From HTML to PostGIS

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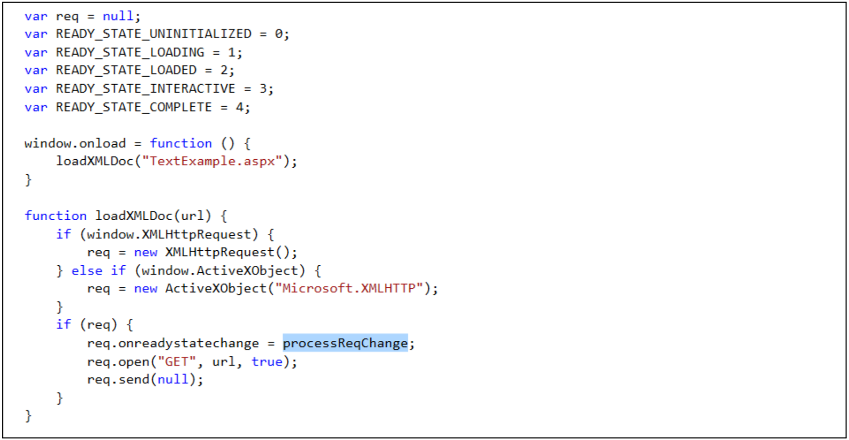
Lecture plan

1. AJAX
   - Plain XMLHTTPRequest
   - Fetch API

Definition

- AJAX = Asynchronous JavaScript+XML
- Use JavaScript and XML-based messages to communicate from within a web page with the server without refreshing the HTML page at the same time
- *With AJAX, we are taking a bunch of dusty old technologies and stretching them well beyond their original scope* – AJAX in Action, Manning, 2006

Sample plain JS code

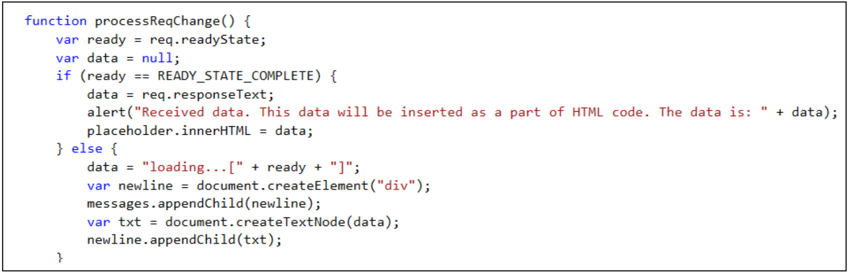


```
var req = null;
var READY_STATE_UNINITIALIZED = 0;
var READY_STATE_LOADING = 1;
var READY_STATE_LOADED = 2;
var READY_STATE_INTERACTIVE = 3;
var READY_STATE_COMPLETE = 4;

window.onload = function () {
    loadXMLDoc("TextExample.aspx");
}

function loadXMLDoc(url) {
    if (window.XMLHttpRequest) {
        req = new XMLHttpRequest();
    } else if (window.ActiveXObject) {
        req = new ActiveXObject("Microsoft.XMLHTTP");
    }
    if (req) {
        req.onreadystatechange = processReqChange;
        req.open("GET", url, true);
        req.send(null);
    }
}
```

Sample plain JS code cont.



```
function processReqChange() {
    var ready = req.readyState;
    var data = null;
    if (ready == READY_STATE_COMPLETE) {
        data = req.responseText;
        alert("Received data. This data will be inserted as a part of HTML code. The data is: " + data);
        placeholder.innerHTML = data;
    } else {
        data = "loading...[" + ready + "]";
        var newline = document.createElement("div");
        messages.appendChild(newline);
        var txt = document.createTextNode(data);
        newline.appendChild(txt);
    }
```

Crucial steps of AJAX request

- Setting up the data handler `req.onreadystatechange = processReqChange;`
- Initializing the connection `req.open(‘‘GET’’, url, true);`
- Sending the request `req.send(null);`

GET and POST differences

- GET
  - Arguments are sent within the address argument
  - `req.open(‘‘GET’’, ‘‘script?name=John&surname=Major’’, async);`
  - `req.send();`
- POST
  - Arguments are sent within the body of the message and its content type needs to be specified
  - `req.open(‘‘POST’’, ‘‘script’’, async);`
  - `req.setRequestHeader(‘‘Content-type’’, ‘‘application/x-www- form-urlencoded’’);`
  - `req.send(‘‘name=John&surname=Major’’);`

A fetch API request

- Complete introduction to Fetch API
- So long XHR - another introduction to Fetch
- Why you shouldn't use Fetch