FIT2081 – Mobile Development

# Week 2

* Minimum SDK version determines the lowest level of Android that your app will run on

## API fragmentation

* Fragment: a modular section of an activity 🡪 can be reused
* Relate to the updates of software
* Forward compatibility
  + Old apps running on new platform versions
  + Android apps are generally forward-compatible with new versions of the Android platform 🡪 most framework API are additive
* Backward compatibility:
  + New apps running on old platform
  + Can be solved by replacing existing API parts

## Android Components

Read more: <https://developer.android.com/guide/components/fundamentals.html>

### Activities

* Entry point for interacting with the user
* Represents a single screen with a user interface
* An activity facilitates the following key interactions between system and app:
  + Keeping track of what user currently cares about (what is on the screen)
  + Knowing the previously used processes contain things the user may return to (stopped activities)
  + Helping app handle having its process killed so the user can return to activities with their previous state restored
  + Providing a way for apps to implement user flows between each other & for the system to coordinate these flows
* The same activity can be started from different apps
* Activated by intents

### Services

* A general-purpose entry point for keeping an app **running** in the **background** for all kinds of reasons (do not have an user interface)
  + Playing music in the background
* 2 lifecycle:
  + Run until it finishes
  + Run as long as its bound-to process is still running
* 2 types of started service:
  + User is aware
  + User is not aware
* Activated by intents

### Content Providers

* Implement a mechanism to share data between applications
* Can store data in the file system
* Access to data is provided via a Universal Resource Identifier (URI)
* Data can be shared in the form of a file or an entire SQLite database
* **Content Resolver:**
  + The single, global instance in your application that provide access to your (other applications’) content providers
  + Includes: CRUD (create, delete, update and delete) methods
* Activate by request from content resolver

### Broadcast Receivers

* Component that enables the system to deliver events to the app outside of regular user flow
* Can deliver to apps that are not running
* Usually used as a system notification
* Activated by intents

### Related

#### Intent

* Used for activating 3 out of 4 components: service, activities and broadcast receivers

#### Manifest file

* XML file
* Includes:
  + A declaration of all components in the application
  + If a component is not declared the system can’t see it
* Primary task: informing the system about the app’s component
* Other tasks:
  + Identify any user permission the app requires
  + Declare minimum API level required by the app
  + Declare hardware and software features used or required by the app (camera, Bluetooth service)
  + Declare API libraries the app needs to be linked against (other than the Android framework API)

#### Resources

* Include strings, images, fonts, colours that appear in the user interface together with the XML representation of the user interface layouts
* By default, these files are stored in the /res
* Using resources make it easier to update various characteristics of the app without modifying the code and by providing sets of alternative resources – enables you to optimise the app

#### Context

* Interface to global information about an application environment
* When an application is compiled, a class named R is created that contains references to the application resources