
        const name2="&z=16&output=embed' height='450'
        ↪ width='600'>";
        x.innerHTML= name+position.coords.latitude+', '
        +position.coords.longitude+name2;
    }
</script>
</header>

<h1 class = "header" style="color:navy;">M Badri Narayanan</h1>

<img src = "Profile.png" alt = "My Profile Picture" usemap="#profile"
    ↪ height = "200" width = "200"></img><br>

<map name="profile">
    <area shape = "rect" coords="0,0,100,100" alt = "My GitHub
    ↪ Profile" href="https://github.com/MBadriNarayanan"
    ↪ target="_blank">
    <area shape = "rect" coords="100,100,200,200" alt = "My
    ↪ LinkedIn Profile"
    ↪ href="https://www.linkedin.com/in/mbadrinarayanan"
    ↪ target="_blank">
</map>

<h3>My Social Networking Sites</h3>
<ol>
    <li><a href="https://github.com/MBadriNarayanan"
    ↪ target="_blank">GitHub</span></a></li>

```

```

        <li><a href="https://www.linkedin.com/in/mbadrinarayanan"
        ↪ target="_blank">LinkedIn</a></li>
    </ol>

    <iframe src="https://mbadrinarayanan.github.io/" width="400"
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    ↪ am interested in the fields of Machine Learning , Deep Learning,
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    <a href = #EducationDetails>My Education Details</a><br>
    <a href = #ExtraCurricular>Extra Curricular</a><br>
    <a href = #Awards>Awards</a><br>
    <a href = #Contact>Contact</a>

    <a name = "EducationDetails"></a>
    <h4>My Education Details</h4>
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        <tr><td>Vidya Mandir Senior Secondary School,
        ↪ Chennai</td><td>10<sup>th</sup> Grade</td><td>8.8</td></tr>
    </table>

    <a name = "ExtraCurricular"></a>
    <h4>Extra Curricular</h4>
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        ↪ English classes for Tamil medium students.</li>
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        <li>Stood school 3<sup>rd</sup> in Chemistry in
        ↪ 12<sup>th</sup> grade.</li>
    </ul>

    <a name = "Contact"></a>
    <h4>Contact</h4>
    <form method="post" action="#">

```

```

<label for = "title">Title</label><br>
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        ↳ placeholder = "Mr" pattern = "[a-zA-Z\s]*$"
        ↳ required><br>
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    <input type = "text" name = "firstname" id = "fname"
        ↳ placeholder = "John" pattern = "[a-zA-Z\s]*$"
        ↳ required><br>
<label for = "lname">Last Name</label><br>
    <input type = "text" name = "lastname" id = "lname"
        ↳ placeholder = "Doe" pattern = "[a-zA-Z\s]*$"
        ↳ required><br>
<label for="mobile">Phone Number</label><br>
    <input type = "mobile" id = "mobile" name = "mobile"
        ↳ placeholder = "9876543210" pattern="[0-9]{10}"
        ↳ required><br>
<label for = "email">Email</label><br>
    <input type = "text" name = "email" id = "email"
        ↳ placeholder = "johndoe@xyz.com" pattern =
        ↳ "[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$"
        ↳ required><br>
<label for = "message">Message</label><br>
    <textarea name = "message" id="message" placeholder =
        ↳ "Write your message..." style="margin: 0px; width:
        ↳ 168px; height: 91px;" required></textarea><br><br>
    <input type = "submit" value = "Send Message">
</form>

<footer>
<div class = "transition">M Badri Naryanan</div><br>
<svg width="100" height="100">
    <circle cx="50" cy="50" r="40" stroke="green"
        ↳ stroke-width="4" fill="red" />
    <a href="https://mbadrinarayanan.github.io/" target
        ↳ ="_blank"><text x="18" y="53">Click
        ↳ Here</text></a>
</svg>
<p class = "border">Web Page created for Web Programming Lab
    ↳ in the VI Semester.</p>
<canvas id="Canvas" width="200" height="100" style="border:1px
    ↳ solid #d3d3d3;">Your browser does not support the HTML
    ↳ canvas tag.</canvas>
<br>
<button onclick = "changedom()">Click Here To Perform DOM
    ↳ Manipulation.</button>
<p id = "dom">DOM Manipulation.</p>
<script>
    var x = document.getElementById("dom");

    function changedom()
    {
        x.innerHTML = "Text changed by DOM
            ↳ Manipulation.";
    }
</script>
<script>
    var c = document.getElementById("Canvas");
    var ctx = c.getContext("2d");

    var grd = ctx.createRadialGradient(75,50,5,90,60,100);
    grd.addColorStop(0,"red");

```

```

        grd.addColorStop(1,"white");

        ctx.fillStyle = grd;
        ctx.fillRect(10,10,150,80);
    </script>
</footer>

</body>
</html>

```

CSS Code

```

body
{
    background-color: linen;
}
ul
{
    background-color: lightblue;
    width: 20%;
    padding: 25px;
}
.header
{
    background-color: rgb(255, 253, 208);
    padding: 20px;
    text-align: center;
}
#animated_div{
    width:70px;
    height:47px;
    background: #92B901;
    color: white;
    position: relative;
    font-weight:bold;
    font-size:20px;
    padding:10px;
    animation:animated_div 5s 1;
    -moz-animation:animated_div 5s 1;
    -webkit-animation:animated_div 5s 1;
    -o-animation:animated_div 5s 1;
    border-radius:5px;
    -webkit-border-radius:5px;
}

@keyframes animated_div
{
    0% {transform: rotate(0deg);left:0px;}
    25% {transform: rotate(20deg);left:0px;}
    50% {transform: rotate(0deg);left:500px;}
    55% {transform: rotate(0deg);left:500px;}
    70% {transform: rotate(0deg);left:500px;background:#1ec7e6;}
    100% {transform: rotate(-360deg);left:0px;}
}

@-webkit-keyframes animated_div
{
    0% {-webkit-transform: rotate(0deg);left:0px;}

```



```

25% {-webkit-transform: rotate(20deg);left:0px;}
50% {-webkit-transform: rotate(0deg);left:500px;}
55% {-webkit-transform: rotate(0deg);left:500px;}
70% {-webkit-transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {-webkit-transform: rotate(-360deg);left:0px;}
}

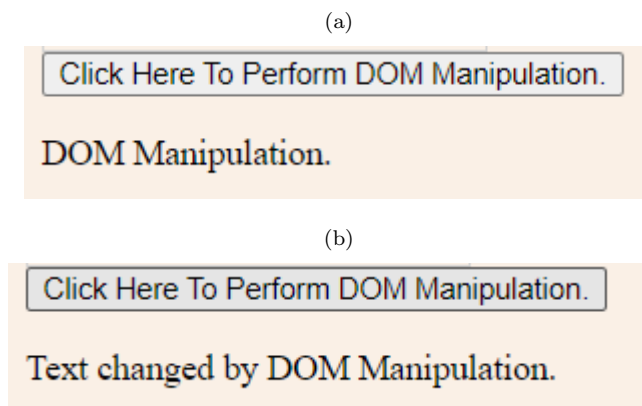
@-moz-keyframes animated_div
{
0% {-moz-transform: rotate(0deg);left:0px;}
25% {-moz-transform: rotate(20deg);left:0px;}
50% {-moz-transform: rotate(0deg);left:500px;}
55% {-moz-transform: rotate(0deg);left:500px;}
70% {-moz-transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {-moz-transform: rotate(-360deg);left:0px;}
}

@-o-keyframes animated_div
{
0% {transform: rotate(0deg);left:0px;}
25% {transform: rotate(20deg);left:0px;}
50% {transform: rotate(0deg);left:500px;}
55% {transform: rotate(0deg);left:500px;}
70% {transform: rotate(0deg);left:500px;background:#1ec7e6;}
100% {transform: rotate(-360deg);left:0px;}
}

```

Output

Figure 4: DOM Manipulation Output



Result

A form has been created and has been validated using HTML & Regular Expression. DOM Manipulation has also been performed successfully.
