

# Event-Driven Programming

Chapter 19

## Page Section: `<div>`

- Section or **division** of an HTML page
- Generic block element
- Example:

```
<div>
  Look at me!
</div>
```

Look at me!

- What's the difference between `<p>` and `<div>`?
  - Use `<p>` for paragraphs of text. Use `<div>` as a generic container for everything else.

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## Text Field: `<input />`

- Attribute `type` must be set to "text "
- Example:

```
<div>
  Name: <input type="text" />
</div>
```

Name:

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## Button: `<input />`

- Attribute `type` must be set to "button"
- Attribute `value` determines label of button
- Example:

```
<div>
  <input type="button" value="Click Me!" />
</div>
```

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## Event-Driven Programming

- **event-driven programming**: programming paradigm in which the flow of the program is determined by events (e.g. mouse clicks, key presses)
- **event handler**: function that is called when a particular event occurs

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## Button Click Event Handler

- Set the `onclick` attribute to a function call
- Function must be declared in JavaScript file
- Example:

```
<div>
  <input type="button" value="Click Me!" onclick="myFunction();" />
</div>
```

- Example event handler:

```
function myFunction() {
  alert("Hello, world!");
}
```

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## Reading User Input

- Imagine the following web page with a text box to type your name:

Name:   
Greet

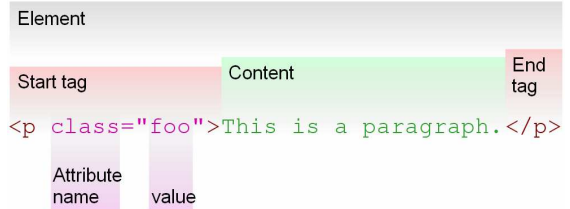
- Clicking the button results in a popup box:



- The JavaScript function handling the click event needs access to the text field.

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## Recall: HTML Element



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## Identifying HTML Elements

- Any HTML element can be given an ID via the `id` attribute
- ID's on an HTML page should be unique
- Example:

```
<div>  
  Name: <input type="text" id="name" />  
</div>
```

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## Accessing HTML Elements In JavaScript

- In JavaScript, you can access specific HTML elements by using a pre-defined variable called `document` and requesting the element by ID.
- Accessing an HTML element by ID, general syntax:  
`document.getElementById( "<ID>" )`
- Example:  
`document.getElementById( "name" )`

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## Accessing Attributes Of HTML Elements

- Once you have access to a particular HTML element, you can access all its attributes using the "dot" operator.
- Accessing an element's attribute, general syntax:  
`document.getElementById( "<ID>" ).<attribute>`
- Example:  
`document.getElementById( "name" ).value`  
(text fields store the user input in the `value` attribute)

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## Previous Example

- HTML snippet

```
<div>  
  Name: <input type="text" id="name" /><br />  
  <input type="button" value="Greet!" onclick="welcome();" />  
</div>
```

- JavaScript file

```
function welcome() {  
  var name = document.getElementById("name").value;  
  alert("Hi, " + name + "!");  
}
```

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## Example

- HTML snippet

```
<div>
  Name: <input type="text" id="name" /><br />
  Age: <input type="text" id="age" /><br />
  <input type="button" value="Submit" onclick="checkAge();" />
</div>
```

Name:

Age:

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## Example

- JavaScript file

```
function checkAge() {
  var userName = document.getElementById("name").value;
  var age = document.getElementById("age").value;

  if (age < 21) {
    alert(userName + ", you can't drink!");
  } else {
    alert("Hi " + userName + ", drink away!");
  }
}
```

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## Changing Attribute Values

- Can also change the values of attributes
- HTML snippet

```
<div>
  Name: <input type="text" id="name" /><br />
  <input type="button" value="Greet!" onclick="welcome();" />
</div>
```

- JavaScript file

```
function welcome() {
  var name = document.getElementById("name").value;
  alert(name + ", I don't like your name. You are now Bob.");
  document.getElementById("name").value = "Bob";
  alert("Hi Bob!");
}
```

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## Accessing CSS Properties

- Accessing CSS properties, general syntax:  
`document.getElementById("<ID>").style.<property>`
- Property names in JavaScript are identical to those in CSS, but with `namesLikeThis` instead of `names-like-this`
  - Examples:  
background-color      instead of      background-color  
font-family            instead of      font-family
- Example:

```
document.getElementById("name").style.backgroundColor = "yellow";
```

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## Additional Events

- The XHTML 1.0 Strict Reference has a listing of all HTML elements and their attributes. Attributes whose names begin with `on` (like `onclick`) can be set to event handlers.
  - <http://www.december.com/html/x1>

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