Web Technologies Lab Record

- Question 1: Online Book Store

```
Write from WT Lab Observation
```

- Question 2: Demostrate different types of CSS:
  - Inline

```
<!DOCTYPE html>
<html>
    <head>
        <title>Inline CSS</title>
    </head>
    <body>
        <h1 style="color:blue; text-align:center;">Inline CSS</h1>
        <p style="color:red;">
            An inline style may be used to apply a unique style for a single element.
            To use inline styles, add the style attribute to the relevant element. The style
attribute can contain any CSS property.
        </p>
    </body>
</html>
```

  - Internal

```

```

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>Internal CSS</title>
        <style>
            body {
                background-color: linen;
            }

            h1 {
                color: maroon;
                text-align: center;
            }
        </style>
    </head>
    <body>
        <h1>Internal CSS</h1>
        <p>
            An internal style sheet maybe used if one single HTML page has a unique style.
            The internal style is defined inside the &lt;style&lt; element, inside the head section.
        </p>
    </body>
</html>
```

- External

external.html

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>External CSS</title>
        <link rel="stylesheet" type="text/css" href="external.css">
```

```
        </head>
        <body>
            <h1>External CSS</h1>
            <p>
                With an external style sheet, you can change the look of an entire website by changing
just one file!
                Each HTML page must include a reference to the external style sheet file inside the
&lt;link&lt; element, inside the head section.
            </p>
        </body>
    </html>
```

external.css

```
    body {
        background-color: linen;
    }

    h1 {
        color: navy;
        text-align: center;
    }
```

- Question 3: Validations using Regular Expressions for:
    - Registration Page

```
    <!DOCTYPE html>
    <html lang="en">
        <head>
            <title>Registration Page</title>
```

```
        <style>
            html, body {
                display: flex;
                height: 100%;
                width: 100%;
                font-family: -apple-system, BlinkMacSystemFont;
            }
            h1 {
                text-align: center;
            }
            .form {
                margin: 20px auto;
            }
            input {
                display: block;
                margin-bottom: 20px;
                width: 300px;
                height: 30px;
                font-size: 14px;
            }
        </style>
    </head>
    <body>
        <div class="form">
            <h1>Registration Page</h1>
            <form>
                <input type="text" name="name" id="name" placeholder="Name">
                <input type="text" name="email" id="email" placeholder="E-Mail">
                <input type="password" name="pwd" id="pwd" placeholder="Password">
                <input type="text" name="phone" id="phone" placeholder="Phone Number">
                <input type="button" value="Register" onclick="validation()">
            </form>
            <span id="output"></span>
        </div>

        <script>
```

```
                function validation () {
                    var out = document.getElementById('output')
                    var name = document.getElementById('name').value
                    var email = document.getElementById('email').value
                    var pwd = document.getElementById('pwd').value
                    var ph = document.getElementById('phone').value

                    var nameValid = name.match(/^[A-Za-z ]+$/)
                    var emailValid = email.match(/^[\w\.-]+@[\w\.]+[A-Za-z]{2,3}$/)
                    var pwdValid = pwd.match(/^.{6,}$/)
                    var phValid = ph.match(/^\d{10}$/)

                    if(!nameValid) {
                        output.innerHTML = 'Invalid Name'
                    } else if(!emailValid) {
                        output.innerHTML = 'E-Mail is not valid'
                    } else if(!pwdValid) {
                        output.innerHTML = 'Password should be atlest 6 characters long'
                    } else if(!phValid) {
                        output.innerHTML = 'Invalid Phone number'
                    } else {
                        output.innerHTML = 'Welcome, ' + name
                    }
                }
            </script>
        </body>
    </html>
```

- Login Page

```
    <!DOCTYPE html>
    <html lang="en">
        <head>
            <title>Login Page</title>
```

```
            <style>
                html, body {
                    display: flex;
                    height: 100%;
                    width: 100%;
                    font-family: -apple-system, BlinkMacSystemFont;
                }
                h1 {
                    text-align: center;
                }
                .form {
                    margin: 20px auto;
                }
                input {
                    display: block;
                    margin-bottom: 20px;
                    width: 300px;
                    height: 30px;
                    font-size: 14px;
                }
            </style>
        </head>
        <body>
            <div class="form">
                <h1>Login Page</h1>
                <form>
                    <input type="text" name="email" id="email" placeholder="E-Mail">
                    <input type="password" name="pwd" id="pwd" placeholder="Password">
                    <input type="button" value="Login" onclick="validation()">
                </form>
                <span id="output"></span>
            </div>

            <script>
                function validation() {
                    var out = document.getElementById('output')
```

```
                    var email = document.getElementById('email').value
                    var pwd = document.getElementById('pwd').value

                    var emailValid = email.match(/^[\w\.-]+@[\w\.]+[A-Za-z]{2,3}$/)
                    var pwdValid = pwd.match(/^.{6,}$/)

                    if(!emailValid) {
                        output.innerHTML = 'E-Mail is not valid'
                    } else if(!pwdValid) {
                        output.innerHTML = 'Password should be atlest 6 characters long'
                    } else {
                        output.innerHTML = 'Welcome, ' + email
                    }
                }
            </script>
        </body>
    </html>
```

- Payment Page

```
    <!DOCTYPE html>
    <html lang="en">
        <head>
            <title>Payment Page</title>
            <style>
                html, body {
                    display: flex;
                    height: 100%;
                    width: 100%;
                    font-family: -apple-system, BlinkMacSystemFont;
                }
                h1 {
                    text-align: center;
                }
```

```
            .form {
                margin: 20px auto;
            }
            input {
                display: block;
                margin-bottom: 20px;
                width: 300px;
                height: 30px;
                font-size: 14px;
            }
        </style>
    </head>
    <body>
        <div class="form">
            <h1>Payment Page</h1>
            <form>
                <input type="text" name="name" id="name" placeholder="Name">
                <input type="text" name="card" id="card" placeholder="Credit Card Number">
                <input type="text" name="date" id="date" placeholder="Expiry Date (DD / MM)">
                <input type="password" name="cvv" id="cvv" placeholder="CVV">
                <input type="text" name="phone" id="phone" placeholder="Phone Number">
                <input type="button" value="Pay" onclick="validation()">
            </form>
            <span id="output"></span>
        </div>

        <script>
            function validation () {
                var out = document.getElementById('output')
                var name = document.getElementById('name').value
                var card = document.getElementById('card').value
                var date = document.getElementById('date').value
                var cvv = document.getElementById('cvv').value
                var ph = document.getElementById('phone').value

                var nameValid = name.match(/^[A-Za-z ]+$/)
```

```
                    var cardValid = card.match(/^\d{16}$/)
                    var dateValid = date.match(/^\d{2}\/\d{2}$/)
                    var cvvValid = cvv.match(/^.{3,4}$/)
                    var phValid = ph.match(/^\d{10}$/)

                    if(!nameValid) {
                        out.innerHTML = 'Invalid Name'
                    } else if(!cardValid) {
                        out.innerHTML = 'Invalid Card Number'
                    } else if(!dateValid) {
                        out.innerHTML = 'Invalid Date Format'
                    } else if(!cvvValid) {
                        out.innerHTML = 'Invalid CVV'
                    } else if(!phValid) {
                        out.innerHTML = 'Invalid Phone number'
                    } else {
                        out.innerHTML = 'Payment Successful'
                    }
                }
            </script>
        </body>
    </html>
```

- Question 4: Demonstrate following HTML DOM functions
    - getElementById()

```
    <!DOCTYPE html>
    <html lang="en">
        <head>
            <title>getElementById() function</title>
        </head>
        <body>
            <p id="demo">Click the button to change the color of this paragraph.</p>
```

```
            <button id="btn">Click ME!</button>

            <script>
                var button = document.getElementById('btn')

                button.onclick = function() {
                    var p = document.getElementById('demo')
                    p.style.color = 'red'
                }
            </script>
        </body>
    </html>
```

- getElementByClassName()

```
    <!DOCTYPE html>
    <html lang="en">
        <head>
            <title>getElementByClassName() function</title>
        </head>
        <body>
            <div class="example">
                A div with class="example"
            </div>

            <div class="example">
                Another div with class="example"
            </div>

            <p class="example">This is a p element with class="example".</p>
            <button id="btn">Click ME!</button>

            <script>
                var button = document.getElementById('btn')
```

```
                button.onclick = function() {
                    var x = document.getElementsByClassName('example')
                    for (var i = 0; i < x.length; i++) {
                        x[i].style.color = "red";
                    }
                }
            </script>
        </body>
    </html>
```

- getElementByTagName()

```
    <!DOCTYPE html>
    <html lang="en">
        <head>
            <title>getElementByTagName() function</title>
        </head>
        <body>
            <p>This is a p element</p>
            <p>This is also a p element.</p>
            <p>This is also a p element - Click the button to change the color of all p elements in this
document.</p>
            <button id="btn">Click ME!</button>

            <script>
                var button = document.getElementById('btn')

                button.onclick = function() {
                    var x = document.getElementsByTagName('p')
                    for (var i = 0; i < x.length; i++) {
                        x[i].style.color = "red"
                    }
                }
```

```
            </script>
        </body>
    </html>
```

- Question 5(a): Write an XML Page for books catalog with Title of Book, Author, ISBN, Publisher, Edition, Price

```
<?xml version="1.0" encoding="UTF-8"?>
<bookstore>
    <book id="1" category="science">
        <title>A Brief History of Time</title>
        <author>Stephen Hawking</author>
        <isbn>978-05-53109-53-5</isbn>
        <publisher>Bantam Dell Publishing Group</publisher>
        <edition>1</edition>
        <price>239.00</price>
    </book>
    <book id="2" category="Biography">
        <title>Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future</title>
        <author>Ashlee Vance</author>
        <isbn>978-00-62301-23-9</isbn>
        <publisher>Virgin Books</publisher>
        <edition>1</edition>
        <price>1796.00</price>
    </book>
    <book id="3" category="Biography">
        <title>Steve Jobs</title>
        <author>Walter Isaacson</author>
        <isbn>978-03-49140-43-8</isbn>
        <publisher>Simon &amp;amp; Schuster</publisher>
        <edition>1</edition>
        <price>440.00</price>
    </book>
```

```
        <book id="4" category="Memoir">
            <title>Becoming</title>
            <author>Michelle Obama</author>
            <isbn>978-15-24763-13-8</isbn>
            <publisher>Crown</publisher>
            <edition>1</edition>
            <price>230</price>
        </book>
        <book id="5" category="Textbook">
            <title>Beginning HTML, XHTML, CSS and Javascript</title>
            <author>Jon Duckett</author>
            <isbn>978-81-26525-51-5</isbn>
            <publisher>Wiley</publisher>
            <edition>8</edition>
            <price>424.00</price>
        </book>
    </bookstore>
```

- Question 5(b): Write both Internal and External DTD with Schema for above XML Page
    - Internal DTD

```
    <?xml version="1.0" encoding="UTF-8"?>
    <!DOCTYPE bookstore [
        <!ELEMENT bookstore (book+)>
        <!ELEMENT book (title, author, isbn, publisher, edition, price)>
        <!ELEMENT title (#PCDATA)>
        <!ELEMENT author (#PCDATA)>
        <!ELEMENT isbn (#PCDATA)>
        <!ELEMENT publisher (#PCDATA)>
        <!ELEMENT edition (#PCDATA)>
        <!ELEMENT price (#PCDATA)>
        <!ATTLIST book id ID #REQUIRED>
        <!ATTLIST book category CDATA #IMPLIED>
```

```
]>
<bookstore>
    <book id="1" category="science">
        <title>A Brief History of Time</title>
        <author>Stephen Hawking</author>
        <isbn>978-05-53109-53-5</isbn>
        <publisher>Bantam Dell Publishing Group</publisher>
        <edition>1</edition>
        <price>239.00</price>
    </book>
    <book id="2" category="Biography">
        <title>Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future</title>
        <author>Ashlee Vance</author>
        <isbn>978-00-62301-23-9</isbn>
        <publisher>Virgin Books</publisher>
        <edition>1</edition>
        <price>1796.00</price>
    </book>
</bookstore>
```

- External DTD

external.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE bookstore SYSTEM "external.dtd">
<bookstore>
    <book id="1" category="science">
        <title>A Brief History of Time</title>
        <author>Stephen Hawking</author>
        <isbn>978-05-53109-53-5</isbn>
        <publisher>Bantam Dell Publishing Group</publisher>
        <edition>1</edition>
        <price>239.00</price>
```

```
        </book>
        <book id="2" category="Biography">
            <title>Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future</title>
            <author>Ashlee Vance</author>
            <isbn>978-00-62301-23-9</isbn>
            <publisher>Virgin Books</publisher>
            <edition>1</edition>
            <price>1796.00</price>
        </book>
    </bookstore>
```

external.dtd

```
    <!ELEMENT bookstore (book+)>
    <!ELEMENT book (title, author, isbn, publisher, edition, price)>
    <!ELEMENT title (#PCDATA)>
    <!ELEMENT author (#PCDATA)>
    <!ELEMENT isbn (#PCDATA)>
    <!ELEMENT publisher (#PCDATA)>
    <!ELEMENT edition (#PCDATA)>
    <!ELEMENT price (#PCDATA)>
    <!ATTLIST book id ID #REQUIRED>
    <!ATTLIST book category CDATA #IMPLIED>
```

- XML Schema

schema.xml

```
    <?xml version="1.0" encoding="UTF-8"?>
    <bookstore
        xmlns="https://www.w3schools.com"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```
        xsi:schemaLocation="https://www.w3schools.com/xml schema.xsd">
        <book id="1" category="science">
            <title>A Brief History of Time</title>
            <author>Stephen Hawking</author>
            <isbn>978-05-53109-53-5</isbn>
            <publisher>Bantam Dell Publishing Group</publisher>
            <edition>1</edition>
            <price>239.00</price>
        </book>
        <book id="2" category="Biography">
            <title>Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future</title>
            <author>Ashlee Vance</author>
            <isbn>978-00-62301-23-9</isbn>
            <publisher>Virgin Books</publisher>
            <edition>1</edition>
            <price>1796.00</price>
        </book>
    </bookstore>
```

schema.xsd

```
    <?xml version="1.0" encoding="UTF-8"?>

    <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns="https://www.w3schools.com">

        <xs:element name="bookstore">
            <xs:complexType>
                <xs:sequence>
                    <xs:element name="book">
                        <xs:complexType>
                            <xs:sequence>
                                <xs:element name="title" type="xs:string"/>
                                <xs:element name="author" type="xs:string"/>
```

```
                                <xs:element name="isbn" type="xs:string"/>
                                <xs:element name="publisher" type="xs:string"/>
                                <xs:element name="edition" type="xs:string"/>
                                <xs:element name="price" type="xs:string"/>
                            </xs:sequence>
                        </xs:complexType>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:schema>
```

- Write XSLT page for XML file in Question 5

books.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="books.xsl"?>
<bookstore>
    <book id="1" category="science">
        <title>A Brief History of Time</title>
        <author>Stephen Hawking</author>
        <isbn>978-05-53109-53-5</isbn>
        <publisher>Bantam Dell Publishing Group</publisher>
        <edition>1</edition>
        <price>239.00</price>
    </book>
    <book id="2" category="Biography">
        <title>Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future</title>
        <author>Ashlee Vance</author>
        <isbn>978-00-62301-23-9</isbn>
        <publisher>Virgin Books</publisher>
        <edition>1</edition>
        <price>1796.00</price>
```

```
        </book>
        <book id="3" category="Biography">
            <title>Steve Jobs</title>
            <author>Walter Isaacson</author>
            <isbn>978-03-49140-43-8</isbn>
            <publisher>Simon &amp;amp; Schuster</publisher>
            <edition>1</edition>
            <price>440.00</price>
        </book>
        <book id="4" category="Memoir">
            <title>Becoming</title>
            <author>Michelle Obama</author>
            <isbn>978-15-24763-13-8</isbn>
            <publisher>Crown</publisher>
            <edition>1</edition>
            <price>230.00</price>
        </book>
        <book id="5" category="Textbook">
            <title>Beginning HTML, XHTML, CSS and Javascript</title>
            <author>Jon Duckett</author>
            <isbn>978-81-26525-51-5</isbn>
            <publisher>Wiley</publisher>
            <edition>8</edition>
            <price>424.00</price>
        </book>
    </bookstore>
```

books.xsl

```
    <?xml version="1.0" encoding="UTF-8"?>
    <xsl:stylesheet version="1.0"
        xmlns:xsl="http://www.w3.org/1999/XSL/Transform">

        <xsl:template match="/">
```

```
<html>
    <head>
        <title>Books Catalog</title>
        <style>
            table, th, td {
                border: 1px solid black;
                border-collapse: collapse;
            }

            th, td {
                padding: 5px 15px;
            }
        </style>
    </head>
    <body>
        <h1>Books Catalog</h1><br />
        <table>
            <tr>
                <th>Title</th>
                <th>Author</th>
                <th>ISBN</th>
                <th>Publisher</th>
                <th>Edition</th>
                <th>Price</th>
            </tr>
            <xsl:for-each select="bookstore/book">
            <tr>
                <td><xsl:value-of select="title"/></td>
                <td><xsl:value-of select="author"/></td>
                <td><xsl:value-of select="isbn"/></td>
                <td><xsl:value-of select="publisher"/></td>
                <td align="right"><xsl:value-of select="edition"/></td>
                <td align="right">₹ <xsl:value-of select="price"/></td>
            </tr>
            </xsl:for-each>
        </table>
```

```
                </body>
            </html>
        </xsl:template>

    </xsl:stylesheet>
```