

# Lecture 2 - Basic Android

- Project structure
  - java → source code (packages, classes...)
  - res (aka resources) → images, layouts, colors, menus,...
  - manifest → AndroidManifest.xml for specifications (config, components, security...)
- Component
  - Activity
    - just like a window
      - let users interact with the app
      - certain size / full screen
      - single/multiple in app, starting with MainActivity
      - interact with other Activities
    - life cycle methods
      - onCreate() → activity is created
      - onStart() → activity becomes visible
      - onResume() → activity is in foreground, ready to receive user input
      - onPause() → activity loses focus, still visible
      - onStop() → activity is no longer visible
      - onDestroy() → activity is destroyed
      - onRestart() → stopped activity comes to foreground
      - paused → comes to foreground → resumed
      - paused/stopped → need memory → killed → when in need → created
    - how to create

- make a child class of AppCompatActivity | Activity | FragmentActivity
- build layout in res/layout
- add activity in AndroidManifest.xml
- ...
- View → basic “ingredient” of an Activity (TextView, Button, CheckBox, ProgressBar, SeekBar, Switch, EditText...)
- ViewGroup → a group of Views, even ViewGroups (ConstraintLayout, LinearLayout, RelativeLayout, GridLayout, FrameLayout...)
- Service → continuous tasks run in background (playing music, network transaction...)
- Broadcast Receiver → listens and responds to system-wide events (low battery, switching connection, download,...)
- Content Provider → give ways to manage data (file, web resource,...)
- Notification → notify users through status bar
- Intent → a carrier of the messages between components/apps