

Lab1. JQuery: Selector, events, animation

- Develop responsive web pages using jquery
- Familiarize with DOM manipulation and animations

Lab 1. JQuery

jQuery is a fast and concise JavaScript library to develop web based application.

Here is the list of important core features supported by jQuery –

- *DOM manipulation* – The jQuery made it easy to select DOM elements, negotiate them and modifying their content by using cross-browser open source selector engine called Sizzle.
- *Event handling* – The jQuery offers an elegant way to capture a wide variety of events, such as a user clicking on a link, without the need to clutter the HTML code itself with event handlers.
- *AJAX Support* – The jQuery eases developing a responsive and feature rich site using AJAX technology.
- *Animations* – The jQuery comes with plenty of built-in animation effects which you can use in your websites.
- *Lightweight* – The jQuery is very lightweight library - about 19KB in size (Minified and gzipped).
- *Cross Browser Support* – The jQuery has cross-browser support, and works well in IE 6.0+, FF 2.0+, Safari 3.0+, Chrome and Opera 9.0+
- *Latest Technology* – The jQuery supports CSS3 selectors and basic XPath syntax.

You can download jQuery library from <https://jquery.com/download/> on your local machine and include it in your HTML code.

Solved Example:

```
<html>
<head>
  <title>The jQuery Example</title>
  <script type = "text/javascript" src = "jquery-3.4.1.js">
  </script>
  <script type = "text/javascript" language = "javascript">
    $(document).ready(function() {
      $("div").click(function() {alert("Hello, world!");});
    });
  </script>
</head>
<body>
```

```

    <div id = "mydiv">
        Click on this to see a dialogue box.
    </div>
</body>
</html>

```

A good rule of thumb is to put your JavaScript programming (all your `<script>` tags) after any other content inside the `<head>` tag, but before the closing `</head>` tag.

The `$(document).ready()` function is a built-in jQuery function that waits until the HTML for a page loads before it runs your script.

When a web browser loads an HTML file, it displays the contents of that file on the screen and also the web browser remembers the HTML tags, their attributes, and the order in which they appear in the file—this representation of the page is called the *Document Object Model*, or DOM for short.

Selector:

jQuery offers a very powerful technique for selecting and working on a collection of elements—CSS selectors. The basic syntax is like this:

`$('.selector')`

use a CSS class selector like this:

```

$('.submenu')
    <script type = "text/javascript" language = "javascript">
        $(document).ready(function() {
            $("p").css("background-color", "yellow");
            $("#myid").css("background-color", "red");
        });
    </script>
</head>
<body>
    <div>
        <p class = "myclass">This is a paragraph.</p>
        <p id = "myid">This is second paragraph.</p>
        <p>This is third paragraph.</p>
    </div>
</body>

```

We can select tag available with the given class in the DOM. For example `$('.some-class')` selects all elements in the document that have a class name as some-class.

Get And Set Attributes:

```

<script type = "text/javascript" language = "javascript">
    $(document).ready(function() {
        var title = $("p").attr("title");
        $("#divid").text(title);
        $("#myimg").attr("src", "/jquery/images/jquery.jpg");
    });
</script>
</head>

```

```

<body>
  <div>
    <p title = "Bold and Brave">This is first paragraph.</p>
    <p id = "myid">This is second paragraph.</p>
    <div id = "divid"></div>
    <img id = "myimg" alt = "Sample image" />
  </div>
</body>
</html>

```

You can replace a complete DOM element with the specified HTML or DOM elements.

selector.replaceWith(content)

```

<script type = "text/javascript" language = "javascript">
  $(document).ready(function() {
    $("div").click(function () {
      $(this).replaceWith("<h1>JQuery is Great</h1>");
    });
  });
</script>

```

Events

To make your web page interactive, you write programs that respond to events.

Mouse events: click, dblclick, mousedown, mouseup, mouseover, etc

Document/Window Events: load, resize, scroll, unload etc

Form Events: submit, reset, focus, and change

```

<script type = "text/javascript" language = "javascript">
  $(document).ready(function() {
    $('#button').click(function() {
      $(this).val("Stop that!");
    }); // end click
  });
</script>
</head>
<body>
  <div id = "mydiv">
    Click on this to see a dialogue box.
    <input type="button" id="button">
  </div>
</body>

```

- The hover(over, out) method simulates hovering (moving the mouse on, and off, an object).

```

<script type = "text/javascript" language = "javascript">

```

```

$(document).ready(function() {
    $('div').hover(
        function () {
            $(this).css({ "background-color":"red" });
        },
        function () {
            $(this).css({ "background-color":"blue" });
        }
    );
}); </script>

```

The bind() method is a more flexible way of dealing with events than jQuery's event specific functions like click() or mouseover(). It not only lets you specify an event and a function to respond to the event, but also lets you pass additional data for the event-handling function to use.

```

$('#theElement').bind('click', function() {
// do something interesting
}); // end bind

```

- checked selector selects all checked check-boxes or radio buttons. Let us understand this with an example.

```

<html>
<head>
    <title></title>
    <script src="jquery-1.11.2.js"></script>
    <script type="text/javascript">
        $(document).ready(function () {
            $('#btnSubmit').click(function () {
                var result = $('input[type="radio"]:checked');
                if (result.length > 0) {
                    $('#divResult').html(result.val() + " is checked");
                }
                else {
                    $('#divResult').html("No radio button checked");
                }
            });
        });
    </script>
</head>
<body style="font-family:Arial">
    Gender :
    <input type="radio" name="gender" value="Male">Male
    <input type="radio" name="gender" value="Female">Female
    <input id="btnSubmit" type="submit" value="submit" />
    <div id="divResult">
</div>
</body>
</html>

```

- The each() method in jQuery is used to execute a function for each matched element.

```
<html>
<head>
  <title></title>
  <script src="jquery-1.11.2.js"></script>
  <script type="text/javascript">
    $(document).ready(function () {
      $('#btnSubmit').click(function () {
        var result = $('input[type="checkbox"]:checked');
        if (result.length > 0) {
          var resultString = result.length + " checkboxe(s) checked<br/>";
          result.each(function () {
            resultString += $(this).val() + "<br/>";
          });
          $('#divResult').html(resultString);
        }
        else {
          $('#divResult').html("No checkbox checked");
        }
      });
    });
  </script>
</head>
<body style="font-family:Arial">
  Skills :
  <input type="checkbox" name="skills" value="JavaScript" />JavaScript
  <input type="checkbox" name="skills" value="jQuery" />jQuery
  <input type="checkbox" name="skills" value="C#" />C#
  <input type="checkbox" name="skills" value="VB" />VB
  <br /><br />
  <input id="btnSubmit" type="submit" value="submit" />
  <br /><br />
  <div id="divResult">
  </div>
</body>
</html>
```

The animate() Method

The jQuery animate() method is used to 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.

`$("#button").click(function(){`

```
$("#div").animate({left:'250px'});  
});
```

Exercises:

1. Write a web page which contains table with 3 X 3 dimensions (fill some data) and one image. Style the rows with alternate color. Move the table and image together from right to left when button is clicked.
2. Design a calculator to perform basic arithmetic operations. Use textboxes and buttons to design web page.
3. Create a web page to design a birthday card shown below.



4. Design a webpage. The page contains:
 - Dropdown list with HP, Nokia, Samsung, Motorola, Apple as items.
 - Checkbox with Mobile and Laptop as items.
 - Textbox where you enter quantity.
 - There is a button with text as 'Produce Bill'.On Clicking Produce Bill button, alert should be displayed with total amount.

Additional Exercise:

1. Implement the bouncing ball using animate() function.
2. Write a web page which displays image and show the sliding text on the image.

