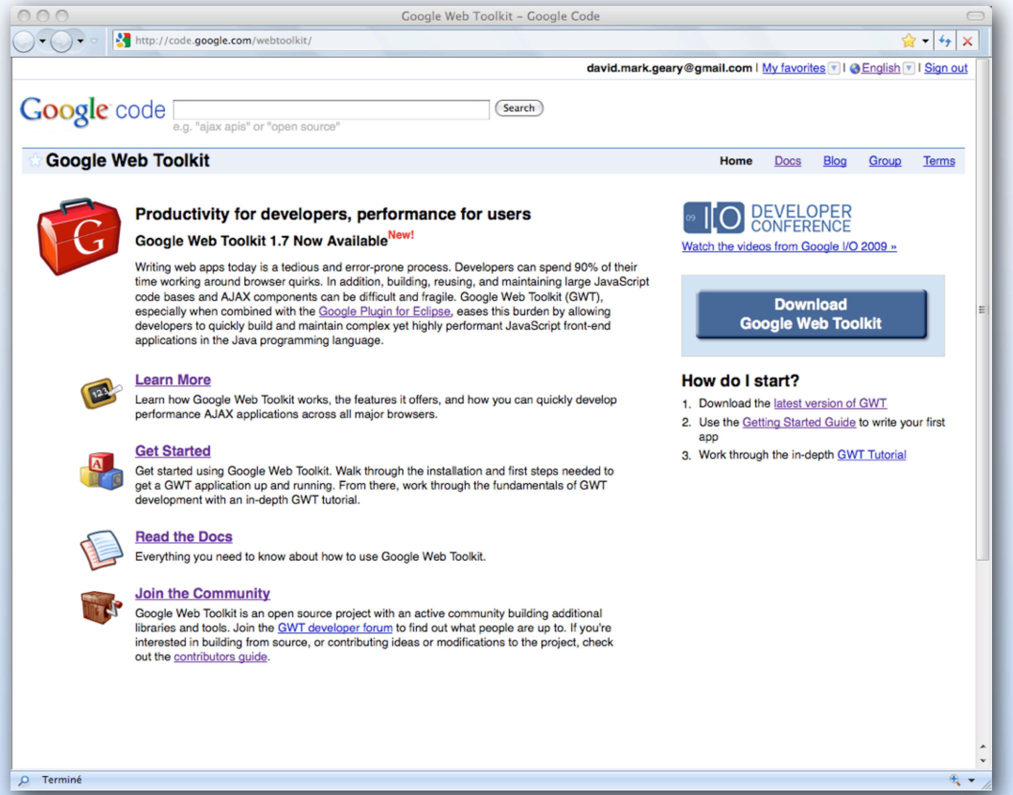
Google Web Toolkit

code.google.com/webtoolkit



Google Web Toolkit – Google Code

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Google code Search

e.g. "ajax apis" or "open source"

Google Web Toolkit Home Docs Blog Group Terms

Productivity for developers, performance for users

Google Web Toolkit 1.7 Now Available New!

Writing web apps today is a tedious and error-prone process. Developers can spend 90% of their time working around browser quirks. In addition, building, reusing, and maintaining large JavaScript code bases and AJAX components can be difficult and fragile. Google Web Toolkit (GWT), especially when combined with the Google Plugin for Eclipse, eases this burden by allowing developers to quickly build and maintain complex yet highly performant JavaScript front-end applications in the Java programming language.

Learn More
Learn how Google Web Toolkit works, the features it offers, and how you can quickly develop performance AJAX applications across all major browsers.

Get Started
Get started using Google Web Toolkit. Walk through the installation and first steps needed to get a GWT application up and running. From there, work through the fundamentals of GWT development with an in-depth GWT tutorial.

Read the Docs
Everything you need to know about how to use Google Web Toolkit.

Join the Community
Google Web Toolkit is an open source project with an active community building additional libraries and tools. Join the GWT developer forum to find out what people are up to. If you're interested in building from source, or contributing ideas or modifications to the project, check out the contributors guide.

I/O DEVELOPER CONFERENCE

Watch the videos from Google I/O 2009 »

Download Google Web Toolkit

How do I start?

1. Download the latest version of GWT
2. Use the Getting Started Guide to write your first app
3. Work through the in-depth GWT Tutorial

Terminé

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corewebdeveloper.com

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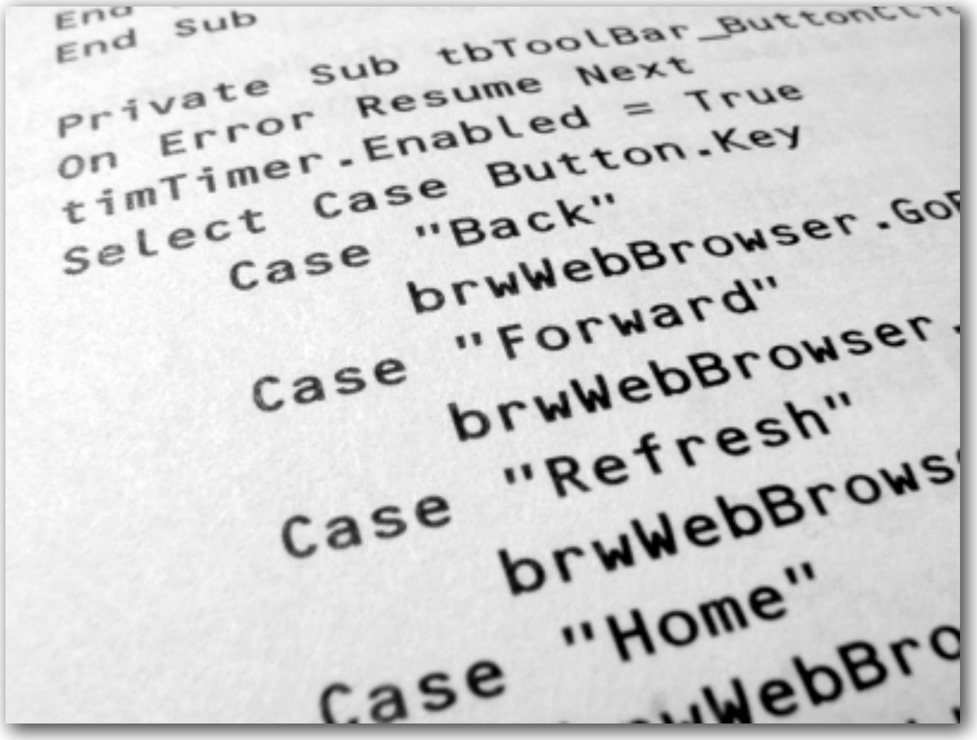
Code



```
End
End sub

Private Sub tbToolBar_ButtonCl
On Error Resume Next
timTimer.Enabled = True
Select Case Button.Key
        Case "Back"
                brwWebBrowser.Go
        Case "Forward"
                brwWebBrowser.
        Case "Refresh"
                brwWebBrows
        Case "Home"
                wWebBro
```

http://coolandusefulgwt.com

This session

- Introduction
- On the client
- Remote procedure calls
- Integrating JavaScript
- Ajax Testing

Old problems, new solutions

A little paint may save money, lives

States try to find low-cost ways to cut road deaths

The premise

- Ajax is hard
- It requires:
  - expertise in JavaScript
  - a mixture of disparate technologies
  - integration of client- and server-side code
- Ajax libraries make things easier, but...

The promise

- You can develop Ajax-enabled web applications in Java
- Implement the client-side UI in pure Java
- Very little knowledge of JavaScript required
- Familiar idioms from AWT and Swing

RAD development

- Application generator for a quick start
- Convention over configuration
- Instant turnaround after changes
- Non-Ajax Ajax
- Awesome productivity

Client-side code

- You implement user interfaces in pure Java
- However, it's a limited subset of Java
  - Selected choices from java.lang and java.util
- In Hosted mode, your code runs in the JVM
- Use your favorite debugger
- In Web mode: JavaScript runs in the browser
- GWT compiles Java to JavaScript

Server-side code

- Server-side code is written in Java
- All of Java is available
- Code is compiled normally
- Server-side code is packaged in services
- Remote procedure calls (RPCs) from the client to the server
- Services are accessed with a remote servlet

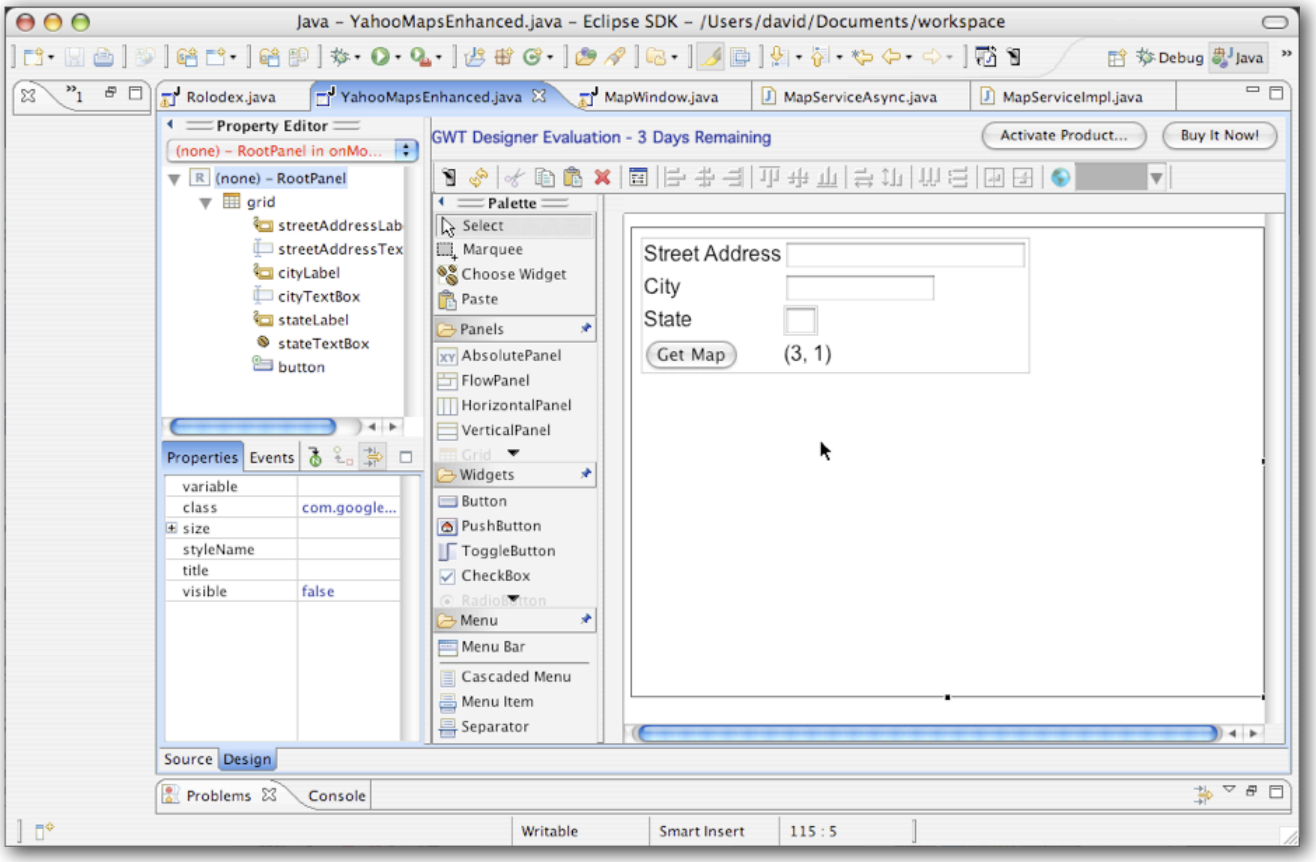
GWT features

- Debug client-side Java code
- Make RPCs to a servlet
- Incorporate JavaScript with native methods
- Use widgets and implement new ones
- Use the browser history mechanism
- Integration with JUnit
- Internationalization

GWT's sweet spot

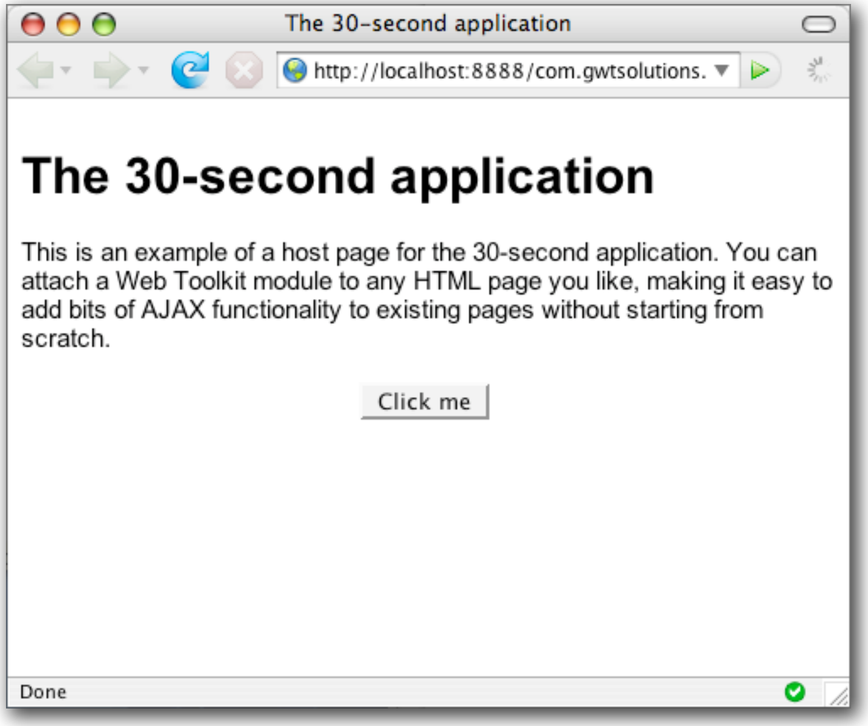
- GWT is not for everyone. Here's the sweet spot:
- Swing-like applications that run in a browser
- Java developers who've used a desktop or component-based framework

GWT Designer



variable	
class	com.google...
size	
styleName	
title	
visible	false

Demonstration


The 30-second application
http://localhost:8888/com.gwtsolutions.
Click me
Done

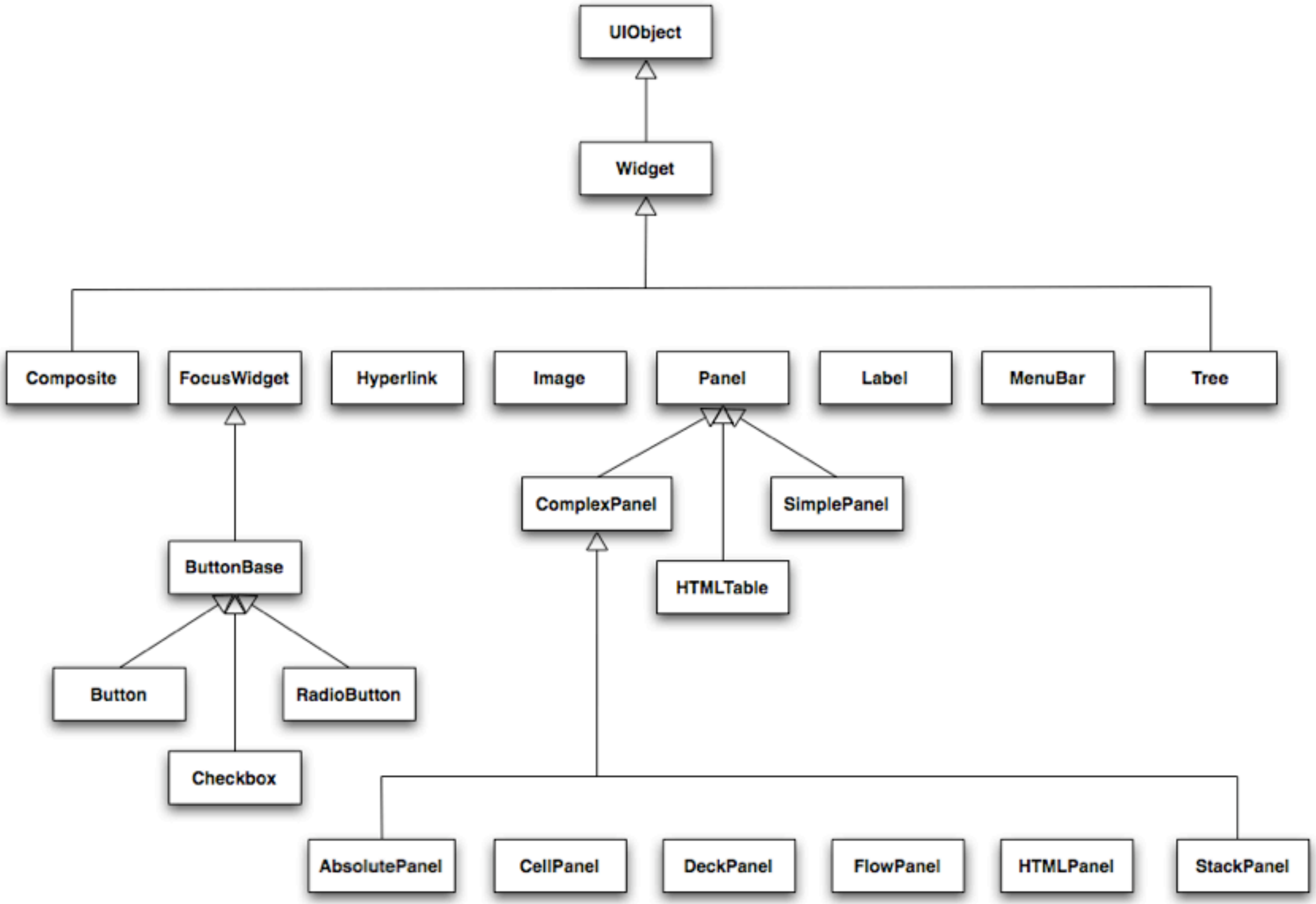
The 30-second application

This is an example of a host page for the 30-second application. You can attach a Web Toolkit module to any HTML page you like, making it easy to add bits of AJAX functionality to existing pages without starting from scratch.

This session

- Introduction
- Widgets
- Remote procedure calls
- Integrating JavaScript
- Ajax Testing

Widget hierarchy (partial)



Commonly used Widgets

- The basic widgets
  - Label, Image, TextBox, Button, Hyperlink
  - FileUpload, Tree, TabPanel, Popup, FlexTable
- Panels
  - HorizontalPanel and VerticalPanel,
  - AbsolutePanel, Grid, FocusPanel
- Listeners
  - ClickListener, MouseListener, FocusListener,...

Implementing the UI

- Implement EntryPoint.onModuleLoad()
  - Create and populate panels with widgets
  - Add panel(s) to the root panel
    - Add a panel directly to the root panel, or...
    - ...position widgets in slots
- Implement event handlers for your widgets

Localizing text

```
loginPrompt=Please log in
namePrompt=Name
passwordPrompt=Password
loginButtonText=Log in
welcomeMsg=Welcome!
```

Properties file

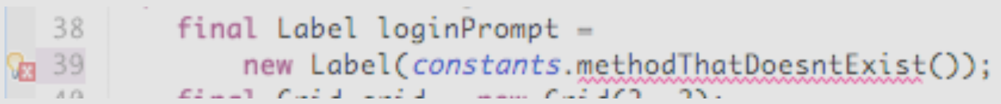
i18nCreator

```
public interface LoginConstants extends
Constants {
    String loginPrompt();
    String namePrompt();
    String passwordPrompt();
    String loginButtonText();
    String welcomeMsg();
}
```

Java interface

Localizing text (cont)

```
private static final LoginConstants constants =
    (LoginConstants) GWT.create(LoginConstants.class);

…

final Label loginPrompt =  newLabel(constants.loginPrompt());
final Label namePrompt = new Label(constants.namePrompt());

...
```



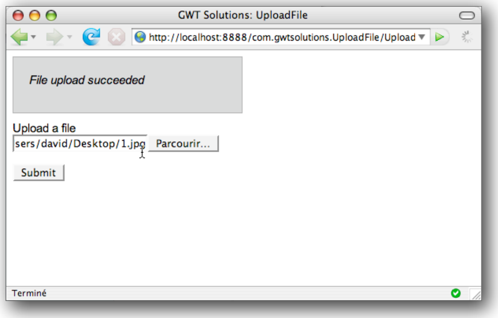
```
final Label loginPrompt =
    new Label(constants.methodThatDoesntExist());
```

Using CSS

- Widgets have styles
  - UIObject.addStyleName(String styleName)
  - UIObject.removeStyleName(String styleName)
- Widgets have default styles
  - labels: .gwt-Label{...}
  - buttons: .gwt-Button{...}
  - ...

Manipulating styles

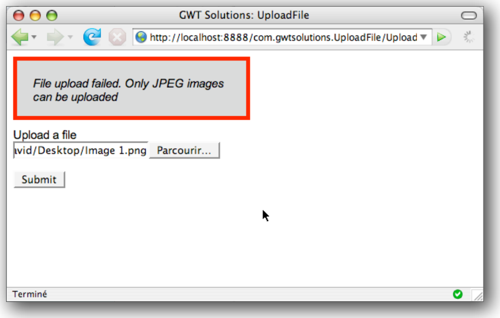
```
.successBorder {
   border: thin solid darkGray;
}

.failureBorder {
   border: thick solid red;
}
```


GWT Solutions: UploadFile
http://localhost:8888/com.gwtsolutions.UploadFile/Upload
Parcourir...
Submit
Terminé

File upload succeeded

Upload a file

sers/david/Desktop/1.jpg


GWT Solutions: UploadFile
http://localhost:8888/com.gwtsolutions.UploadFile/Upload
Parcourir...
Submit
Terminé

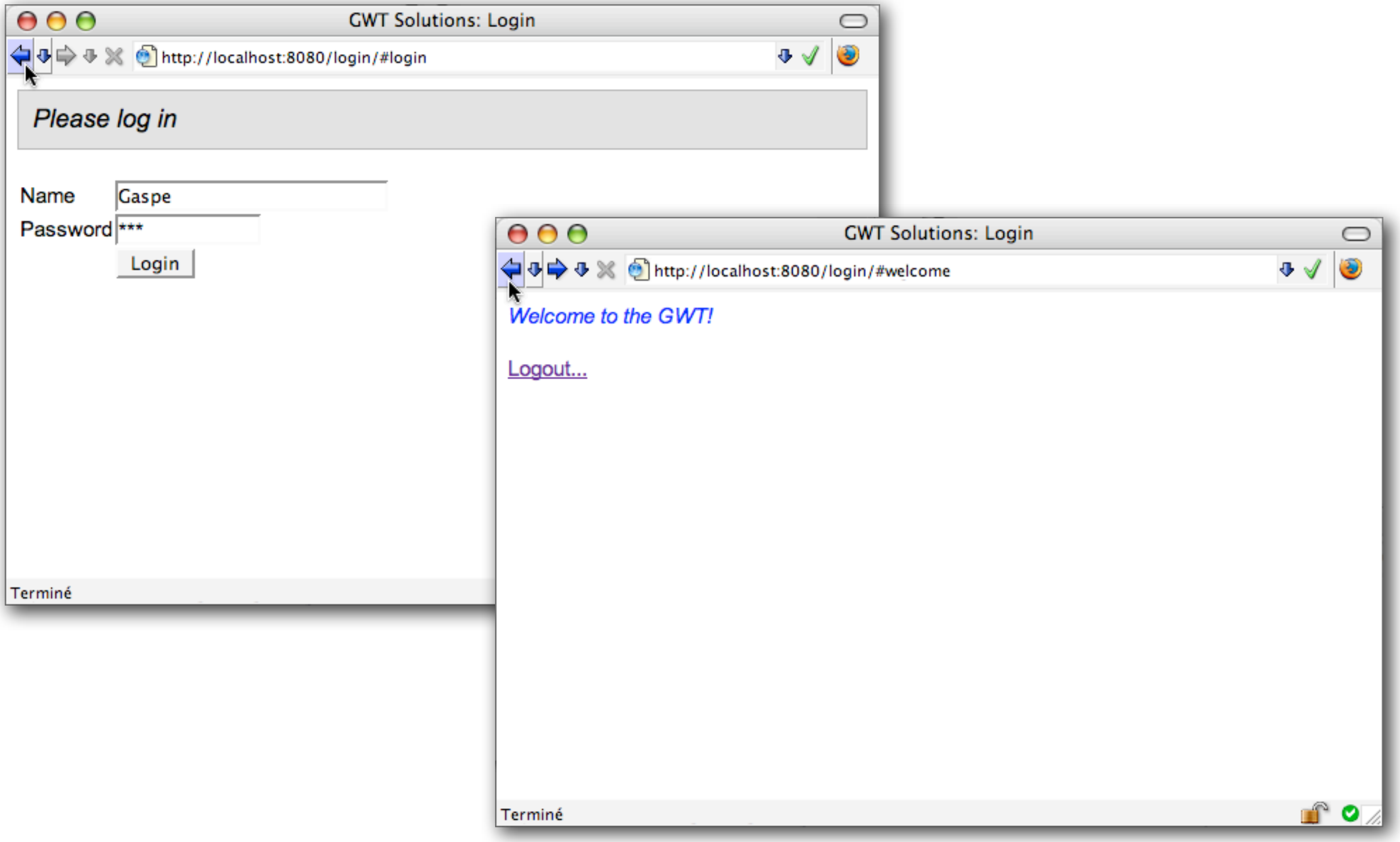
File upload failed. Only JPEG images can be uploaded

Upload a file

vid/Desktop/Image 1.png

```
fp.addFormHandler(new FormHandler() {
   public void onSubmit(FormSubmitEvent event) {
        ...
        statusMessage.removeStyleName("successBorder");
        statusMessage.removeStyleName("failureBorder");
        ...
        if (statusText.equals(SUCCESS_MESSAGE))
           statusMessage.addStyleName("successBorder");
        else
           statusMessage.addStyleName("failureBorder");
        ...
   }
});
```

Demonstration



GWT Solutions: Login

http://localhost:8080/login/#login

Please log in

Name Gaspe

Password ***

Login

Terminé

GWT Solutions: Login

http://localhost:8080/login/#welcome

Welcome to the GWT!

Logout...

Terminé

This session

- Introduction
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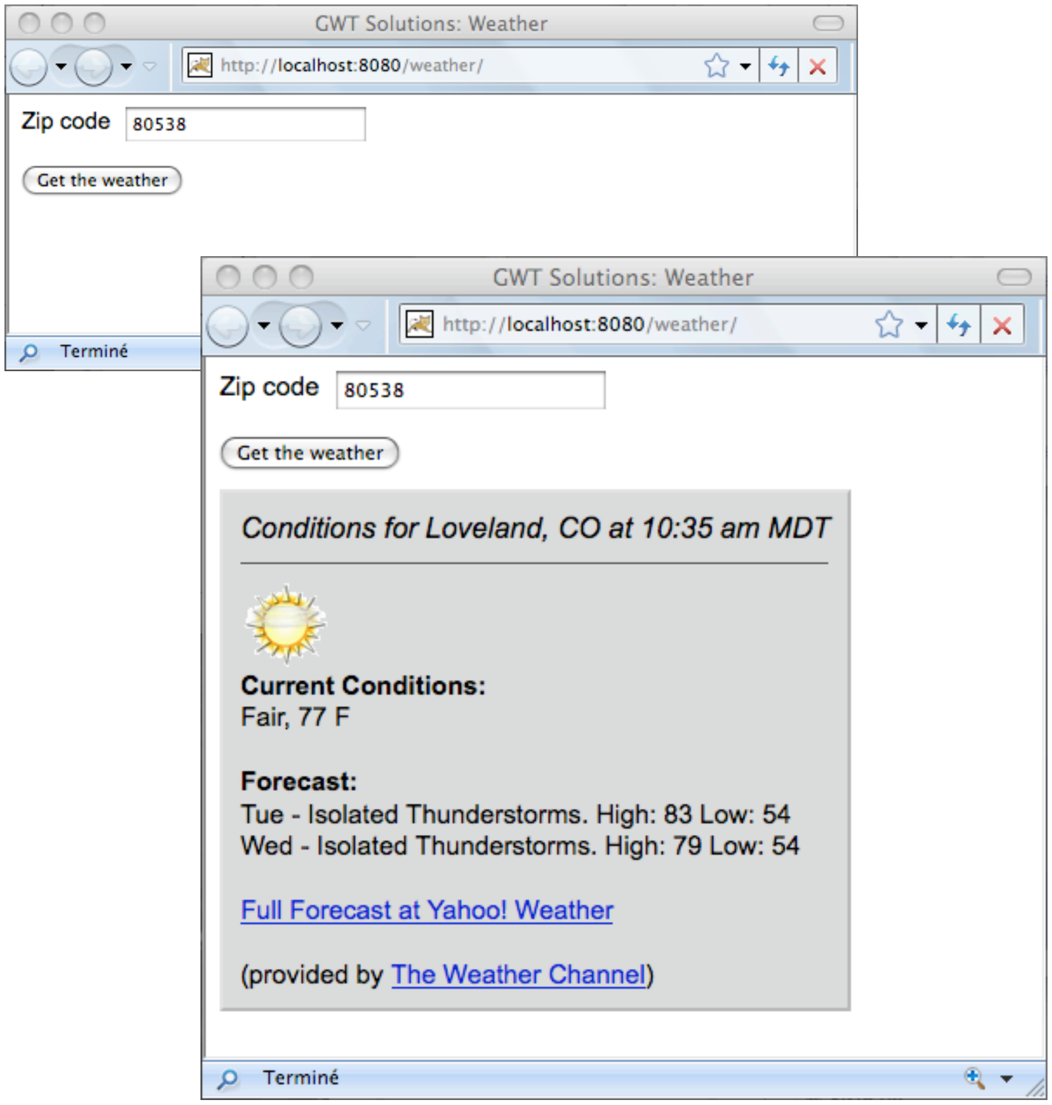
A weather application

- Two interfaces:
    - Remote interface
    - Asynchronous interface
- One class:
    - Remote servlet class



Conditions for Loveland, CO at 10:35 am MDT

Current Conditions:
Fair, 77 F

Forecast:
Tue - Isolated Thunderstorms. High: 83 Low: 54
Wed - Isolated Thunderstorms. High: 79 Low: 54

Full Forecast at Yahoo! Weather

(provided by The Weather Channel)

Remote and asynchronous interfaces

Implemented by a servlet

```
public interface WeatherService extends RemoteService {
    public String getWeatherForZip(String zip);
}
```

Proxy interface

```
public interface WeatherServiceAsync {
    public void getWeatherForZip(String zip, AsyncCallback<String> callback);
}
```

Servlet mapping in WEB-INF/web.xml

```
<servlet>
  <servlet-name>weather</servlet-name>
  <servlet-class>com.clarity.server.WeatherServiceImpl</servlet-class>
</servlet>

<servlet-mapping>
  <servlet-name>weather</servlet-name>
  <url-pattern>/places/weather</url-pattern>
</servlet-mapping>
```

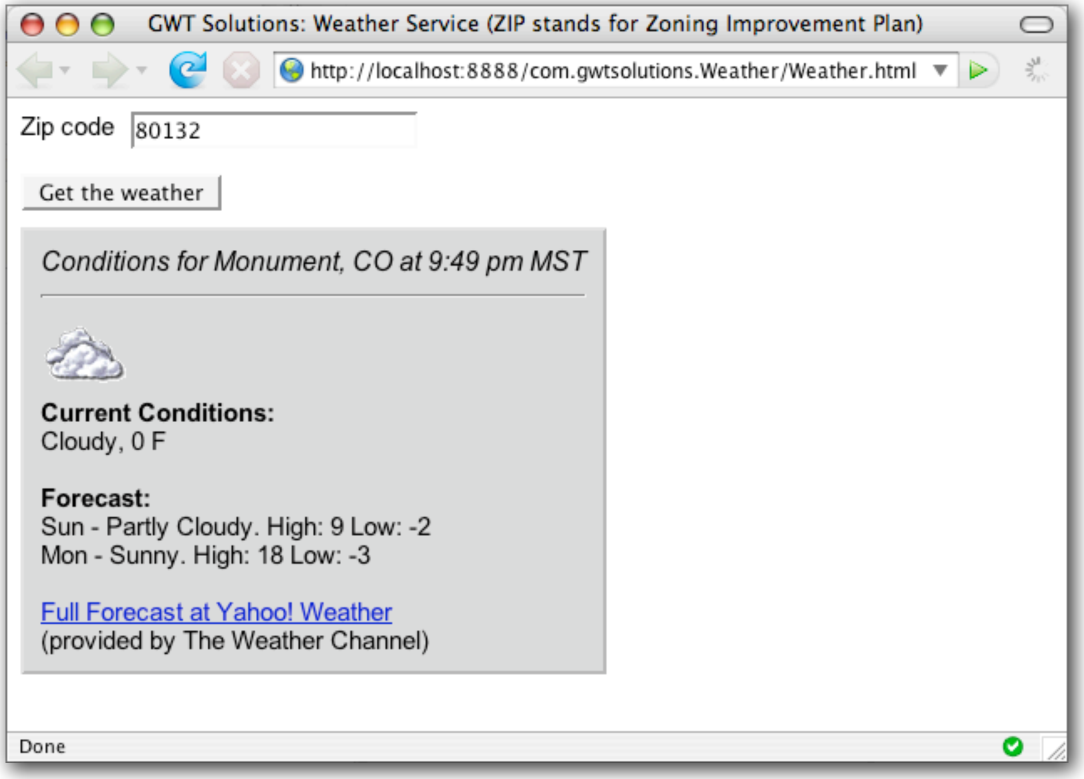
The servlet

```
@RemoteServiceRelativePath("weather")

public class WeatherServiceImpl
   extends RemoteServiceServlet
   implements WeatherService {

    public String getWeatherForZip(String zip) {
        // invoke Yahoo! weather web service
    }
}
```

Using the weather service

```
WeatherServiceAsync service = (WeatherServiceAsync)
  GWT.create(WeatherService.class);

service.getWeatherForZip("80538",
  new AsyncCallback<String>() {
    public void onSuccess(String result) {
      displayHTML(result);
    }
    public void onFailure(Throwable t) {
      showAlert("Remote service call failed: " + t.getMessage());
    }
  }
);
```

Demonstration


GWT Solutions: Weather Service (ZIP stands for Zoning Improvement Plan)
http://localhost:8888/com.gwtsolutions.Weather/Weather.html
Zip code
80132
Get the weather
Done

Conditions for Monument, CO at 9:49 pm MST

Current Conditions:
Cloudy, 0 F

Forecast:
Sun - Partly Cloudy. High: 9 Low: -2
Mon - Sunny. High: 18 Low: -3

Full Forecast at Yahoo! Weather
(provided by The Weather Channel)

This session

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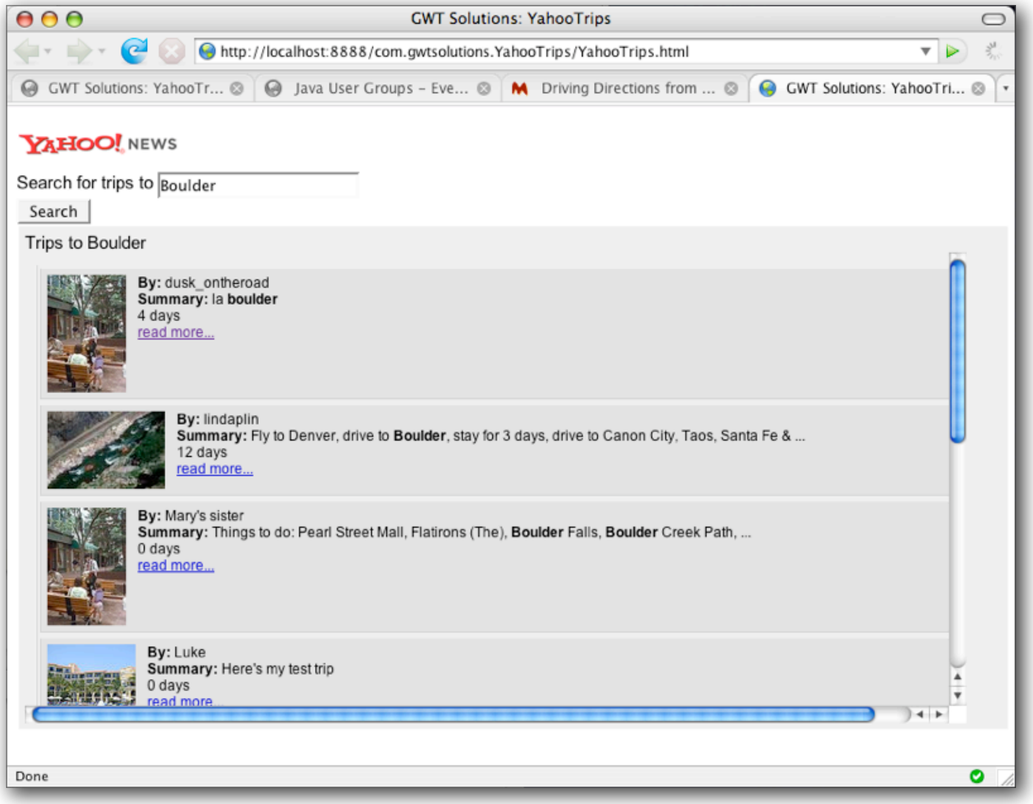
Integrating Script.aculo.us effects

```
 public class MyApp implements EntryPoint {
  ...
  public void onModuleLoad() {
      Label errorMessage = new Label(”Get it together!”);
      ...
      errorMessage.setVisible(false);
      ...
      applyEffect(”Shake”, errorMessage.getElement());
  }
  ...
  private native void applyEffect(String effect, Element e) /*-{
     $wnd.Effect[effect](e);
  }-*/;
  ...
}
```

Demonstration


GWT Solutions: YahooTrips

http://localhost:8888/com.gwtsolutions.YahooTrips/YahooTrips.html

GWT Solutions: YahooTr...
Java User Groups – Eve...
Driving Directions from ...
GWT Solutions: YahooTri...
YAHOO! NEWS

Search for trips to Boulder

Search

Trips to Boulder

By: dusk_ontheroad
Summary: la **boulder**
4 days
read more...

By: lindaplin
Summary: Fly to Denver, drive to **Boulder**, stay for 3 days, drive to Canon City, Taos, Santa Fe & ...
12 days
read more...

By: Mary's sister
Summary: Things to do: Pearl Street Mall, Flatirons (The), **Boulder** Falls, **Boulder** Creek Path, ...
0 days
read more...

By: Luke
Summary: Here's my test trip
0 days
read more

Done

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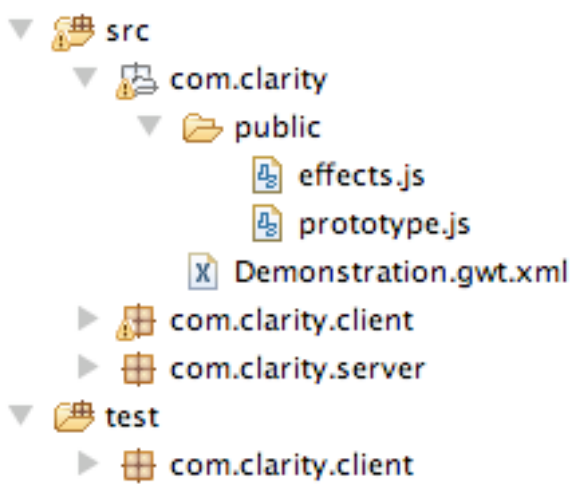
Using junitCreator

```
junitCreator -junit /Developer/Java/Tools/junit-4.5/junit-4.5.jar
   -module com.clarity.Places
   -eclipse Places  com.clarity.client.PlacesTest
```



A test

```
public class PlacesTest extends GWTTestCase {
  public String getModuleName() {
    return "com.clarity.Places";
  }
  public void testGetAddresses() {
    final Places demo = new Places();
    demo.getAddresses();
    final ListBox addresses = demo.addresses;

    new Timer() {
      public void run() {
        assert (addresses.getItemCount() == 6);
        assert (demo.addressList.size() == 6);
        System.out.println(addresses.toString());
        finishTest();
      }
    }.schedule(10000);

    delayTestFinish(20000);
  }
}
```

The End

Thanks for coming!