AJAX & jQuery

Asynchronous JavaScript and XML

AJAX

Ajax let's us send/receive data with a server, without a full page reload.

- You're a manager of a large retail store.
  - In the past, you used to have to visit the corporate office to get the weekly sales for your various departments.
  - The store would be "on hold" while you were away

- Now you have department managers to go to the corporate office, as needed
  - The rest of the store can function while "Housewares" department manager is going to the corporate office for weekly sales details

AJAX - Content

- jQuery and Browser Wars
  - jQuery simplified calls to get content

```
$(document).ready(function(){
  $("button").click(function(){
    $("#div1").load("demo_test.txt");
  });
});
```

AJAX - Data

- jQuery and Browser Wars
    - jQuery simplified calls to get data
- get
    - Usually to get data
    - Any data sent via URL
    - ~2,000 character max
- post
    - Usually used to send data
    - Any data sent in "form body"
    - More Secure
    - No real max

```
$.get("demo_test.asp", function(data, status){
  alert("Data: " + data + "\nStatus: " + status);
});
//POST
var dataToSend =   {
 name: "Donald Duck",
 city: "Duckburg"
};
$.post("demo_test_post.asp", dataToSend,
  function(data, status){
    alert("Data: " + data + "\nStatus: " + status);
  });
});
```

AJAX - get

https://www.w3schools.com/jquery/jquery_ajax_load.asp

- Any data sent via URL
- ~2,000 character max?

https://www.getmydata.com?firstname=duane&lastname=haworth&ssn=xxxxxxxx&kids=0&pets=1& so on...

AJAX - post

https://www.w3schools.com/jquery/jquery_ajax_load.asp

- Usually used to send data
- Any data sent in "form body"

```
var dataToSend =   {
 name: "Donald Duck",
 city: "Duckburg"
};
$.post("demo_test_post.asp", dataToSend,
  function(data, status){
   alert("Data: " + data + "\nStatus: " + status);
  });
});
```

How to Program

Programming is telling a computer what to do

- Programming Toolbox
  - Functions - We can define the actions we want our program to perform
  - Conditions/Logic - Define when we want our program to take a different path
  - Loops - We will rarely work with just one thing
  - jQuery - Helps us interact with
    - UI
    - Server calls (Get/Send data)

- To be a programmer, you need
  - Patience
    - You will have to start things over
    - You will do things wrong
    - You will say "The computer should know what I meant".
    - You will learn to pay attention to the details
- The best advice I can give going forward is the quote on the next slide....

Programming Self-Defense

The programming world isn't perfect.

- Account for bad things
  - Try...catch
  - Error handling in AJAX calls

Try...Catch

- Surround potential problems with:
  try{
   ... code here
  }
  catch(error){
   //respond to error here
  }

```
function divide(num, den){
  try{
    alert(num/den);
  }
  catch(error){
    alert(error);
  }
}
```

Error Handling in Ajax Calls

https://www.w3schools.com/jquery/jquery_ajax_load.asp

- Callback on complete

```javascript
$("button").click(function(){
  $("#div1").load("demo_test.txt",
    function(responseTxt, statusTxt, xhr){
      if(statusTxt == "success"){
        alert("Success");
      }
      if(statusTxt == "error"){
        alert("Error: " + xhr.status
              + ": " + xhr.statusText);
      }
  });
});
```

Error Handling in Ajax Calls

https://www.w3schools.com/jquery/jquery_ajax_load.asp

- Callback on complete

```
$("button").click(function(){
  $.post("demo_test_post.asp",
  {
      name: "Donald Duck",
      city: "Duckburg"
  },
  function(data, status){
    alert("Data: " + data
          + "\nStatus: " + status);
  });
});
```

Error Handling in Ajax Calls

https://www.w3schools.com/jquery/jquery_ajax_load.asp

- Alternative

```
$("button").click(function(){
  $.get("demo_test_post.asp")
    .done(function(data){
      //Do something with data
    })
    .fail(function(response, status, req){
      //Do something with error
    })
    .always(function(){
      //Always do something here
    });
});
```

A problem well stated is a problem half-solved

- Charles Kettering

You've got the tools, now what...

Weather

Interacting with HTML Input Elements