

CSCB07 - Software Design

Introduction to Android

Android

- Android is an platform comprising three components
 - An operating system
 - A framework for developing applications
 - Devices that run the Android operating system and the applications created for it
- Android SDK
 - A collection of libraries and tools that are needed for developing Android applications
- Android Studio
 - IDE for Android application development

Android App Basics

- An Android app is a collection of screens, and each screen is comprised of a layout and an activity
 - Layout: describes the appearance of a screen (written in XML)
 - Activity: responsible for managing user interaction with the screen (written in java)
- Folder structure:
 - Manifest file
 - Java files
 - Resource files
 - Gradle scripts

The Manifest file

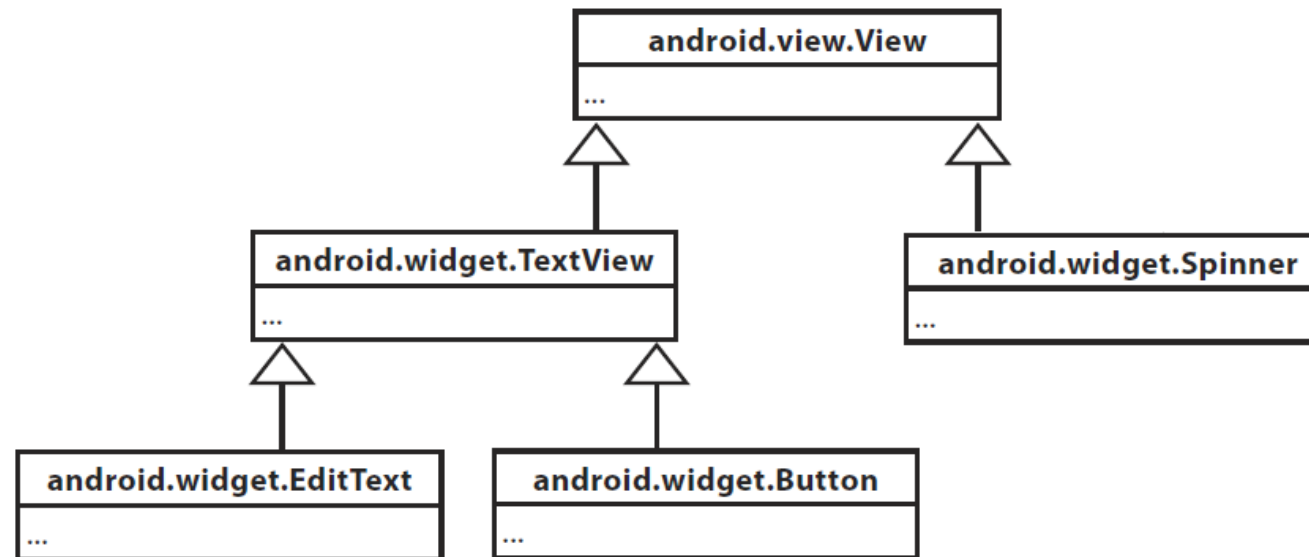
- It defines the structure and metadata of an application, its components, and its requirements
- Stored in the root of its project hierarchy as an XML file

Resources and resource IDs

- Resources are maintained in sub-directories of the **app/res** directory
 - res/layout
 - res/values
 - Etc.
- A resource can be accessed in the code using its resource ID (e.g. `R.layout.activity_main`)
 - Android uses `R.java` to keep track of the resources used within the app

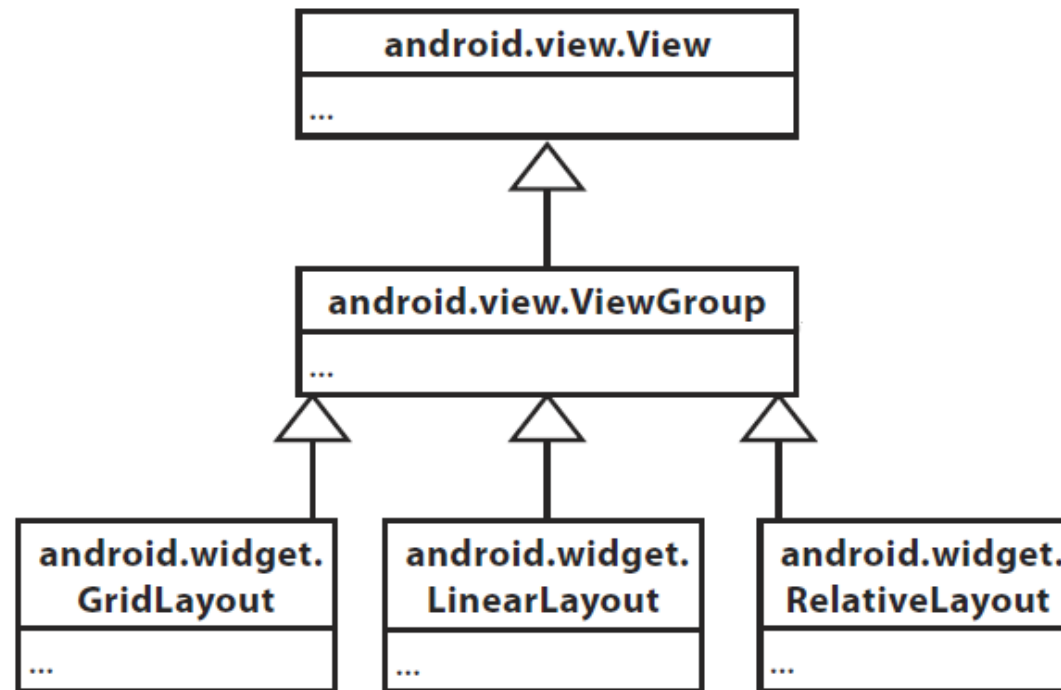
View

- Most GUI components are instances of the **View** class or one of its subclasses
 - E.g. Button, EditText, ImageView, etc.



View Group

- A special type of view that can contain other views
- A layout is a type of view group



Common GUI components

- TextView
- EditText
- Button
- Switch
- Spinner
- Toast

Intents

- An intent is an object that can be used to bind activities together at runtime
 - If one activity wants to start a second activity, it does it by sending an intent to Android. Android will start the second activity and pass it the intent
- Data can be passed between activities using intent extras
 - E.g. `intent.putExtra("message", value);`