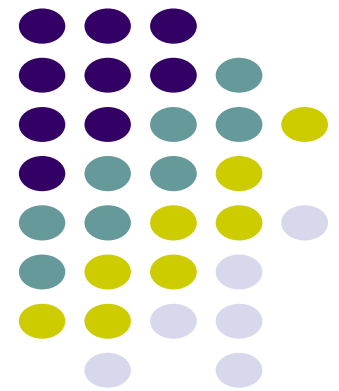
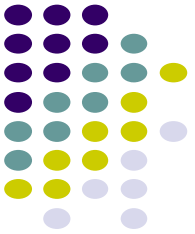


JQuery

Dr. Arul Xavier V M

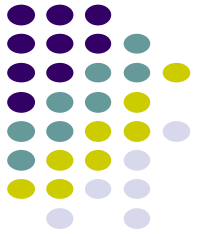




Introduction

- **jQuery** is a JavaScript Library.
- **jQuery** greatly **simplifies** JavaScript programming.
- The **jQuery** library contains the following features:
 - HTML/DOM manipulation
 - CSS manipulation
 - HTML event methods
 - Effects and animations
 - Getting data from servers - AJAX
 - Utilities

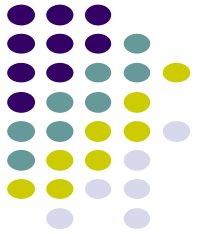
History



- It was invented by **John Resig** in 2006.
- Today, more than 59% of most-visited websites use **jQuery**.
- It is the most popular JavaScript library being used today.
- It is **free** and **open source** software.
- It also allows developers to make their own **jQuery plug-ins**.



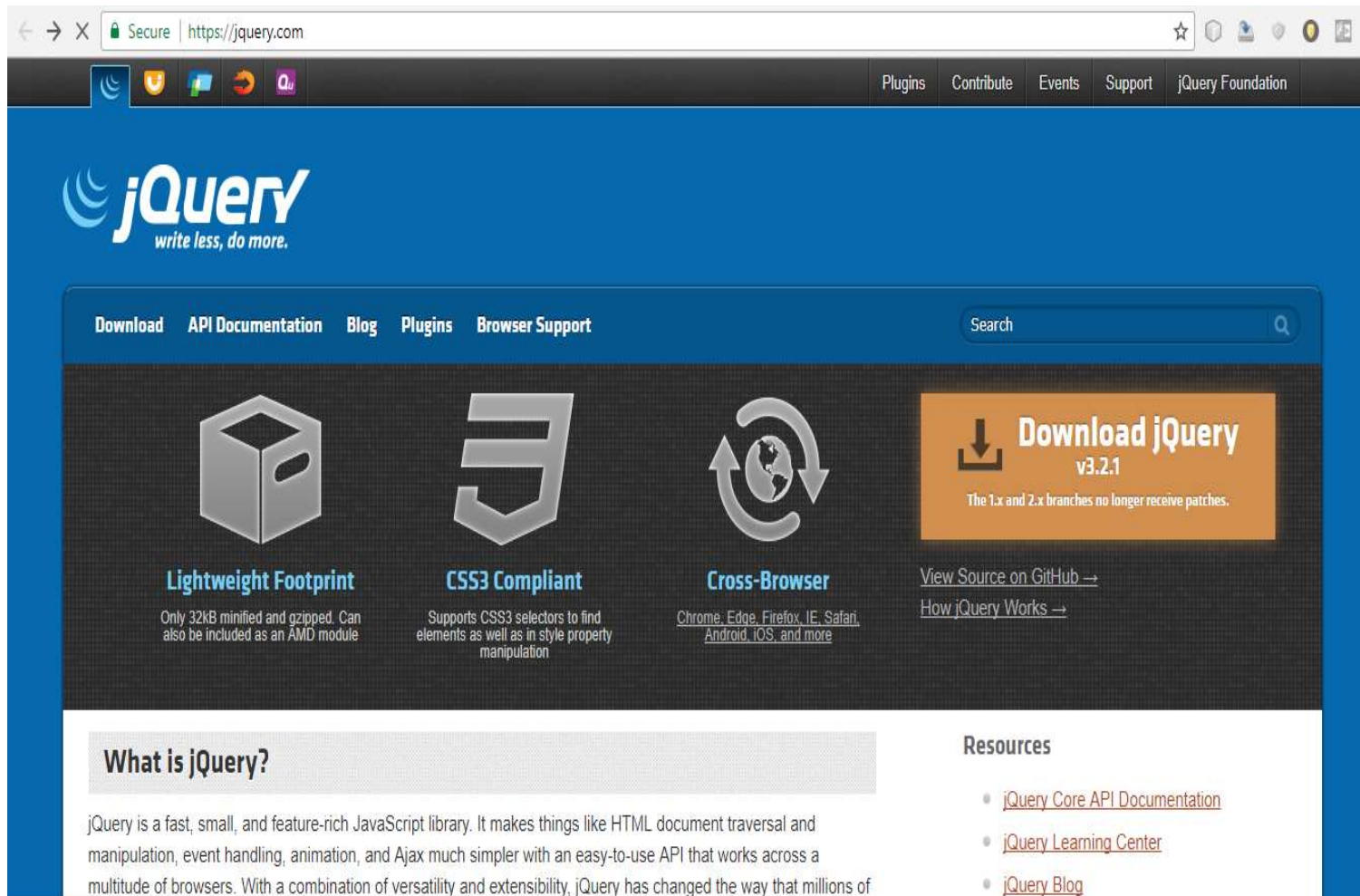
John Resig
American software engineer



Adding jQuery to Your Web Pages

- There are two ways to start using jQuery on your web site.
You can:
 - Download and include the jQuery library from jQuery.com
 - Offline
 - Faster
 - Include jQuery from a CDN, like Google
 - Online
 - Slow depending upon on the internet speed.
 - You can utilize the feature updations

Download..



The screenshot shows the jQuery website (https://jquery.com) in a web browser. The page has a blue header with the jQuery logo and tagline "write less, do more.". Below the header is a navigation bar with links: Download, API Documentation, Blog, Plugins, and Browser Support. A search bar is also present. The main content area features three large icons representing key features: Lightweight Footprint (a box icon), CSS3 Compliant (a stylized 'E' icon), and Cross-Browser (a globe with arrows icon). To the right of these icons is a prominent orange button labeled "Download jQuery v3.2.1" with a download icon. Below this button, it states "The 1.x and 2.x branches no longer receive patches." and provides links to "View Source on GitHub" and "How jQuery Works". At the bottom, there is a section titled "What is jQuery?" and a "Resources" section with links to "jQuery Core API Documentation", "jQuery Learning Center", and "jQuery Blog".

jQuery
write less, do more.

Download API Documentation Blog Plugins Browser Support

Search

Lightweight Footprint
Only 32kB minified and gzipped. Can also be included as an AMD module

CSS3 Compliant
Supports CSS3 selectors to find elements as well as in style property manipulation

Cross-Browser
[Chrome, Edge, Firefox, IE, Safari, Android, iOS, and more](#)

Download jQuery v3.2.1
The 1.x and 2.x branches no longer receive patches.
[View Source on GitHub →](#)
[How jQuery Works →](#)

What is jQuery?
jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of

Resources
[jQuery Core API Documentation](#)
[jQuery Learning Center](#)
[jQuery Blog](#)



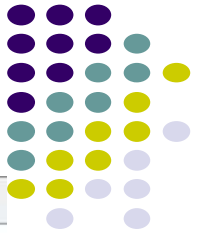
Adding downloaded JQuery file

A screenshot of the NetBeans IDE 8.1 interface. The title bar reads 'JQueryDemo - NetBeans IDE 8.1'. The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The toolbar contains various icons for file operations and development. The 'Projects' window on the left shows a project named 'Demo1' with sub-items 'JQueryDemo', 'Site Root', 'index.html', 'jquery-3.2.1.min.js', and 'Unit Tests'. The 'index.html' file is selected. The main editor window displays the following HTML code:

```
<!DOCTYPE html>
<html>
<head>
  <title>TODO supply a title</title>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width">
  <script src="jquery-3.2.1.min.js"></script>
</head>
<body>
  <div>TODO write content</div>
</body>
</html>
```

The jQuery library is a single JavaScript file, and you reference it with the HTML `<script>` tag (notice that the `<script>` tag should be inside the `<head>` section):

Include jQuery from a CDN, like Google



```
<!DOCTYPE html>
<html>
  <head>
    <title>TODO supply a title</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, in
    <script src="https://ajax.googleapis.com/ajax/
      libs/jquery/3.2.1/jquery.min.js">
    </script>
  </head>
  <body>
    <div id="d1">TODO write content</div>
  </body>
```

jQuery Syntax

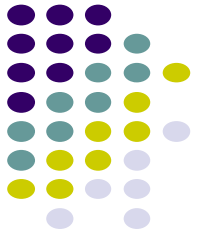


- With jQuery you select (query) HTML elements and perform "**actions**" on them.
- Basic syntax is:

\$(selector).action()

- A **\$** sign to define/access jQuery
- A **(selector)** to "query (or find)" HTML elements
- A jQuery **action()** to be performed on the element(s)

The document ready Event

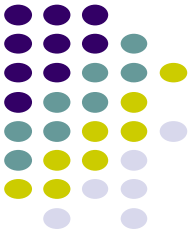


```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){

    });
  </script>
</head>
<body>
</body>
</html>
```

This is to prevent any **jQuery code** from running before the document is **finished loading (is ready)**. It is good practice to wait for the document to be fully loaded and ready before working with it.

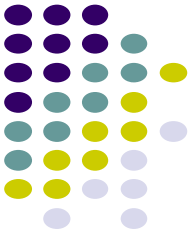
jQuery Selectors



- **jQuery** selectors are one of the most important parts of the jQuery library.
- **jQuery** selectors allow you to **select(find)** and manipulate HTML element(s).
- All selectors in jQuery start with the dollar sign and parentheses:

\$("selector")

jQuery Selectors



- Types:

- The element selector
- id selector
- class selector

```
$("#p")
```

```
$("#test")
```

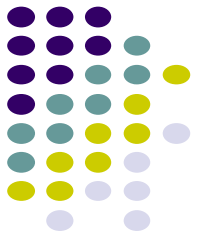
```
$(".test")
```

[..not limited to this, you can use most of the selectors available in CSS]

```
$(this)
```

```
$("*")
```

jQuery Action Methods



Mouse Events	Keyboard Events	Form Events	Document/Window Events
click	keypress	submit	load
dblclick	keydown	change	resize
mouseenter	keyup	focus	scroll
mouseleave		blur	unload

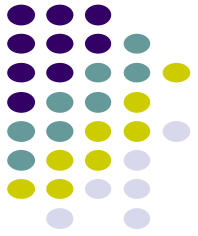
Jquery syntax for Event methods

```
$("#p").click();
```

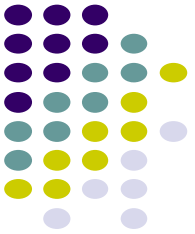
```
$("#p").click(function(){  
    // action goes here!!  
});
```

click() method

- The click event occurs when an element is clicked.
- The click() method trigger a function to run when a click event occurs.



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn").click(function(){
        alert('welcome to JQuery');
      })
    });
  </script>
</head>
<body>
  <button id="btn">Click Here</button><br><br>
</body>
</html>
```



Reading and writing content

- Get Content - **text()**, **html()**, and **val()**
 - **text()** - Sets or returns the text content of selected elements
 - **html()** - Sets or returns the content of selected elements (including HTML markup)
 - **val()** - Sets or returns the value of **form fields such as Text Box**

text() and html() methods



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn").click(function(){
        $('.box1').text('<b>Welcome To JQuery</b>');
        $('.box2').html('<b>Welcome To JQuery</b>');
      })
    });
  </script>
</head>
<body>
  <button id="btn">Click Here</button><br><br>
  <div class="box1"></div><br>
  <div class="box2"></div><br>
</body>
</html>
```

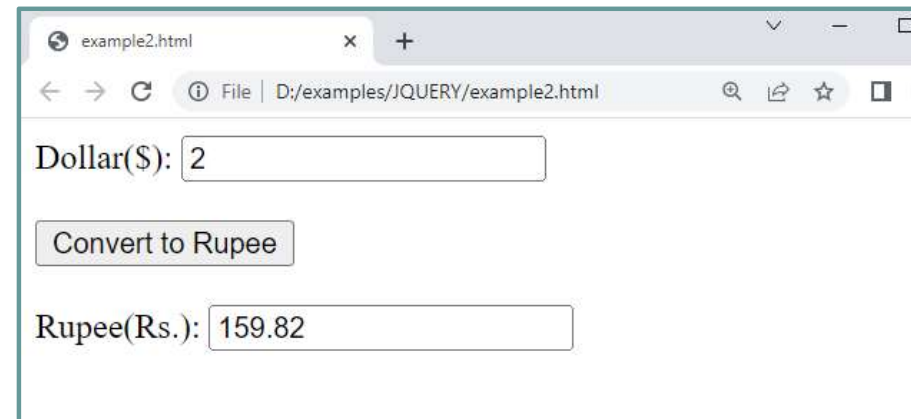


val() method

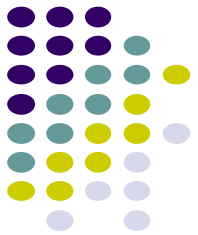
- Sets or returns the value of **form fields**



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn").click(function(){
        let dollar=$('#tb1').val();
        let rupee = dollar * 79.91;
        $('#tb2').val(rupee);
      })
    });
  </script>
</head>
<body>
  Dollar($): <input type="text" id="tb1"> <br><br>
  <button id="btn">Convert to Rupee</button><br><br>
  Rupee(Rs.): <input type="text" id="tb2"><br><br>
</body>
</html>
```



Dollar to INR Convertor



example2.html x +

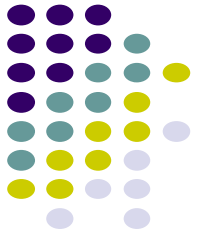
← → ↻ ⓘ File | D:/examples/JQUERY/example2.html 🔍 ↗ ☆ □

Dollar(\$):

Rupee(Rs.):

keyup() action in JQuery

The keyup() action triggers the keyup event, or attaches a function to run when a keyup event occurs.



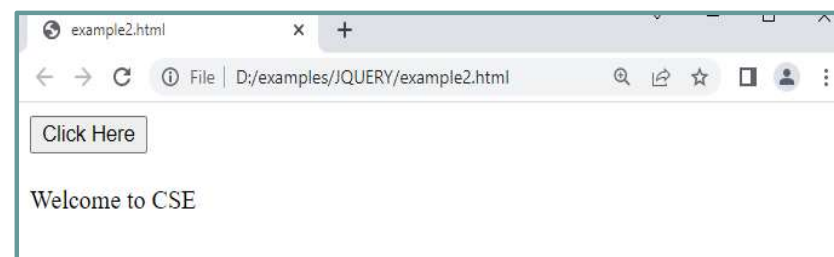
```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#tb").keyup(function(){
        let data=$('#tb').val();
        $('#.output').html(data);
      })
    });
  </script>
</head>
<body>
  Name: <input type="text" id="tb">
  <div class="output" style="color:red;"></div>
</body>
</html>
```

To manipulate CSS properties

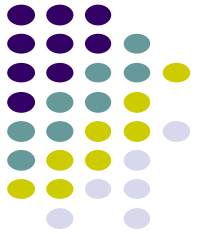
- You can use `css()` method



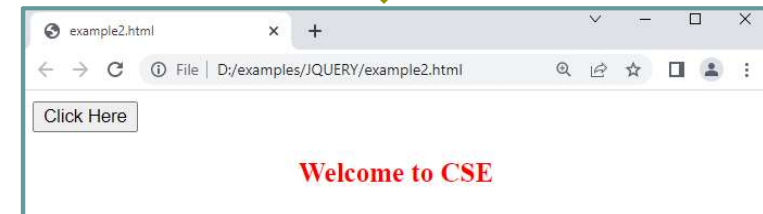
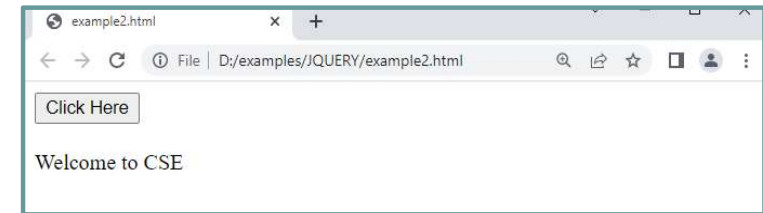
```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn").click(function(){
        $('.box').css('color','red');
        $('.box').css('font-size','20px');
        $('.box').css('text-align','center');
        $('.box').css('font-weight','bold');
      });
    });
  </script>
</head>
<body>
  <button id="btn">Click Here</button><br><br>
  <div class="box">Welcome to CSE</div>
</body>
</html>
```



Set Multiple CSS Properties



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn").click(function(){
        $('.box').css({'color':'red','font-size':'20px',
                      'font-weight':'bold','text-align':'center'
                    });
      });
    });
  </script>
</head>
<body>
  <button id="btn">Convert to Rupee</button><br><br>
  <div class="box">Welcome to CSE</div>
</body>
</html>
```

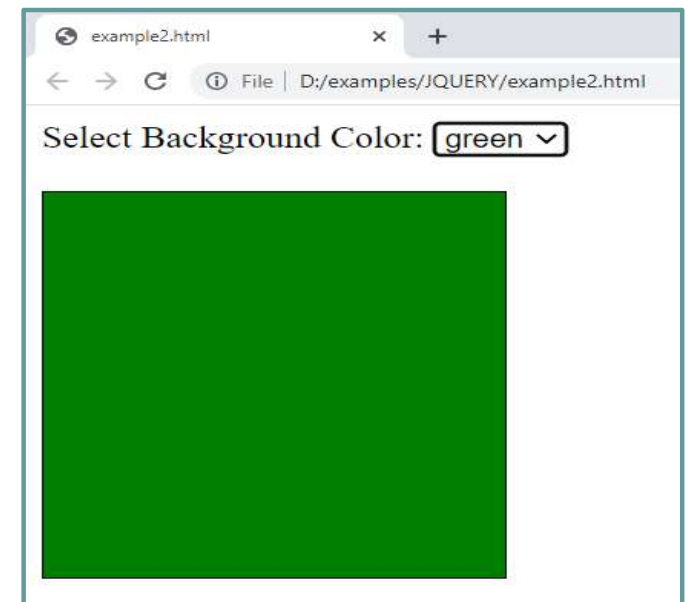


change() method

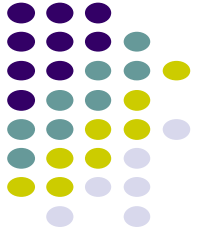
- change() method used to attach a function to execute a task when change event occurs such as select item in a drop down list box.



```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#clr").change(function(){
        let item = $('#clr').val();
        $('.box').css('background-color',item);
      });
    });
  </script>
</head>
<body>
  Select Background Color:
  <select id="clr">
    <option>red</option>
    <option>green</option>
    <option>blue</option>
  </select> <br><br>
  <div class="box" style="width: 200px;height: 200px;border: 1px solid black;"></div>
</body>
</html>
```

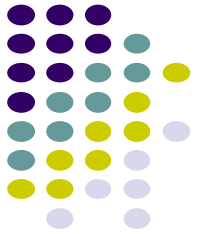


jQuery Effects



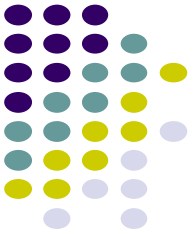
- jQuery provides a simple interface for doing various kind of amazing effects.
- jQuery methods allow us to quickly apply commonly used effects with a minimum configuration.

jQuery Effects Methods



- Hiding and Showing HTML elements
 - `hide()`, `show()`
- Toggle between hide and show
 - `toggle()`
- Fading HTML elements
 - `fadeIn()`, `fadeOut()`, `fadeToggle()`, `fadeTo()`
- Sliding HTML elements
 - `slideDown()`, `slideUp()`, `slideToggle()`
- Animation
 - `animate()`, `stop()`

JQuery Effects Speed Parameter



- **Speed** parameter

- The optional speed parameter specifies the speed of the hiding/showing, and can take the following values:
 - "slow", "fast", or milliseconds.

Example

hide() and show() effects

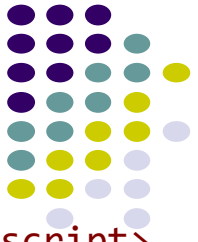


```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn1").click(function(){
        $('.box').hide();    //hide effect
      })

      $("#btn2").click(function(){
        $('.box').show();    //show effect
      })
    });
  </script>
</head>
<body>
  <button id="btn1">Hide</button>
  <button id="btn2">Show</button><br><br>
  <div class="box" style="width: 400px;height: 100px;background-color: red;"></div>
</body>
</html>
```



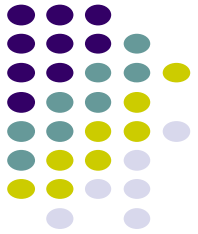
Speed parameter in hide() and show()



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn1").click(function(){
        $('.box').hide(2000);           //Hide with 2 seconds delay
      })
      $("#btn2").click(function(){
        $('.box').show(2000);           //Show with 2 seconds delay
      })
    });
  </script>
</head>
<body>
  <button id="btn1">Hide</button>
  <button id="btn2">Show</button>
  <br><br>
  <div class="box" style="width: 400px;height: 100px;background-color: red;"></div>
</body>
</html>
```

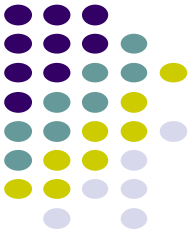
Toggle between hide and show

- **toggle(speed)** method used to switch between hide and show based on the current state.



```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $("#btn1").click(function(){
        $('.box').toggle('slow'); //toggle effect
      })
    });
  </script>
</head>
<body>
  <button id="btn1">Toggle Button</button> <br><br>
  <div class="box" style="width: 400px;height: 100px;background-color: red;"></div>
</body>
</html>
```

Fading Effects



- **fadeIn()** to fade in a hidden element.
- **fadeOut()** to fade out a visible element.
- **fadeToggle()** toggles between the **fadeIn()** and **fadeOut()** methods.
- **fadeTo()**
 - fading to a given opacity (value between 0 and 1).

Fading Effects



```
<script src="jquery-3.3.1.min.js"></script>
```

```
<script>
```

```
    $(document).ready(function() {  
        $(".b1").click(function() {  
            $("div").fadeOut("slow");  
        });  
    });
```

Fading Effects

```
    $(document).ready(function() {  
        $(".b2").click(function() {  
            $("div").fadeIn("slow");  
        });  
    });
```

See Next Slide...

```

$(document).ready(function() {
    $(".b3").click(function() {
        $("div").fadeToggle("slow");
    });
});

$(document).ready(function() {
    $(".b4").click(function() {
        $("div").fadeTo("slow", "0.5");
    });
});

```

Fading Effects



</script>

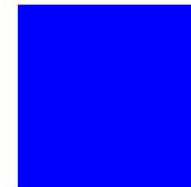
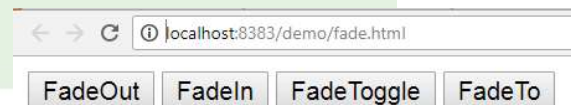
<button class="b1">FadeOut</button>

<button class="b2">FadeIn</button>

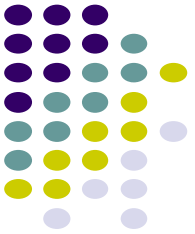
<button class="b3">FadeToggle</button>

<button class="b4">FadeTo</button>

<div style="width: 100px; height: 100px; background-color: blue"></div>



Sliding Effects



- `slideDown()` method is used to slide down an element.
- `slideUp()` method is used to slide up an element.
- `slideToggle()` method toggles between the `slideDown()` and `slideUp()` methods.



```
<style>
  button {
    width:100px;
    padding: 5px;
    text-align: center;
    color:white;
    background-color: blue;
  }
  div {
    width:500px;
    padding: 50px;
    text-align: center;
    color:white;
    background-color: red;
  }
</style>
```

Sliding Effects



```
<body>
  <button class="b1">Slide Up</button>
  <button class="b2">Slide Down</button>
  <button class="b3">Slide Toggle</button>
  <div>This is a simple div box</div>
</body>
```



```
<script src="jquery-3.3.1.min.js"></script>
```

```
<script>
```

```
    $(document).ready(function() {  
        $(".b1").click(function() {  
            $("div").slideUp();  
        });  
    });
```

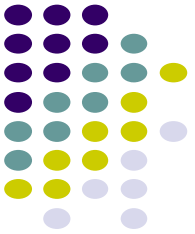
```
    $(document).ready(function() {  
        $(".b2").click(function() {  
            $("div").slideDown();  
        });  
    });
```

```
    $(document).ready(function() {  
        $(".b3").click(function() {  
            $("div").slideToggle();  
        });  
    });
```

```
</script>
```

Sliding Effects





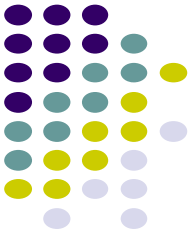
Animation Effects

- The **jQuery** `animate()` method lets you create custom animations.

```
$(selector).animate({params}, speed, callback);
```

- The required **params** parameter defines the CSS properties to be animated.
- The optional speed parameter specifies the duration of the effect. It can take the following values: "**slow**", "**fast**", or **milliseconds**.
- The optional callback parameter is a function to be executed after the animation completes.

Simple Animation



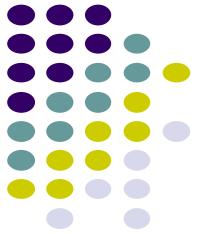
```
<script>
$(document).ready(function(){
    $("button").click(function(){
        $("div").animate({left: '300px'},3000);
    });
});
</script>
```

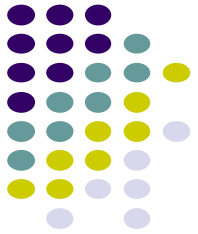
```
<style>
div {
    background:#98bf21;
    height:100px;
    width:100px;
    position: absolute;
}
</style>
<div></div>
```

Properties can be animated

- backgroundPositionX
- backgroundPositionY
- borderWidth
- borderBottomWidth
- borderLeftWidth
- borderRightWidth
- borderTopWidth
- borderSpacing
- margin
- marginBottom
- marginLeft
- marginRight
- marginTop
- opacity
- outlineWidth
- padding
- paddingBottom
- paddingLeft
- paddingRight
- paddingTop
- height
- width
- maxHeight
- maxWidth
- minHeight
- minWidth
- fontSize
- bottom
- left
- right
- top
- letterSpacing
- wordSpacing
- lineHeight
- textIndent

Jquery animate() can only animate numeric value properties





Add Elements in a Web Page

- **append()** - Inserts content at the end of the selected elements
- **prepend()** - Inserts content at the beginning of the selected elements
- **after()** - Inserts content after the selected elements
- **before()** - Inserts content before the selected elements

Difference between append() and after()

The **append()** / **prepend()** appends or prepends the content at the end or beginning of the selected HTML element but inside the element. Whereas **after()** / **before()** adds the content outside the selected HTML element.

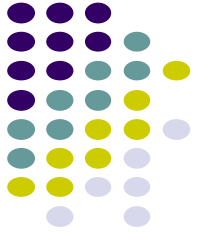
Add Elements in Web Page



```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $('#btn').click(function(){
        $("#d1").append('<b> Welcome To CSS </b>');
        $("#d1").prepend("<b> Hello </b>");
        $('#l1').before("<span style='color:red;'>*</span>");
        $('#l1').after("<span style='color:red;'>*</span>");
      })
    });
  </script>
</head>
<body>
  <button id="btn">Add Content</button>
  <div id="d1">Welcome To jquery</div>
  <label id="l1">Enter Name: </label><input type="text">
</body>
</html>
```



Remove Elements in Web Page

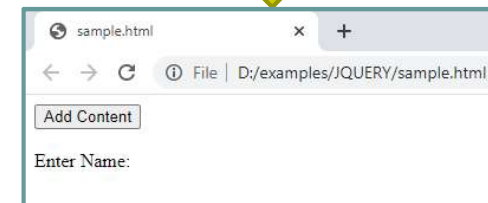


- **remove()** - Removes the selected element (and its child elements)
- **empty()** - Removes the child elements from the selected element

Remove Elements



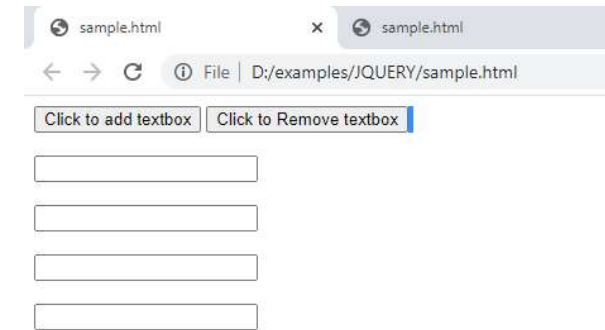
```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $('#btn').click(function(){
        $('#t1').remove();
        $('#d1').remove();
      })
    });
  </script>
</head>
<body>
  <button id="btn">Add Content</button><br><br>
  <label id="l1">Enter Name: </label><input type="text" id="t1">
  <div id="d1">
    <h1>Welcome To jquery</h1>
    <p>Paragraph</p>
  </div>
</body>
</html>
```



Dynamically Add Textbox



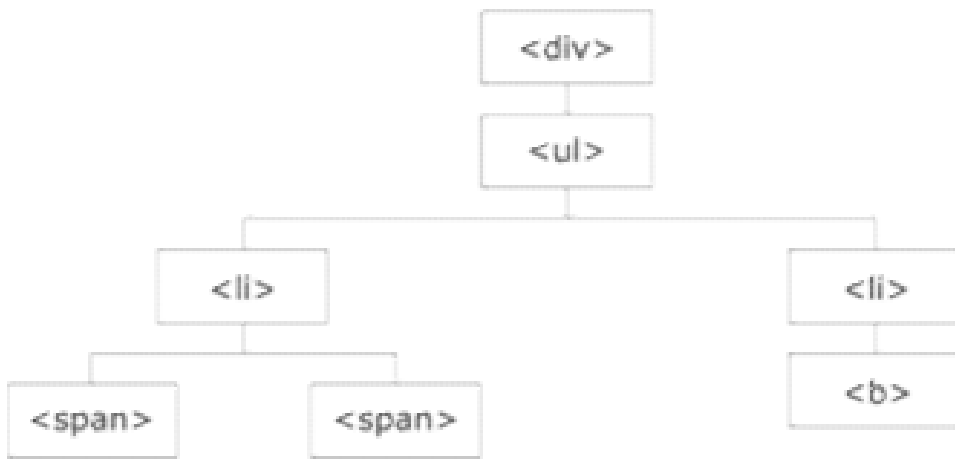
```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
  <script>
    $(document).ready(function() {
      $("#Add").click(function(){
        $("#box").append("<div><input type='text'></div><br>");
      })
      $("#Remove").click(function(){
        $('#box').children().last().remove();
      })
    })
  </script>
</head>
<body>
  <button id="Add">Click to add textbox</button>
  <button id="Remove">Click to Remove textbox</button><br><br>
  <div id="box"></div>
</body>
</html>
```



JQuery Traversing

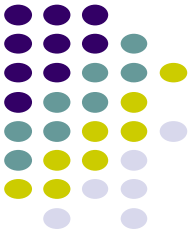


- jQuery traversing, which means "move through", are used to "find" (or select) HTML elements based on their relation to other elements.



- The `<div>` element is the **parent** of ``, and an **ancestor** of everything inside of it
- The `` element is the **parent** of both `` elements, and a **child** of `<div>`
- The left `` element is the **parent** of ``, **child** of `` and a **descendant** of `<div>`
- The `` element is a **child** of the left `` and a **descendant** of `` and `<div>`
- The two `` elements are **siblings** (they share the same parent)
- The right `` element is the **parent** of ``, **child** of `` and a **descendant** of `<div>`
- The `` element is a **child** of the right `` and a **descendant** of `` and `<div>`

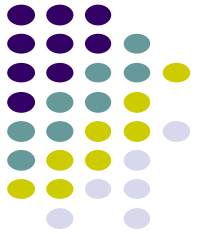
jQuery provides a variety of methods that allow us to traverse the DOM.



Traversing Up the DOM Tree

- **parent()**
 - method returns the **direct parent element** of the selected element.
- **parents()**
 - method **returns all ancestor elements** of the selected element, all the way up to the document's root element (<html>).
- **parentsUntil()**
 - method returns **all ancestor elements** between two given arguments.

Traversing Up the DOM Tree

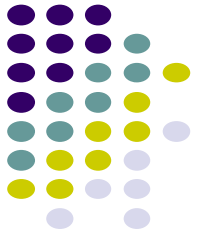


```
<body>
  <button id="btn">Click Here</button><br>
  <div class="b1">
    Section 1
    <div class="b2">
      Section 2
      <div class="b3">
        Section 3
        <div class="b4">Section 4</div>
      </div>
    </div>
  </div>
</body>

<script>
  $(document).ready(function(){
    $('.b4').parent().css('border','3px solid red');
  })
</script>
```



Traversing Up the DOM Tree



```
<script>
    $(document).ready(function(){
        $('.b4').parents().css('border','3px solid red');
    })
</script>
```

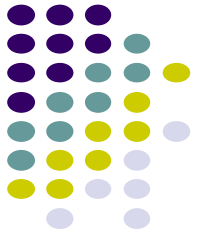


```
<script>
    $(document).ready(function(){
        $('.b4').parentsUntil('.b1').css('border','3px solid red');
    })
</script>
```



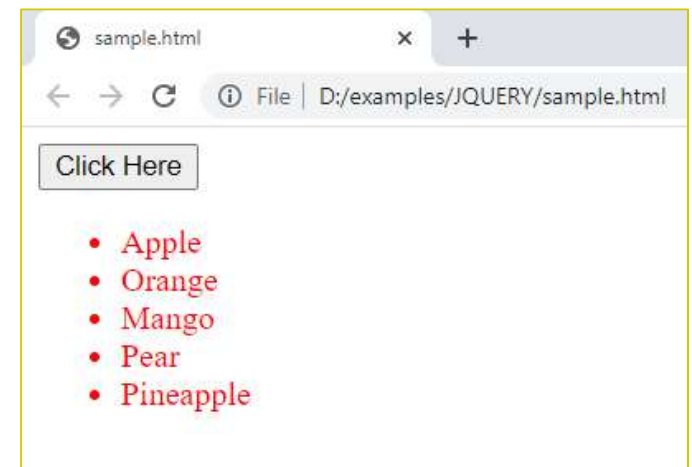
Traversing Down the DOM Tree

- `children()` - method returns all direct children of the selected element.



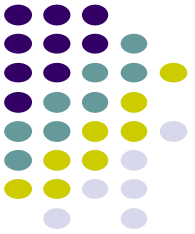
```
<script>
    $(document).ready(function(){
        $('#btn').click(function(){
            $('.list').children().css('color', 'red');
        })
    })
</script>

<body>
    <button id="btn">Click Here</button><br>
    <ul class="list">
        <li>Apple</li>
        <li>Orange</li>
        <li>Mango</li>
        <li>Pear</li>
        <li>Pineapple</li>
    </ul>
</body>
```



Traversing first and last

- first()
- last()



Find Child Elements

- The `find()` method returns descendant elements of the selected element.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <script src="jquery.min.js"></script>
  <script>
    $(document).ready(function(){
      $('#btn').click(function(){
        $('.box').find('.l4').css('color','blue');
      })
    })
  </script>
</head>
```

```
<body>
  <ul class="box">
    <li class="l1">Apple</li>
    <li class="l2">Orange</li>
    <li class="l3">Mango</li>
    <li class="l4">Pineapple</li>
    <li class="l5">Grapes</li>
  </ul>
  <button id="btn">Change</button>
</body>
</html>
```

