Molecular Biomedical Informatics

Social Web Design & Research
JavaScript
JavaScript

- Executed by browser
  - completely different to Java
  - script language (腳本語言)

- So, it is just a programming language
  - for example, it can accumulate from one to ten
  - notice that it is executed by browser, which means no internet connection is required

- Its survival is a miracle
  - heard of Netscape?
Its advantage: integration with web

- When integrating with web, the most important thing is to show the result

```
document.getElementById('foo').value='bar';
```
- `document` is an object of Document Object Model (DOM)
- `getElementById()` is a method of `document`, which returns a DOM object
- `value` is an attribute of an input object, where `#foo` is a `<input>`

- You may consult HTML and CSS references for available properties and [here](#) for objects and methods
How to select .foo objects?

- **JavaScript `getElementsByClass` function**

```javascript
function getElementsByClass(searchClass, domNode, tagName) {
    if (domNode == null) domNode = document;
    if (tagName == null) tagName = '*';
    var el = new Array();
    var tags = domNode.getElementsByTagName(tagName);
    var sc = " " + searchClass + " ";
    for (i=0, j=0; i<tags.length; ++i) {
        var tc = " " + tags[i].className + " ";
        if (tc.indexOf(sc) != -1)
            el[j++] = tags[i];
    }
    return el;
}
```

- Painful
jQuery

- A Javascript library that every web site should use
- What is a library (module)? If many people do the same things, these things should become a library
- The advantage is that code becomes simple and understandable
  - $\text{jQuery}('\.foo').\text{val}('bar');$
- The disadvantage is that you have to learn more functions, but totally worthy
  - Main Page - jQuery JavaScript Library
jQuery('.foo').css('color','red');

Understand this, and you know almost all fancy transitions
Remember the [CSS Zen Garden](http://www.csszen Garden)?
More advanced function, animate()

- jQuery('.foo').animate({
    'margin-left': '100px',
}, 2000, function(){
    // animation completed
});
In addition to ‘show the result’, there is another important things while integrating with web
Input (event)

- All web transitions are caused by events (such as clicking a button). This is the so-called event-driven programming (事件導向)
  - not specific for web programming, windows programming (視窗程式設計) and any programing in a multi-tasking environment (多工) are based on such a concept

- `jQuery('#foo').click(function(){...});`
  - `jQuerify` is a good tool to test jQuery
  - suppose that #foo is a `<button>`
  - `click` is an event (`.click()` - jQuery API)
  - Here we used the trick of anonymous function. Please be familiar with it since this field uses it a lot.
JavaScript references

- JavaScript Garden
- Learn jQuery & JAVASCRIPT for free
- Some interesting concepts widely used, but not unique, in JavaScript
  - anonymous function, callback function, closure, functional programming (那些 Functional Programming 教我的事)

- Notice that they are for JavaScript rather than for web programing with JavaScript
Any Questions?
Develop an app with these techniques

- WebView
- Various frameworks
  - box2dweb
- Cross-platform
Today’s assignment
今天的任務
Make your web site dynamic

- Implement actions with HTML, CSS and JavaScript
- Reference
  - 8 Layout Solutions To Improve Your Designs
  - 40 Super-Neat JavaScript Plugins
  - 45+ New jQuery Techniques For Good User Experience
- Your web site (http://merry.ee.ncku.edu.tw/~xxx/cur/) will be checked not before 23:59 3/12 (Tue). You may send a report (such as some important modifications) to me in case I did not notice your features.
Appendix
附錄
If we have time, I want to discuss…

- Any web effects you want to learn?
- JavaScript Garden