The University of the West Indies
Cave Hill Campus
Faculty of Science and Technology Department of Computer Science, Mathematics and Physics

SWEN1005: Mobile Web Programming

Laboratory Exercise One

Exploring Mobile Platforms

INSTRUCTIONS

1. During this lab, we will create and test native apps and responsive pages for mobile devices, then based on our experiences creating and using these apps/pages we will prepare a report outlining the pros and cons of not only using but also designing and creating for the different platforms.
2. By the end of the lab, you should have created three personalized native apps and two responsive web pages.
3. What is to be created:
    a. A single document called “Native Apps”, probably created in MS Word but converted to PDF for submission, containing the following:
        i. Screenshots of the UI for each of the native apps as they look on your mobile device
        ii. Screenshots of the blocks used to “program” each of the native apps.
        iii. At least two advantages and two disadvantages of creating these apps using app inventor 2
    b. A plain text document containing the completed and validated html and CSS for “index.html”
    c. A plain text document containing the completed and validated html and CSS for “MyResume.html”
    d. A PDF document briefly identifying the pros and cons of not only using but also designing and creating for these two different platforms based on your experience.

Contents

Native Apps

To create our native app we will use the very user friendly ***MIT App Inventor 2*** framework.

App Inventor is a cloud-based tool, which means you can build apps right in your web browser. This website offers all the support you'll need to learn how to build your own apps. **The App Inventor software, or "service" is at ai2.appinventor.mit.edu.** You can get there by clicking the orange "Create Apps!" button from any page on this website.

Meet App Inventor

Setting Up App Inventor

You can set up App Inventor and start building apps in minutes. The Designer and Blocks Editor run completely in the browser (aka the cloud). To see your app on a device while you build it (also called "Live Testing"), you'll need to follow the steps below.

You have three options for setting up live testing while you build apps

If you are using an Android device and you have a wireless internet connection, you can start building apps without downloading any software to your computer. You will need to install the App Inventor Companion App on your device. Choose *Option One* below. This option is STRONGLY RECOMMENDED.

If you do not have an Android device, you'll need to install software on your computer so that you can use the on-screen Android emulator. Choose *Option Two* below.

If you do not have a wireless internet connection, you'll need to install software on your computer so that you can connect to your Android device over USB. Choose *Option Three* below. ***The USB Connection option can be tricky, especially on Windows. Use this as a last resort.***

Option One - RECOMMENDED

Build apps with an Android device and WiFi Connection (preferred instructions)

If you have a computer, an Android device, and a WiFi connection, this is the easiest way to test your apps.

Build your project on your computer

Test it in real-time on your device

Option Two

Don’t have an Android device? Use the Emulator: Instructions

If you don’t have an Android phone or tablet handy, you can still use App Inventor.

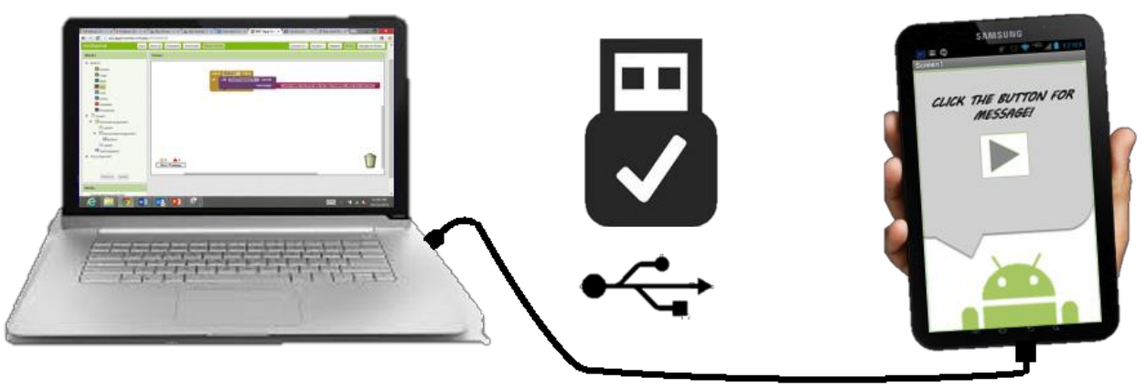
Build your project on your computer

Test it in real-time on your computer with the onscreen emulator

Option Three

No WiFi? Build apps with an Android device and USB Cable: Instructions

Some firewalls within schools and organizations do not allow the type of WiFi connection required. If WiFi doesn’t work for you, try USB.



Build your project on your computer

Test it in real-time on your device

System requirements

Note: Internet Explorer is not supported. We recommend Chrome or Firefox.

Computer and operating system

- Macintosh (with Intel processor): Mac OS X 10.5 or higher
- Windows: Windows XP, Windows Vista, Windows 7

- GNU/Linux: Ubuntu 8 or higher, Debian 5 or higher (Note: GNU/Linux live development is only supported for WiFi connections between computer and Android device.)

Browser

- Mozilla Firefox 3.6 or higher (Note: If you are using Firefox with the NoScript extension, you'll need to turn the extension off. See the note on the troubleshooting page.)
- Apple Safari 5.0 or higher
- Google Chrome 4.0 or higher
- Microsoft Internet Explorer is not supported

Phone or Tablet (or use the on-screen emulator)

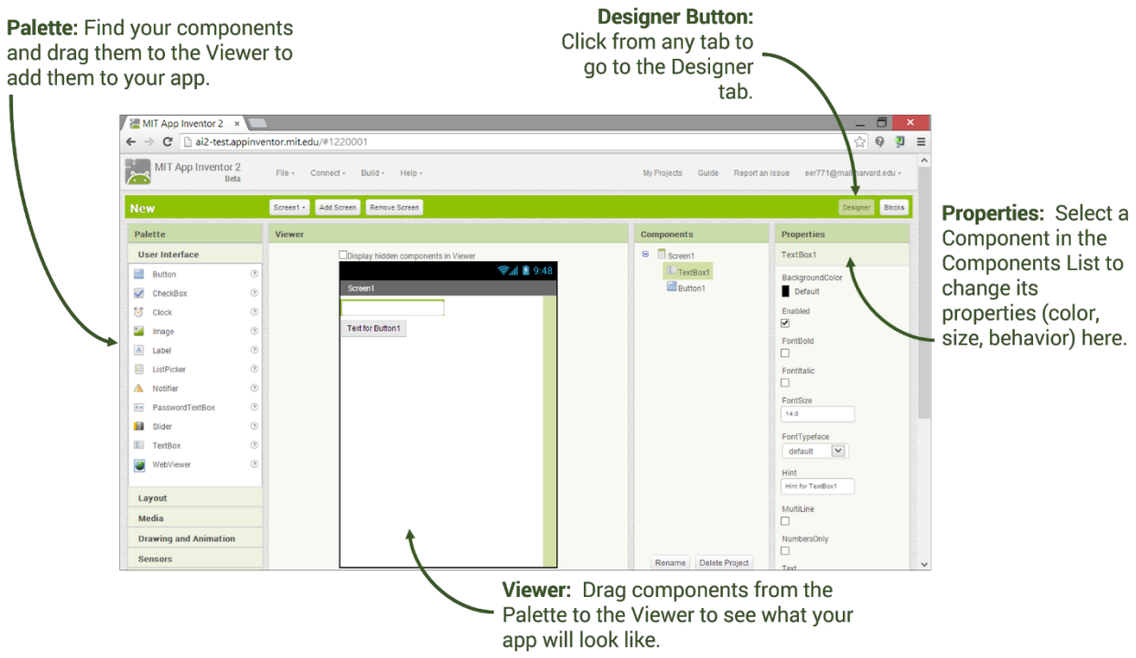
- Android Operating System 2.3 ("Gingerbread") or higher

Designer and Blocks Editor

App Inventor consists of the **Designer** and the **Blocks Editor**. These are described in detail below.

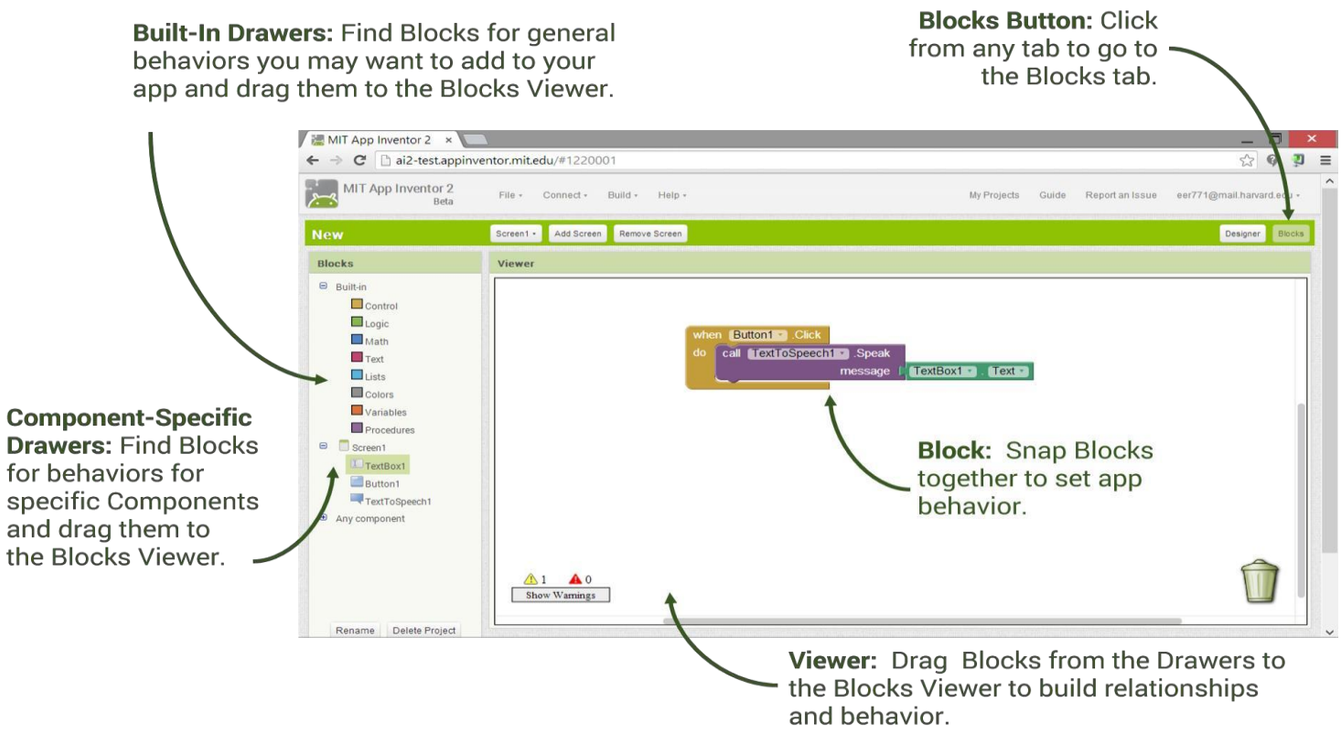
App Inventor Designer

Design the App's User Interface by arranging both on- and off-screen components.



App Inventor Blocks Editor

Program the app's behavior by putting blocks together.



Exercises

The three exercises below are available in two formats: either you can watch the video to create the apps or you can read the text document. After creating the app as specified, add your own flavor to the app to make it yours. Have fun with this exercise.

After creating the app in your browser it might be better to use Option Three to test and run your app, of course this only works if you have an Android device. We will explore apps for other platforms later.

Exercise One

Talk To Me One:

Text and Images
Video

Exercise Two

Talk To Me Two

Text and images
Video

Exercise Three

Ball Bounce

Text and Images
Video

After you have satisfied the requirements of the exercises above add your own flavor by enhancing the UI and the functionality of the app in some way.

Responsive Web Page

Part One – Capitals of the Caribbean

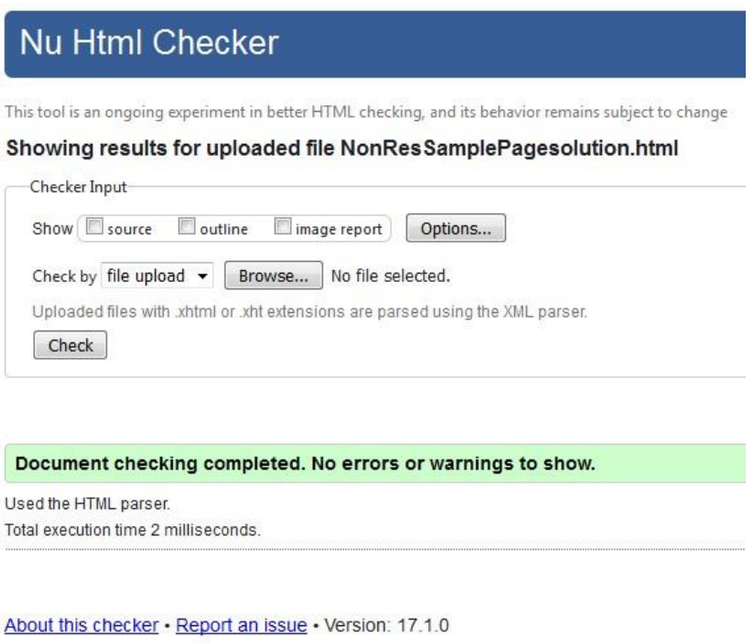
To create our responsive web page we will use the HTML5 and CSS. You will need the text file from your Lab One folder entitled "NonResSamplePage.txt". I have also included a portable version of Notepad++ but you can feel free to use any text editor to make changes to this file.

1. Copy the text from "NonResSamplePage.txt" to a new text document.
2. Name this new document "index.html".
3. Open the "index.html" in your browser and observe the structure and presentation of the content based on the HTML and CSS code.
4. Modify the document to:

    - Include two more facts about the each country and UWI in your territory.
    - Use bullets for the list of facts
    - Italicize the second line of each bordered section (not bulleted)
    - Change the background colour of the page.
    - Change the background colour each bordered section.

NB: The colours (or shades of colours) you use should compliment each not compete with each other, all text should still be readable.

5. Copy the index file to your mobile device.
6. Open index using your browser on the mobile device. Is the page responsive? Did it resize itself to conform to the size of the screen of your mobile device?
7. Copy the line below and insert it between the <head> <style> tags of your "index.txt" file and then update your "index.html" file.
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
8. Copy the updated html file to your mobile device and render it using your browser. Do you notice a change? If so, what do you notice?
9. Using the *W3Schools* html validator check your html code to ensure that it conforms to the standard laid out by the web developers site. If your page does not validate make the necessary changes until this message appears:



Part Two – My Resume

Using the validated template from Part One above create an html file entitled “My Resume.html” which reflects your information and renders in your browser to appear like the sample shown below.

Validate “MyResume.html” we will use this for the next practical.