# CIS 4004: Web Based Information Technology Spring 2013

## Introduction To AJAX – Part 2

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# An RSS Headline Reader

- In the previous set of Ajax notes, we developed a wrapper class to deal with the XHR object to handle the request/response to the server.

- We then looked at an example that returned the contents of a text file on the server to the client's browser window using the asynchronous nature of Ajax.

- In this example, we'll look at the data coming from the server, not as text, but as XML data.

- Unlike, the text data, which does not require parsing to deal with on the browser-side, we'll need to parse the XML data in order to do something with it on the browser-side.

# An RSS Headline Reader

- XML data is made available on the Internet in many forms. One of the most popular is the RSS feed, a particular type of XML source usually containing news or other topical and regularly updated items.

- RSS feeds are available from many sources on the Web, including most broadcast companies and newspaper publishers, as well as specialist sites for all manner of subjects.

- We'll develop an Ajax application to take a URL for an RSS feed, collect the XML, and list the titles of the news items contained in the feed.

- A typical RSS feed might look similar to the one shown on the next page.

An Ajax RSS Headline Re... × | Hello From PHP × | RSS (Really Simple Syndi... × | CNN.com - Top Stories ×

Web | rss.cnn.com/rss/cnn_topstories.rss | Search with Google

Learn more about feeds

## ᛜ CNN.com - Top Stories

Subscribe to this feed using  [Opera Mail ▼]   [ Subscribe ]

### Fertilizer plant explosion kills 5 to 15 people

Thursday, April 18, 2013 8:00:34 AM

The blast in the Texas town of West injured more than 160. "Criminal activity" is not apparent but hasn't been ruled out.

FULL    STORY       ◆ Email this        ◆ Add to del.icio.us

◆ Digg This!    ◆ Share on Facebook    ◆ Stumble It!

### Amputees never say, 'I can't'

Thursday, April 18, 2013 7:50:24 AM

Jothy Rosenberg, who lost a leg when young, says those who lost legs in the Boston blast face big challenges--of both body and especially mind--but will succeed better than they imagine   ◆ Email this        ◆ Add to del.icio.us        ◆ Digg This!

◆ Share on Facebook    ◆ Stumble It!

### Mailbox may have saved his life

### Bloody EMT chief: 'Roof came in'

Opera | An Ajax RSS Headlin... ✕ | Hello From PHP ✕ | CNN RSS (Really Simple S... ✕ | CNN.com - Top Stories ✕ | Source: CNN.com - ... ✕

Save   Apply Changes

```xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" media="screen" href="/~d/styles/rss2full.xsl"?><?xml-stylesheet type="text/css"
media="screen" href="http://rss.cnn.com/~d/styles/itemcontent.css"?><rss xmlns:media="http://search.yahoo.com/mrss/"
xmlns:feedburner="http://rssnamespace.org/feedburner/ext/1.0" version="2.0">
<channel>
<title>CNN.com - Top Stories</title>
<link>http://www.cnn.com/index.html?eref=rss_topstories</link>
<description>CNN.com delivers up-to-the-minute news and information on the latest top stories, weather, entertainment,
politics and more.</description>
<language>en-US</language>
<copyright>Copyright 2013 Cable News Network LP, LLLP.</copyright>
<pubDate>Thu, 18 Apr 2013 08:01:53 EDT</pubDate>
<ttl>10</ttl>
<image>
<title>CNN.com - Top Stories</title>
<link>http://www.cnn.com/index.html?eref=rss_topstories</link>
<url>http://i.cdn.turner.com/cnn/.e/img/1.0/logo/cnn.logo.rss.gif</url>
<width>144</width>
<height>33</height>
<description>CNN.com delivers up-to-the-minute news and information on the latest top stories, weather, entertainment,
politics and more.</description>
</image>
<atom10:link xmlns:atom10="http://www.w3.org/2005/Atom" rel="self" type="application/rss+xml" href="http://rss.cnn.com/rss/
cnn_topstories" /><feedburner:info uri="rss/cnn_topstories" /><atom10:link xmlns:atom10="http://www.w3.org/2005/Atom"
rel="hub" href="http://pubsubhubbub.appspot.com/" /><thespringbox:skin xmlns:thespringbox="http://www.thespringbox.com/
dtds/thespringbox-1.0.dtd">http://rss.cnn.com/rss/cnn_topstories?format=skin</thespringbox:skin><item><title>One way to
fight gun violence</title><guid isPermaLink="false">http://www.cnn.com/2013/04/17/opinion/jones-gun-control/index.html</
guid><link>http://rss.cnn.com/~r/rss/cnn_topstories/~3/GntRPnHLMX8/index.html</link><description>Van Jones says posters on
GunShowGallery.com show a new generation that wants to change the world for the better.&lt;div class="feedflare"&gt;
&lt;a href="http://rss.cnn.com/~ff/rss/cnn_topstories?a=GntRPnHLMX8:3Xquym7E4RE:yIl2AUoC8zA"&gt;&lt;img src="http://
```
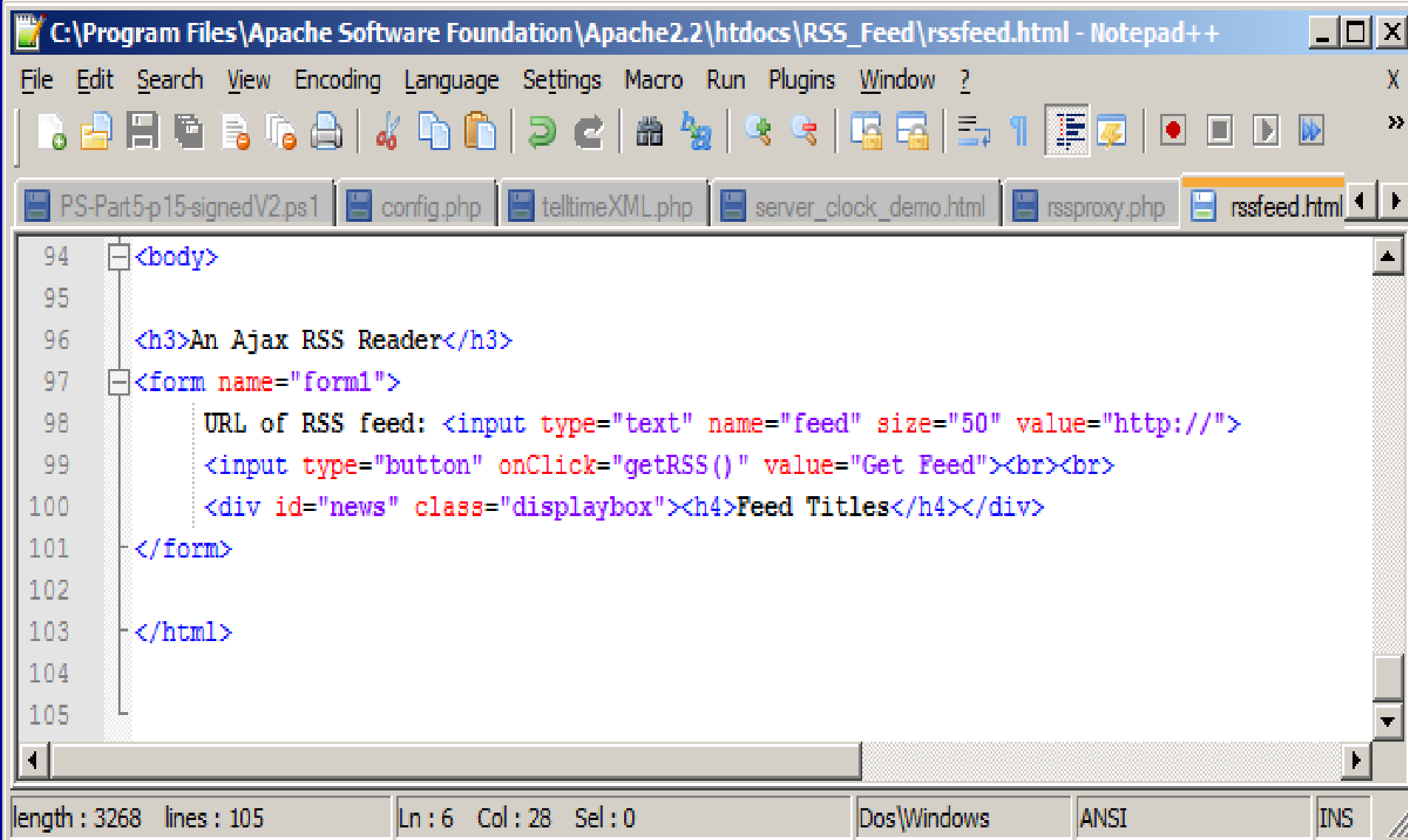
# An RSS Headline Reader

- Notice that the RSS feed shown on page 5 is using RSS version 2.0.

- The versions of RSS differ quite a bit, but for the purposes of our example RSS reader, we only care about the `<title>` elements for the individual news items.  This element remains essentially unchanged from RSS version to version.

- Our page will need to contain an input field (read form) for the user to enter the URL of the RSS feed and a button to instruct the application to collect the data.

- We'll also use a `<div>` element in which to display the parsed data.

- This part of the markup is shown on the next page.

# An RSS Headline Reader

C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\RSS_Feed\rssfeed.html - Notepad++

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?                                  X

| PS-Part5-p15-signedV2.ps1 | config.php | telltimeXML.php | server_clock_demo.html | rssproxy.php | rssfeed.html |

```
94   <body>
95
96   <h3>An Ajax RSS Reader</h3>
97   <form name="form1">
98       URL of RSS feed: <input type="text" name="feed" size="50" value="http://">
99       <input type="button" onClick="getRSS()" value="Get Feed"><br><br>
100      <div id="news" class="displaybox"><h4>Feed Titles</h4></div>
101  </form>
102
103  </html>
104
105
```

length : 3268    lines : 105            Ln : 6   Col : 28   Sel : 0                    Dos\Windows          ANSI          INS

# An RSS Headline Reader
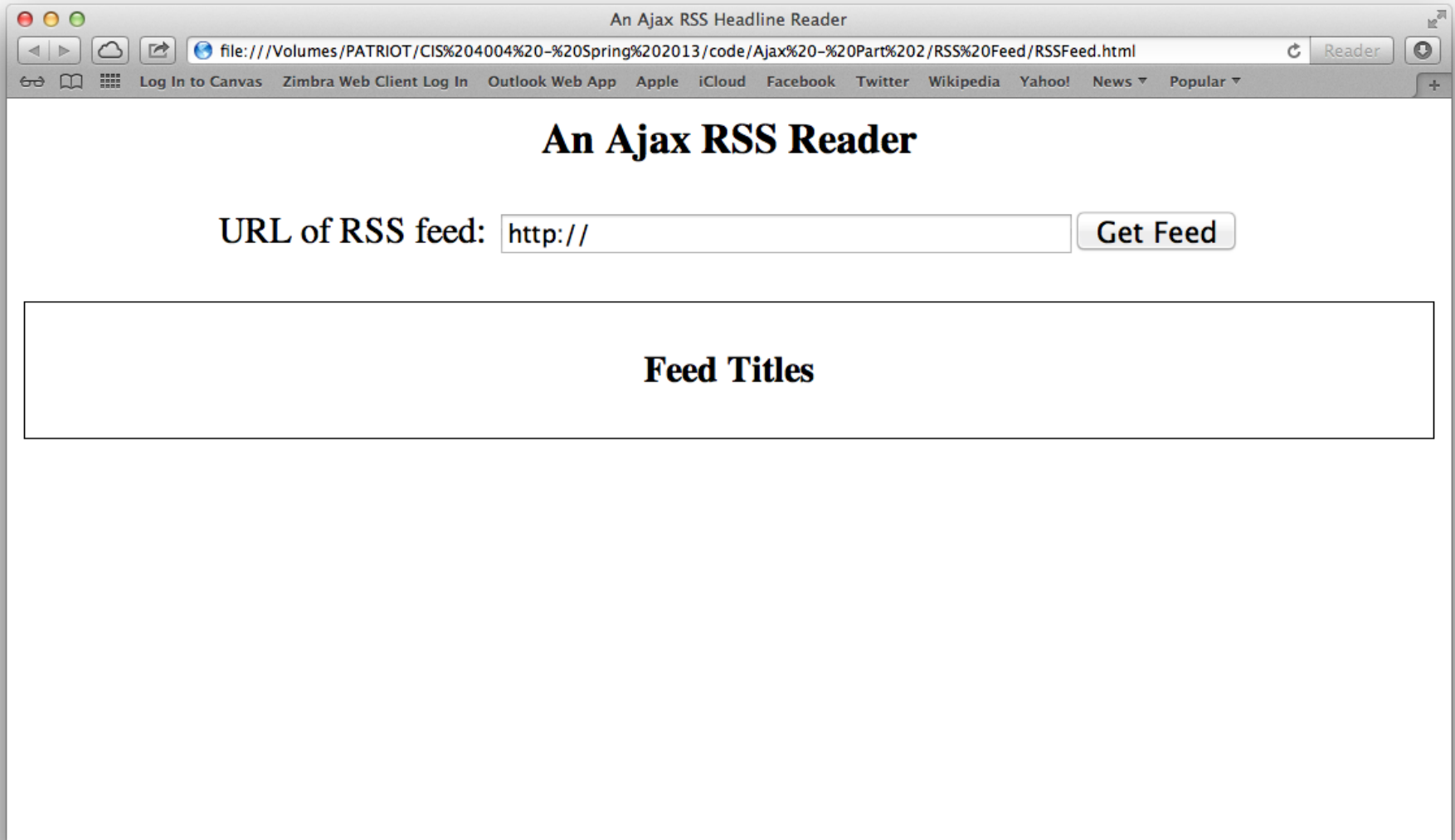
# An RSS Headline Reader

- Much of the actual RSS reader JavaScript is very similar to that which we developed in the previous set of notes, so I won't put all of that code in the notes. Instead, I'll focus on the parts which are different and involve the XML and server-side helper function.

- This time, since we are not using the `responseText` property of the XHR object, we'll be using the `responseXML` property.

- We'll use the data in the `responseXML` property to modify the DOM of our HTML page to show the new item's titles in a list within the page's `<div>` element. We'll put each title into it's own paragraph element, which we'll construct dynamically and append to the DOM.

# An RSS Headline Reader

- The callback function in this case; will perform the normal duties of checking the XHR object `readyState` and `status` properties, but we'll also task it with the following responsibilities:

  - Clearing out any elements displayed in the <div> from a previous request.

  - Parse the incoming XML to extract the title elements.

  - Construct the DOM elements to hold and display the results.

  - Apply the CSS to these new elements to change how they are displayed in the browser.
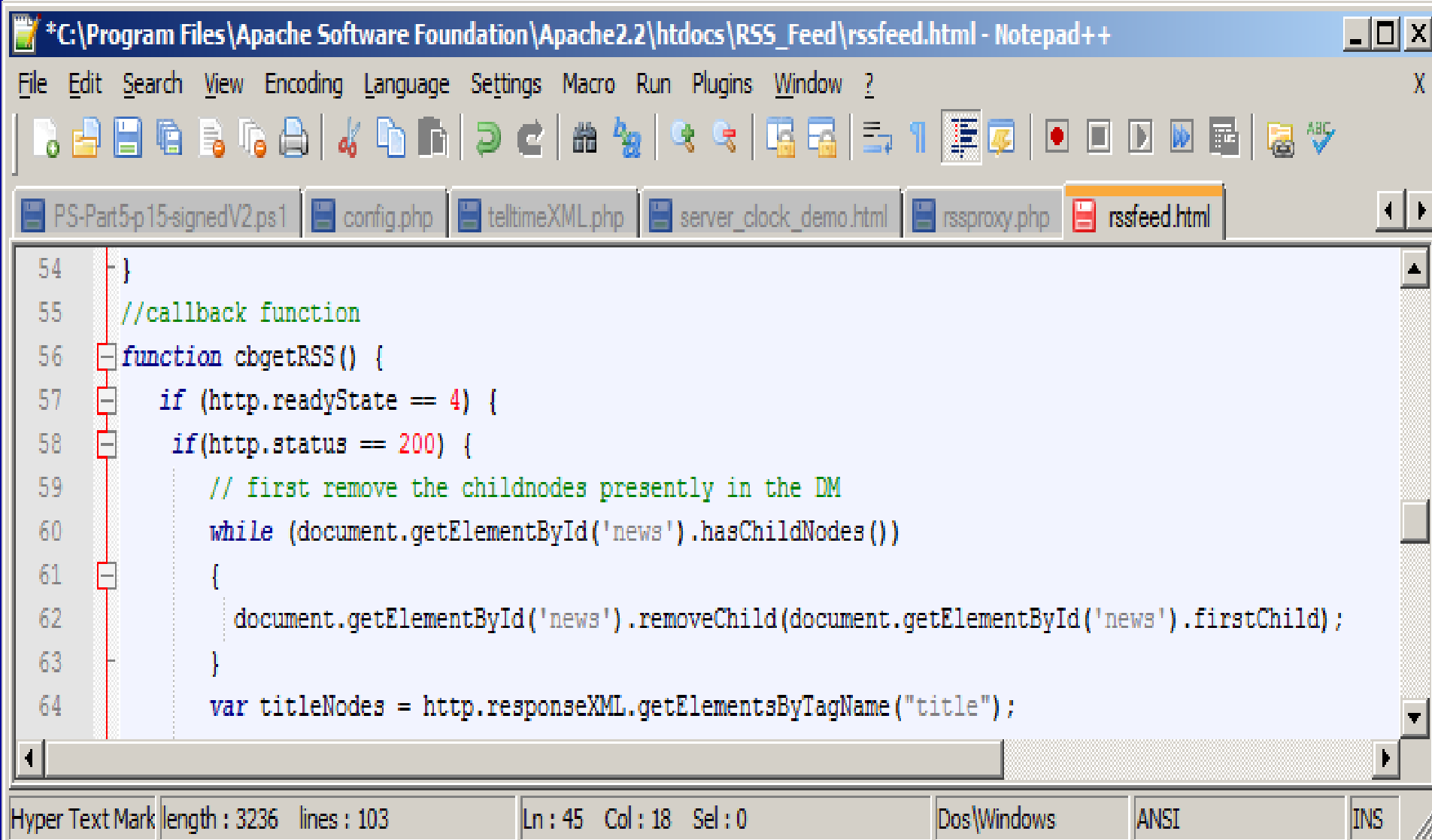
# An RSS Headline Reader

- To remove the DOM elements installed by a previous request, if they exist, we'll identify the `<div>` element by using its id and then use the `hasChildNodes()` DOM method, looping through and deleting the first child node from the `<div>` element each time until none remain.

- Next, we'll process the `<title>` XML elements. To parse the XML content to extract the item titles from the RSS feed, we'll build an array `titleNodes` from the XML data stored in the XHR object's `responseXML` property.

- The code snippets for both of these tasks are illustrated on the next two pages.

# An RSS Headline Reader
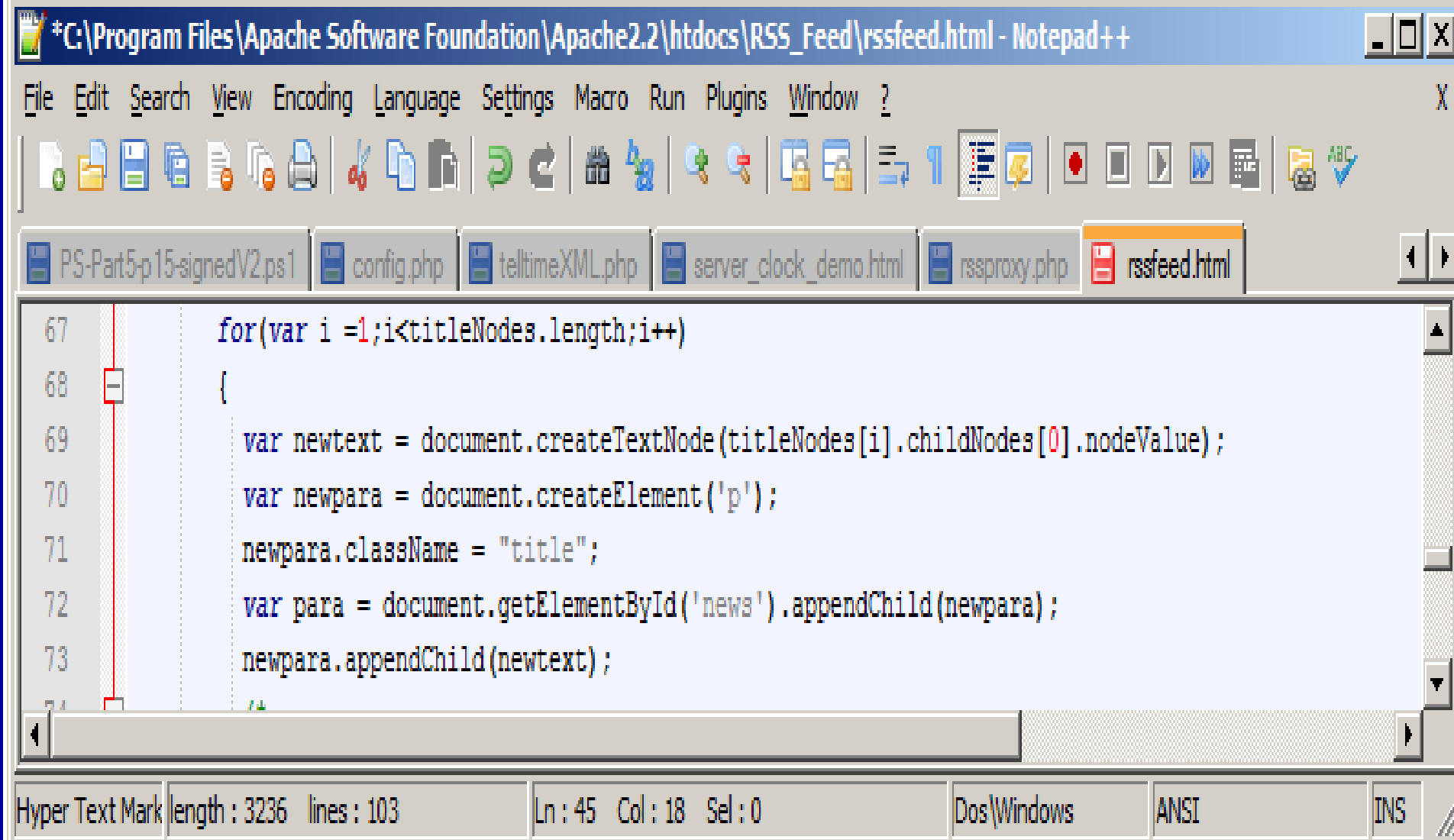
File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?                                      X

PS-Part5-p15-signedV2.ps1 | config.php | telltimeXML.php | server_clock_demo.html | rssproxy.php | **rssfeed.html**

```
54     }
55     //callback function
56     function cbgetRSS() {
57         if (http.readyState == 4) {
58          if(http.status == 200) {
59              // first remove the childnodes presently in the DM
60              while (document.getElementById('news').hasChildNodes())
61              {
62                document.getElementById('news').removeChild(document.getElementById('news').firstChild);
63              }
64              var titleNodes = http.responseXML.getElementsByTagName("title");
```

Hyper Text Mark | length : 3236   lines : 103 | Ln : 45   Col : 18   Sel : 0 | Dos\Windows | ANSI | INS

# An RSS Headline Reader

**\*C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\RSS_Feed\rssfeed.html - Notepad++**

File  Edit  Search  View  Encoding  Language  Settings  Macro  Run  Plugins  Window  ?                    X

| PS-Part5-p15-signedV2.ps1 | config.php | telltimeXML.php | server_clock_demo.html | rssproxy.php | rssfeed.html |

```
67        for(var i =1;i<titleNodes.length;i++)

68        {

69          var newtext = document.createTextNode(titleNodes[i].childNodes[0].nodeValue);

70          var newpara = document.createElement('p');

71          newpara.className = "title";

72          var para = document.getElementById('news').appendChild(newpara);

73          newpara.appendChild(newtext);
```

Hyper Text Mark | length : 3236   lines : 103 | Ln : 45   Col : 18   Sel : 0 | Dos\Windows | ANSI | INS
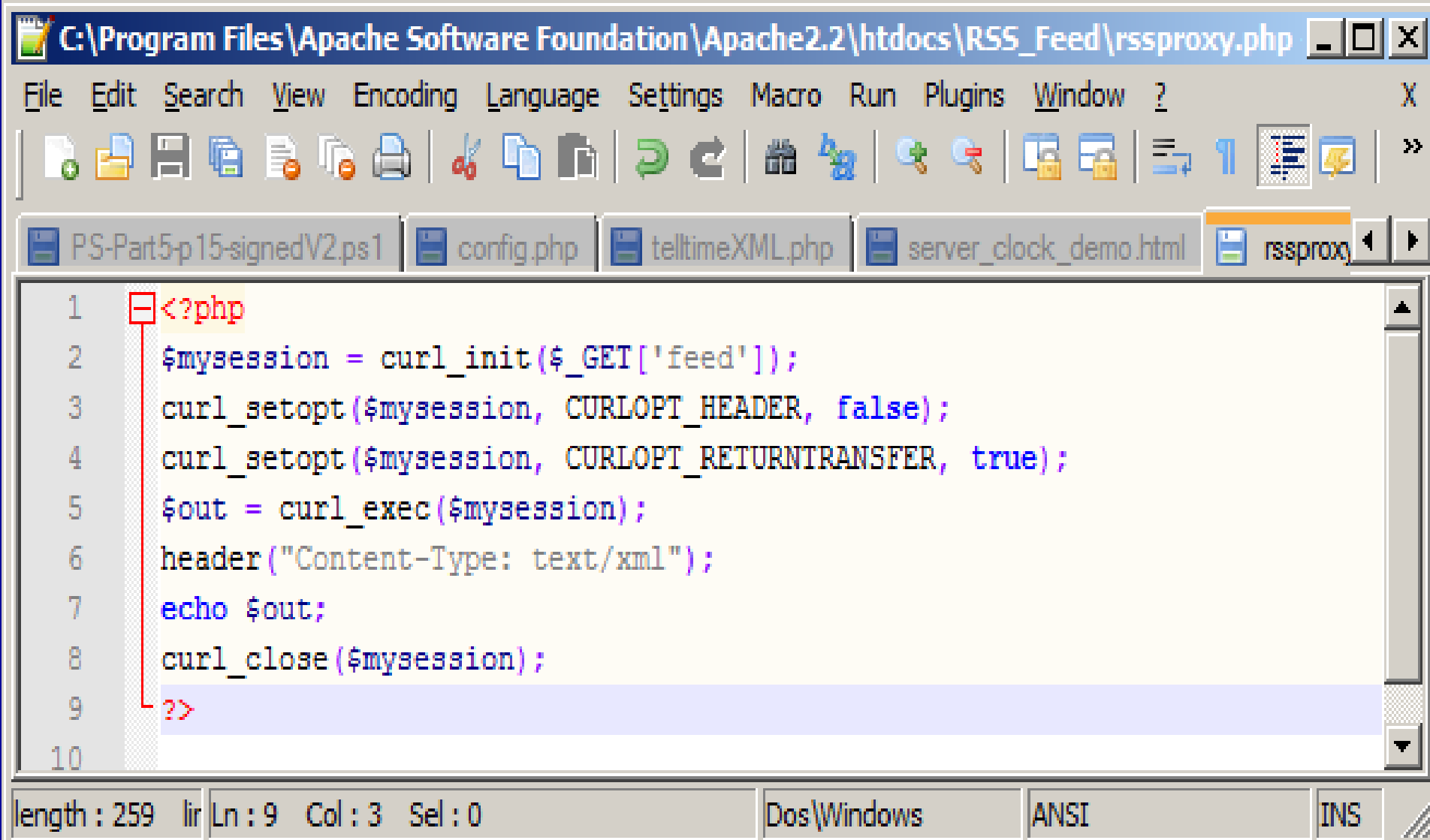
# An RSS Headline Reader

- Because of security constraints built into the XHR object, you cannot call and RSS feed directly. Rather you must use a script have a URL on our own server, and have this script collect the remote XML file and deliver it to the Ajax application.

- In this case, we don't require the server-side script to modify the XML file, but simply route it back to us via the `responseXML` property of the XHR object.

- The server-side script is acting as a proxy because it is retrieving the remote resource on behalf of the Ajax application.

- The next page illustrates this PHP script.

# An RSS Headline Reader

C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\RSS_Feed\rssproxy.php

File  Edit  Search  View  Encoding  Language  Settings  Macro  Run  Plugins  Window  ?          X

Tabs: PS-Part5-p15-signedV2.ps1 | config.php | telltimeXML.php | server_clock_demo.html | rssproxy

```php
<?php
$mysession = curl_init($_GET['feed']);
curl_setopt($mysession, CURLOPT_HEADER, false);
curl_setopt($mysession, CURLOPT_RETURNTRANSFER, true);
$out = curl_exec($mysession);
header("Content-Type: text/xml");
echo $out;
curl_close($mysession);
?>
```

length : 259   lir   Ln : 9   Col : 3   Sel : 0          Dos\Windows        ANSI        INS

# An RSS Headline Reader

- The PHP script uses the cURL PHP library. This is a set of routines for making Internet file transfer easier to program. Note that this library is not automatically installed in most PHP installations, so you will need to activate this library manually.

- A description of cURL is way beyond what we want to get into here, suffice to say that this short script first retrieves the URL of the requested RSS feed by referring to the `feed` variable sent by the Ajax application.

- The two lines that call the `curl_setopt()` function declare, respectively, that we don't want the headers sent with the remote file, but we do want the file contents.

- The `curl_exec()` function then handles the data transfer.

- Once that's done, we simply add an appropriate header using the PHP header() command and return the data to the Ajax application.

# An RSS Headline Reader

# An RSS Headline Reader