ASSIGNMENT 2 – FRUIT APP FOR CHILDREN (IFRUIT APP)

COMP–47330 : PRACTICAL ANDROID PROGRAMMING

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ASSIGNMENT 2 – REQUIREMENTS

Link https://csimoodle.ucd.ie/moodle/mod/assign/view.php?id=27249

Overview **Essential (68 points max):**

You are designing a learning app for kids. Pick at least 3 of your favorite pieces of fruit, and show a list of them on the main page. When each fruit name is clicked, a new page opens up that has a photo/picture of the fruit and its name.

- Design 3 different layouts for your app, so it works on budget phone, typical phone, and a tablet. Also, use different picture sizes for drawables. Fix screen orientation to either portrait or landscape for each version. Make sure activity is not recreated when phone or emulator is rotated!
- Localize your programme into another language of your choice. Make sure that all the strings are translated. Use of Google Translate (http://translate.google.com/) for string translation is OK for this exercise.
- Use Listview to help generate your list.

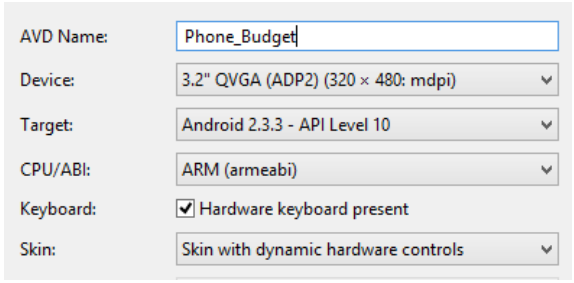
Essential 1 **Additional (8+8+8+8 points max):**

- Design additional layouts for portrait and landscape versions of your app. If you implement this optional task, *get rid of fixed screen orientation options specified in 'Essential'* (8 points max).
- Substitute the initial list of fruit names with their clickable pictures *(8 points max)*
- Add a big capital letter (first letter of the word that fruit name starts with) for the fruit along with its name on the fruit pages *(8 points max)*
- Make the app as attractive as possible for kids (use bright colours and big font) *(8 points max)*.

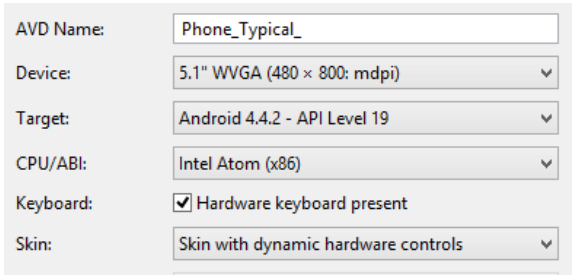
Essential 2 **Screen Sizes for the emulators**

As per the previous ***Practicals and Assignments*** (https://csimoodle.ucd.ie/moodle/mod/page/view.php?id=26059).

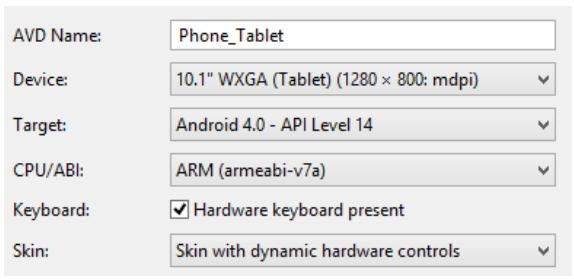
- budget phone : 2.7" QVGA (240x320: ldpi)



- typical phone : Nexus S (4", 480x800, hdpi)



- tablet : Nexus 7 (7.27", 800x1280: hdpi)



Submission Submit your Eclipse project as a single .zip or .tgz file.

ASSIGNMENT 2 – SUBMISSION DETAILS

This assignment will accept submissions from

Due date	Monday, 23 March 2015, 11:00 AM

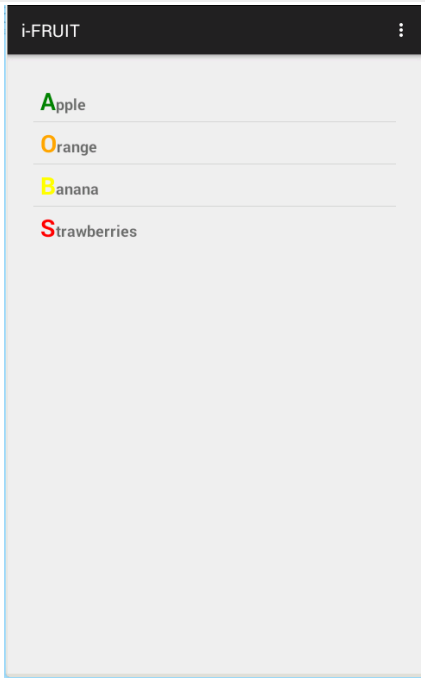
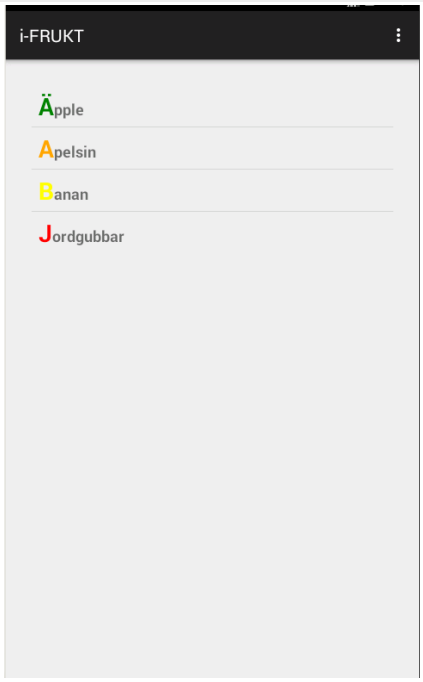
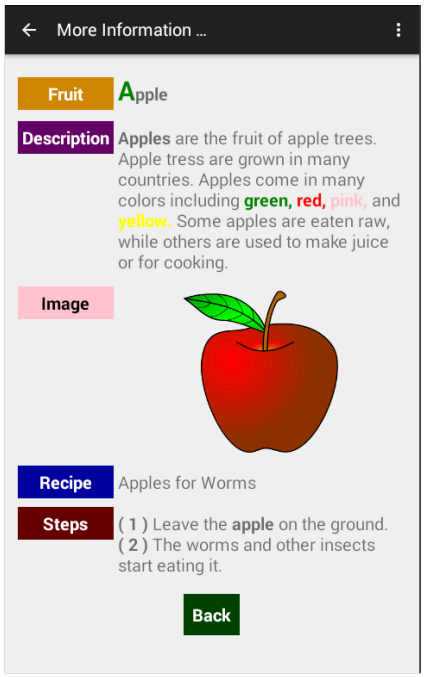
APP STRUCTURE

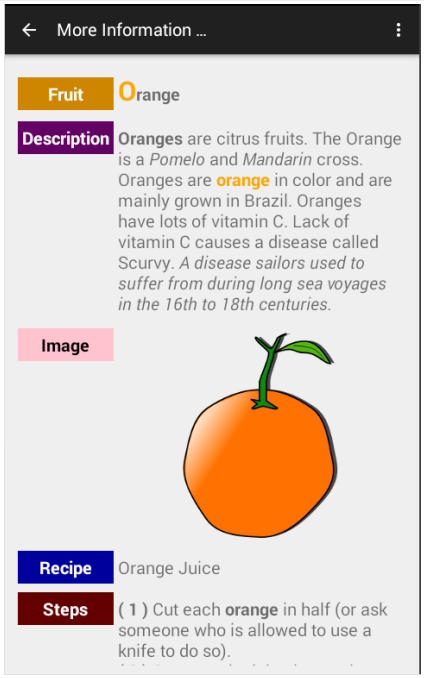
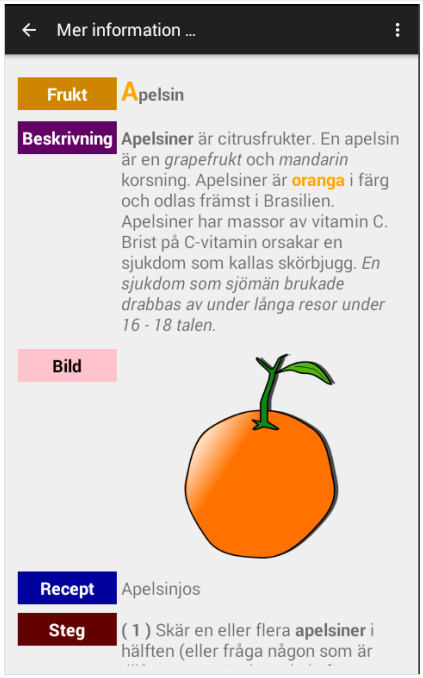
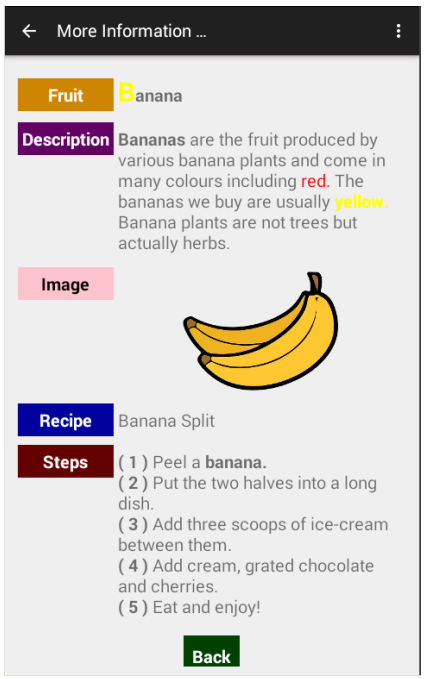
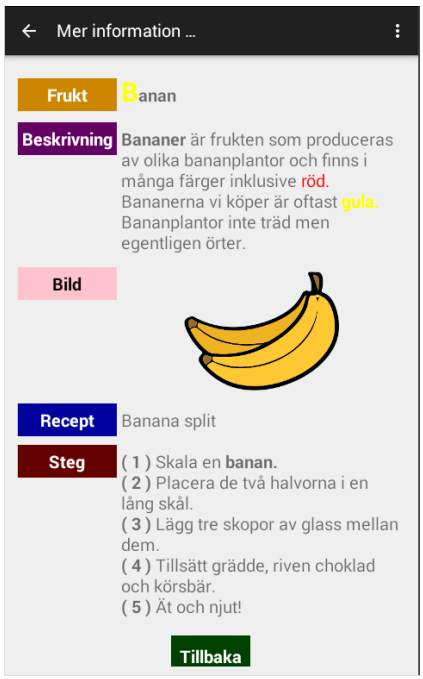
Files used and how each interacts with the others

Directory	File/s	Used for
/res/..		
Layout-small-land/ layout-normal-land/ layout-xlarge-land/	activity_ifruit_app_main.xml activity_ifruit_app_more_info.xml	**Landscape** layout for each of the device sizes, where : • activity_ifruit_app_main.xml → FruitAppMain.java • activity_ifruit_app_more_info.xml → FruitAppSpecificInfo.java budget → small, typical → normal & tablet → x-large
layout-small-port/ layout-normal-port/ layout-xlarge-port/	activity_ifruit_app_main.xml activity_ifruit_app_more_info.xml	**Portrait** layout for each of the device sizes, where : • activity_ifruit_app_main.xml → FruitAppSpecificInfo • activity_ifruit_app_more_info.xml → FruitAppSpecificInfo.java budget → small, typical → normal & tablet → x-large
values/	arrays.xml list_item.xml strings.xml	<string-array> used for both EN and SV ListView customised view for ImageView & TextView EN strings as used for English-US locale
values-sv/	strings.xml	SV specific strings – localised equivalent of those in values/strings.xml
drawable-hdpi/ drawable-mdpi/ drawable-xhdpi/ drawable-xxhdpi/	fruit_apple.png fruit_banana.png fruit_orange.png fruit_strawberries.png	Images of the fruits included : dependant on size hdpi → small, mdpi → medium, xhdpi → large & xxhdpi → x-large
drawable-hdpi/ drawable-mdpi/ drawable-xhdpi/ drawable-xxhdpi/	ic_launcher.png	App logo *hdpi → small, mdpi → medium, xhdpi → large & xxhdpi → x-large*
drawable-hdpi/ drawable-mdpi/ drawable-xhdpi/ drawable-xxhdpi/	ic_apple.png ic_orange.png ic_banana.png ic_strawberry.png	Icons for the different fruits *same size for each android device (75 x ??)*
drawable-hdpi/ drawable-mdpi/ drawable-xhdpi/ drawable-xxhdpi/	recipe_appleworm.png recipe_bananasplit.png recipe_orangejuiceglass.png recipe_strawberriespancakes.png	Images for the recipe for each fruit included in the app *hdpi → small, mdpi → medium, xhdpi → large & xxhdpi → x-large* *(May not be coded into actual submission, time dependant.)*
/java/org/dwan/paula/..		
a2_fruitapp_textonly/	FruitAppMain.java FruitAppSpecificInfo.java	activity files containing java code
a2_fruitapp_textonly/	FruitItem.java FruitAdapter.java	ListView customiser custom ArrayAdapter

Sample App Flow (One Activity to Next)

Screens : phone_typical AVD & no ImageView in mainActivity

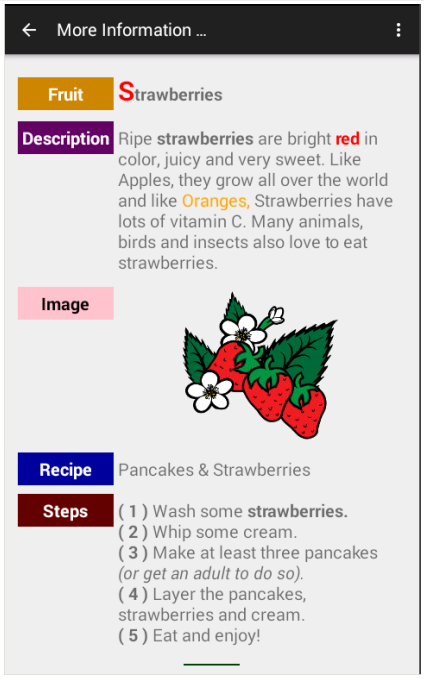
	EN screens	SV screens
activity_ifruit_app_main.xml → FruitAppMain.java *ListView of four sample fruits chosen* *Note small original sized text.*		
Apple at position = 0. • Click on Apple in i-FRUIT to get More Information on the fruit. • Click on ← or on [BACK] to return to i-FRUIT (main Activity).		

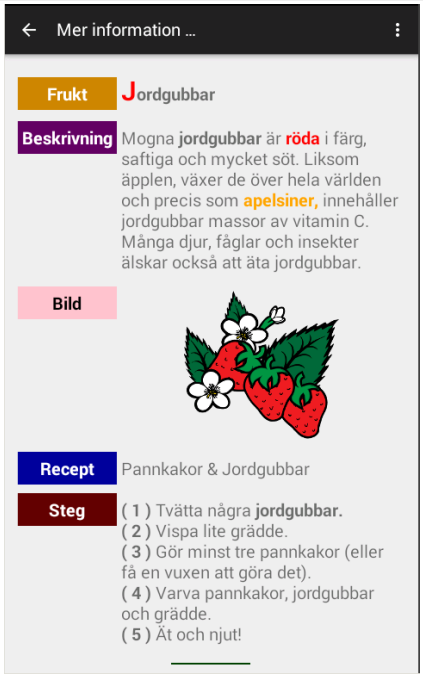
	EN screens	SV screens
Orange at position = 1. • Click on Orange in i-FRUIT to get More Information on the fruit. • Click on ← or on [BACK] to return to i-FRUIT (main Activity).		
Banana at position = 2. • Click on Banana in i-FRUIT to get More Information on the fruit. • Click on ← or on [BACK] to return to i-FRUIT (main Activity).		

	EN screens	SV screens

Strawberries at position = 3.

- Click on Strawberries in i-FRUIT to get ***More Information*** on the fruit.
- Click on ← or on [**BACK**] to return to i-FRUIT (main Activity).





Sample Implementation

Full sample implementation is given for one phone type layout only. Single sample screens only are included for the other phone type layouts.

AndroidManifest.xml updates for Portrait & Landscape

1. Added screen support confirmation :

```
<supports-screens
   android:smallScreens="true"
   android:normalScreens="true"
   android:largeScreens="true"
   android:xlargeScreens="true"/>
```

2. Also added configChanges confirmations to the two activities : <activity android:name=".FruitAppMain" ...> and <activity android:name=".FruitAppSpecificInfo" ...>

```
android:configChanges="keyboardHidden|screenSize"
```

phone_typical – Portrait with Icons

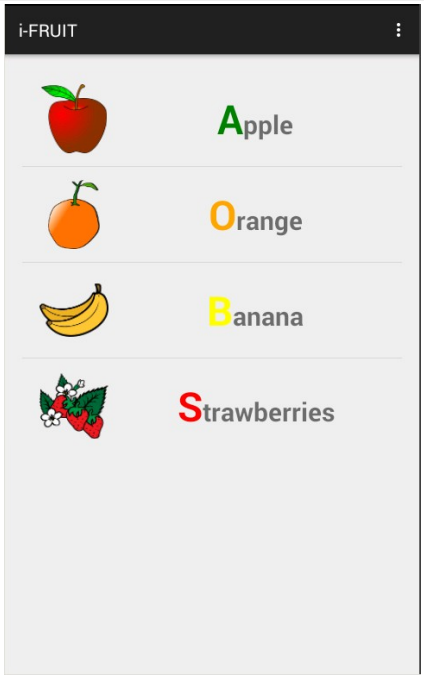
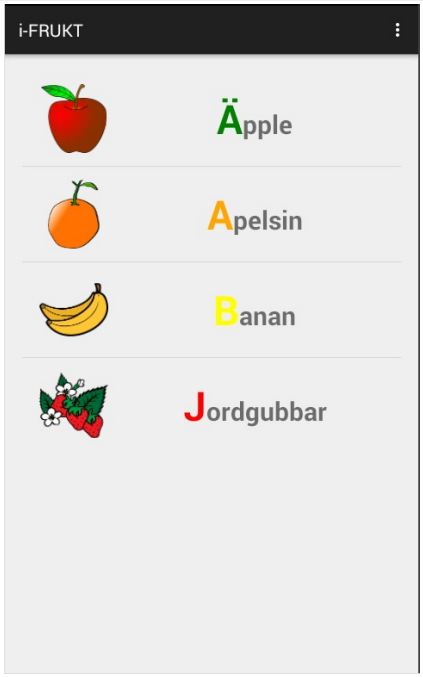
Implementing the icons proved more difficult than I had expected. While creating the layout.xml for the list_item in each row was fine, as was customising an ArrayAdapter (FruitItem.java and FruitAdapter.java) to contain the Fruit ImageView and TextView information .

The main updates to FruitAppMain.java was to change from a simple_list_item_1 (android SDK provided) to a custom list_view.

From	To

`fruitListView.setAdapter(new ArrayAdapter<CharSequence>(this, android.R.layout.simple_list_item_1, fruitNamesCS));`
 	
`fruitListView.setOnItemClickListener(this);`
	`int[] fruitImages = { R.drawable.ic_apple, R.drawable.ic_orange, R.drawable.ic_banana, R.drawable.ic_strawberries };`
	
	`fruitItems = new ArrayList<FruitItem>();`
	`for (int i = 0; i<fLen; i++) {`
	`FruitItem item = new FruitItem(fruitImages[i], fruitNamesCS[i]);`
	`fruitItems.add(item);`
	`}`
	
	`// display fruit image and fruit text in // ListView`
	`fruitListView = (ListView) findViewById(R.id.fruitList);`
	`fruitListView.setAdapter(new FruitAdapter(this, R.layout.list_item, fruitItems));`
	`fruitListView.setOnItemClickListener(this);`

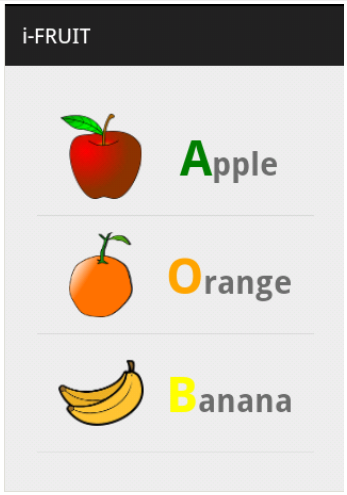
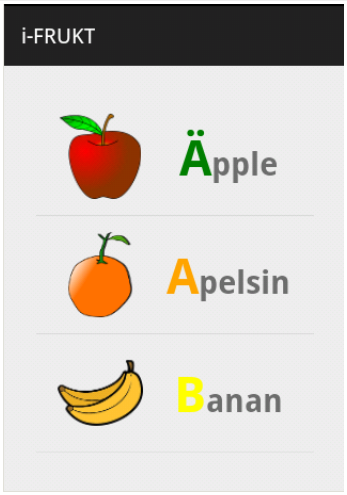
This seemed to work the easiest – perhaps as it perceived as the default as the layout .xml files are in the default directory of layouts/.

	EN screens	SV screens
activity_ifruit_app_main.xml → FruitAppMain.java *ListView of four sample fruits together with icon-sized pictures for each.* *Also note the increased font size for the fruit names.*		

PHONE_BUDGET – PORTRAIT

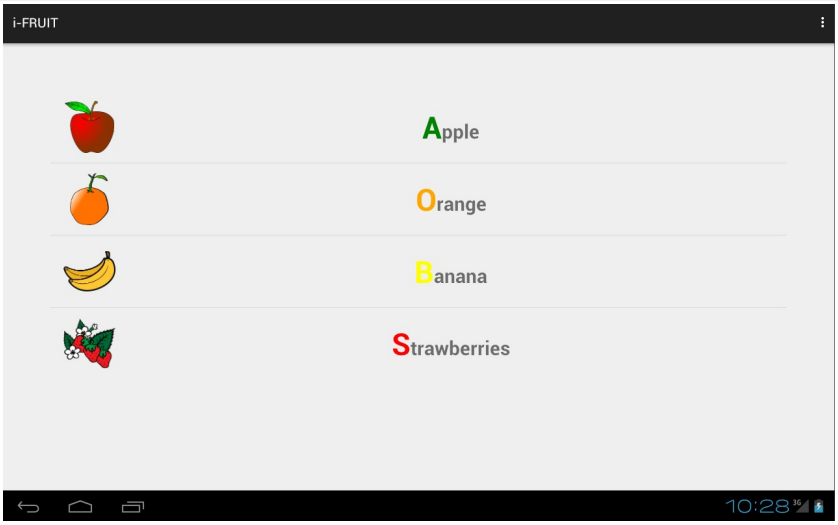
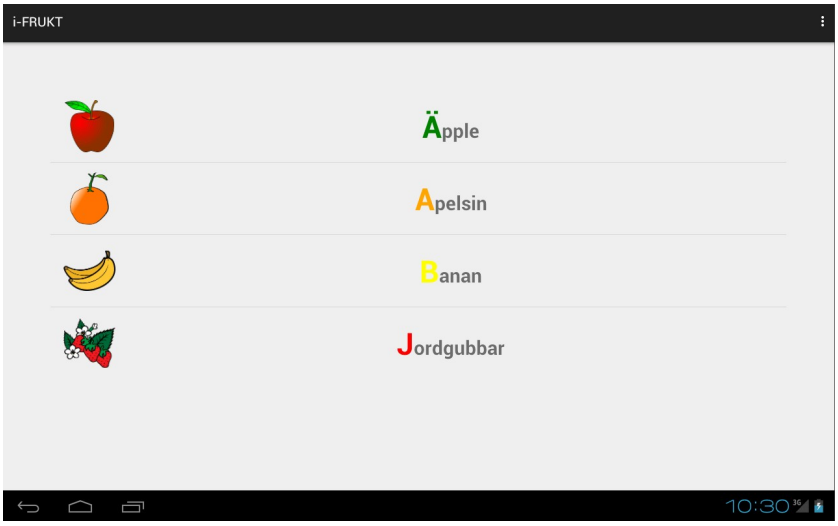
There were issues in Android Studio as the budget phone .xml was not recognised as layout_small_port, nor in layout_smalll. I tried to code the directory name based on device size but this also did not work (layout_w350dp_port). Thus it appears as if the budget phone of size 320x480 is viewed as normal in size and uses the layout .xml file for phone_typical.

I used different colours to more easily differentiate between the different sizes and layouts .

	EN screens	SV screens
activity_ifruit_app_main.xml → FruitAppMain.java *ListView of four sample fruits together with icon-sized pictures for each.* *Also note the increased font size for the fruit names, thus causing the user to scroll.* *It be possible to change the font size for the different devices but there is a requirement legibility in small devices and huge fonts in tablets might not be appreciated by the end user.*		

PHONE_TABLET – LANDSCAPE

This I presumed to be the default layout for the tablet and it behaved as such – I could not get to use own layout though. Again, even when I used xlarge nor when I used w1280dp as unique identifiers. Landscape was selected as the default and the Log.d I have in place noted it as Portrait.

	screens
activity_ifruit_app_main.xml → FruitAppMain.java *ListView of four sample fruits together with icon-sized pictures for each.* *Also note the increased font size for the fruit names, thus causing the user to scroll.* *I left the font sizes alone as it would have been too big otherwise.*	**EN**  **SV** 

ACKNOWLEDGEMENTS

1. http://www.tutorialspoint.com/android/android_list_view.htm
   http://developer.android.com/reference/android/widget/ListView.html
   http://developer.android.com/guide/topics/ui/layout/listview.html
   Android ListView tutorials & information
2. http://www.tutorialspoint.com/android/android_grid_view.htm
   http://developer.android.com/reference/android/widget/GridView.html
   http://developer.android.com/guide/topics/ui/layout/gridview.html
   Android GridView information & tutorials
3. http://developer.android.com/guide/topics/resources/localization.html
   Android Localization tutorial
4. http://developer.android.com/guide/practices/screens_support.html
   Multiple Screens & UCD notes
5. http://developer.android.com/guide/topics/resources/providing-resources.html
   http://developer.android.com/training/multiscreen/screensizes.html
   https://developer.amazon.com/public/solutions/devices/kindle-fire/app-development/01--screen-layout-and-resolution
   http://www.techotopia.com/index.php/Handling_Different_Android_Devices_and_Displays
   Different resources for graphics and layouts for multiple screens
6. https://openclipart.org/
   Open source pictures of fruit and resulting recipes for each fruit item
7. http://www.sciencekids.co.nz/sciencefacts/food/apples.html
   http://www.sciencekids.co.nz/sciencefacts/food/bananas.html
   http://www.sciencekids.co.nz/sciencefacts/food/oranges.html
   http://www.sciencekids.co.nz/sciencefacts/food/strawberries.html
   Used as base information on fruits for descriptions.
8. App name i-FRUIT / I-FRUKT, inspired by GTA V (http://www.rockstargames.com/)