Session 9

HTML Forms

Session Overview

In this session, you will be able to:

- Use and apply the new features in HTML5
- Work with forms in HTML5

Introduction

- For nearly a decade, HTML - core language of the World Wide Web (WWW) - is being used for designing Web pages.
- Although Internet Explorer 9 and Google Chrome 19 supports most of the HTML5 features, there are few that are supported only in Opera 11.

Introduction to HTML5 Forms

- HTML5 Web forms are those sections of the Web page that contain special elements called as controls.
- The controls, such as check boxes, radio buttons, and text boxes provide a visual interface to the user for interacting with them.
- A user provides data through these controls that is sent to the server for further processing.
- In HTML5, the creation of forms is made easier for Web developers by standardizing them with rich form controls.

New Features in HTML5 Forms

The new features of HTML5 forms are as follows:

- New input types
- New attributes
- New form elements
- Browser-based validation
- CSS3 styling techniques
- Forms API

New Input Types

- The input element is a data field that allows the user to edit data in the form.
- It has an attribute named type, which controls the data type and characteristics of the input element.

New Input Types

Type	Description
email	It represents an input field that should contain an email address.
search	It represents a search field that behaves like a regular text field.
url	It represents an input field that should contain a URL address.
tel	It represents a field for entering a telephone number.
number	It represents a numeric value in the input field.
range	It represents a numeric value to be selected from a range of numbers.
date	It represents a calendar, which is shown at every click on the field.
week	It represents the date in year-week format.
month	It represents a value with the year-month format.
time	It represents a value in hours and minutes format.
datetime	It represents a full date and time input field with a time zone.
datetime-local	It represents a full date and time with no time zone.
color	It represents a predefined interface for selecting color.

New Input Types Supported by HTML

New Attributes

- HTML5 has introduced several new attributes that can be used with form and input elements.
- Attributes help the elements to perform their tasks effectively.

Type	Description
placeholder	It represents a hint that help users enter the correct data in the field.
required	A Boolean attribute that validates the entry in the field.
multiple	A Boolean attribute that allows multiple values to be entered in the field.
autofocus	It focuses the input element on page load.
pattern	It represents a regular expression for validating the field's value.
form	It allows the elements to refer the form by including the form's name.

New Attributes

New Form Elements

- HTML5 has introduced a range of new elements that are expanding the options for a number of input elements of the forms.

Element	Description
`datalist`	It represents a set of options used to list attributes to make a drop-down control.
`progress`	It represents the completion or progress of a task on the page.
`meter`	It represents a scale of a known range.
`output`	It represents the result of a calculation.

New Form Elements

Browser Based Validation

- HTML4 supported the use of custom JavaScript or libraries to perform validation on the client-side browsers.
- These validations ensure that input fields are checked before the form is submitted to the server for further processing.
- New attributes in HTML5, such as *required* and *pattern*, can be used with the input elements to perform validation.
- This relieves the Web developers from writing the custom JavaScript code for performing client-side validation of Web
- pages.
- HTML5 also provides advanced validation techniques that can be used with JavaScript to set custom validation rules and messages for the input elements.

CSS Styling Techniques

- A Web developer can enhance the form elements with the pseudo-class selectors, such as *:required*, *:valid*, and *:invalid*.
- For example, the input fields, which cannot be left blank while submitting the form can be displayed with an outline.
- To achieve this, input field with required attribute can be styled using CSS.
- Applying CSS styles make it easier for the user to navigate and complete the form.

Forms API

- HTML5 has introduced JavaScript API for forms.
- This API is used to customize validations and processing performed on the forms.
- The new form's API provides new methods, events, and properties to perform complex validations combining various fields or calculations.

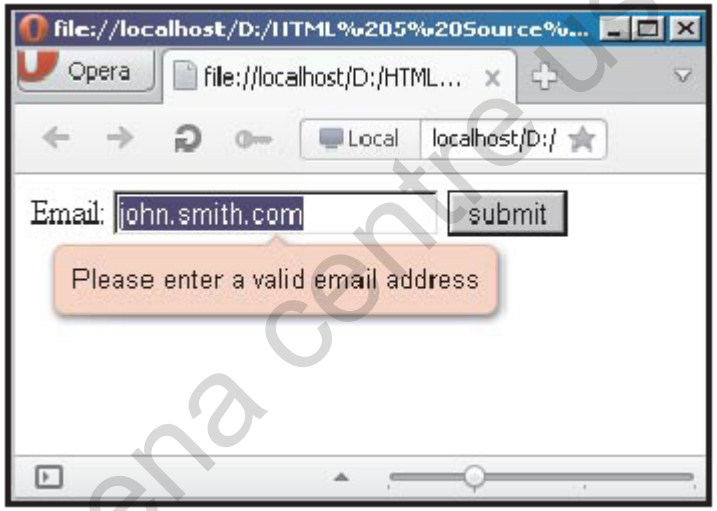
Working with New Input Types

- The type attribute of the input element determines the kind of input to be displayed on the user's browser. The default input is type="text".
- The registration form may use the following input types:
  - text
  - label
  - radio
  - textarea
  - checkbox
  - submit
- HTML5 has introduced more data-specific user interface elements.

Email Address

- The type=”email” is used for specifying one or more email addresses.
- To allow multiple addresses in the email field, separate each address with a comma-separator.
- The email contains two attributes, namely, id and name.
- The id attribute specifies a unique id for the element.
- The name attribute specifies a name for the input element.
- The look of the input is still like a plain text field, but changes are applied behind the scenes.
- Browsers such as Firefox, Chrome, and Opera will display a default error message if a user submits the form with some unrecognizable contents.

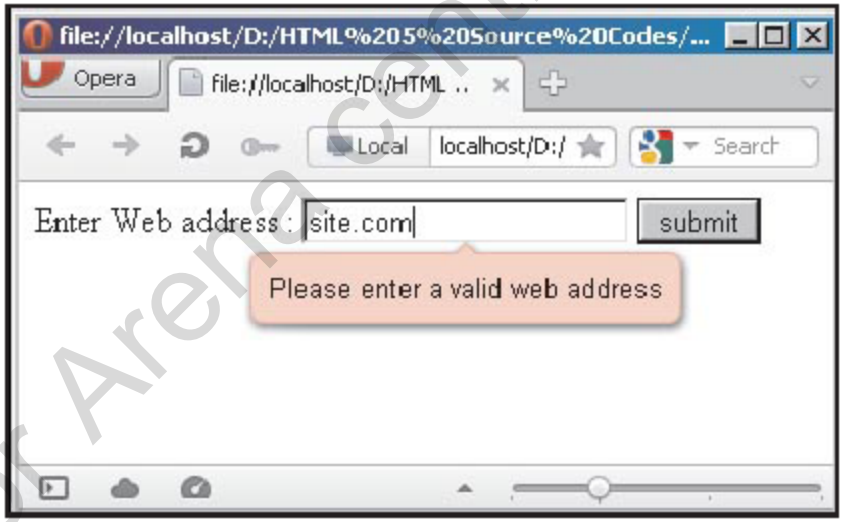
Email Address



Error Message for Incorrect Email Address in Opera

URL

- The type=”url” input element is used for specifying a Web address.
- The look of the url field is a normal text field.
- Browsers such as Opera, Firefox, and Chrome supports validation for the url input type.



Error Message for Incorrect URL in Opera

Telephone Number

- The type=”tel” input element is used for accepting telephone numbers.
- A user can enforce a pattern for tel input type by using the placeholder or pattern attribute.
- A JavaScript code can also be provided for performing client-side validation of the tel input type.

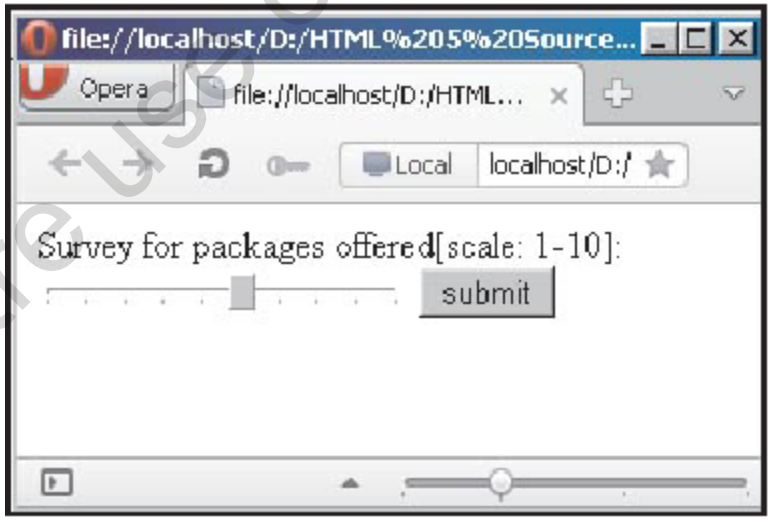
Number

- The input type=”number” is used for accepting only number values.
- The input element displayed for number type is a spinner box.
- The user can either type a number or click the up or down arrow to select a number in the spinner box.

Number Input Type in Opera

Range

- The input type=”range” is similar to number type and displays a slider control on the page.
- The range type is used when the exact value is not required in the input.
- In other words, the value of this type is not accurate. For example, an online survey form asking the clients to rate the products may not receive exact values in the ratings.



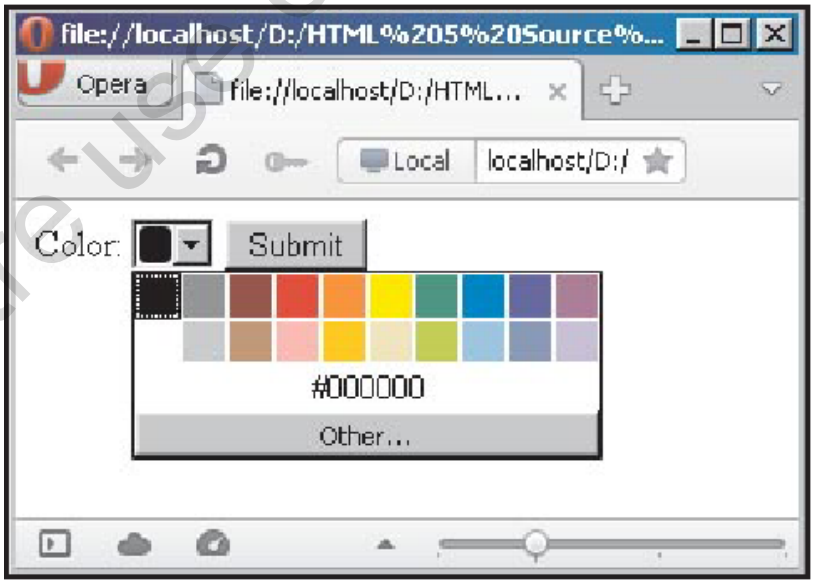
Range Input Type in Opera

Date and Time

- The format for all these date and time types is according to the ISO standards.
  - Date - This input type contains only the date in year, month, and day format. Time is not supported by date type.
  - Month - The type=”month” includes only the year and month in the input.
  - Week - The input type=”week” provides a similar interface as displayed for date type and selects the entire week.
  - Time - The input type=”time” displays a time of a day in hours and minutes format (24-hour clock).
  - Datetime - The input type=”datetime” includes full date and time in the input.
  - Datetime-local - This input type is similar to datetime input type, except that the time zone is omitted for input type=”datetime-local”.

Color

- HTML5 provides a predefined interface for selecting colors using input type=”color”.
- The input value from the color input field is a hexadecimal number.
- For example, #00FF00 represents a hexadecimal RGB color value.
- At present, the color input type is supported in Opera browser and some new smart phones.



Color Input Type in Opera

New Form Attributes

HTML5 has provided several new attributes that perform the validations without writing JavaScript snippets for them. These attributes perform the following tasks:

- Check data provided by the users with the regular expression pattern assigned to the fields
- Inform users with appropriate errors
- Check the required fields are filled by the users
- Enable multiple values for the fields, if provided

Required

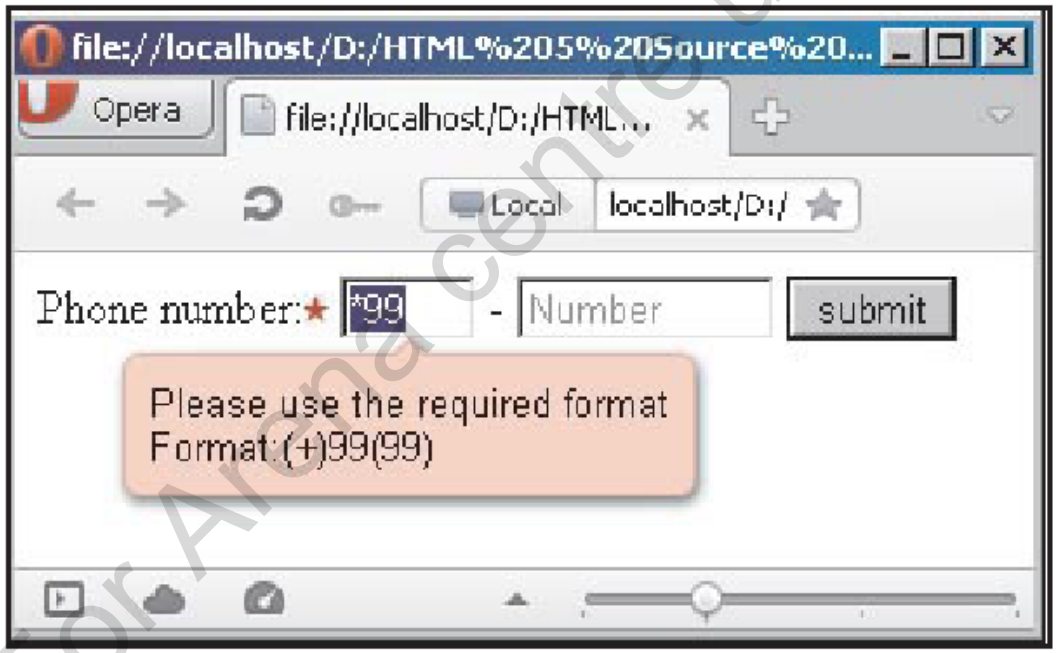
- This is a Boolean attribute that informs the browser to submit the form only when the required fields are not left empty by the users.
- The input type elements, such as *button, range*, and *color* cannot be set for the required attribute as they have a default value.
- Different Web browsers, such as Opera, Chrome, and Firefox provide different error messages.

Placeholder

- This attribute displays a short hint or text inside a form element.
- The placeholder text toggles, which means it appears in the field and disappears when the user clicks inside the field.
- At present, all browsers, such as Chrome, Safari, Opera, and Firefox support the placeholder attribute.
- If the size of the hint exceeds the field size, then the title attribute can be used to describe text for the field.

Pattern

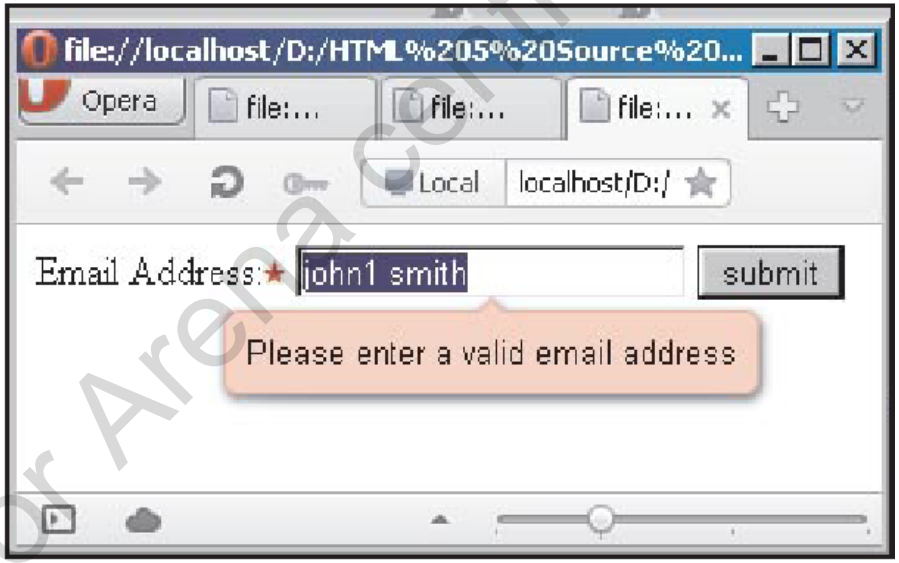
- This attribute uses regular expressions for validating the fields.
- The data entered by user must match with the pattern specified in the regular expression.



Message of Pattern Attribute in Opera

Multiple

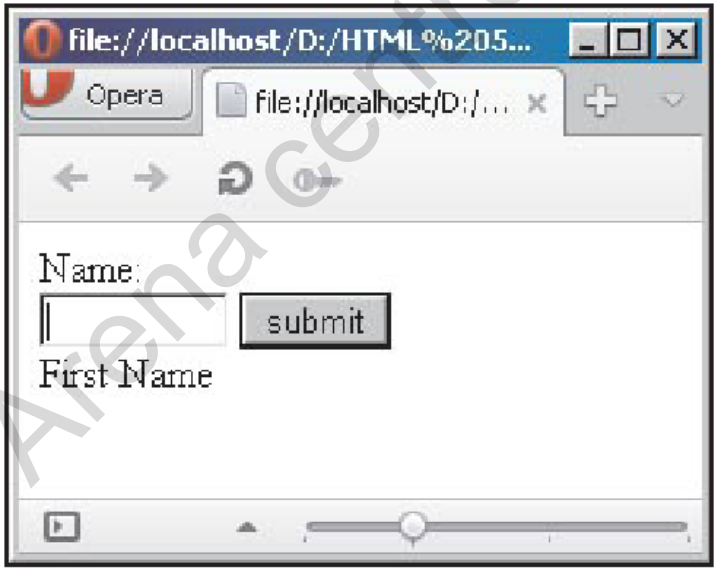
- This is a Boolean attribute that allows multiple values for some input types.
- At present, browsers such as Chrome, Opera, and Firefox support multiple attribute for email and file element.



Validation of Multiple Email Address

Autofocus

- HTML5 has introduced autofocus attribute for form elements.
- The autofocus attribute focuses on input field on page load.
- However, depending upon the situation, it will not move the focus away if the user has selected some other field.



Behavior of Autofocus Activity

Form

- Earlier, all the form controls had to be provided between the opening and closing the <form> tag.
- In HTML5, elements can be inserted at any place in the document, and they can refer to the form using the form attribute.

Autocomplete Attribute

- Many browsers help the user in filling form by providing data in the input fields, such as email and tel, based on their earlier input.
- In many situations, the autocomplete behavior may not be secure, especially with certain fields, such as accepting password or credit card number.
- HTML5 offers an autocomplete attribute, which provides control on prefilled values displayed in such fields.
- The input element that can support autocomplete are text, url, tel, password, datepickers, range, and color.
- The autocomplete feature comprises two states namely, on and off.
- The on state indicates the data that is not sensitive and can be remembered by the browser. Similarly, the off state indicates that the data will not be remembered.

New Form Elements

The new form elements introduced in HTML5 are as follows:

- Datalist - It provides a text field with a set of predefined list of options that are displayed in the drop-down list.
- Progress - The progress element represents the current status of a task, which gradually changes as the task heads for completion.
- Meter - The meter element represents a measurement scale for a known range. The known range will have a definite minimum and maximum values to measure the data on the scale.
- Output - The output element displays the result of a calculation on a form. The result values displayed in the output element are processed from the other form elements.

Summary

- HTML5 Web forms bring great improvement related to form creation for Web developers and also for users interacting with them.
- The input element is a data field that allows the user to edit the data in the form.
- Various input types supported by HTML5 include email, search, url, tel, number, range, date, week, month, time, datetime, datetime-local, and color.
- Various attributes supported by HTML5 include placeholder, required, multiple, autofocus, pattern, and form.
- HTML5 has introduced a range of new elements that are expanding the options for a number of input elements of the forms. These include datalist, progress, meter, and output.