UNIVERSITY *of* STIRLING

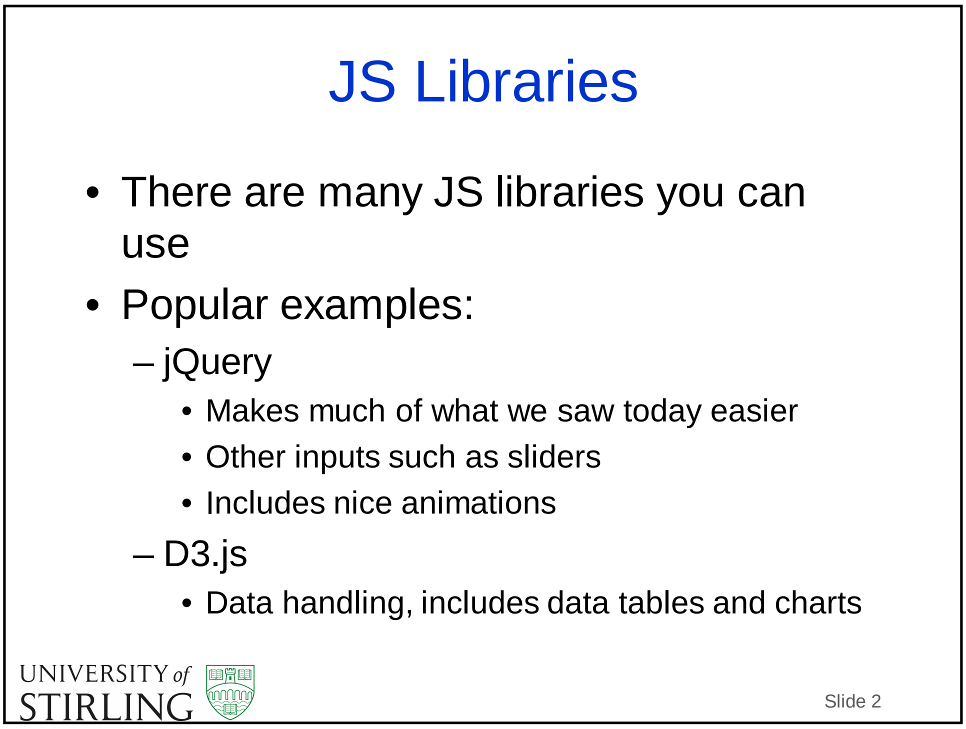
www.cs.stir.ac.uk

Mobile Applications

jQuery mobile

Slide 1

1



JS Libraries

- There are many JS libraries you can use
- Popular examples:
  - jQuery
    - Makes much of what we saw today easier
    - Other inputs such as sliders
    - Includes nice animations
  - D3.js
    - Data handling, includes data tables and charts

UNIVERSITY *of* STIRLING

Slide 2

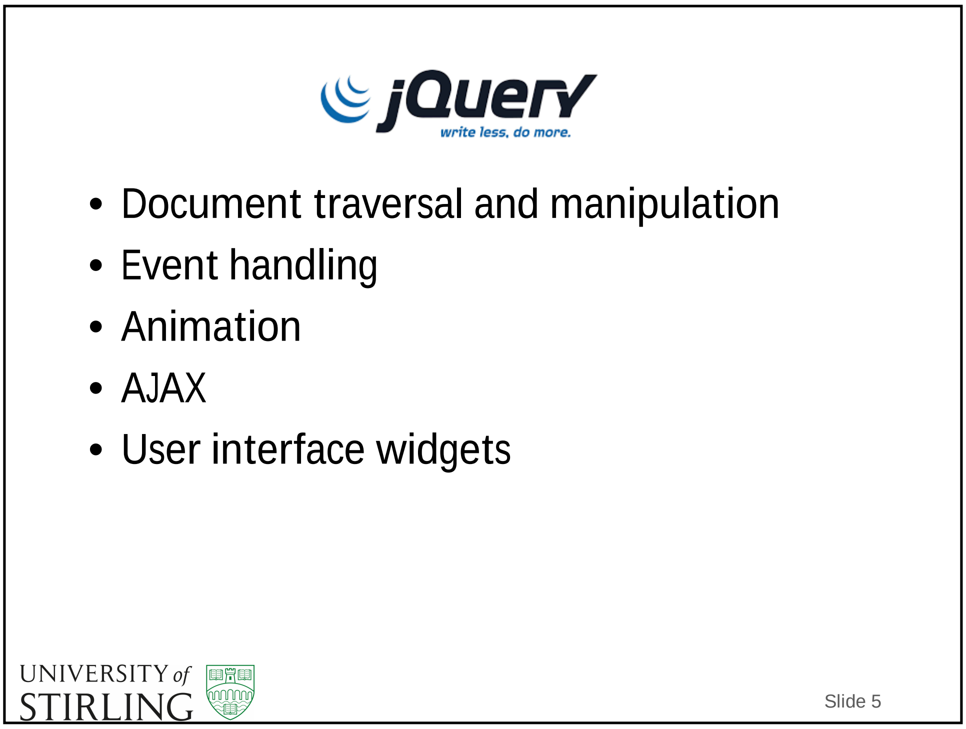
2

JS Libraries

- Collection of functionality available for you to use on your own webpages
- Install the library and then use (or don't use) what you need
- You can use more than one at a time
- Many integrate with frameworks, but can be used independently too

JS Libraries

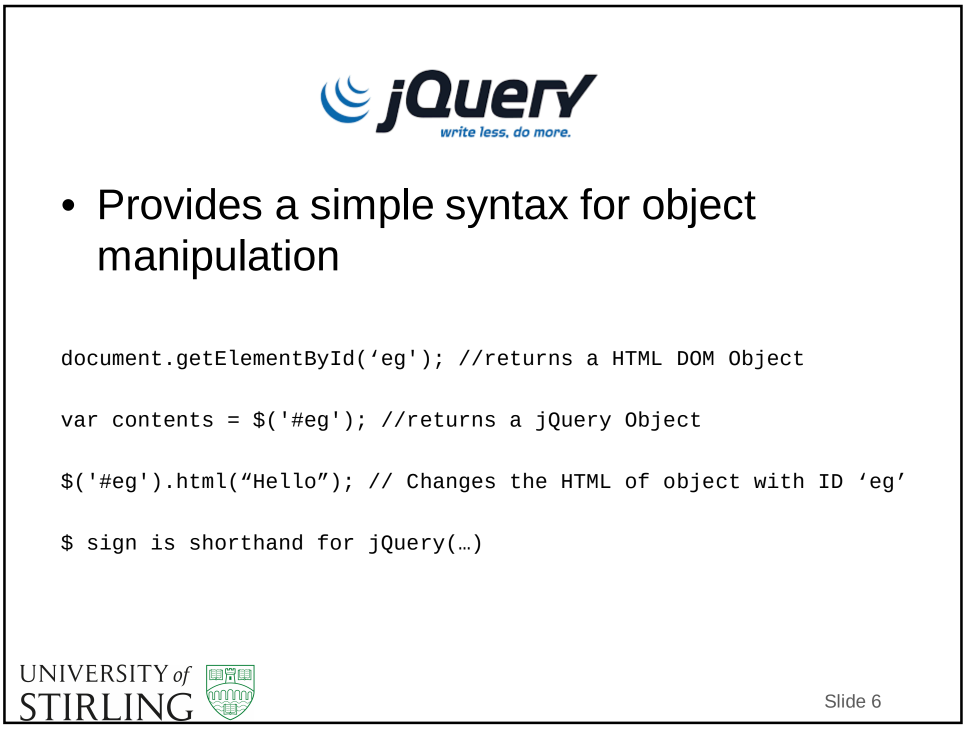
jQuery
write less, do more.
Chart.js
Easy, object oriented client side graphs for designers and developers
ionic
React D3



- Document traversal and manipulation
- Event handling
- Animation
- AJAX
- User interface widgets

Slide 5

5



- Provides a simple syntax for object manipulation

```
document.getElementById(‘eg'); //returns a HTML DOM Object

var contents = $('#eg'); //returns a jQuery Object

$('#eg').html(“Hello”); // Changes the HTML of object with ID ‘eg’

$ sign is shorthand for jQuery(…)
```

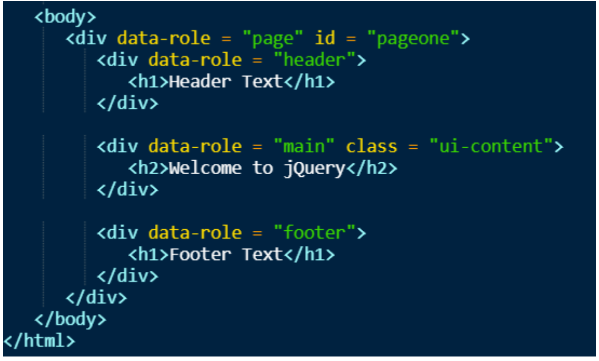
Slide 6

6

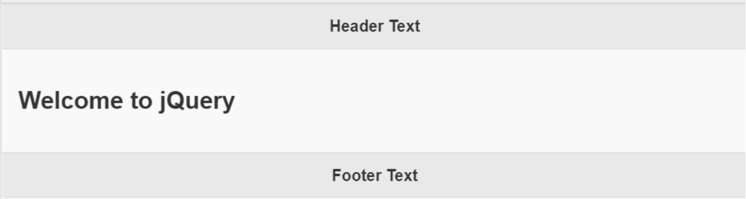
jQuery user interface

- Lots of useful interface controls
- Interactions
  - Drag, Drop, Resize, Select, Sort
- Widgets
  - Slider, Spinner
  - Date picker
  - Progress bar, tool tip
  - Many more
- Effects
  - Animation
  - Show / Hide
  - Transitions

Structure of a jQuery page (single page)



```
    <body>
        <div data-role = "page" id = "pageone">
            <div data-role = "header">
                <h1>Header Text</h1>
            </div>

            <div data-role = "main" class = "ui-content">
                <h2>Welcome to jQuery</h2>
            </div>

            <div data-role = "footer">
                <h1>Footer Text</h1>
            </div>
        </div>
    </body>
</html>
```

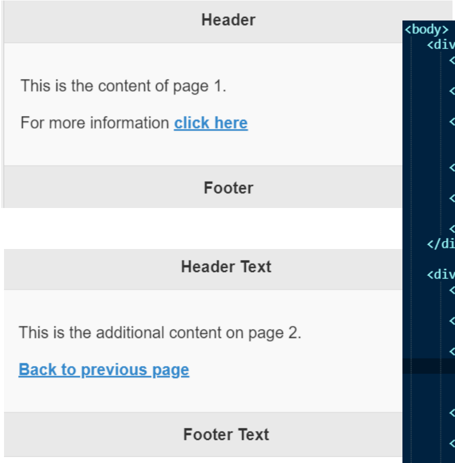


Header Text

Welcome to jQuery

Footer Text

Structure of a jQuery page (multipage)



Header

This is the content of page 1.

For more information click here

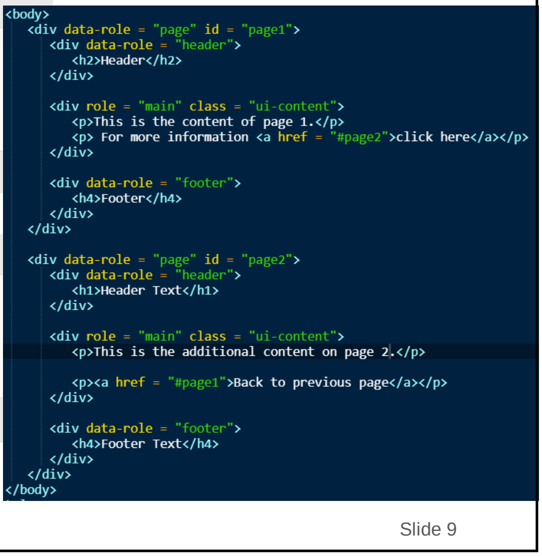
Footer

Header Text

This is the additional content on page 2.

Back to previous page

Footer Text

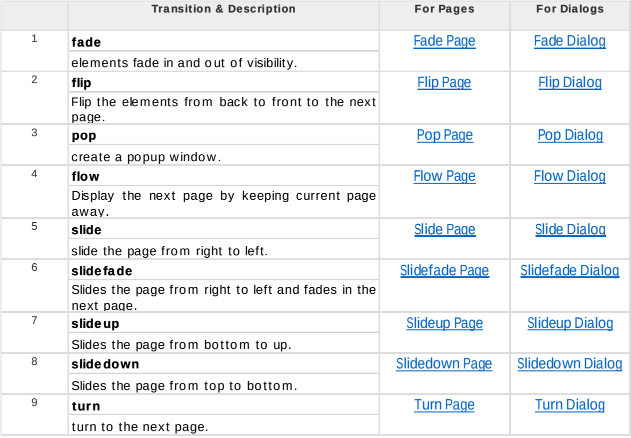


```
<body>
   <div data-role = "page" id = "page1">
      <div data-role = "header">
         <h2>Header</h2>
      </div>

      <div role = "main" class = "ui-content">
         <p>This is the content of page 1.</p>
         <p> For more information <a href = "#page2">click here</a></p>
      </div>

      <div data-role = "footer">
         <h4>Footer</h4>
      </div>
   </div>

   <div data-role = "page" id = "page2">
      <div data-role = "header">
         <h1>Header Text</h1>
      </div>

      <div role = "main" class = "ui-content">
         <p>This is the additional content on page 2.</p>

         <p><a href = "#page1">Back to previous page</a></p>
      </div>

      <div data-role = "footer">
         <h4>Footer Text</h4>
      </div>
   </div>
</body>
```

UNIVERSITY *of* STIRLING

Structure of a jQuery page

- Can use data-transitions.
  `<a href = "#page2" data-transition = "slidefade">Page Two</a>`

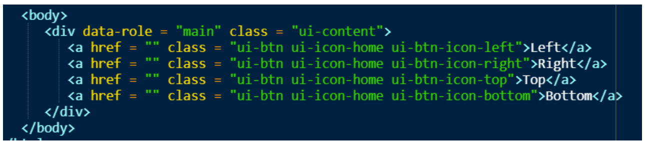


	Transition & Description	For Pages	For Dialogs
1	**fade** elements fade in and out of visibility.	Fade Page	Fade Dialog
2	**flip** Flip the elements from back to front to the next page.	Flip Page	Flip Dialog
3	**pop** create a popup window.	Pop Page	Pop Dialog
4	**flow** Display the next page by keeping current page away.	Flow Page	Flow Dialog
5	**slide** slide the page from right to left.	Slide Page	Slide Dialog
6	**slidefade** Slides the page from right to left and fades in the next page.	Slidefade Page	Slidefade Dialog
7	**slideup** Slides the page from bottom to up.	Slideup Page	Slideup Dialog
8	**slidedown** Slides the page from top to bottom.	Slidedown Page	Slidedown Dialog
9	**turn** turn to the next page.	Turn Page	Turn Dialog

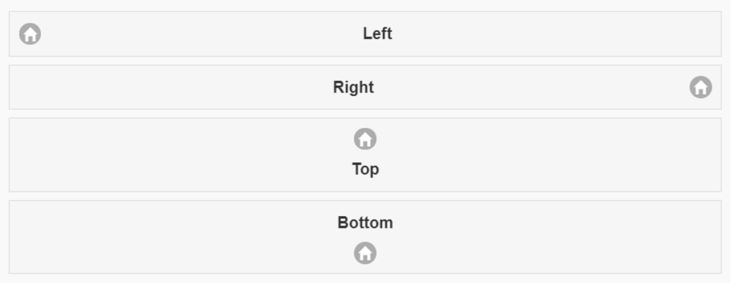
UNIVERSITY *of* STIRLING

jQuery icons

- Can be used on buttons etc



```
<body>
   <div data-role = "main" class = "ui-content">
      <a href = "" class = "ui-btn ui-icon-home ui-btn-icon-left">Left</a>
      <a href = "" class = "ui-btn ui-icon-home ui-btn-icon-right">Right</a>
      <a href = "" class = "ui-btn ui-icon-home ui-btn-icon-top">Top</a>
      <a href = "" class = "ui-btn ui-icon-home ui-btn-icon-bottom">Bottom</a>
   </div>
</body>
```



- https://api.jqueryui.com/theming/icons/

UNIVERSITY of STIRLING

jQuery grids

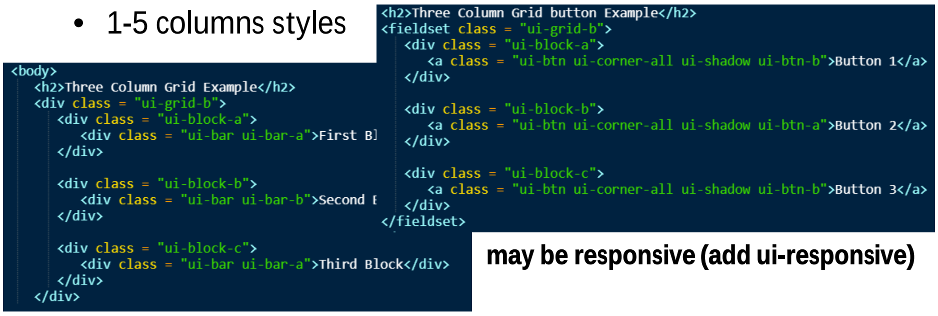
- Great for formatting (parts of) a page as a table/grid
- 1-5 columns styles

1	**Basic grids** Include *ui-grid-solo* class in <div> to create a single column grid, the grid width is 100%
2	**Two column grids** Add class *ui-grid-a* to a <div> and include two child container with class *ui-block-a* and *ui-block-b* to create two column layout.
3	**Three-column grids** The *ui-grid-b* class is used to create a three column grid, it includes three child container with class *ui-block-a/b/c*.
4	**Four-column grids** The *ui-grid-c* class is used to create a four column grid, it includes four child container with class *ui-block-a/b/c/d/e*.
5	**Five-column grids** The *ui-grid-d* class is used to create a five column grid, it includes five child container with class *ui-block-a/b/c/d*.

UNIVERSITY of STIRLING

jQuery grids

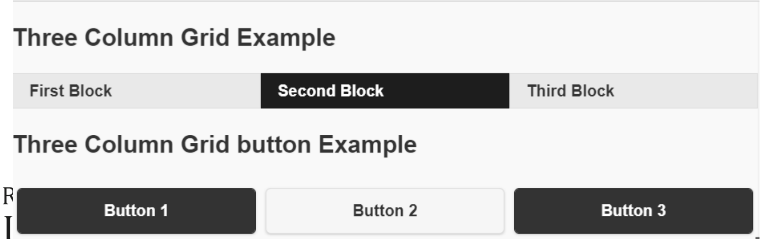
- Great for formatting (parts of) a page as a table/grid
- 1-5 columns styles



```
<h2>Three Column Grid button Example</h2>
<fieldset class = "ui-grid-b">
   <div class = "ui-block-a">
      <a class = "ui-btn ui-corner-all ui-shadow ui-btn-b">Button 1</a>
   </div>

   <div class = "ui-block-b">
      <a class = "ui-btn ui-corner-all ui-shadow ui-btn-a">Button 2</a>
   </div>

   <div class = "ui-block-c">
      <a class = "ui-btn ui-corner-all ui-shadow ui-btn-b">Button 3</a>
   </div>
</fieldset>
```

```
<body>
   <h2>Three Column Grid Example</h2>
   <div class = "ui-grid-b">
      <div class = "ui-block-a">
         <div class = "ui-bar ui-bar-a">First Bl
      </div>

      <div class = "ui-block-b">
         <div class = "ui-bar ui-bar-b">Second B
      </div>

      <div class = "ui-block-c">
         <div class = "ui-bar ui-bar-a">Third Block</div>
      </div>
   </div>
```

may be responsive (add ui-responsive)

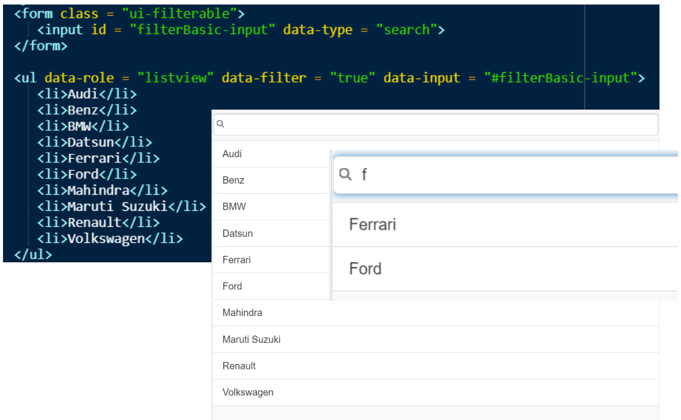


Three Column Grid Example

Three Column Grid button Example

jQuery controls

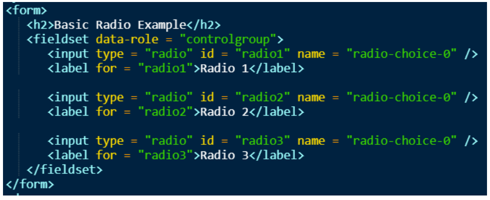
- Lots of them!
- Filter, buttons, flipswitches, checkboxes, radio buttons, datepicker, collapsible data, …



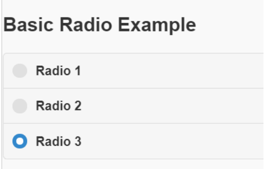
```
<form class = "ui-filterable">
   <input id = "filterBasic-input" data-type = "search">
</form>

<ul data-role = "listview" data-filter = "true" data-input = "#filterBasic-input">
   <li>Audi</li>
   <li>Benz</li>
   <li>BMW</li>
   <li>Datsun</li>
   <li>Ferrari</li>
   <li>Ford</li>
   <li>Mahindra</li>
   <li>Maruti Suzuki</li>
   <li>Renault</li>
   <li>Volkswagen</li>
</ul>
```

jQuery controls II

- Lots of them!
- Filter, buttons, flipswitches, checkboxes, radio buttons, datepicker, collapsible data, …



```
<form>
   <h2>Basic Radio Example</h2>
   <fieldset data-role = "controlgroup">
      <input type = "radio" id = "radio1" name = "radio-choice-0" />
      <label for = "radio1">Radio 1</label>

      <input type = "radio" id = "radio2" name = "radio-choice-0" />
      <label for = "radio2">Radio 2</label>

      <input type = "radio" id = "radio3" name = "radio-choice-0" />
      <label for = "radio3">Radio 3</label>
   </fieldset>
</form>
```

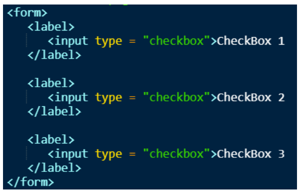


Basic Radio Example

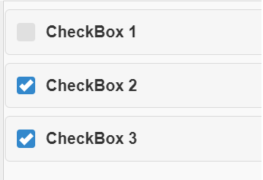
○ Radio 1

○ Radio 2

● Radio 3



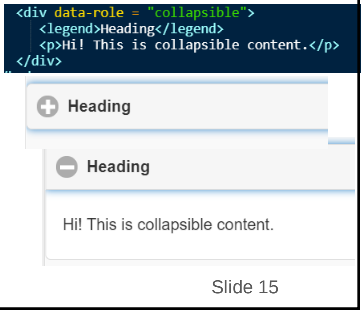
```
<form>
   <label>
      <input type = "checkbox">CheckBox 1
   </label>

   <label>
      <input type = "checkbox">CheckBox 2
   </label>

   <label>
      <input type = "checkbox">CheckBox 3
   </label>
</form>
```



☐ CheckBox 1

☑ CheckBox 2

☑ CheckBox 3

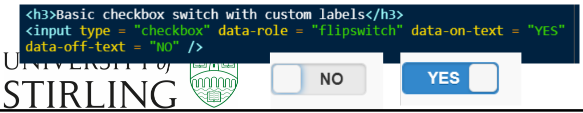


```
<div data-role = "collapsible">
   <legend>Heading</legend>
   <p>Hi! This is collapsible content.</p>
</div>
```

Heading

Heading

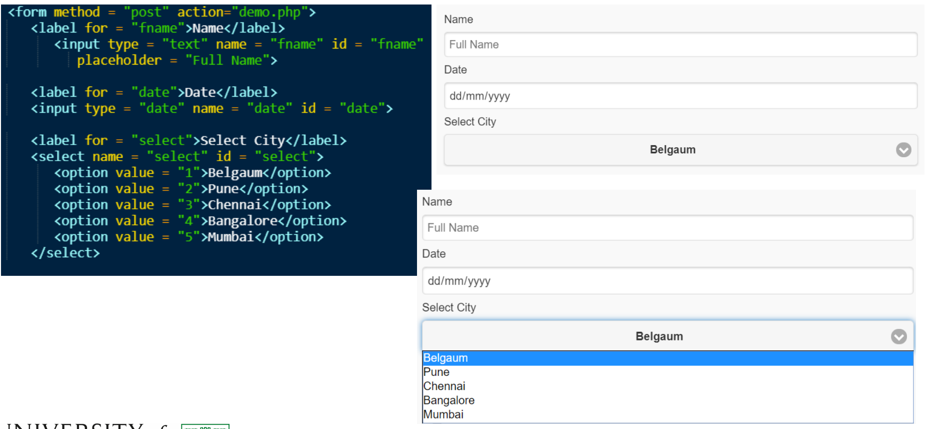
Hi! This is collapsible content.



```
<h3>Basic checkbox switch with custom labels</h3>
<input type = "checkbox" data-role = "flipswitch" data-on-text = "YES"
data-off-text = "NO" />
```

jQuery controls III

- Lots of them!
- Filter, buttons, flipswitches, checkboxes, radio buttons, datepicker, collapsible data, …



```
<form method = "post" action="demo.php">
   <label for = "fname">Name</label>
      <input type = "text" name = "fname" id = "fname"
         placeholder = "Full Name">

   <label for = "date">Date</label>
   <input type = "date" name = "date" id = "date">

   <label for = "select">Select City</label>
   <select name = "select" id = "select">
      <option value = "1">Belgaum</option>
      <option value = "2">Pune</option>
      <option value = "3">Chennai</option>
      <option value = "4">Bangalore</option>
      <option value = "5">Mumbai</option>
   </select>
```

Name

Full Name

Date

dd/mm/yyyy

Select City

Belgaum

Name

Full Name

Date

dd/mm/yyyy

Select City

Belgaum

Belgaum
Pune
Chennai
Bangalore
Mumbai

jQuery Events

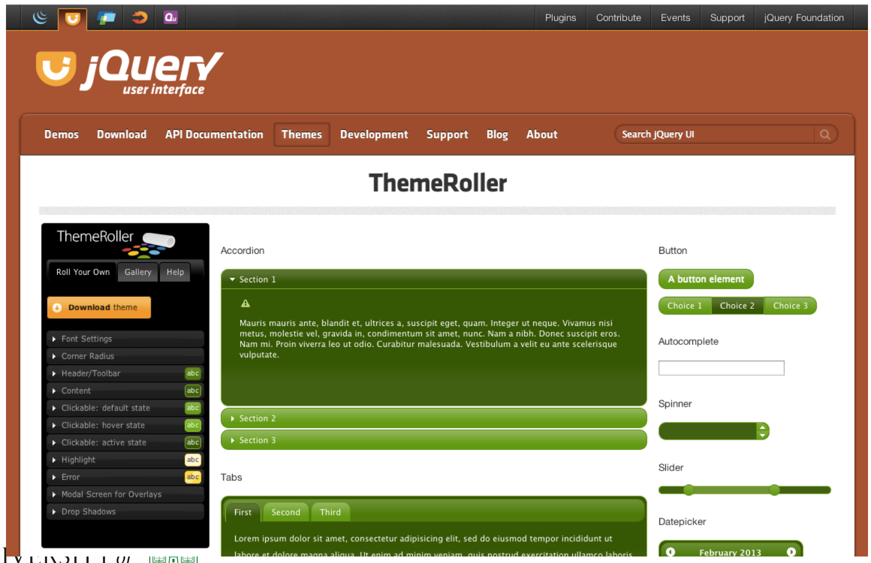
- Lots of them!

1	**Tap Event** Fires when the user taps on an element.
2	**Taphold Event** Fires when the user taps on an element and holds for a couple of seconds.
3	**Swipe Event** Fires when the user horizontally drags more than 30px over an element.
4	**Swipeleft Event** Fires when the user drags more than 30px over an element in the left direction.
5	**Swiperight Event** Fires when the user drags more than 30px over an element in the right direction.

jQuery Themes

- Designs (fonts, size, colours etc) for jQuery elements
- There are standard themes
- Design your own! (ThemeRoller)
- jQuery provides two types of themes "a" and theme "b" to customise the look of an application
- Set different theme on the buttons, navbars, blocks, links and so on; using data-theme attribute.
- <div data-role = "page" id = "pageone" data-theme = "a">

jQuery Themes



Mauris mauris ante, blandit et, ultrices a, suscipit eget, quam. Integer ut neque. Vivamus nisi metus, molestie vel, gravida in, condimentum sit amet, nunc. Nam a nibh. Donec suscipit eros. Nam mi. Proin viverra leo ut odio. Curabitur malesuada. Vestibulum a velit eu ante scelerisque vulputate.

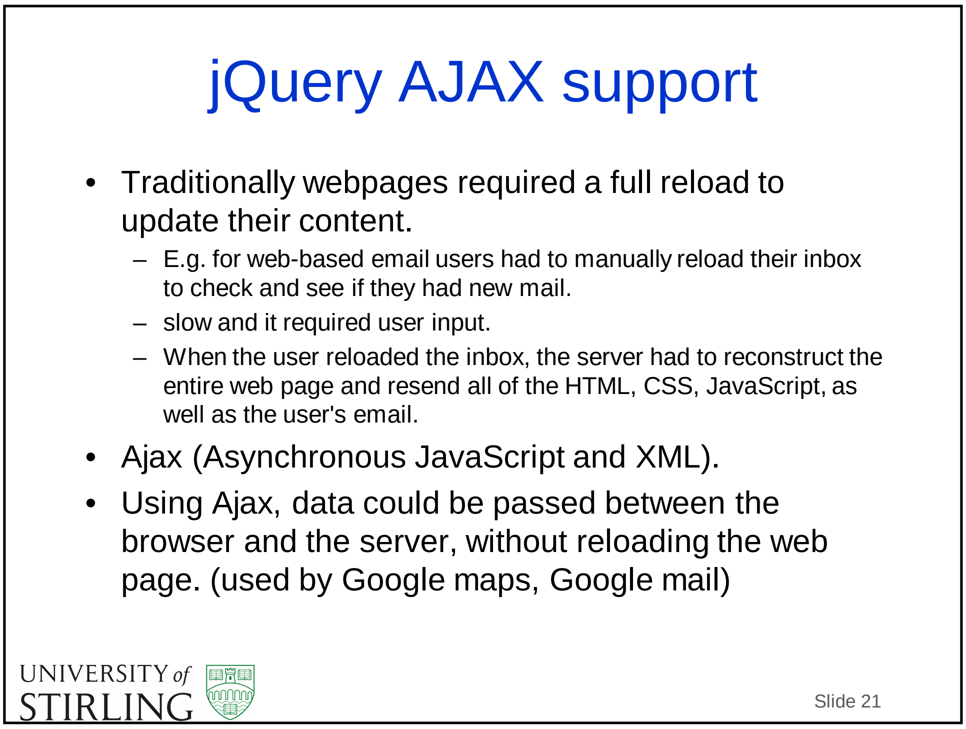
Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris

UNIVERSITY of STIRLING

jQuery API Reference

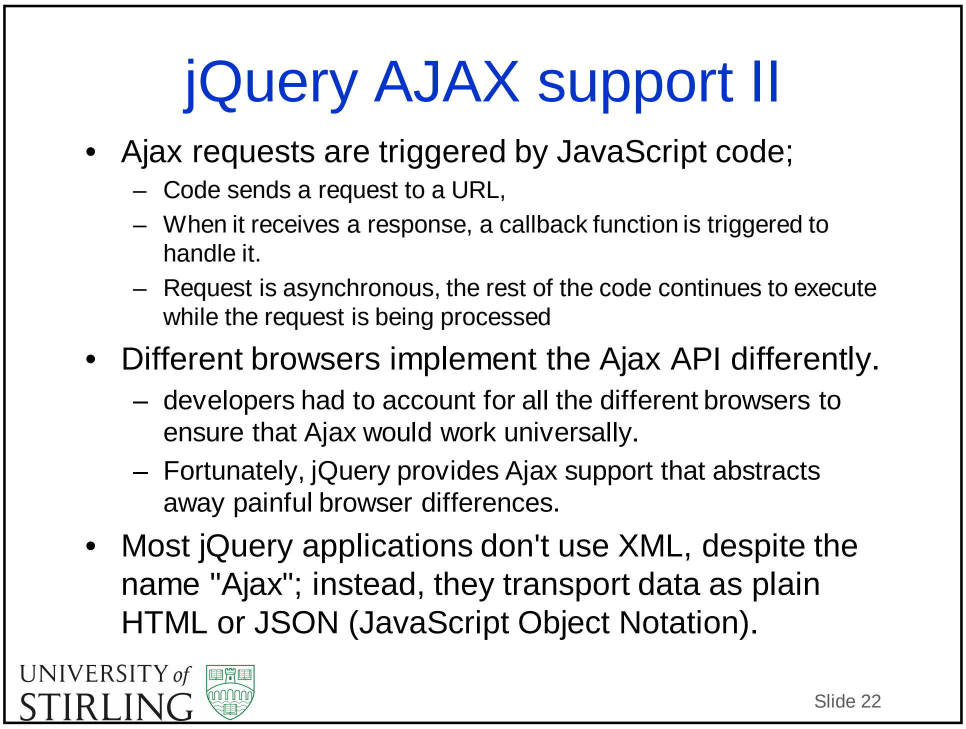
- https://api.jqueryui.com/
- https://jqueryui.com/demos/
- http://demos.jquerymobile.com/1.4.5/tabs/

UNIVERSITY of STIRLING



jQuery AJAX support

- Traditionally webpages required a full reload to update their content.
  - E.g. for web-based email users had to manually reload their inbox to check and see if they had new mail.
  - slow and it required user input.
  - When the user reloaded the inbox, the server had to reconstruct the entire web page and resend all of the HTML, CSS, JavaScript, as well as the user's email.
- Ajax (Asynchronous JavaScript and XML).
- Using Ajax, data could be passed between the browser and the server, without reloading the web page. (used by Google maps, Google mail)



jQuery AJAX support II

- Ajax requests are triggered by JavaScript code;
  - Code sends a request to a URL,
  - When it receives a response, a callback function is triggered to handle it.
  - Request is asynchronous, the rest of the code continues to execute while the request is being processed
- Different browsers implement the Ajax API differently.
  - developers had to account for all the different browsers to ensure that Ajax would work universally.
  - Fortunately, jQuery provides Ajax support that abstracts away painful browser differences.
- Most jQuery applications don't use XML, despite the name "Ajax"; instead, they transport data as plain HTML or JSON (JavaScript Object Notation).