



Web Development

COMP 431 / COMP 531

Lecture 5: Events

Instructor: Mack Joyner

Department of Computer Science, Rice University

mjoyner@rice.edu

<http://www.clear.rice.edu/comp431>

Recap

- HTML
- JavaScript and Scope
- Forms
- CSS

https://www.clear.rice.edu/comp431/pdfs/lec_css.pdf

Homework Assignment 2
(Dynamic Page)

Due this **THURSDAY** 9/14

Responsive Framework



Installing Bootstrap

Bootstrap CDN

The folks over at [MaxCDN](#) graciously provide CDN support for Bootstrap's CSS and JavaScript. Just use these [Bootstrap CDN links](#).

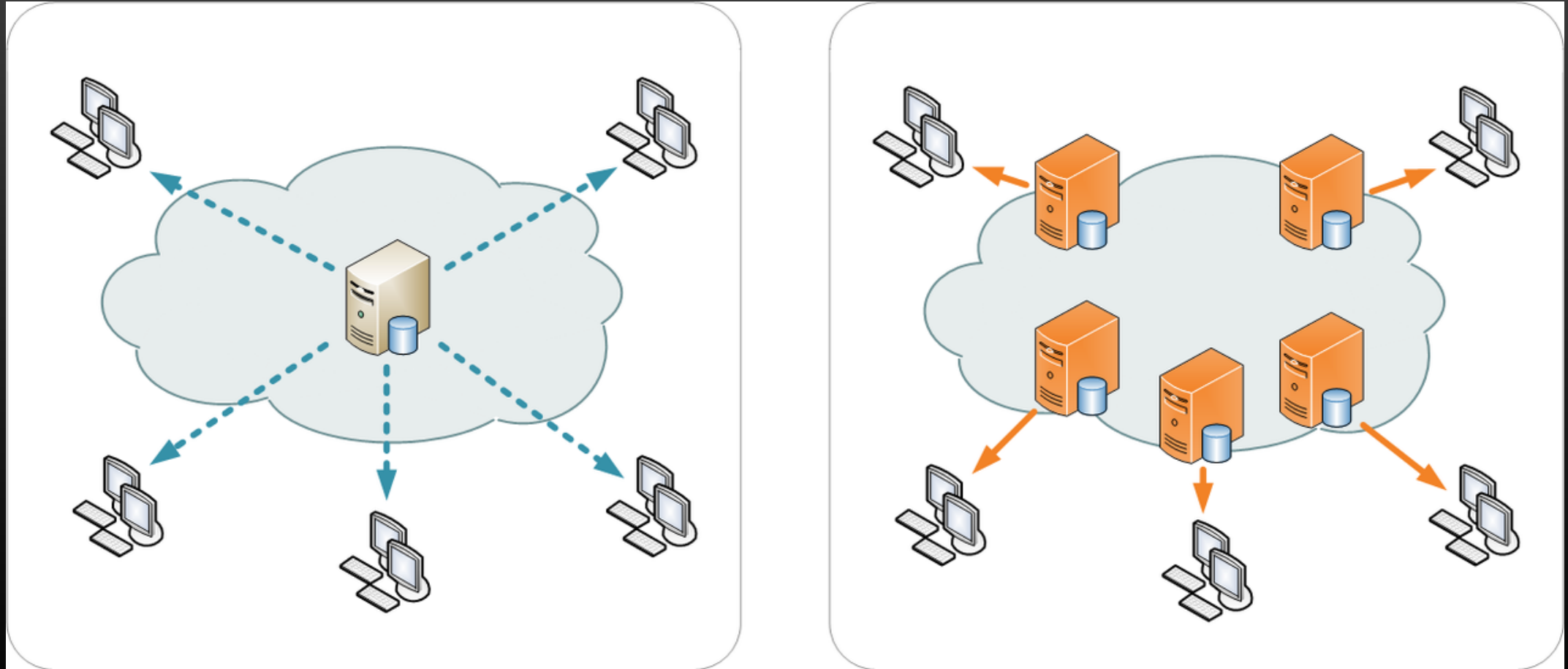
```
<!-- Latest compiled and minified CSS -->
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.5/css/bootstrap.min.css">

<!-- Optional theme -->
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.5/css/bootstrap-theme.min.css">

<!-- Latest compiled and minified JavaScript -->
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.5/js/bootstrap.min.js">
</script>
```

Copy

Content Delivery Network



CDN Single Point of Failure!

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>  
<script>window.jQuery || document.write('<script src="js/libs/jquery-2.1.3.min.js">\x3C/script>')</script>
```

```
<script>window.jQuery || document.write('<script
```

```
in.js"></script>  
.3.min.js">\x3C/script>')
```

<http://getbootstrap.com/>

<http://www.w3schools.com/bootstrap/>

Using Bootstrap

```
<input type="text" placeholder="Username">
<br>
<input type="button" value="Click Me!">

<br><br>

<div class="row">
  <div class="col-xs-6 col-md-3">
    <div class="input-group">
      <span class="input-group-addon glyphicon glyphicon-camera">
      </span>
      <input type="text" class="form-control" placeholder="Username">
    </div>
    <br><input type="button" class="btn btn-primary" value="Click Me!">
  </div>
</div>
```

The image displays two examples of Bootstrap form components. The top example shows a standard text input field with the placeholder text 'Username' and a 'Click Me!' button positioned directly below it. The bottom example illustrates a more complex form structure using Bootstrap's 'input-group' class. It features a camera icon (a glyphicon) as an 'input-group-addon' on the left side of a text input field with the placeholder 'Username'. Below this input group is a 'Click Me!' button with the 'btn-primary' class, which gives it a blue background and white text.

DevTools Demo

Device selection
Network throttling

The screenshot displays the Chrome DevTools interface with the following settings:

- Device:** Google Nexus 5
- Orientation:** Portrait
- Screen:** 360 x 567
- Zoom:** 3
- Zoom to fit:** Checked
- Network:** Good 3G (1 Mbps 40n)
- UA:** Mozilla/5.0 (Linux; Android 4

The main content area shows a mobile page with the RICE logo and a "Class Schedule" table. The table lists assignments due on various dates, with the entry for "Simple Page" highlighted in yellow.

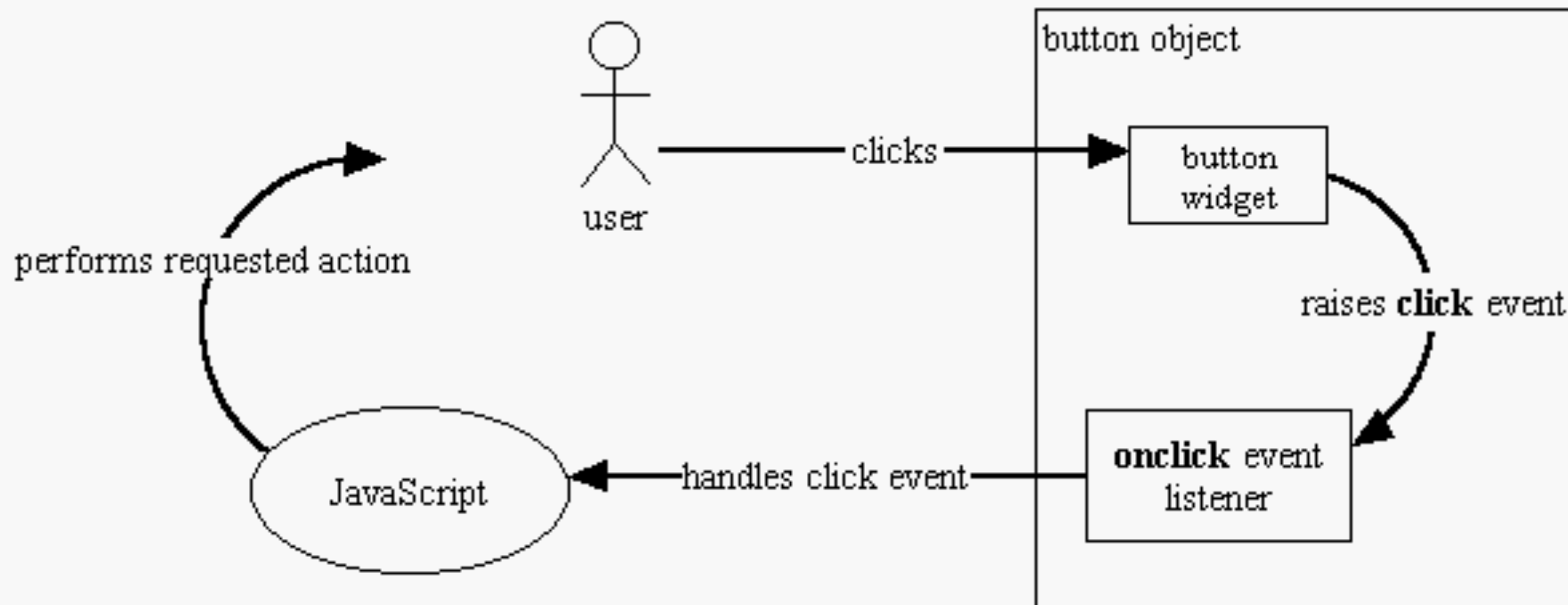
Date	Assignment Due	Topic	Exercise
Tue 08/25		1. HTML	hello wor page
Thu 08/27		2. Javascript	manipula DOM
Tue 09/01		3. HTTP and Forms	exercise and get to control o
Thu 09/03	Simple Page	4. CSS	touch of:
Tue 09/08		5. Events and DHTML	js control css, nav b menus, e
Thu 09/10		6. HTML5	canvas g:

Simple and Dynamic Page Thoughts

- What's the purpose?
 - Experience in web dev
 - Trial and error
 - Testing and debugging skills
- Computer Programming
 - Variable names and scope
 - Indentation
 - DRY code
 - Comments: why not what
 - Page Layout – good looking forms
 - Learn regular expressions
 - CSS styling
 - Don't assume anything

Events

```
<button value="Click Me" onclick="alert('Thank you')" />
```

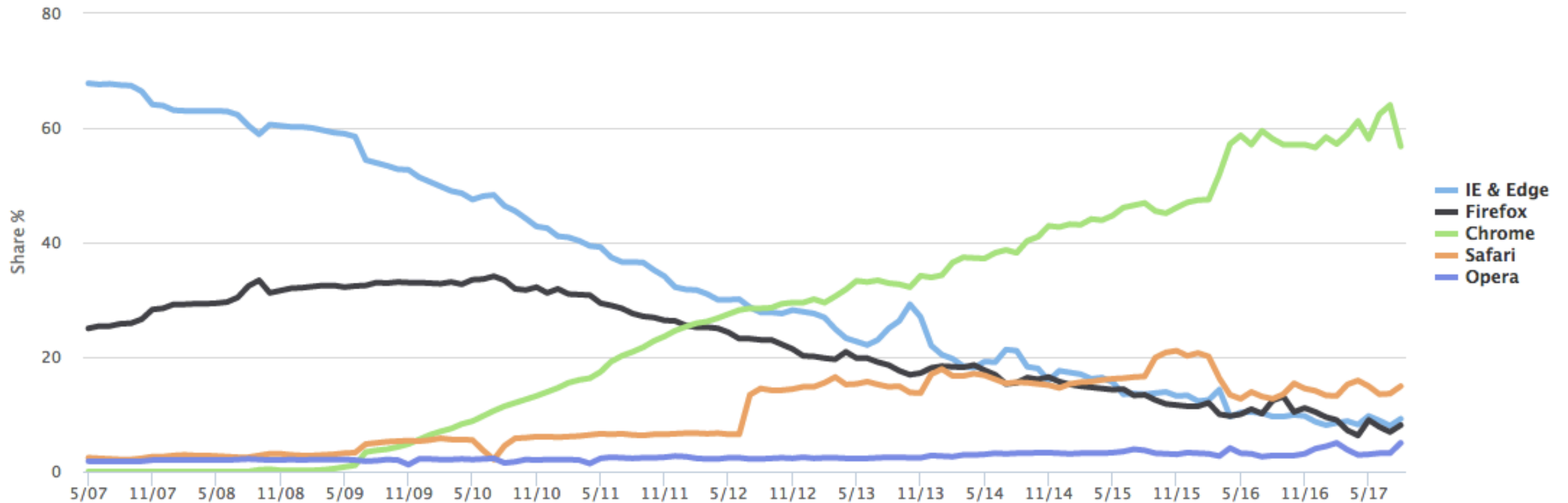


A Brief History of Events

- 1995 – DOM Level 0 Events [Netscape]
- 1997 – Microsoft Event Model [IE4 – IE8]
 - Coined the term Dynamic HTML (DHTML)
- 2000 – DOM Level 2 Events [W3C]
- Sep 2010 – DOM Level 3 Events [W3C, IE9]
- Dec 2013 – MS Event Model dies [IE11]

<https://www.w3counter.com/trends>

Browser Family Monthly Usage Share



DOM Level 0 Event Plumbing

onclick truthy says to execute
default action or not
preventDefault()



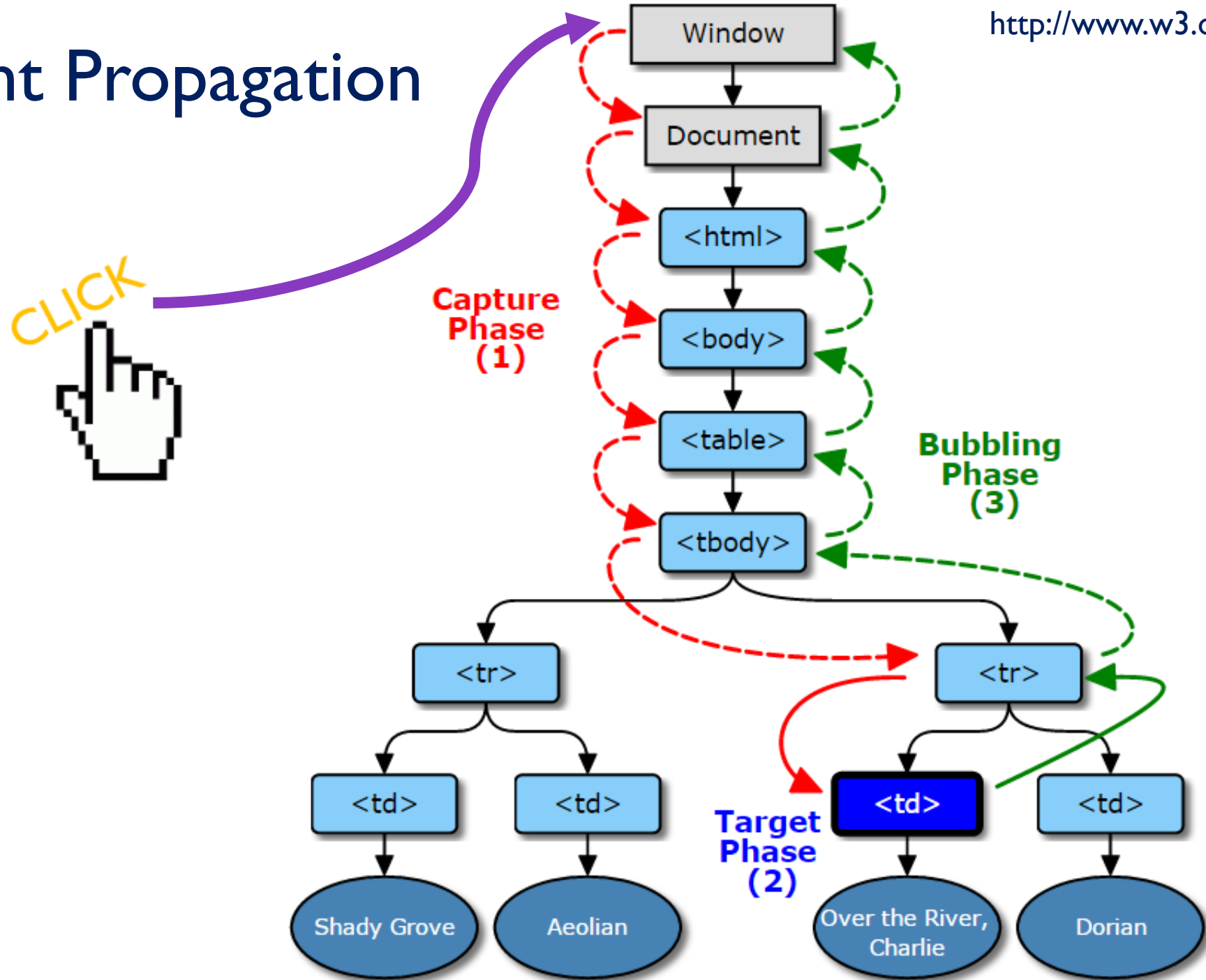
- Inline (obtrusive)

```
<a href="?q=true" onclick="return clickMe()">
```

- Traditional (unobtrusive)

```
window.onload = function() {  
    var q = location.search.replace("?q=", "");  
    if (q) {  
        changeResponse("You clicked the link with the box checked");  
    }  
  
    // add event handler for pressMe button  
    document.getElementById("pressMe").onclick = function() {  
        changeResponse("You pressed the button!")  
    }  
}
```

Event Propagation



DOM Level 2 Event Plumbing

- Allows for multiple registration of handlers
 - level 0 only has one handler
- Allows for removal


useCapture

true = execute during the *capture phase*

false = (default) execute during the *bubble phase*

```
// add level 2 handlers
var l2p = document.getElementById("level2p")

l2p.addEventListener("click", l2pResponse, false);
l2p.addEventListener("click", l2pColorFn, false);
l2p.addEventListener("click", l2pBgColorFn, false);
l2p.removeEventListener('click', l2pBgColorFn)
```



Check out <http://www.quirksmode.org/dom/events/>

Event Types: on<type>

- blur / focus (element loses / receives focus)
- change (form field value changes)
- click (mouse down and up on one element)
- contextmenu (right-click)
- keydown / keyup (depress / release a key, repeat)
- keypress (character key id depressed, repeats)
- mousedown / mouseup (depress / release mouse button)
- mousemove (mouse in motion)
- mouseover / out (mouse enters / leaves an element)
- mousewheel (wheel motion)
- reset / resize / scroll / copy / paste / submit ...

Demo: Hello Events

<https://www.clear.rice.edu/comp431/sample/hello-events.html>