JavaScript Form validation

Form validation

- When you enter data, the browser and/or the web server will check to see that the data is in the correct format and within the constraints set by the application.
- Validation done in the browser is called**client-sidevalidation, while validation done on the server is calledserver-sidevalidation. In this course,we are focusing on client-side validation.**

- JavaScript provides a way to validate form's data on the client's computer before sending it to the web server. Form validation generally performs two functions.
- **Basic Validation** − First of all, the form must be checked to make sure all the mandatory fields are filled in. It would require just a loop through each field in the form and check for data.
- **Data Format Validation** − Secondly, the data that is entered must be checked for correct form and value. Your code must include appropriate logic to test correctness of data.

Automatic HTML Form Validation (by using **required** attribute)

Ques. WAP using JavaScript to create an input field(Fname) If this form field is empty, the **required** attribute should prevent this form from being submitted.

Soln

```
<!DOCTYPE html>
<html>
<body>

<form action="/action_page.php" method="post">
  <input type="text" name="fname" required>
 <input type="text" name="lname" required>
<input type="submit" value="Submit">
</form>

</body>
</html>
```

Question

Create a form with user Id and password.

If the user enters “user ID=123” and “password=abc”, only then the homepage should open.

Otherwise, an alert box must be displayed as “incorrect userid and password”

solution

```
<html>
<head>
<title>Login page</title></head>
<body>
<h1>Simple Login Page</h1>
<form name="login">
User id<input type="text" name="userid">
<br>
Password<input type="password" name="pswrd">
<br>
<input type="button" onclick="check(this.form)" value="Login">
<br>
<input type="reset" value="Reset">
</form>
<script language="javascript">
function check(form)
{
if(form.userid.value== "123" && form.pswrd.value== "abc")
{
window.open("page1.html")
}
else
{
alert("Incorrect Password or Username")
}
}
</script>
</body>
</html>
```

Question: write code to create a text box. If the value of text box is blank, then alert box must be displayed "username cannot be null", else open a web page named "page1.html"

```
<html> <head> <title>Login page</title></head>
    <body>
   <form name="login">
   Username<input type="text" name="userid"> <br>
   Contact No.<input type="text" name="Contact"> <br>
   <input type="button" onclick="check(this.form)" value="enter details"><br>
      <input type="reset" value="Reset">
   </form>
   <script language="javascript">
   function check(form)
   {
  if(form.userid.value == "" || form.userid.value == null)
     {
       alert("user name cannot be null")
     }
    else
    {
window.open("page1.html")
          }
}
   </script></body></html>
```

To validate numeric input

Ques: WAP to create an input field that accepts only the numbers between 1 and 10.

Soln

```
<html><body>
<input type= text id="numb">
<button type="button" onclick="myFunction()">Submit</button>
<p id="demo"></p>
<script>
function myFunction() {
   var x, text;

   // Get the value of the input field with id="numb"
   x = document.getElementById("numb").value;

   // If x is Not a Number or less than one or greater than 10
   if (isNaN(x) || x < 1 || x > 10) {
      text = "Input not valid";
   } else {
      text = "Input OK";
   }
   document.getElementById("demo").innerHTML = text;
}
</script></body></html>
```

Data Validation

- Data validation is the process of ensuring that user input is correct

EXAMPLE OF DATA VALIDATION:

- has the user filled in all required fields?
- has the user entered a valid date?
- has the user entered text in a numeric field?

Validation can be defined by many different methods, and deployed in many different ways.

- **Server side validation** is performed by a web server, after input has been sent to the server.
- **Client side validation** is performed by a web browser, before input is sent to a web server.

HTML Constraint Validation

Constraint Validation HTML Input Attributes

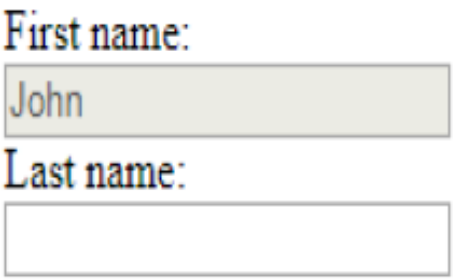
Attribute	Description
disabled	Specifies that the input element should be disabled
max	Specifies the maximum value of an input element
min	Specifies the minimum value of an input element
pattern	Specifies the value pattern of an input element
required	Specifies that the input field requires an element
type	Specifies the type of an input element

disabled

- The disabled attribute specifies that the input field is disabled.
- A disabled input field is unusable and un-clickable, and its value will not be sent when submitting the form:

example

```
<html>
<body>
<form action="">
First name:<br>
<input type="text" name="firstname" value ="John" disabled>
<br>
Last name:<br>
<input type="text" name="lastname">
</form>


</body>
</html>
```



Min and max

- Min and max attributes specify the minimum and maximum values for an<input>element.
- The min and max attributes work with the following input types: number, range, date, datetime-local, month, time and week.
- Example:

```
<input type="number" name="quantity"
  min="1" max="5"><br>
```

example

```
<html>
<body>


<form >

 <input type="number" id="i1" name=“quantity"min="1" max="5"><br><br>
 <input type="submit" value="submit">


</form>

</body>
</html>
```

The maxlength Attribute

- The input maxlength attribute specifies the maximum number of characters allowed in an input field.
- When a maxlength is set, the input field will not accept more than the specified number of characters.

example

```
<html>
<body>



<form>
  Name
  <input type="text" id="fname" name="fname" size="50"><br><br>
  PIN
  <input type="text" id="pin" name="pin" maxlength="4" size="4"><br><br>
  <input type="submit" value="Submit">
</form>

</body>
</html>
```

Task:

Confirm password

Password:
Re-enter Password:
Submit Query

solution

```
<body>
        <script>
    function matchpass(){
    var firstpassword=f1.password.value;

    var secondpassword=f1.password2.value;

    if(firstpassword==secondpassword)
        {
    return true;
    }
    else
        {
    alert("password must be same!");
    return false;
    }
    }
    </script>

<form name="f1" action="page1.html" onsubmit="return matchpass()">

Password:<input type="password" name="password" /><br/>

Re-enter Password:<input type="password" name="password2"/><br/>

<input type="submit">
</form>
```

Pattern attribute

The pattern attribute specifies a regular expression that the <input> element's value is checked against on form submission.

The pattern Attribute

- pattern attribute works with the following input types: text, search, url, tel, email, and password.

Expression	Description
[abc]	Find any character between the brackets
[^abc]	Find any character NOT between the brackets
[0-9]	Find any character between the brackets (any digit)
[^0-9]	Find any character NOT between the brackets (any non-digit)
(x|y)	Find any of the alternatives specified

JavaScript RegExp {X} Quantifier

- The *n*{*X*} quantifier matches any string that contains a sequence of *X* *n*'s.
- *X* must be a number.

Example

Do a global search for a substring that contains a sequence of four digits

```
<html>
<body>


<p id="demo"></p>

<script>

  var str = "100, 1000 or 10000?";
  var patt1 = /\d{4}/g;
  var result = str.match(patt1);
  document.getElementById("demo").innerHTML = result;

</script>

</body>
</html>
```

Output:

1000,1000

{n}

Example: The exact count: {5}

\d{5} denotes exactly 5 digits

WAP to create an input field that can contain only three letters (no numbers or special characters):

```
<html>
<body>

<form>
  Country code: <input type="text" name="country_code" pattern="[A-Za-z]{3}" >
  <input type="submit">
</form>

</body>
</html>
```

JavaScript RegExp {X,} Quantifier

- The *n*{*X*,} quantifier matches any string that contains a sequence of at least X *n*'s.
- *X* must be a number.

Example: to global search for a substring that contains a sequence of at least three digits.

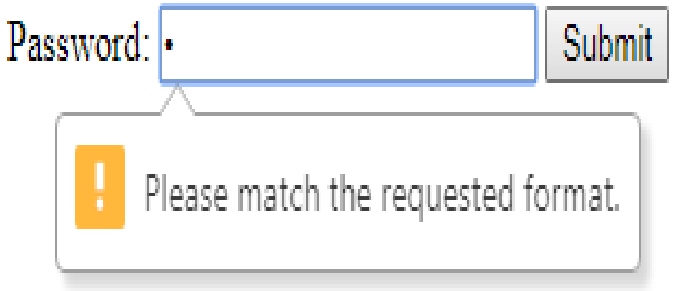
```
<html>
<body>


<p id="demo"></p>

<script>

  var str = "100, 1000 or 10000?";
  var patt1 = /\d{3,}/g;
  var result = str.match(patt1);
  document.getElementById("demo").innerHTML = result;

</script>

</body>
</html>
```

Output:

100,1000,10000

WAP to create <input> element with type="password" that must contain 6 or more characters

```
<!DOCTYPE html>
<html>
<body>

<form>

  Password: <input type="password" name="pw" pattern=".{6,}" >

  <input type="submit">
</form>



</body>
</html>
```



Dot (.) is used to find a single character, except newline or line terminator.

range

Example :

The range: {3,5}

To find numbers from 3 to 5 digits we can put the limits into curly braces: \d{3,5}

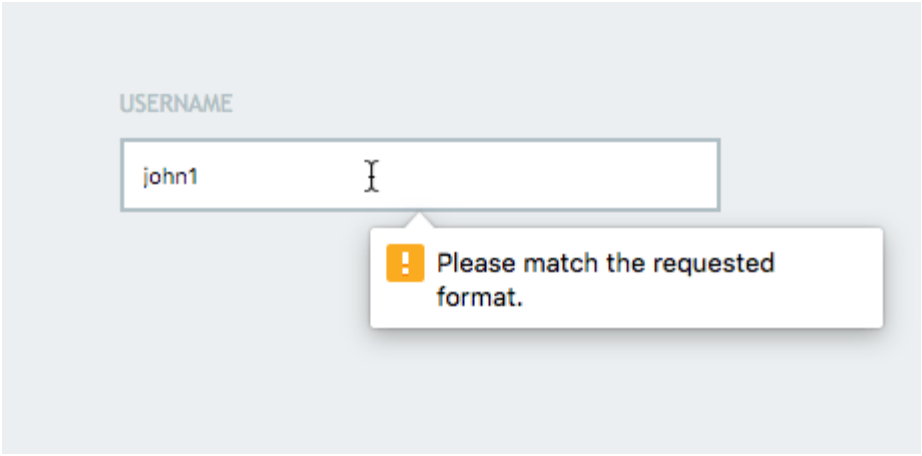
Question

Create textbox to accept username that should only consist of lowercase letters; no capital letters, numbers or other special characters allowed.

username length shouldn’t be more than 15 characters.

solution

```
<form action="somefile.php">
 <input type="text" name="username" placeholder="Username"
  pattern="[a-z]{1,15}">
 <input type="submit">


</form>
```



Customizing the Validation Message

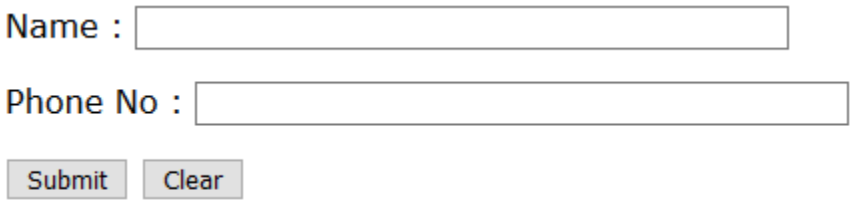
- We can customize the message
- The easiest approach is to specify a title attribute within our input element

example

```
<form action="somefile.php">
   <input
      type="text"
      name="username"
      placeholder="Username"
      pattern="[a-z]{1,15}"
      title="Username should only contain lowercase letters. e.g. john">
      <input type="submit">
</form>
```

Question

Write code to create the given form. Name field is **required** and Phone number field must contain **10 digits only**



solution

```
<html>
<body>

<form action="page1.html">
 Name <input type="text" name="n1" required > <br>
  Phone number <input type="text" name="n2" pattern="[0-9]{10}" >
  <br>
  <input type="submit" value="submit">
  <input type=“reset”  value=“clear“>
</form>

</body>
</html>
```

Ques.: WAP to create an <input> element with type="password" that must contain 8 or more characters that are of at least one number, and one uppercase and lowercase letter.

Soln

```
<html><body>
<form action="/action_page.php">
Password: <input type="password" name="pw" pattern="(?=.*\d)(?=.*[a-z])(?=.*[A-Z]).{8,}">

<input type="submit">
</form>
</body></html>
```

Here "\d" is used to find a digit

The *n** quantifier matches any string that contains zero or more occurrences of *n*.

The ?=*n* quantifier matches any string that is followed by a specific string *n*.

Validity Properties

The rangeOverflow Property

Task: If the number in an input field is greater than 100 (the input's max attribute), display a message:

solution

```
<!DOCTYPE html>
<html>
<body>

<p>Enter a number and click OK:</p>

<input id="id1" type="number" max="100">
<button onclick="myFunction()">OK</button>

<p>If the number is greater than 100 (the input's max attribute), an error message will be displayed.</p>

<p id="demo"></p>

<script>
function myFunction() {
  var txt = "";
  if (document.getElementById("id1").validity.rangeOverflow) {
    txt = "Value too large";
  } else {
    txt = "Input OK";
  }
  document.getElementById("demo").innerHTML = txt;
}
</script>

</body>
</html>
```

The rangeUnderflow Property
Task : If the number in an input field is less than 100 (the input's min attribute), display a message

```
<html>
<body>

<p>Enter a number and click OK:</p>

<input id="id1" type="number" min="100">
<button onclick="myFunction()">OK</button>

<p>If the number is less than 100 (the input's min attribute), an error message will be displayed.</p>

<p id="demo"></p>

<script>
function myFunction() {
  var txt = "";
  if (document.getElementById("id1").validity.rangeUnderflow) {
    txt = "Value too small";
  } else {
    txt = "Input OK";
  }
  document.getElementById("demo").innerHTML = txt;
}
</script>

</body>
</html>
```

Question: write code to create a text box. If the value of text box is blank, then alert box must be displayed “username cannot be null”, else open a web page named “page1.html”

```
<html> <head> <title>Login page</title></head>
    <body>
   <form name="login">
   Username<input type="text" name="userid"> <br>
   Contact No.<input type="text" name=“Contact”>  <br>
   <input type="button" onclick="check(this.form)" value="enter details"><br>
      <input type="reset" value="Reset">
   </form>
   <script language="javascript">
   function check(form)
   {
  if(form.userid.value == "" || form.userid.value == null)
     {
       alert("user name cannot be null")
     }
    else
    {
window.open("page1.html")
          }
}
   </script></body></html>
```

Question: Validation:

If userID is 123 and password is abc, only then the user can login, otherwise alert box is displayed “incorrect user name and password”

```
<html><head><title>Login page</title></head>
   <body>
   <form name="login">
   Username<input type="text" name="userid"><br>
   Password<input type="password" name="pswrd"><br>
   <input type="button" onclick="check(this.form)" value="Login"><br>
   <input type="reset" value="Reset">
   </form>
   <script language="javascript">
   function check(form)
   {
      if(form.userid.value == "123" && form.pswrd.value == "abc")
    {
      window.open("page1.html")
    }
   else
   {
     alert("Incorrect Password or Username")
    }
   }</script></body></html>
```

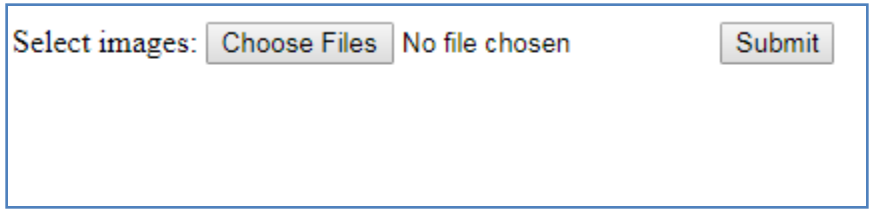
Some more HTML input attributes

multiple Attribute

- The multiple attribute specifies that the user is allowed to enter more than one value in the <input> element.
- The multiple attribute works with the following input types: email, and file.

Example: multiple

```
<html>
<body>

<form action="/action_page.php">
  Select images: <input type="file" name="img"
    multiple>
  <input type="submit">
</form>
</body>
</html>
```

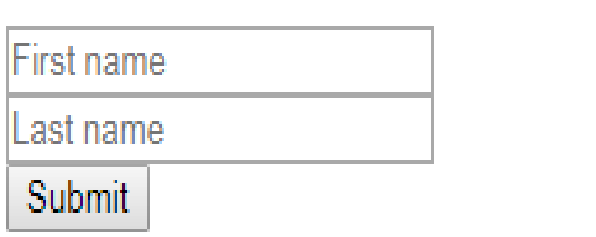


The placeholder Attribute

- The placeholder attribute specifies a hint that describes the expected value of an input field (a sample value or a short description of the format).
- The hint is displayed in the input field before the user enters a value.
- The placeholder attribute works with the following input types: text, search, url, tel, email, and password.

Example: placeholder

```
<html>
<body>

<form action="/action_page.php">
  <input type="text" name="fname" placeholder="First
    name"><br>
  <input type="text" name="lname" placeholder="Last
    name"><br>
  <input type="submit" value="Submit">
</form>
</body>
</html>
```



The autocomplete Attribute

- The autocomplete attribute specifies whether a form or input field should have autocomplete on or off.
- When autocomplete is on, the browser automatically completes the input values based on values that the user has entered before.

Example: autocomplete

```
<form action="/action_page.php" autocomplete="on">
 First name:<input type="text" name="fname"><br>
 Last name: <input type="text" name="lname"><br>
 E-mail:  <input type="email" name="email" autocomplete="off"><br>
 <input type="submit">
</form>
```

novalidate Attribute

- The novalidate attribute is a <form> attribute.
- When present, novalidate specifies that the form data should not be validated when submitted.

Example

Indicates that the form is not to be validated on submit:

```
<form action="/action_page.php" novalidate>
E-mail: <input type="email" name="user_email">
<input type="submit">
</form>
```

TASK:

Create THE GIVEN FORM form

- First field quantity(range 1 to 3)
- Pin code: 6 digits only
- Country (textbox must be disabled)