

Xamarin.Android Fundamentals: Layouts

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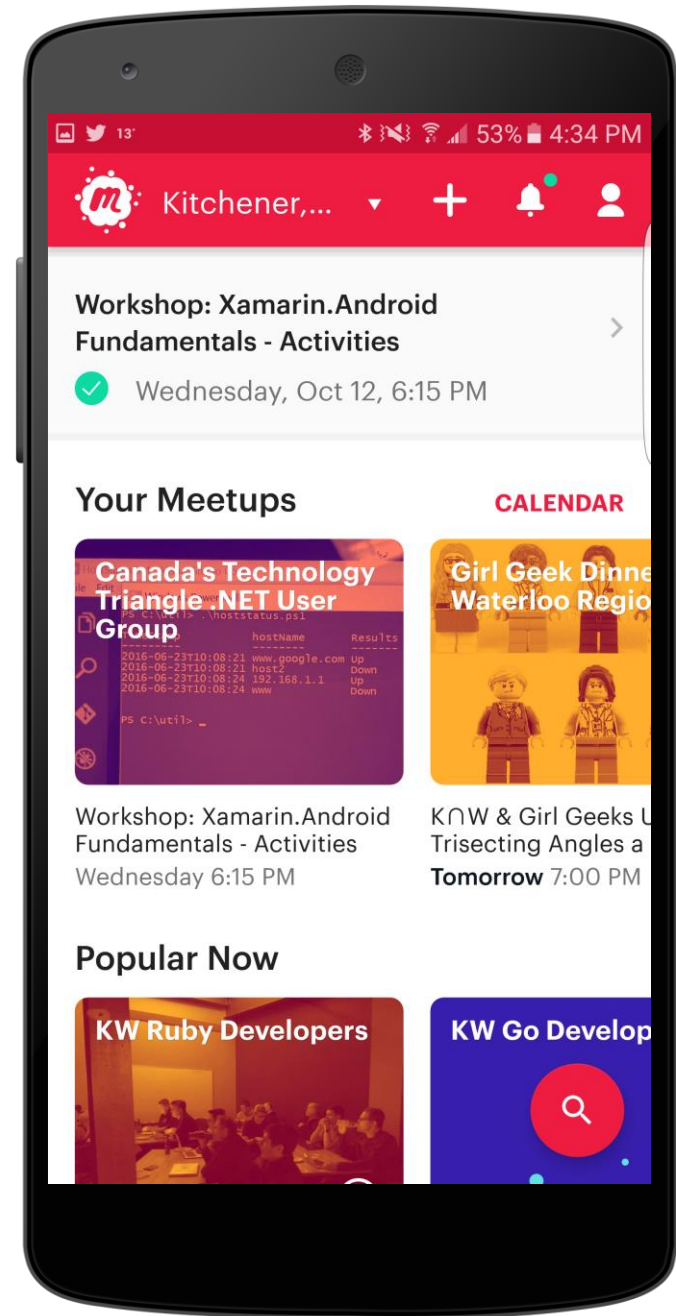
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What is a Layout?

- Defines the visual structure for a user interface
- Comprised of one or more View or ViewGroup objects



Defining a Layout

- Declare elements in XML
 - file must be saved with an .axml extension
 - saved to Resources/layout directory
- Instantiate elements at runtime
- Able to also manipulate UI elements at runtime

Advantages of Defining in XML

- Separation of presentation layer from code
- Define layouts for different screen orientations, device sizes, and languages
- Easier to visualize layout element structure

Layout Containers

- `LinearLayout` - arranges its children in a single column or a single row
- `RelativeLayout` - positions of the children can be described in relation to each other or to the parent.
- `FrameLayout` - designed to block out an area on the screen to display a single item
- `GridLayout` - places its children in a rectangular grid
- `AbsoluteLayout` - lets you specify exact locations (x/y coordinates) of its children.

When dealing with data sets, use...

- RecyclerView
- GridView
- ListView

Input Controls

- Buttons
 - Button, ImageButton, RadioButton, ToggleButton
- Text Fields
 - TextView, EditText, AutoCompleteTextView
- Check boxes
- Spinners
- Pickers

Attributes

- Visual aspects of UI elements can be set through attributes
 - For example: spacing, color, alignment, sizing
- All elements must specify a width and a height using layout parameters: `layout_width`, `layout_height`
 - Valid values include: `match_parent`, `wrap_content`, fixed size value (ex: `24dp`)

```
<TextView  
    android:layout_width="match_parent"  
    android:layout_height="match_parent" />
```

Application Resources

- Define styles, colors, dimensions, strings, etc which you can use throughout the application
- Stored in XML format and saved to the Resources/values directory

Let's explore the XML Layout!

Using a Layout

- Within `onCreate()` in the Activity, Set the Activity's content view to load the layout when the Activity is launched during the `onCreate` method
- Use `findViewById<T>` to obtain a handle to the UI element in the layout in code
 - Useful when you need to programmatically access UI elements in the Activity

Let's take a look at the Activity!

Workshop: Creating a Layout (45 mins)

Workshop – 3 parts (45 mins)

- Clone or download as zip:
<https://github.com/llalonde/XamarinWorkshops.git>
- Drill down to the Layouts directory:
<https://github.com/llalonde/XamarinWorkshops/tree/master/Layouts>
- Follow the steps in Workshop.pdf

Additional Resources

- Android Developer Resources: <https://developer.android.com/>
 - **Layouts:** ~/guide/topics/ui/declaring-layout.html
 - **UI Overview:** ~/guide/topics/ui/overview.html
 - **Input Controls:** ~/guide/topics/ui/controls.html
 - **App Resources:** ~/guide/topics/resources/overview.html