

# CIS 4004: Web Based Information Technology

## Fall 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.





## CNN.com - Top Stories

syndicated content powered by FeedBurner



FeedBurner makes it easy to receive content updates in My Yahoo!, Newsgator, Bloglines, and other news readers.

[Learn more about syndication and FeedBurner...](#)

### Subscribe Now!

...with web-based news readers. Click your choice below:



...with other readers:

(Choose Your Reader)

## Current Feed Content

### **Frum: Is Iran deal reckless?**

Posted: Mon, 25 Nov 2013 13:13:30 EST

To assess this weekend's nuclear deal with Iran, here are the key questions that must be answered:

[Email this](#) [Add to del.icio.us](#) [Digg This!](#) [Share on Facebook](#) [Stumble It!](#)

### **Why many parents hate Common Core**

Posted: Mon, 25 Nov 2013 08:13:20 EST



```
view-source:rss.cnn.com/rss/cnn_topstories.rss
<?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://rsshnamespace.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>Mon, 25 Nov 2013 15:57:08 EST</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>Frum: Is Iran deal reckless?</title><guid
isPermaLink="false">http://www.cnn.com/2013/11/25/opinion/frum-us-iran-deal/index.html</guid>
<link>http://rss.cnn.com/~r/rss/cnn_topstories/~3/VqDg6OplrZ0/index.html</link><description>To assess this weekend's nuclear deal
with Iran, here are the key questions that must be answered:&lt;div class="feedflare"&gt;
&lt;a href="http://rss.cnn.com/~ff/rss/cnn_topstories?a=VqDg6OplrZ0:SwNDsdq_Mjo:yI12AUoC8zA"&gt;&lt;img
src="http://feeds.feedburner.com/~ff/rss/cnn_topstories?d=yI12AUoC8zA" border="0"&gt;&lt;/img&gt;&lt;/a&gt; &lt;a
href="http://rss.cnn.com/~ff/rss/cnn_topstories?a=VqDg6OplrZ0:SwNDsdq_Mjo:7Q72WNTAKBA"&gt;&lt;img
```

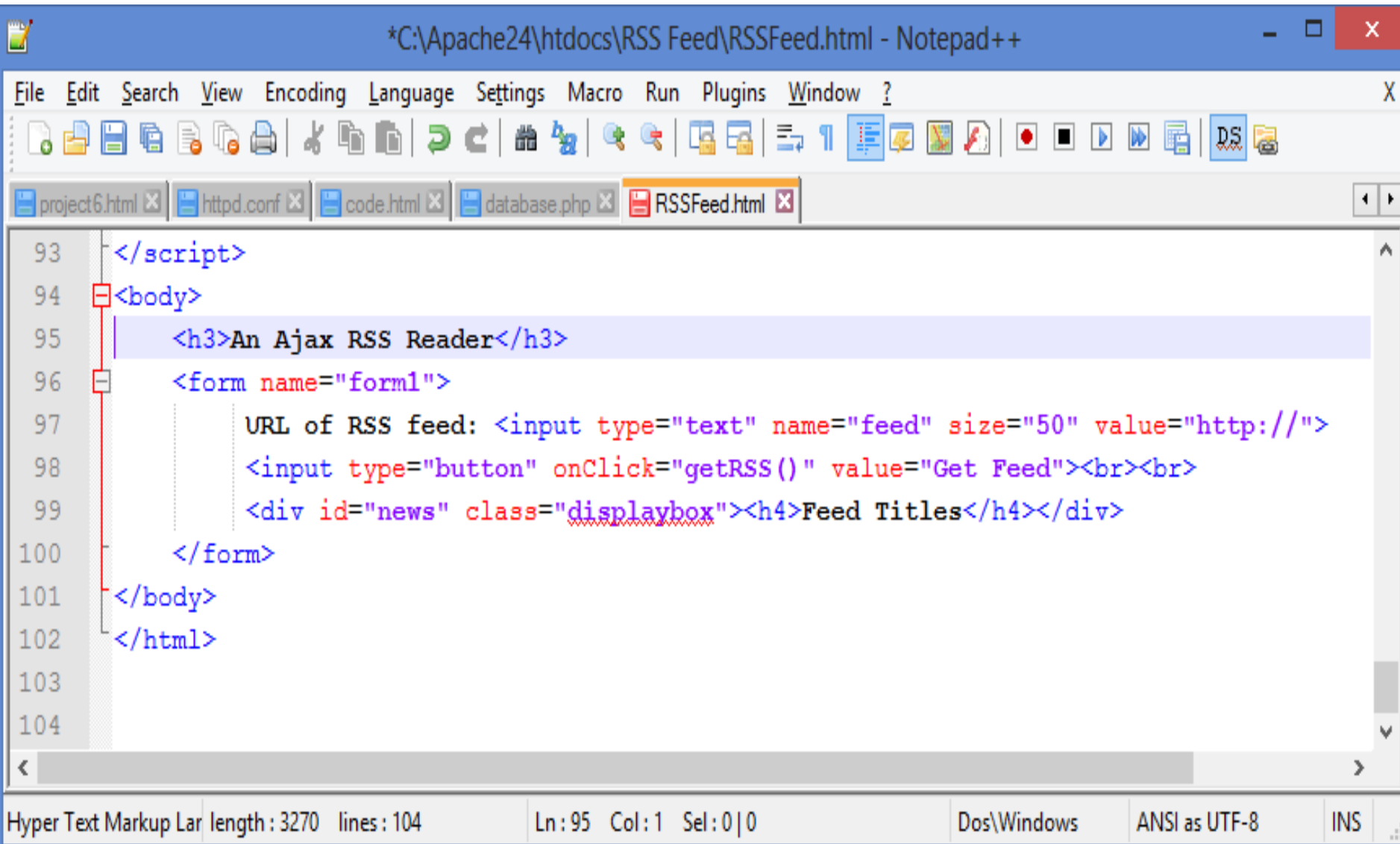


# An RSS Headline Reader

- 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



The screenshot shows a Notepad++ window titled '\*C:\Apache24\htdocs\RSS Feed\RSSFeed.html - Notepad++'. The editor displays the following HTML code:

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

The status bar at the bottom indicates: Hyper Text Markup Lar length : 3270 lines : 104 Ln : 95 Col : 1 Sel : 0 | 0 Dos\Windows ANSI as UTF-8 INS



# An RSS Headline Reader

RSS (Really Simple Syndication) x CNN.com - Top Stories - x view-source:rss.cnn.com/ x An Ajax RSS Headline Reader x

file:///C:/Apache24/htdocs/RSS%20Feed/RSSFeed.html

Apps Zimbra Web Client L... Cycling News & Rac... News 13 - Orlando ... Imported From IE

## An Ajax RSS Reader

URL of RSS feed:

### Feed Titles





# 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 its 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.

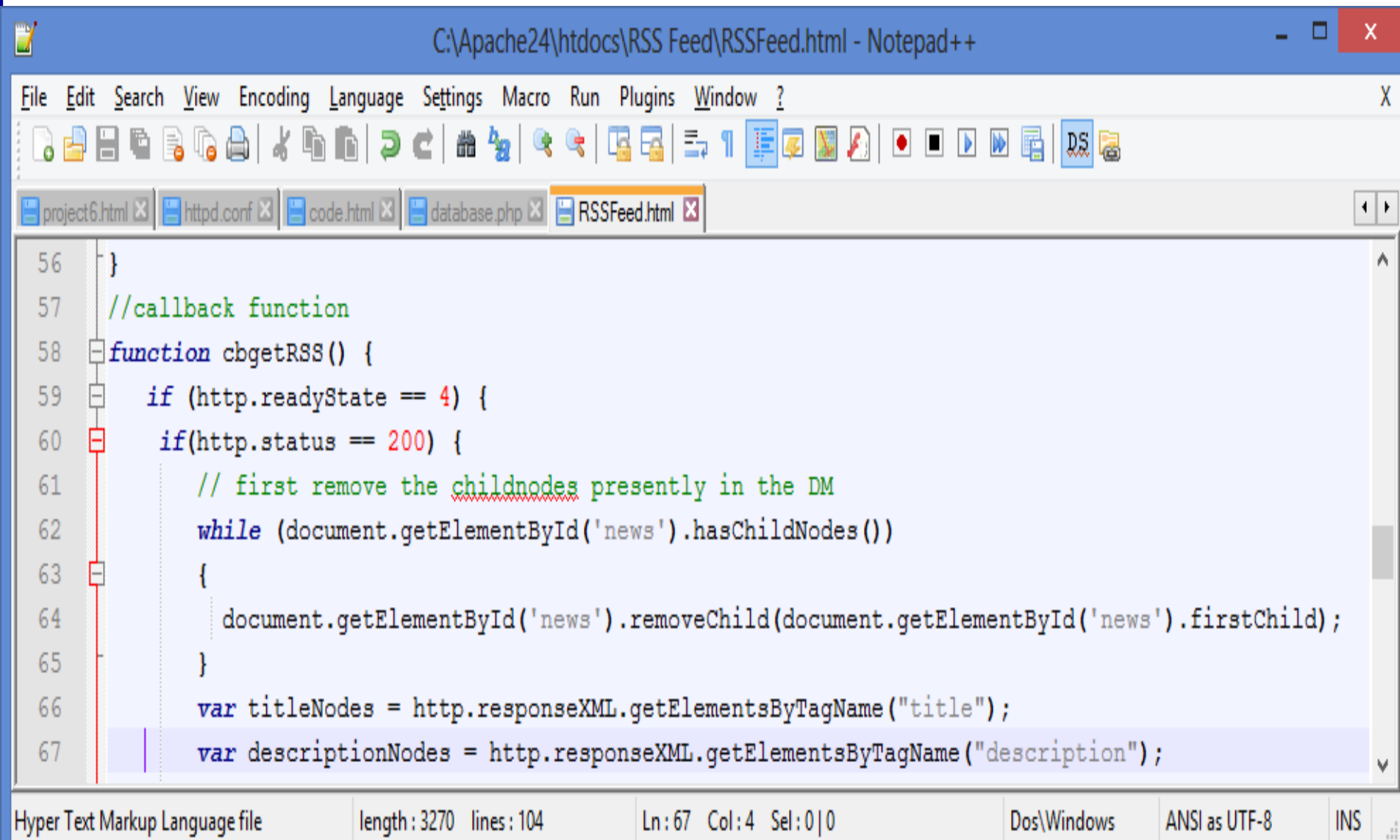


# An RSS Headline Reader

- 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

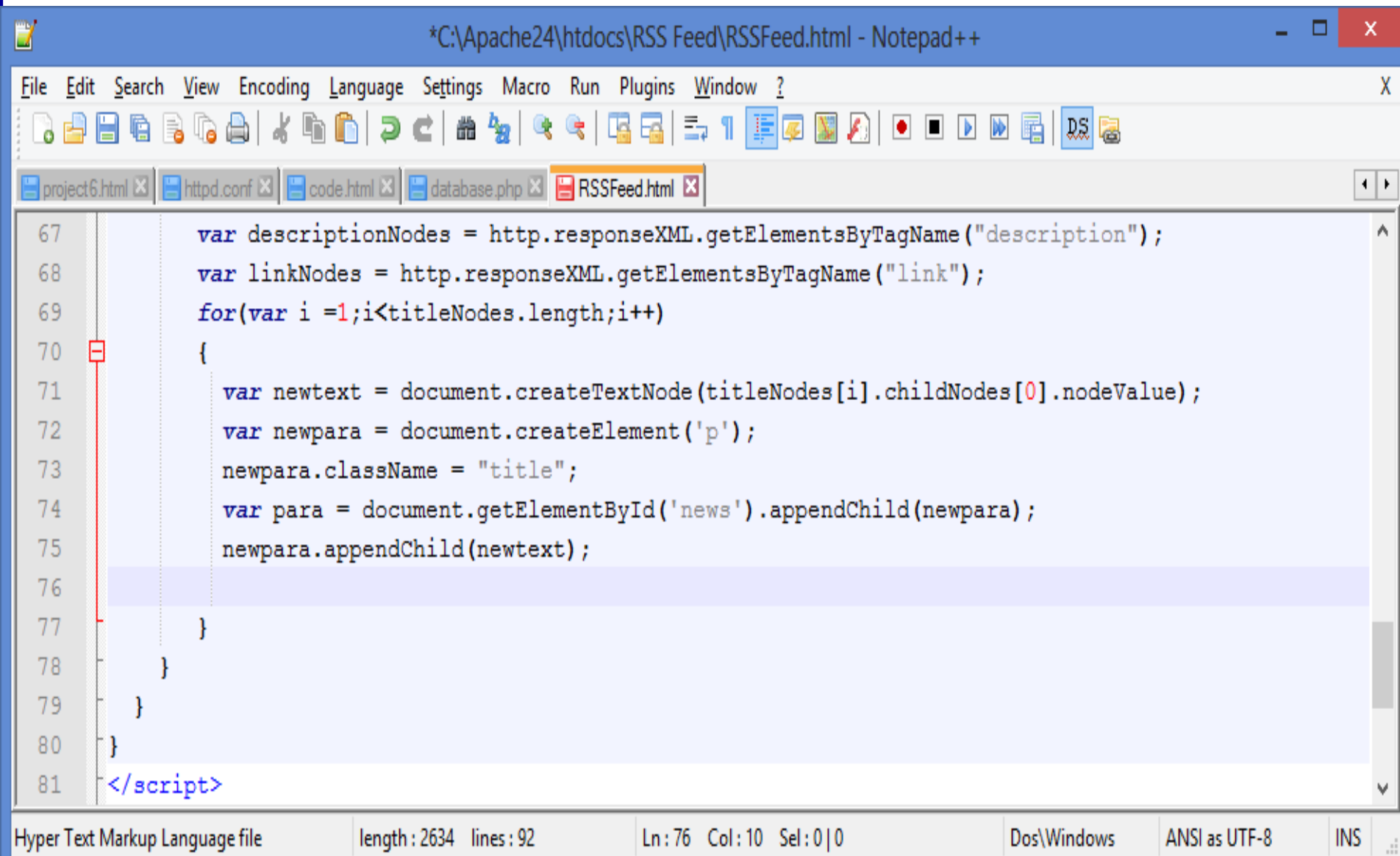


The image shows a Notepad++ window titled "C:\Apache24\htdocs\RSS Feed\RSSFeed.html - Notepad++". The editor displays JavaScript code for an RSS feed reader. The code includes a callback function named `cbgetRSS()` that checks the `http.readyState` and `http.status` properties. It removes existing child nodes from the `news` element and then processes the `title` and `description` tags from the `http.responseXML` object. The status bar at the bottom indicates the file is a "Hyper Text Markup Language file" with a length of 3270 bytes and 104 lines. The current cursor position is at line 67, column 4.

```
56 }
57 //callback function
58 function cbgetRSS() {
59     if (http.readyState == 4) {
60         if(http.status == 200) {
61             // first remove the childNodes presently in the DM
62             while (document.getElementById('news').hasChildNodes())
63             {
64                 document.getElementById('news').removeChild(document.getElementById('news').firstChild);
65             }
66             var titleNodes = http.responseXML.getElementsByTagName("title");
67             var descriptionNodes = http.responseXML.getElementsByTagName("description");
```



# An RSS Headline Reader



The screenshot shows a Notepad++ window titled '\*C:\Apache24\htdocs\RSS Feed\RSSFeed.html - Notepad++'. The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Macro, Run, Plugins, and Window. The toolbar contains various icons for file operations and editing. The tab bar shows several open files: project6.html, httpd.conf, code.html, database.php, and RSSFeed.html. The main editor area displays JavaScript code for an RSS headline reader, with line numbers 67 through 81 on the left. The code is as follows:

```
67     var descriptionNodes = http.responseXML.getElementsByTagName("description");
68     var linkNodes = http.responseXML.getElementsByTagName("link");
69     for(var i =1;i<titleNodes.length;i++)
70     {
71         var newtext = document.createTextNode(titleNodes[i].childNodes[0].nodeValue);
72         var newpara = document.createElement('p');
73         newpara.className = "title";
74         var para = document.getElementById('news').appendChild(newpara);
75         newpara.appendChild(newtext);
76
77     }
78 }
79 }
80 }
81 </script>
```

The status bar at the bottom of the window displays: Hyper Text Markup Language file, length : 2634 lines : 92, Ln : 76 Col : 10 Sel : 0 | 0, Dos\Windows, ANSI as UTF-8, and INS.

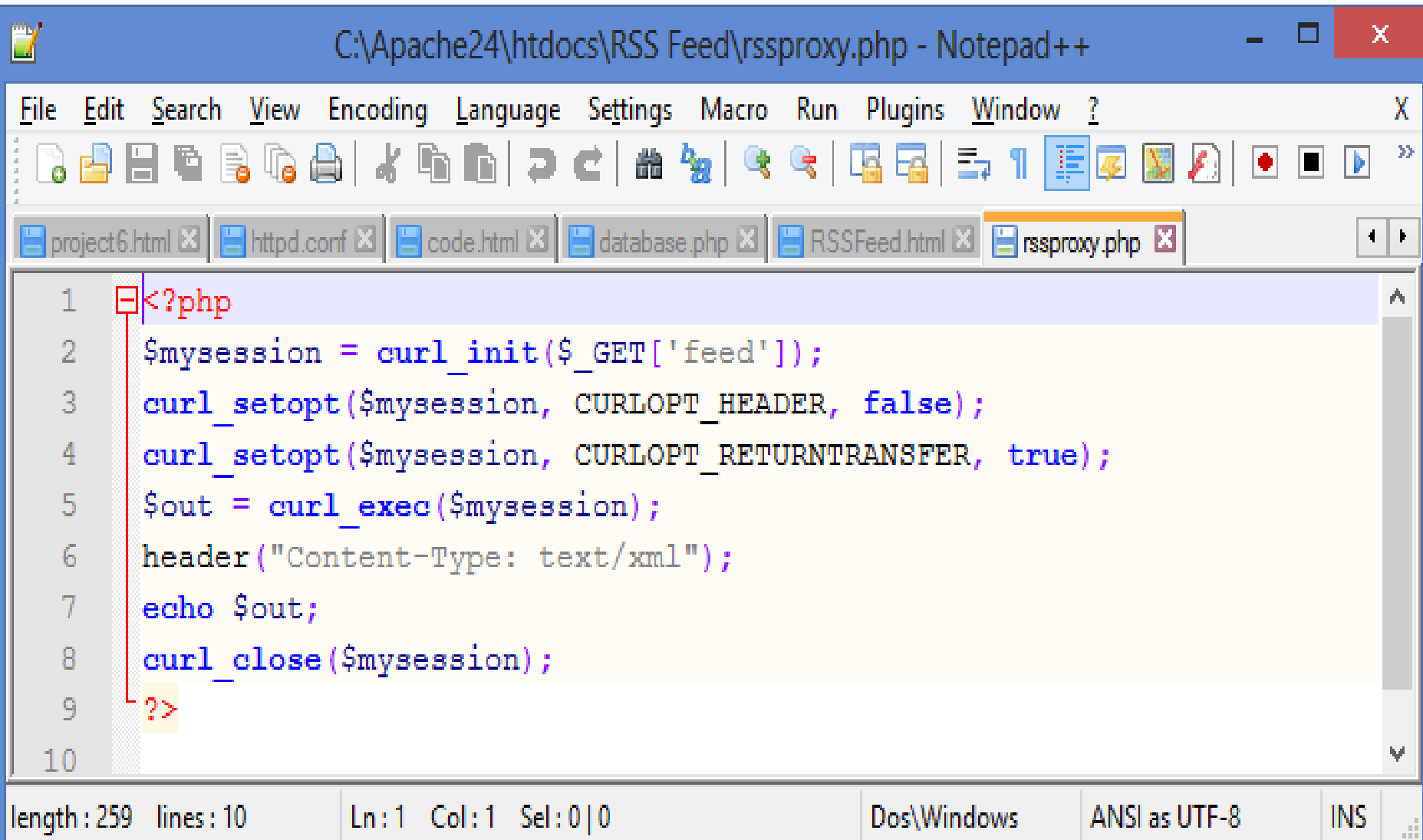


# An RSS Headline Reader

- Because of security constraints built into the XHR object, you cannot call an RSS feed directly. Rather you must use a script, have a URL on your 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



The image shows a Notepad++ window titled "C:\Apache24\htdocs\RSS Feed\rssproxy.php - Notepad++". The window contains PHP code for an RSS proxy. The code is as follows:

```
1 <?php
2 $mysession = curl_init($_GET['feed']);
3 curl_setopt($mysession, CURLOPT_HEADER, false);
4 curl_setopt($mysession, CURLOPT_RETURNTRANSFER, true);
5 $out = curl_exec($mysession);
6 header("Content-Type: text/xml");
7 echo $out;
8 curl_close($mysession);
9 ?>
```

The status bar at the bottom of the window displays: "length: 259 lines: 10 Ln: 1 Col: 1 Sel: 0|0 Dos\Windows ANSI as UTF-8 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. (See the next page.)
- 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.





```
866 ; If you only provide the name of the extension, PHP will look for it in its
867 ; default extension directory.
868 ;
869 ; Windows Extensions
870 ; Note that ODBC support is built in, so no dll is needed for it.
871 ; Note that many DLL files are located in the extensions/ (PHP 4) ext/ (PHP 5)
872 ; extension folders as well as the separate PECL DLL download (PHP 5).
873 ; Be sure to appropriately set the extension_dir directive.
874 ;
875 ;extension=php_bz2.dll
876 extension=php_curl.dll
877 ;extension=php_fileinfo.dll
878 ;extension=php_gd2.dll
879 ;extension=php_gettext.dll
880 ;extension=php_gmp.dll
881 ;extension=php_intl.dll
882 ;extension=php_imap.dll
883 ;extension=php_interbase.dll
884 ;extension=php_ldap.dll
885 ;extension=php_mbstring.dll
886 ;extension=php_exif.dll ; Must be after mbstring as it depends on it
887 extension=php_mysql.dll
```

To load the curl extension library in PHP, edit your php.ini file and locate this line and activate it by removing the semi-colon (the comment delimited). Then restart your Apache server.



## An Ajax RSS Reader

URL of RSS feed:

CNN's top stories RSS feed.

[CNN.com - Top Stories](#)

[From: Is Iran deal reckless?](#)

[Why many parents hate Common Core](#)

[Man breaks woman's 40-foot fall](#)

[Jailers, inmates allegedly had sex](#)

[Bear crashes birthday party](#)

[Singer Wayne Mills dies in bar shooting](#)

['SNL' mocks the 'Hunger Games'](#)

[School chief faces obstruction counts](#)

[How the rape case came to light](#)

[Weight effect for morning-after pill](#)

[James Franco meets impersonator](#)



## An Ajax RSS Reader

URL of RSS feed:

Cyclingnews.com  
top stories RSS  
feed.

[Kazakhstan to launch new UCI Continental team](#)

[Kocjan signs with SmartStop](#)

[Peloton pays its respects to Arnaud Coyot](#)

[Euskadi team applies for UCI license despite budget gap](#)

[Gallery: Procycling's Season Review of 2013](#)

[Gesink targets Tour de France in 2014](#)

[Lampre-Merida team hit by robbery](#)

[Colombia want Sánchez before Antón](#)

[Nibali to ride Paris-Nice instead of Tirreno-Adriatico](#)

[Malaysia's Loh Sea Keong signs for Argos-Shimano](#)

[Anton considers Team Colombia approach](#)

[Schleck brothers to follow same build-up to Tour de France in 2014](#)

