Introduction to jQuery

Write Less, Do More

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Introduction

Section Overview

- What is jQuery?
- What jQuery offers?
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- Basic code structure

What is jQuery?

- fast, small and feature-rich JavaScript library
- provides functionality for the interaction between HTML and JavaScript and make websites more dynamic
- easy to use support for HTML document traversal and manipulation, event handling, animation and Ajax
- cross-browser compatibility
- first released in 2006 by John Resig
- Microsoft, Dell, Amazon, Instagram, Etsy, Netflix, Best Buy, Fox News, GoDaddy ...

jQuery Ecosystem

- ***jQuery UI*** - A library consisting of a set of user interface interactions, effects, widgets, and themes to create amazing user interfaces
- ***jQuery Mobile*** - An HTML5-based user interface system for all popular mobile device platforms, to create beautiful designs for mobile devices
- ***QUnit*** - A JavaScript unit-testing framework used by all the other jQuery projects
- ***Plugins*** - The plugins published on npm and created to cover those use cases not covered by jQuery or to improve its functionalities

Use of jQuery

jQuery can be used to do basic JavaScript tasks like:

- more dynamic website
- events
- manipulate CSS
- special effects and animations
- working with Ajax and DOM
- easier web design
- for advanced navigation
- flash like effects with less efforts

Setting up the Environment

1. create project folder
2. create HTML boilerplate
3. download the jQuery from the download link: `http://jquery.com/download/`
4. put the reference of linked files and jQuery library

```
!DOCTYPE html>
html>
 <head>
   <meta charset="utf-8">
   <title>Intro to JQuery</title>
   <link rel="stylesheet" href="/css/main.css">
   <script type="text/javascript" src="js/
   jquery-3.2.1.min.js"></script>
 </head>
 <body>
   <h1>Welcome to Learn JQuery!</h1>
   <hr>
   <p>This is boilerplate to get start with JQuery.</p>
   <script type="text/javascript" src="js/script.js"></script>
 </body>
/html>
```

Core of jQuery

At the core of jQuery, basic point are:

1. the basic concept of jQuery is to select something and then doing something with it
2. jQuery is aimed on retrieving elements from HTML pages and executing operations on retrieved elements
3. jQuery allows chaining, a programming technique to call several methods in a single statement

Basic Code Structure

- jQuery constructor function ***$()*** is used to create and instance of jQuery object
- ***wrapper set*** or ***jQuery collection*** refers to the elements selected by jQuery function
- jQuery uses ***.ready()*** statement to run the code as soon as document is ready to be manipulated
- ***.ready()*** ensures that jQuery code is executed after the document is fully loaded

```
$(document).ready(function() {
// code will go here
  $('h1').slideUp(5000).fadeIn();
});
```

Basic Selectors

Section Overview

- What are selectors?
- Selectors basic structure
- Type of selectors

What are Selectors?

Selector is an expression used to identify target elements on web pages.

- jQuery offers a powerful set of tools for selecting and working on a set of elements in a document
- The selectors are used to identify and select elements before their manipulation

Basic Structure of Selector

jQuery selectors behave in the same way as CSS selectors.

The basic jQuery selector structure is:

```
$('selector');
```

Types of Selectors

1. Basic Selectors
    - element selector
    - id selector
    - class selector
2. Advanced Selectors
    - attribute selector
    - child selector
    - adjacent sibling
    - descendant selector

CSS and jQuery Selectors

```css
/*css selectors*/
div{}
h1{}
#idExample{}
.classExample{}
```

```javascript
// jQuery selectors
$('div');
$('h1');
$('#idExample');
$('.classExample');
```

jQuery Selectors Example

```
// jQuery selectors
$('*'); // select all
$('div'); // select by element tag
$('h1'); // select by element tag
$('#idExample'); // select by id
$('.classExample'); // select by class
// selecting all elements
var element = $('*').length;
// append the length to the body as heading 3
$( "body" ).append( "<h3> There are " + element +
" elements selected.</h3>" );
```

Basic Filters

Section Overview

- Introduction to filters
- Basic structure of filters
- Different filter methods

Filtering Methods

Filtering is the way to narrow down the search for elements using selectors. Filters work with other type of selectors to reduce a set of matched elements.

The most common filters are:

- index-related filters
- child filters
- content filters
- visibility filters
- attribute filters

Filter Structure

a colon (:) followed by filter name is placed after the name of main selector.

```
$('.testClass:first'); // select first element
$('li').prev(); // returns the previous li
```

```
// position filters
$('.testClass:eq(0)'); // select element equal to given index
$('.testClass:gt(0)'); // select element greatr than given index
$('.testClass:lt(5)'); // select element less than given index
$('.testClass:even'); // select even elements
$('.testClass:odd'); // select odd elements
$('.testClass:first'); // select first element
$('.testClass:last'); // select last element
$('li').prev(); // returns the previous li
$('li').next(); // returns the next li
$('li').parent(); // returns the ul
$('li').parents(); // returns all parents
$('ul').children(); // returns all children not grand children
$('div').find('li'); // returns specified search
```

Attribute Filter

```
$('p').css('color','red');
$('p[class]').css('color','red'); // select p that has class
$('p[id]').css('color','red'); // select p that has id
$('p[class=testClass1]').css('color','red'); //select p that
// has class 'testClass'
// ^= looks for starts with
$('p[class^=test]').css('color','red');
$('p:contains("1")').css('color','red');//select p that has 1 in
```

A basic Example of Filters

add an unnumbered list and some list items with class 'testClass'

```
// jQuery eq selectors
$('.testClass:eq(0)').css('color', 'red');
// get the length of element according to the filter
var element = $( ".testClass" ).length;
// append the length to the body as heading 3
$( "body" ).append( "<h3> There are
" + element + " element(s).</h3>" );
// show the selected elements in console
var elementArray = $('.testClass');
console.log(elementArray);
```

DOM Manipulation

Section Overview

- Creating Contents
- Inserting Page Contents
- Changing Contents
- Manipulating Attributes

Creating Contents

```
// using append
$('p').append('These are new contents.');
// using appendTo (create contetns first)
$('<h2>These are new contents.</h2>').appendTo('body');
// inserting before
$('<h2>These are inserted before.</h2>').prependTo('p');
// insert before selected contents
$('p').before('<p>the inserted before contetns</p>');
$('<p>the inserted before in another way</p>').insertBefore('p');
// insert before selected contents
$('h2').after('<p>the inserted after contetns</p>');
$('<p>the inserted after in another way</p>').insertAfter('h2');
// changing position
$('p:last').appendTo('p:first');
```

Altering Contents

```
$('.exampleDiv').css('background-color','lightgray');
//select paragraphs and wrap them into exampleDiv
$('p').wrap("<div style='color:red'/>");
// remove elements
$('p.test1, p.test3').remove();
// temporary remove elements
$('p.test2, p.test5').detach();
// replace contents
$('<p class="test7">paragraph 7.</p>').replaceAll('p[class]');
$('p[class]').replaceWith('<p class="test8">paragraph 8.</p>');
// empty the div
$('.exampleDiv').empty();
```

Changing Attributes

```
(document).ready(function() {
 $("#test1").click(function(){
     $("img").attr({"width":"500","height":"500" });
 });
 $("#test2").click(function(){
   // this will remove set attr and restore img to default
     $("img").removeAttr('height width');
 });
);
```

```
$('.exampleDiv').css('background-color', 'lightgray');
//attach click event to create button
document.getElementById('create').addEventListener('click',
function (evt) {
  createContent();});
document.getElementById('change').addEventListener('click',
function (evt) {
  changeContent();});
document.getElementById('reset').addEventListener('click',
function (evt) {
  reset();});
// creating function to create contents
function createContent() {
  for (var i = 0; i < 5; i++) {
    $('.exampleDiv').append('<p>This is a paragraph ' + i+'.</p>');
  };};
```

Events and Effects

Block Title

- What are events?
- Types of events
- Click event example
- Introducing effects and animations
- Different types of effects

What is Event?

Generally, every thing happening inside the page is an event. An event is a type of method acting on an element when triggered by the users.

Some common event types:

- click
- dbclick
- mouseover
- mousemove
- bind
- unbind
- ...

Common Effects

jQuery library has several techniques for adding animation to a web page. There are simple and standard animations that are most commonly used to craft sophisticated custom effects.

Some common effects are:

- fadeIn
- fadeOut
- hide
- show
- toggle
- queue
- ...

click Event and slideUp Effect

```
// assigning click event to ul
$(document).ready(function() {
  $('ul').click(function() {
    $('ul').slideUp();
  });
});
```

Show and Hide Effect

```
$('#show').click(function () {
  $('.exampleDiv').show('1000', 'swing');
});
$('#hide').click(function () {
  $('.exampleDiv').hide('1000', 'swing');
});
$('#toggle').click(function () {
  $('.exampleDiv').toggle('1000', 'swing');
});
$('.exampleDiv').css('background-color','lightgray')
```

slideUp and slideDown Effect

```
$('#slideDown').click(function () {
  $('img').slideDown('5000');
});
$('#slideUp').click(function () {
  $('img').slideUp('5000');
});
$('#toggle').click(function () {
  $('img').toggle('5000');
});
$('.exampleDiv').css('background-color','lightgray')
```

```
// assigning click event
$(document).ready(function() {
  $('.menu1').click(function() {
    $('.sub1').toggle(1000,"linear");
  });
  $('.menu2').click(function() {
    $('.sub2').toggle(1000,"swing");
  });
  $('.menu3').click(function() {
    $('.sub3').toggle(1000,"linear");
  });
  $('.menu4').click(function() {
    $('.sub4').toggle(1000,"swing");
  });
});
```

Questions?