

Android Internet Feeders

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Notes are based on:

Android Developers

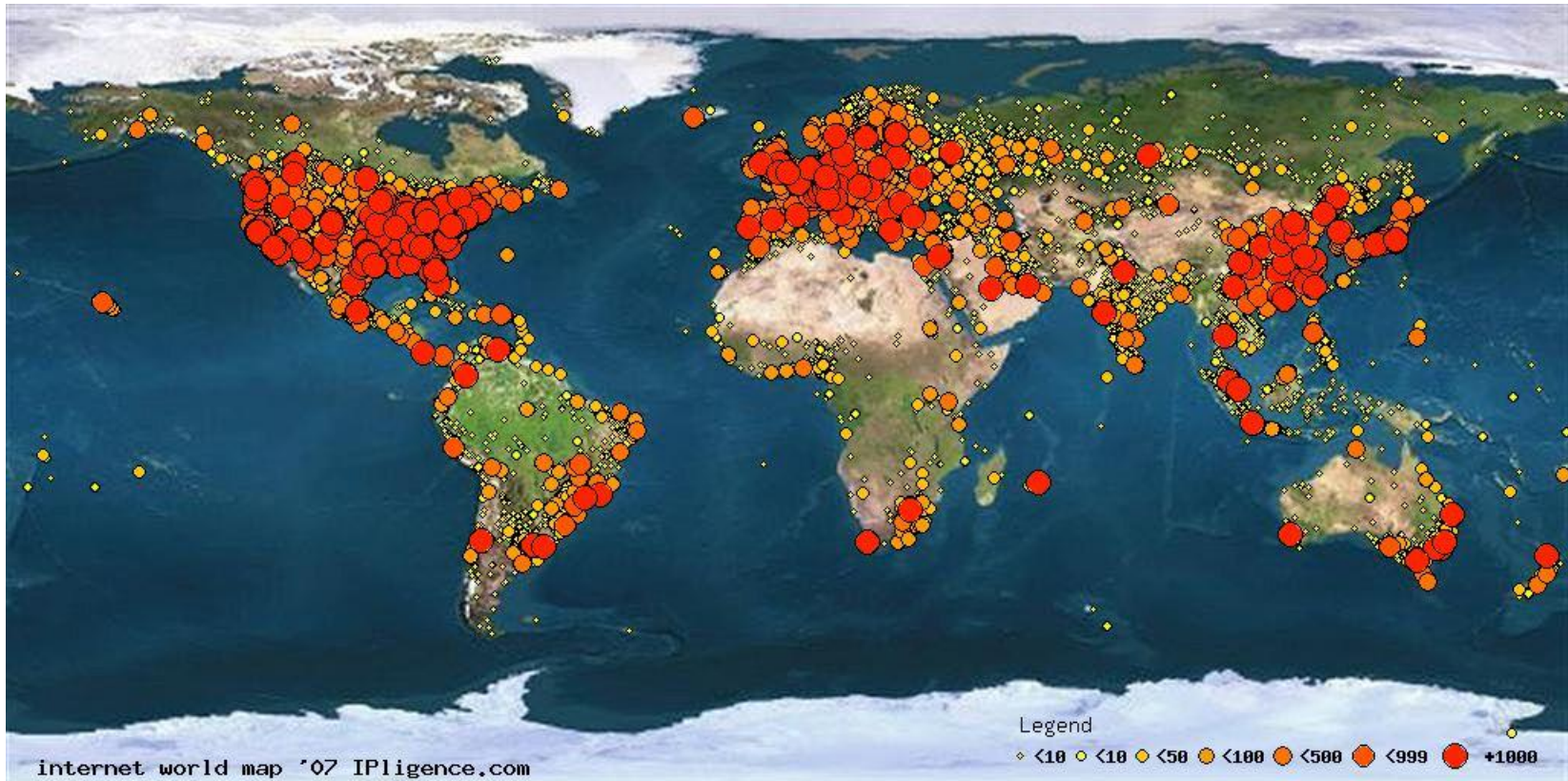
<http://developer.android.com/index.html>





Internet

Communicating Via Internet



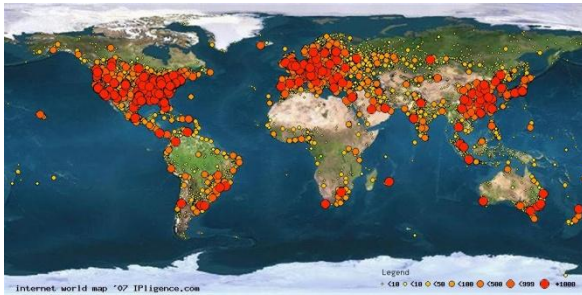
The image illustrates Year 2007 Internet Density. Colored dots represent number of IP addresses per dot-area.

Source: www.ipligence.com/worldmap/internet-map.jpg



Internet

Communicating Via Internet



The image illustrates 2007 Internet density. Colored dots represent number of IP addresses per dot-area.

2007 - Breakdown by Geographic Area

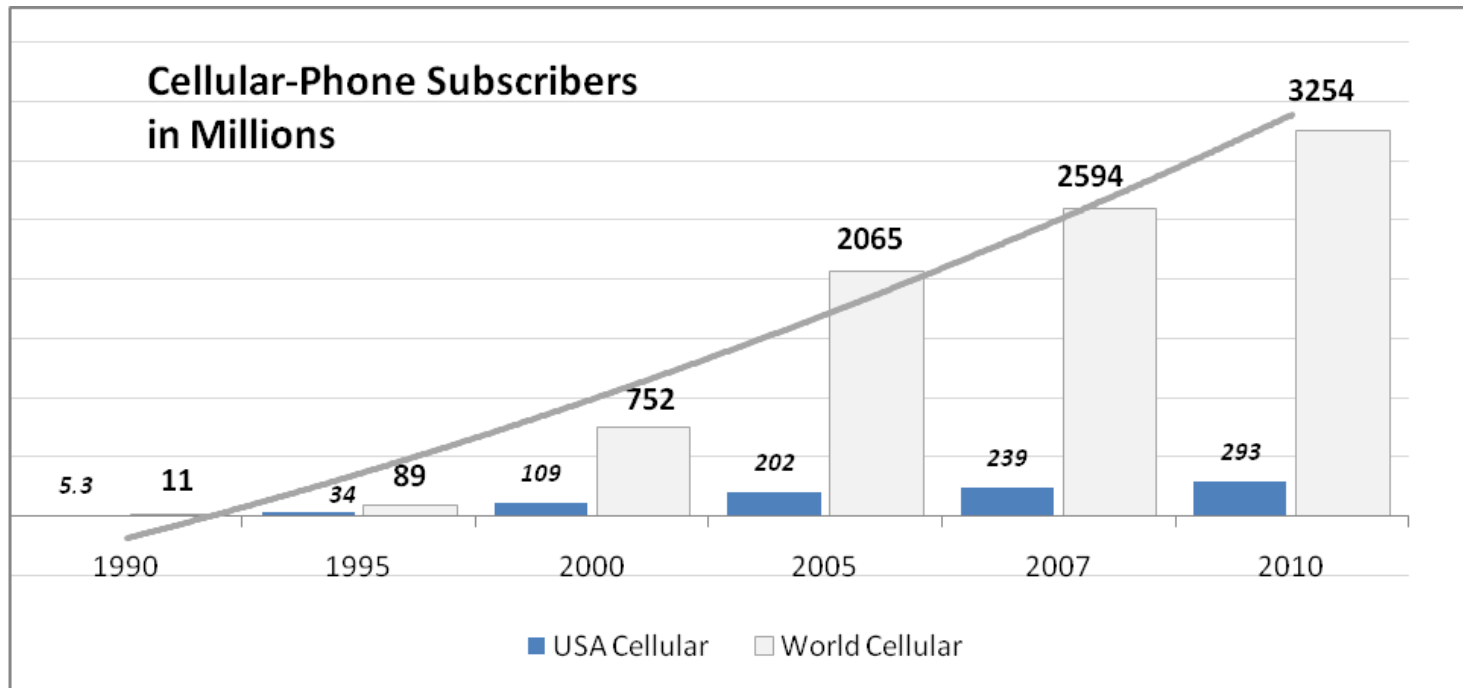
Geographic area	Number of IP addresses	Percentage
Africa	40241664	1.519%
Antarctica	15620	0.001%
Asia	371297015	14.015%
Caribbean	1681866	0.063%
Central America	2557340	0.097%
Europe	569838903	21.510%
Middle East	12011131	0.453%
North America	1481754661	55.932%
Oceania	76417711	2.885%
South America	93409304	3.525%

Source: www.ipligence.com

Internet

USA & Worldwide Growth of Cellular Telephony

Figure taken from I am OK - A Conceptual Model for a Global Emergency System and Its Societal Impact (2007). Victor Matos and Ben Blake. International Journal of Technology Knowledge and Society. Vol. 2 No. 5 pp.7-18 January 2007.





Internet

Study on Information & Communication Technology (ICT). World Bank Organization 2009

CONCLUSION

1. Countries that have taken steps to create a competitive market environment for ICT generally have a larger share of people using ICT services than those that have not.
2. One important outcome of competition is that it lowers prices for ICT services.
3. But while prices are falling rapidly ICT services are still unaffordable for many people in low-income countries.
4. As a result a large share of the population in these countries has yet to realize the potential of ICT for economic and social development.
- 5. Among ICT services voice communications particularly mobile telephony has led the way.**
6. Access to new services such as broadband remains limited in developing countries.
7. Yet the expansion of broadband networks plays a catalytic role in the development of trade and e-government.
8. In some developing countries trade in ICT goods and services has sparked export-led growth and job creation.
- 9. ICT applications are also transforming how governments deliver public services to citizens and businesses.**

Source:

Key Trends in ICT Development by David A. Cieslikowski Naomi J. Halewood Kaoru Kimura and Christine Zhen-Wei Qiang
World Bank Organization 2009. http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D_2009_Key_Trends_in_ICT_Development.pdf



Internet



Background: **RSS**

RSS (most commonly translated as *Really Simple Syndication* but sometimes *Rich Site Summary*) is a family of *web feed* formats used to **publish frequently updated works**—such as blog entries, news headlines, weather reports, audio and video—in a standardized format.

An **RSS document** (which is called a *web feed* or *channel*) includes full or summarized text (plus metadata), publishing dates and authorship.

Notes

- Content distributors *expose* web feeds allowing users to *subscribe* to them.
- Making a collection of web feeds accessible in one spot is known as *aggregation* which is performed by an Internet *aggregator*.



Internet



Background: Web Feeds

Web feeds allow (client) software programs to check for summary updates published on a website.

- First version of RSS was created by Netscape around 1999.
- A typical *news feed (or channel)* contains entries which may be:
 - ✓ headlines,
 - ✓ full-text articles excerpts,
 - ✓ summaries,
 - ✓ Thumbnails, and/or
 - ✓ links to content on a website along with various metadata
- The *Atom Syndication Format and RSS2.0* are common XML standards used to organize, create and update web feeds (these formats have been adopted by Google, Yahoo!, Apple/iTunes, CNN, NY Times,...).

Internet



Background: Web Feeds

Common child elements of Channel and Item

Elements	Description	Type	# allowed
LastMod	Last modified date for this web page	ISO 8601:1988 Date	0 or 1
Title	Title	String	0 or 1
Abstract	Short description summarizing the article (200 characters or less recommended)	String	0 or 1
Author	Author	String	Any
Publisher	Publisher	String	Any
Copyright	Copyright	String	0 or 1
PublicationDate	Publication Date	String	0 or 1
Logo	Visual Logo for channel	Logo element	Any
Keywords	Comma delimited keywords that match this channel	String	Any
Category	A category to which this web page belongs in. The string value is a URI to a CategoryDef element.	Category element	Any
Ratings	Rating of the channel by one or more ratings services. (String found in PICS label meta tag.)	String	Any
Schedule	Schedule for keeping channel up to date	Schedule element	0 or 1
UserSchedule	Reference to a client/user specified schedule	UserSchedule element	0 or 1



Internet



Background: Web Feeds

Elements of <item>

A channel may contain any number of <item>s. An item may represent a "story" -- much like a story in a newspaper or magazine.

Element	Description
title	The title of the item.
link	The URL of the item.
description	The item synopsis.
author	Email address of the author of the item.
category	Includes the item in one or more categories.
comments	URL of a page for comments relating to the item.
enclosure	Describes a media object that is attached to the item.
guid	A string that uniquely identifies the item.
pubDate	Indicates when the item was published.
source	The RSS channel that the item came from.

Internet



Background: Web Feeds

Example:

```
<?xml version="1.0" encoding="UTF-8" ?>
<rss version="2.0">
  <channel>
    <title>RSS Title</title>
    <description>This is an example of an RSS feed</description>
    <link>http://www.someexamplessdomain.com/main.html</link>
    <lastBuildDate>Mon, 06 Sep 2010 00:01:00 +0000 </lastBuildDate>
    <pubDate>Mon, 06 Sep 2009 16:45:00 +0000 </pubDate>

    <item>
      <title>Example entry</title>
      <description>Here is some text containing an interesting
      description of the thing to be described. </description>
      <link>http://www.wikipedia.org/</link>
      <guid>unique string per item</guid>
      <pubDate>Mon, 06 Sep 2009 16:45:00 +0000 </pubDate>
    </item>
  </channel>
</rss>
```

Internet Feeders

RSS Sources



US weather:

<http://www.weather.gov/view/national.php?map=on>

The Weather Channel

<http://rss.weather.com/weather/rss/local/44114?cm ven=LWO&cm cat=rss&par=LWO rss>

World weather

<http://www.rssweather.com/dir>

News

<http://www.npr.org/rss/>

<http://www.cnn.com/services/rss/>

<http://news.bbc.co.uk/2/hi/help/3223484.stm>

<http://www.nytimes.com/services/xml/rss/nyt/GlobalHome.xml>

Money Exchange

<http://themoneyconverter.com/RSSFeeds.aspx>

Entertainment

<http://www.nbclosangeles.com/rss/>

<http://www.movies.com/rss/>

RSS Aggregator

<http://www.rss-network.com/>

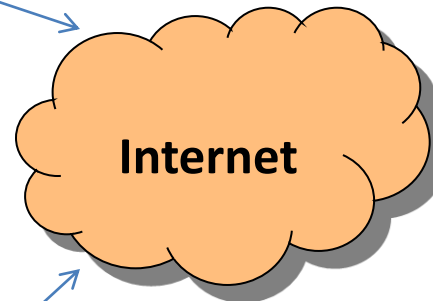
<http://www.nytimes.com/services/xml/rss/index.html>

Corporate

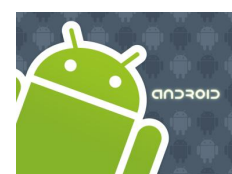
<http://www.toyota.co.jp/en/rss/rss-responsibility.html>

<http://home3.americanexpress.com/corp/rss/>

<http://www.aa.com/i18n/urls/rss.jsp>



Consumer
Application



How do RSS feeds look like when using a browser?

NPR National Public Radio
(17-Oct-2009)
<http://www.npr.org/rss/>



NPR Topics: Science - Mozilla Firefox

File Edit View History Bookmarks Favorites GMarks Tools Help

http://www.npr.org/rss/rss.php?id=1007

NPR Topics: Science

Subscribe to this feed using ☐ Always use Live Bookmarks to subscribe to feeds.

NPR Topics: Science npr news

The latest health and science news. Updates on medicine, healthy living, nutrition, drugs, diet, and advances in science and technology. Subscribe to the Health & Science podcast.

[California Develops Earthquake Early-Warning System](#)
Saturday, October 17, 2009 2:38 PM

Lives may be saved with an earthquake early-warning system — the kind that's already in place in Japan and Mexico. But here in the U.S., such a system is still several years away.

[Future Unlikely For Kyoto Climate Treaty](#)
Friday, October 16, 2009 4:00 PM

Despite dissent from developing countries, the U.S. and Europe seem to be abandoning the idea of extending or revising the Kyoto climate treaty when it expires in 2012. Instead they will form a new treaty, but some doubt it will be ready in December, when diplomats meet in Copenhagen. The news leaves many countries in the developing world frustrated.

[Small Kids Solve Big Problems With Science](#)
Friday, October 16, 2009 1:29 PM

The Kids' Science Challenge gives elementary school students the chance to work with biologists and engineers on real scientific problems. Jim Metzner, executive producer of the Challenge, discusses how kids can get involved, from developing low-gravity sports to building hopping robots.

[Forecasting Climate Change Legislation](#)
Friday, October 16, 2009 1:21 PM

With Congress focused on Afghanistan, the economy and health care, will there be any action on domestic climate policy before the Copenhagen climate summit in December? Eileen Claussen, of the Pew Center on Global Climate Change, talks about what to expect in the coming months.

[Mapping The Boundaries Of The Solar System](#)
Friday, October 16, 2009 1:19 PM

NASA launched the Interstellar Boundary Explorer (IBEX) spacecraft last year to investigate the edges of the heliosphere — the insulating bubble the sun creates around the solar system. IBEX principal investigator David McComas reports on the first surprising results.

[A Bird In Hand To Save Those In The Bush](#)

Done zotero



Internet Feeders



XML Version of the NPR RSS Feed (1/3 just a fragment!)

```
<?xml version="1.0"?>
<?xml-stylesheet title="XSL_formatting" type="text/xsl" href="/include/xsl/rss.xsl"?>
→ <rss xmlns:npr="http://www.npr.org/rss/" xmlns:nprml="http://api.npr.org/nprml"
    xmlns:itunes="http://www.itunes.com/dtds/podcast-1.0.dtd"
    xmlns:content="http://purl.org/rss/1.0/modules/content/" version="2.0">
→ <channel>

    <title>NPR Topics: Science</title>

    <link>http://www.npr.org/templates/story/story.php?storyId=1007&ft=1&f=1007</link>

    <description>The latest health and science news. Updates on medicine, healthy
        living, nutrition, drugs, diet, and advances in science and technology.
        Subscribe to the Health & Science podcast.</description>

    <copyright>Copyright 2009 NPR - For Personal Use Only</copyright>
    <generator>NPR API RSS Generator 0.93</generator>
    <lastBuildDate>Sat, 17 Oct 2009 14:38:00 -0400</lastBuildDate>

    <image>
        <url>http://media.npr.org/images/npr_news_123x20.gif</url>
        <title>Science</title>
        <link>http://www.npr.org/templates/story/story.php?storyId=1007&ft=1&f=1007</link>
    </image>
```



Internet Feeders



XML Version of the NPR RSS Feed (2/3 just a fragment!)

`<item>`

`<title>California Develops Earthquake Early-Warning System</title>`

`<description>Lives may be saved with an earthquake early-warning system
— the kind that's already in place in Japan and Mexico. But
here in the U.S., such a system is still several years away.</description>`

`<pubDate>Sat, 17 Oct 2009 14:38:00 -0400</pubDate>`

`<link>http://www.npr.org/templates/story/story.php?storyId=113877510&ft=1&f=1007</link>`

`<guid>http://www.npr.org/templates/story/story.php?storyId=113877510&ft=1&f=1007</guid>`

`<content:encoded><![CDATA[<p>Lives may be saved with an earthquake early-warning
system — the kind that's already in place in Japan and Mexico. But here in
the U.S., such a system is still several years away.</p><p>»
E-Mail This <a href="http://del.icio.us/post?url=
http%3A%2F%2Fwww.npr.org%2Ftemplates%2Fstory%2Fstory.php%3FstoryId%3D113877510">»
Add to Del.icio.us</p>]]></content:encoded>`

`</item>`

Many <ITEM>s were intentionally removed to fit page size

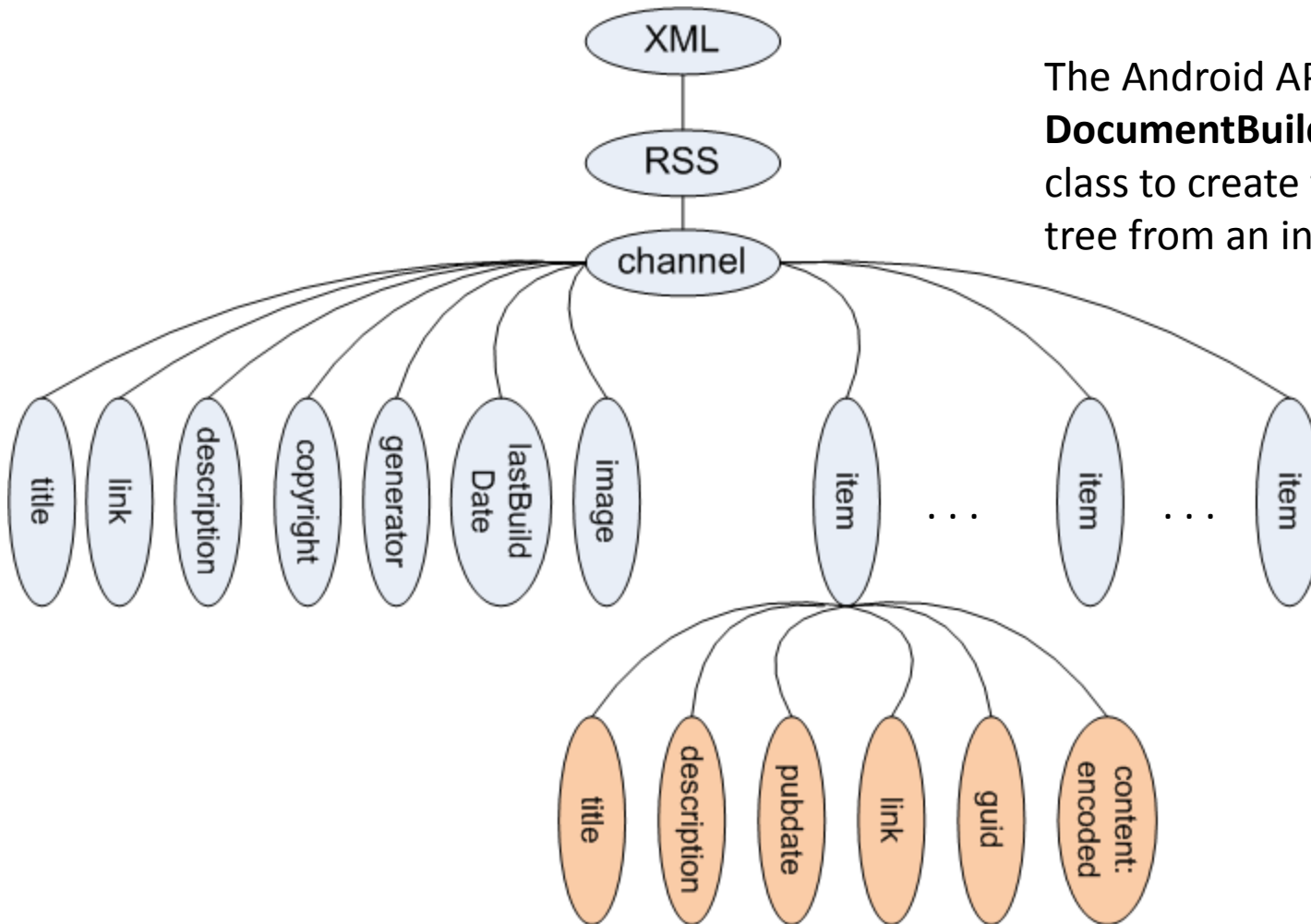
[illegible]

```
> </channel>
</rss>
<!-- Burned on demand at 2009-10-17 10:49:43-->
<!-- LIVE -->
<!-- Burned 10/17/2009 10:49:43.407-->
```


Internet Feeders



Representing the RSS XML as a Tree



The Android API includes a **DocumentBuilderFactory** class to create this type of tree from an input stream



Internet

Document Object Model (DOM).

The **Document Object Model (DOM)** is an application programming interface API for valid *HTML* and well-formed *XML* documents.

With the Document Object Model, programmers can build documents, navigate their structure, and add, modify, or delete elements and content.

Android includes support for DOM managers.

```
DocumentBuilderFactory dbf = DocumentBuilderFactory.newInstance();  
DocumentBuilder db = dbf.newDocumentBuilder();  
Document dom = db.parse(someHttpInputStream);
```



Internet

Android includes the Apache *HttpComponents* API.

The *HttpClient* component (included in the API) facilitates building HTTP-aware client applications (such as web browsers and web services) using very small footprint .

HTTP Methods include:

GET

Requests a representation of the specified resource.

POST

Submits data to be processed to the identified resource.

HEAD

Same as GET but no message body.

PUT

Uploads a representation of the specified resource.

DELETE

Deletes the specified resource.

TRACE

Echoes back the received request.

OPTIONS

Returns the HTTP methods that the server supports for specified URL.

CONNECT

Converts the request connection to a transparent TCP/IP tunnel, usually to facilitate SSL-encrypted communication (HTTPS) through an unencrypted HTTP proxy.

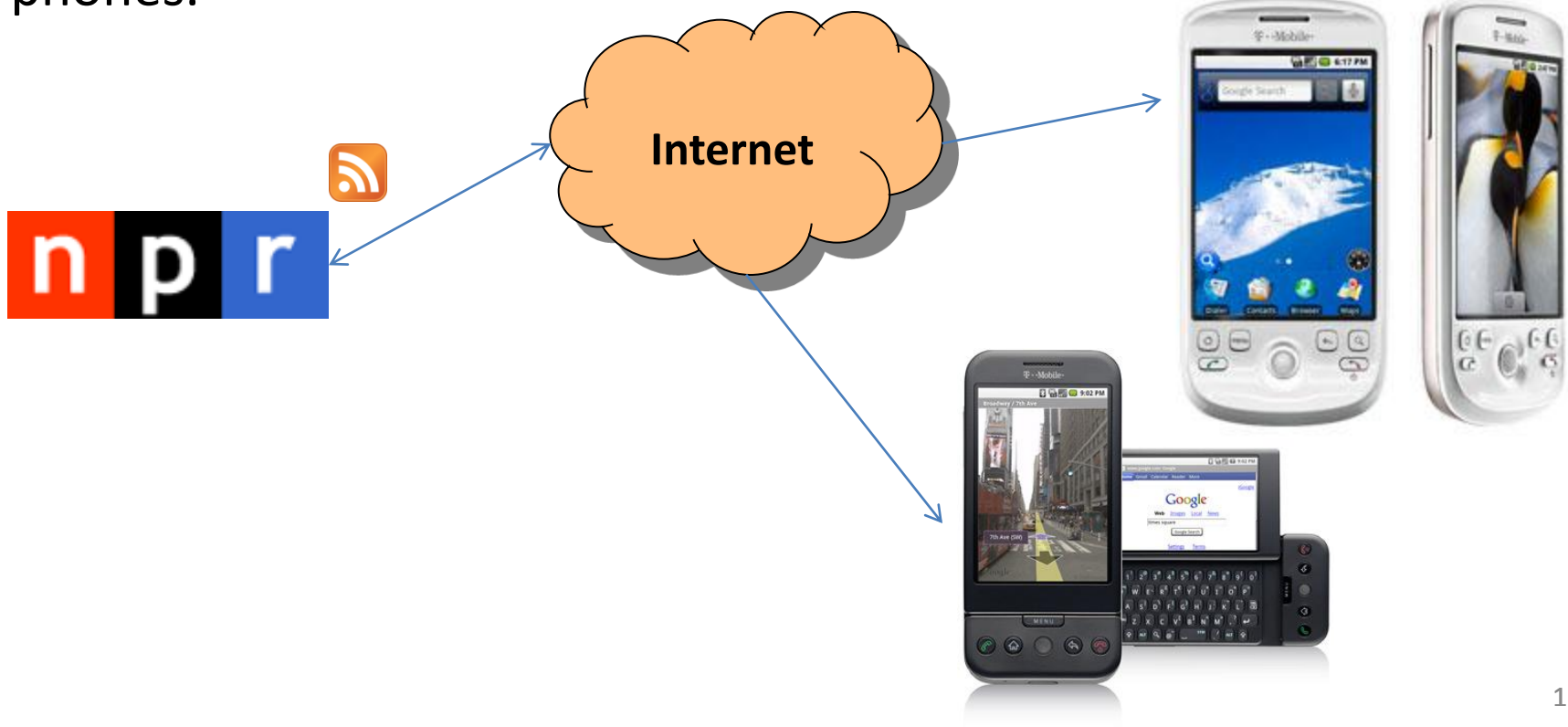
Status Codes:

Ok, Bad Request, Not Found, ...

Internet

Putting all things together – An Example Application

In this project we will develop an application to expose the material typically broadcasted by **National Public Radio (NPR)** in Android phones.





Internet

NPR Project – Action Plan.



1. A little research indicates that NPR supports a number of web feeds among them the following:

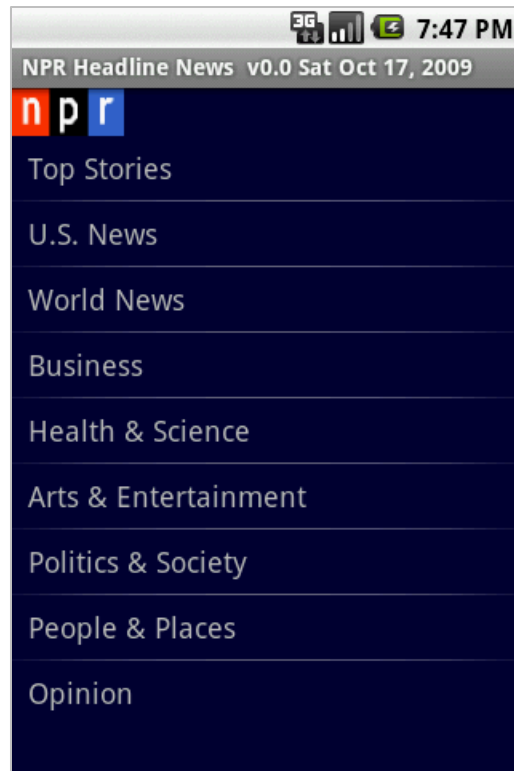
Topic	URL
Top Stories	http://www.npr.org/rss/rss.php?id=1001
U.S. News	http://www.npr.org/rss/rss.php?id=1003
World News	http://www.npr.org/rss/rss.php?id=1004
Business	http://www.npr.org/rss/rss.php?id=1006
Health & Science	http://www.npr.org/rss/rss.php?id=1007
Arts & Entertainment	http://www.npr.org/rss/rss.php?id=1008
Politics & Society	http://www.npr.org/rss/rss.php?id=1012
People & Places	http://www.npr.org/rss/rss.php?id=1021
Opinion	http://www.npr.org/rss/rss.php?id=1057

Internet

NPR Project – Action Plan.



2. We will display the main topics in a *ListView* widget from which the user will make a selection. We use the associated web-feed to access the current contents of the selected category.



Choose
"Health & Science"

Internet

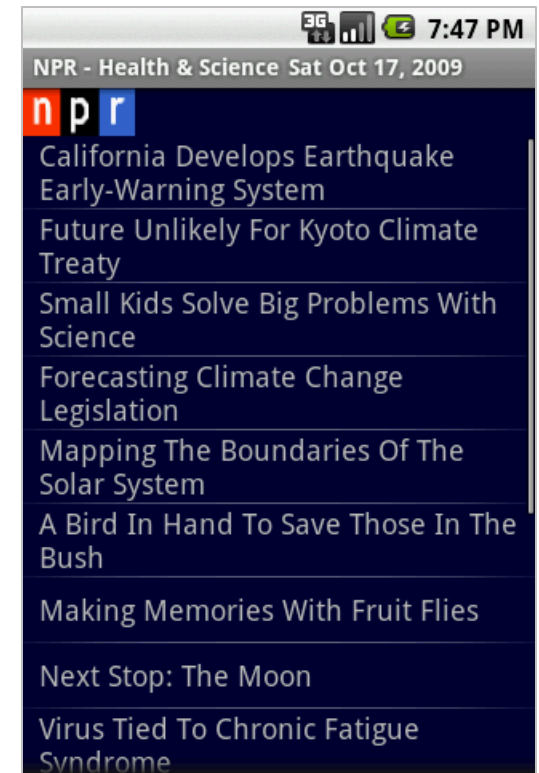
NPR Project – Action Plan.



3. The most current headlines of the selected category are displayed. The User can scroll the list and click on a particular subject.

Observe that individual lines correspond to the XML `<item>` entries discussed earlier.

In the example we are interested in the “Health & Science” subject. We want to know about the efforts of mapping the Solar System.



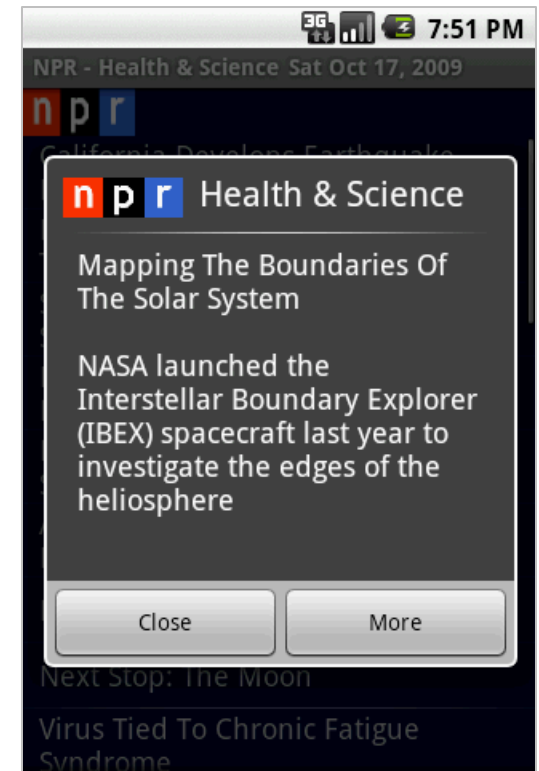
Internet

NPR Project – Action Plan.



4. A brief summary of the chosen topic is displayed inside a DialogBox. The user is given the option of *closing* the window or obtaining *more* information.

We want additional information, so we click the “More” button

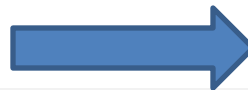
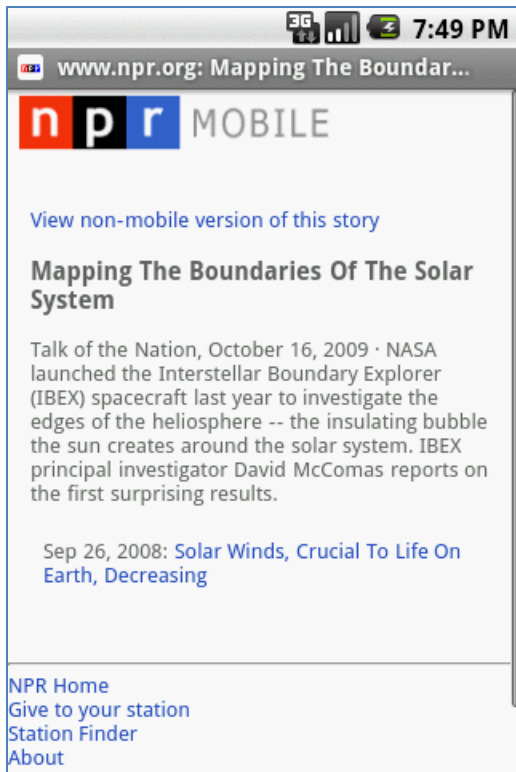


Internet

NPR Project – Action Plan.



5. The link held in the XML `<item>` currently displayed is given to a WebKit based Activity. We use the Internet to access the page containing the detailed subject.



We may opt for a non-mobile page version which may include a number of additional components such as audio, pictures, video, extensive text, etc.





Internet

Acquiring & Processing the NPR web-feed

1. Assume the RSS for “Health & Science” is <http://www.npr.org/rss/rss.php?id=1007>.
2. The Java fragment in the next page uses the **HttpComponents** API.
3. The goal of this code is to grab the feed, and create a document holding the tree parsed from the XML document.
4. The tree will be traversed looking for **<item>** elements similar to those discussed earlier.
5. Each item will be dissected and the pieces arranged into a manageable object form. Remember an **<item>** includes among other components **<title>**, **<description>**, **<link>**, **<datepublication>**, etc.



Internet



Main Programming Idea: Acquiring & Processing the NPR web-feed

```
// connecting to the RSS provider
URL url = new URL(urlAddress);
URLConnection connection = url.openConnection();

URLConnection httpConnection = (URLConnection) connection;

int responseCode = httpConnection.getResponseCode();

if (responseCode == HttpURLConnection.HTTP_OK) {
    // get RSS-XML and make a document
    // holding the parse tree constructed from the input
}
```





Internet



Main Programming Idea: Acquiring & Processing the NPR web-feed

```
// setting & opening the connection using urlAddress which is  
// a value such as: http://www.npr.org/rss/rss.php?id=1001
```

```
URL url = new URL(urlAddress);  
URLConnection connection;  
connection = url.openConnection();
```

```
HttpURLConnection httpConnection =  
    (HttpURLConnection) connection;
```



```
int responseCode = httpConnection.getResponseCode();
```

```
if (responseCode == HttpURLConnection.HTTP_OK) {  
    // get RSS-XML and make a document  
    // holding the parse tree constructed from the input  
}
```



Internet



Main Programming Idea: Acquiring & Processing the NPR web-feed

```
// USE httpConnection to get XML and make a document
// holding the parse tree constructed from the input
InputStream in = httpConnection.getInputStream();
// define a document builder to act on incoming stream
DocumentBuilderFactory dbf =
    DocumentBuilderFactory.newInstance();
DocumentBuilder db = dbf.newDocumentBuilder();
// make XML parse tree for incoming RSS stream
Document dom = db.parse(in);
// define access nodes in the parse tree
Element docEle = dom.getDocumentElement();

// look for individual news ("items" in this case)
// put items in a NodeList collection (nl)
NodeList nl = docEle.getElementsByTagName("item");
if ((nl != null) && (nl.getLength() > 0)) {
    for (int i = 0; i < nl.getLength(); i++) {
        dissectNode(nl, i);
    } // for
} // if
```

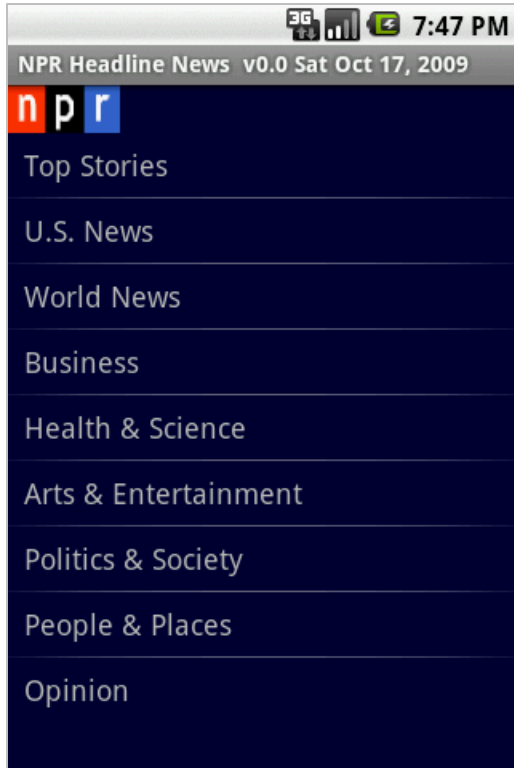


Internet

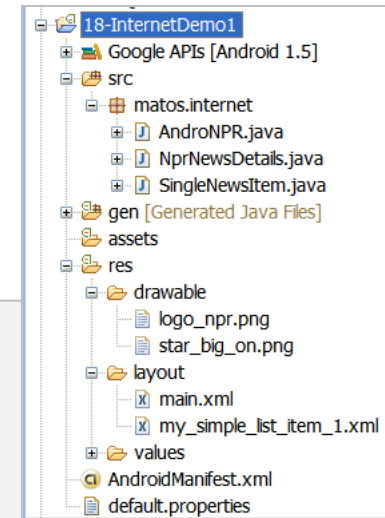
NPR Project – Implementation

main.xml

(shows the main topics)



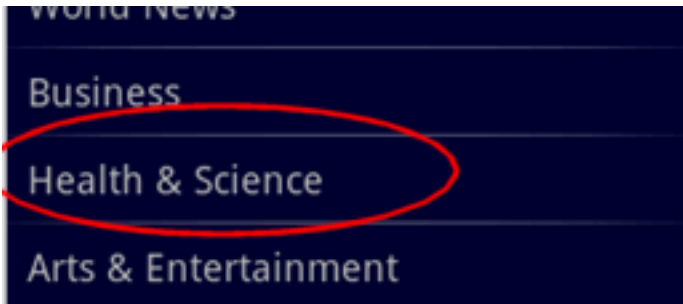
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    android:id="@+id/widget28"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    android:background="#ff000033"
    xmlns:android="http://schemas.android.com/apk/res
    /android"
>
    <ImageView
        android:layout_width="70px"
        android:layout_height="30px"
        android:layout_x="2px"
        android:layout_y="2px"
        android:background="@drawable/logo_npr">
    </ImageView>
    <ListView
        android:id="@+id/myListView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
    >
    </ListView>
</LinearLayout>
```



Internet

NPR Project – Implementation

my_simple_list_item_1.xml
(shows individual rows of the
ListView widget)



```
<?xml version="1.0" encoding="utf-8"?>

<TextView
  xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@android:id/text1"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:gravity="center_vertical"
    android:paddingLeft="10dip"
    android:textSize="18sp"
    android:minHeight="40sp"
/>
```

Internet

Activity1: AndroNPR.java

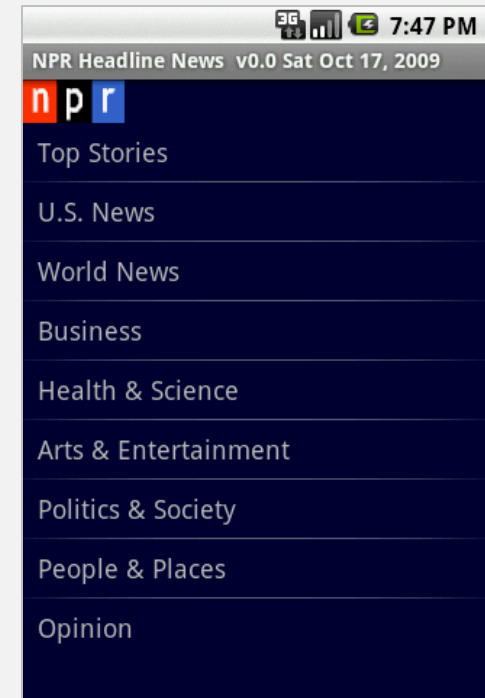
```
// display a list of main subjects for the user to choose a topic
package matos.internet;

import java.text.DateFormatSymbols;
import java.util.Calendar;
import java.util.Locale;

import android.app.Activity;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class AndroNPR extends Activity {

    ArrayAdapter<String> aa;
    ListView myListView;
    Context context;
    SingleNewsItem selectedNewsItem;
```

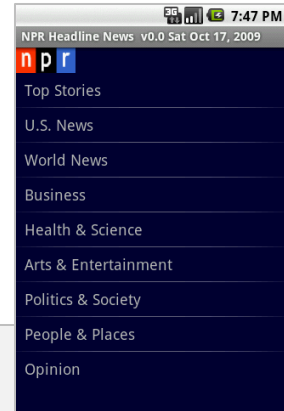




Internet

Activity1: AndroNPR.java

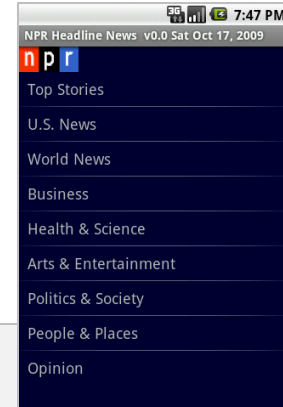
```
String [] myUrlAddress = {
    "http://www.npr.org/rss/rss.php?id=1001",
    "http://www.npr.org/rss/rss.php?id=1003",
    "http://www.npr.org/rss/rss.php?id=1004",
    "http://www.npr.org/rss/rss.php?id=1006",
    "http://www.npr.org/rss/rss.php?id=1007",
    "http://www.npr.org/rss/rss.php?id=1008",
    "http://www.npr.org/rss/rss.php?id=1012",
    "http://www.npr.org/rss/rss.php?id=1021",
    "http://www.npr.org/rss/rss.php?id=1057"
};
String [] myUrlCaption = {
    "Top Stories",
    "U.S. News",
    "World News",
    "Business",
    "Health & Science",
    "Arts & Entertainment",
    "Politics & Society",
    "People & Places",
    "Opinion"
};
String [] myUrlAddress2 = new String[myUrlAddressCaption.length];
String [] myUrlCaption2 = new String[myUrlAddressCaption.length];
```





Internet

Activity1: AndroNPR.java *cont...*



```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.main);
    context = getApplicationContext();
    this.setTitle("NPR Headline News v0.0 " + niceDate() );

    myListView = (ListView) this.findViewById(R.id.myListView);
    myListView.setOnItemClickListener(new OnItemClickListener() {
        public void onItemClick(AdapterView<?> _av, View _v,
            int _index, long _id) {
            String urlAddress = myUrlAddress[_index];
            String urlCaption = myUrlCaption[_index];
            //create an Intent to talk to Activity2
            Intent NprNewsDetailsIntent = new Intent(
                AndroNPR.this, NprNewsDetails.class);
            //prepare a Bundle and add the data pieces to be sent
            Bundle myData = new Bundle();
            myData.putString("urlAddress", urlAddress);
            myData.putString("urlCaption", urlCaption);
            NprNewsDetailsIntent.putExtras(myData);
            startActivity(NprNewsDetailsIntent);
        }
    });
}
```



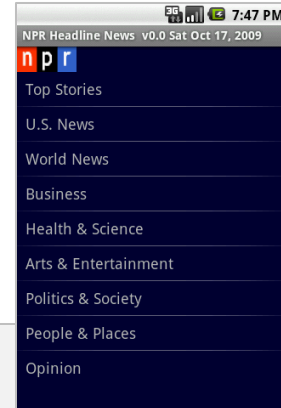
Internet

Activity1: AndroNPR.java *cont...*

```
//bind main category list (Top News, ...) to the the listView
//show list and get ready for user to click on a category
int layoutID = R.layout.my_simple_list_item_1;
aa = new ArrayAdapter<String>(this, layoutID , myUrlCaption);
myListView.setAdapter(aa);
} // onCreate
```

```
public static String niceDate() {
    DateFormatSymbols dfs = new DateFormatSymbols();
    // to get short weekday-month_name String arrays
    String shortWeekdaysArray[] = dfs.getShortWeekdays();
    String shortMonthArray[] = dfs.getShortMonths();
    Calendar cal = Calendar.getInstance(Locale.US);
    int dd = cal.get(Calendar.DAY_OF_MONTH);
    int mm = cal.get(Calendar.MONTH);
    String mmText = shortMonthArray[mm];
    int yy = cal.get(Calendar.YEAR);
    int wd = cal.get(Calendar.DAY_OF_WEEK);
    String wdText = shortWeekdaysArray[wd];
    return ( wdText + " " + mmText + " " + dd + ", " + yy );
} // niceDate
```

```
} // AndroNPR
```



Internet

Activity2: NPRNewsDetails.java

```
package matos.internet;
import java.io.IOException;
import java.io.InputStream;
import java.net.HttpURLConnection;
import java.net.MalformedURLException;
import java.net.URL;
import java.net.URLConnection;
import java.util.ArrayList;
import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;
import javax.xml.parsers.ParserConfigurationException;
import org.w3c.dom.DOMException;
import org.w3c.dom.Document;
import org.w3c.dom.Element;
import org.w3c.dom.NodeList;
import org.xml.sax.SAXException;
import android.app.Activity;
import android.app.AlertDialog;
import android.content.Context;
import android.content.DialogInterface;
import android.content.DialogInterface.OnClickListener;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;
import android.widget.AdapterView.OnItemClickListener;
```



Internet

Activity2: NPRNewsDetails.java *cont...*

```
public class NprNewsDetails extends Activity {
    //a main category subject has already been selected by the user
    //(data <"urlCaption", "urlAddress"> comes in a bundle sent
    // by main, access web-feed and show corresponding headlines
    ArrayList<SingleNewsItem> newsList = new ArrayList<SingleNewsItem>();
    ArrayAdapter<String> aa;
    ListView myListView;
    String urlAddress = "";
    String urlCaption = "";
    SingleNewsItem selectedNewsItem;
    Context context = getApplication();

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
        myListView = (ListView) this.findViewById(R.id.myListView);

        //create a local Intent handler (needed to process input parameters)
        Intent myLocalIntent = getIntent();

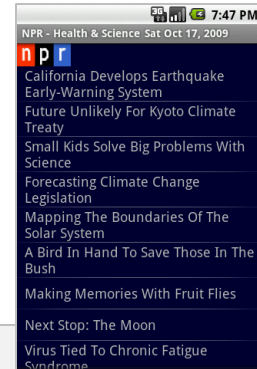
        //grab the data bundle with all the pieces sent to us
        //it contains 1. url-address and 2. caption-text
        Bundle myBundle = myLocalIntent.getExtras();
        urlAddress = myBundle.getString("urlAddress");
        urlCaption = myBundle.getString("urlCaption");
    }
}
```





Internet

Activity2: NPRNewsDetails.java *cont...*



```
//top caption for this screen
String todayStr = AndroNPR.niceDate();
this.setTitle("NPR - " + urlCaption + " \t" + todayStr);

//clicking a line shows more about selected news item
myListView = (ListView) this.findViewById(R.id.myListView);
myListView.setOnItemClickListener(new OnItemClickListener() {
    public void onItemClick(AdapterView<?> _av, View _v,
        int _index, long _id) {
        selectedNewsItem = newsList.get(_index);
        showNiceDialogBox(selectedNewsItem, context);
    }
});
} //onCreate

@Override
protected void onResume() {
    super.onResume();
    try {

        URL url = new URL(urlAddress);
        URLConnection connection;
        connection = url.openConnection();

        HttpURLConnection httpConnection = (HttpURLConnection) connection;
        int responseCode = httpConnection.getResponseCode();
```

Internet

Activity2: NPRNewsDetails.java *cont...*

```

    if (responseCode == HttpURLConnection.HTTP_OK) {
        InputStream in = httpConnection.getInputStream();
        DocumentBuilderFactory dbf = DocumentBuilderFactory.newInstance();
        DocumentBuilder db = dbf.newDocumentBuilder();
        Document dom = db.parse(in);
        Element docEle = dom.getDocumentElement();
        // NodeList nl = docEle.getElementsByTagName("entry");
        NodeList nl = docEle.getElementsByTagName("item");
        if ((nl != null) && (nl.getLength() > 0)) {
            for (int i = 0; i < nl.getLength(); i++) {
                dissectNode(nl, i);
            } // for
        } // if
    } // if
    int layoutID = R.layout.my_simple_list_item_1;
    ArrayAdapter<SingleNewsItem> aaNews =
        new ArrayAdapter<SingleNewsItem>(this, layoutID, newsList);
    myListView.setAdapter(aaNews);
} catch (MalformedURLException e) {
    e.printStackTrace();
} catch (IOException e) {
    e.printStackTrace();
}
Toast.makeText(context, "Trouble!!!", 1).show();
} catch (ParserConfigurationException e) {
    e.printStackTrace();
} catch (SAXException e) {
    e.printStackTrace();
}
} // onResume

```



Internet

Activity2: NPRNewsDetails.java *cont...*

```
public void dissectNode(NodeList nl, int i){
    try {
        Element entry = (Element) nl.item(i);
        Element title = (Element) entry.getElementsByTagName(
            "title").item(0);
        Element description = (Element) entry.getElementsByTagName(
            "description").item(0);
        Element pubDate = (Element) entry.getElementsByTagName(
            "pubDate").item(0);
        Element link = (Element) entry.getElementsByTagName(
            "link").item(0);

        String titleValue = title.getFirstChild().getNodeValue();
        String descriptionValue = description.getFirstChild().getNodeValue();
        String dateValue = pubDate.getFirstChild().getNodeValue();
        String linkValue = link.getFirstChild().getNodeValue();

        SingleNewsItem singleItem = new SingleNewsItem(
            dateValue, titleValue, descriptionValue, linkValue);
        newsList.add(singleItem);

    } catch (DOMException e) {
        e.printStackTrace();
    }
} //dissectNode
```



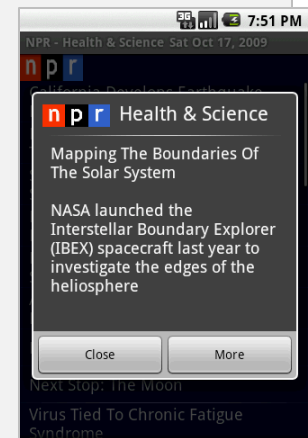
Internet

Activity2: NPRNewsDetails.java *cont...*

```
public void showNiceDialogBox(SingleNewsItem selectedNewsItem, Context context) {
    //assemble a nice looking dialog box
    try {
        final Uri myLink = Uri.parse(selectedNewsItem.getLink());
        AlertDialog.Builder myBuilder = new AlertDialog.Builder(this);
        myBuilder
            .setIcon(R.drawable.logo_npr)
            .setTitle(urlCaption)
            .setMessage( selectedNewsItem.getTitle() + "\n\n"
                + selectedNewsItem.getDescription() + "\n" )
            .setPositiveButton("Close", null)
            .setNegativeButton("More", new OnClickListener() {

                public void onClick(DialogInterface dialog, int whichOne) {
                    // use native web browsing
                    Intent webIntent = new Intent( Intent.ACTION_VIEW, myLink);
                    startActivity(webIntent);
                }
            })//setNegativeButton
        .show();
    } catch (Exception e) {
        e.printStackTrace();
    }
} //showNiceDialogBox

} //NprNewsDetails
```



Internet

Class: SingleNewsItem.java

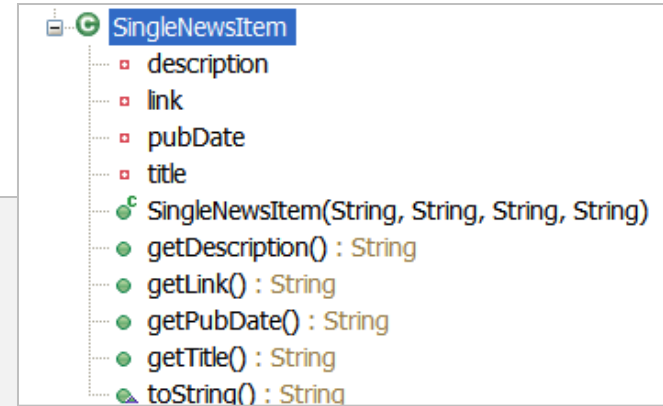
```
package matos.internet;

public class SingleNewsItem {
    private String pubDate;
    private String title;
    private String description;
    private String link;

    public String getPubDate() { return pubDate; }
    public String getTitle() { return title; }
    public String getDescription() { return description; }
    public String getLink() { return link; }

    public SingleNewsItem( String _pubDate, String _title, String _description,
                          String _link) {
        pubDate = _pubDate;
        description = _description;
        title = _title;
        link = _link;
    }

    @Override
    public String toString() {
        return title;
    }
}
```



Internet

manifest

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="matos.internet"
    android:versionCode="1"
    android:versionName="1.0.0">
    <application android:icon="@drawable/star_big_on" android:label="@string/app_name">

        <activity android:name=".AndroNPR"
            android:label="@string/app_name">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

        <activity android:name=".NprNewsDetails" >
        </activity>

    </application>

    <uses-permission android:name="android.permission.INTERNET"/>
    <uses-sdk android:minSdkVersion="4" />

</manifest>
```

Internet

Questions

