



Operating systems

Lab. 5.

I. Issues to prepare

- Android programming
- The activity lifecycle

II. Outline

1. Programming environment configuration
2. Scheme of Android application project
3. Tasks

III. Tasks

1. Check if Android Studio software is installed. If not, download and install it.
2. After first run of software, install needed SDK tools which are proposed by Android Studio.
3. Create the new project, add activity "Basic Activity".
4. Look at the left panel where are source files of the project:

Directories and files tree inside the Android project:

- manifest: Describes the nature of the application and each of its components;
- java: Contains Java code sources;
- res: Contains all non-code resources, such as XML layouts, UI strings, and bitmap images;
- Gradle Scripts: This defines your build configuration that apply to all modules.



5. At the layout editing screen (*content_main.xml*), please insert one *Button*.
6. Go to java source file editing screen, i.e. *MainActivity.java*.
7. Inside main activity class add the new function:

```
public class MainActivity extends AppCompatActivity {
```

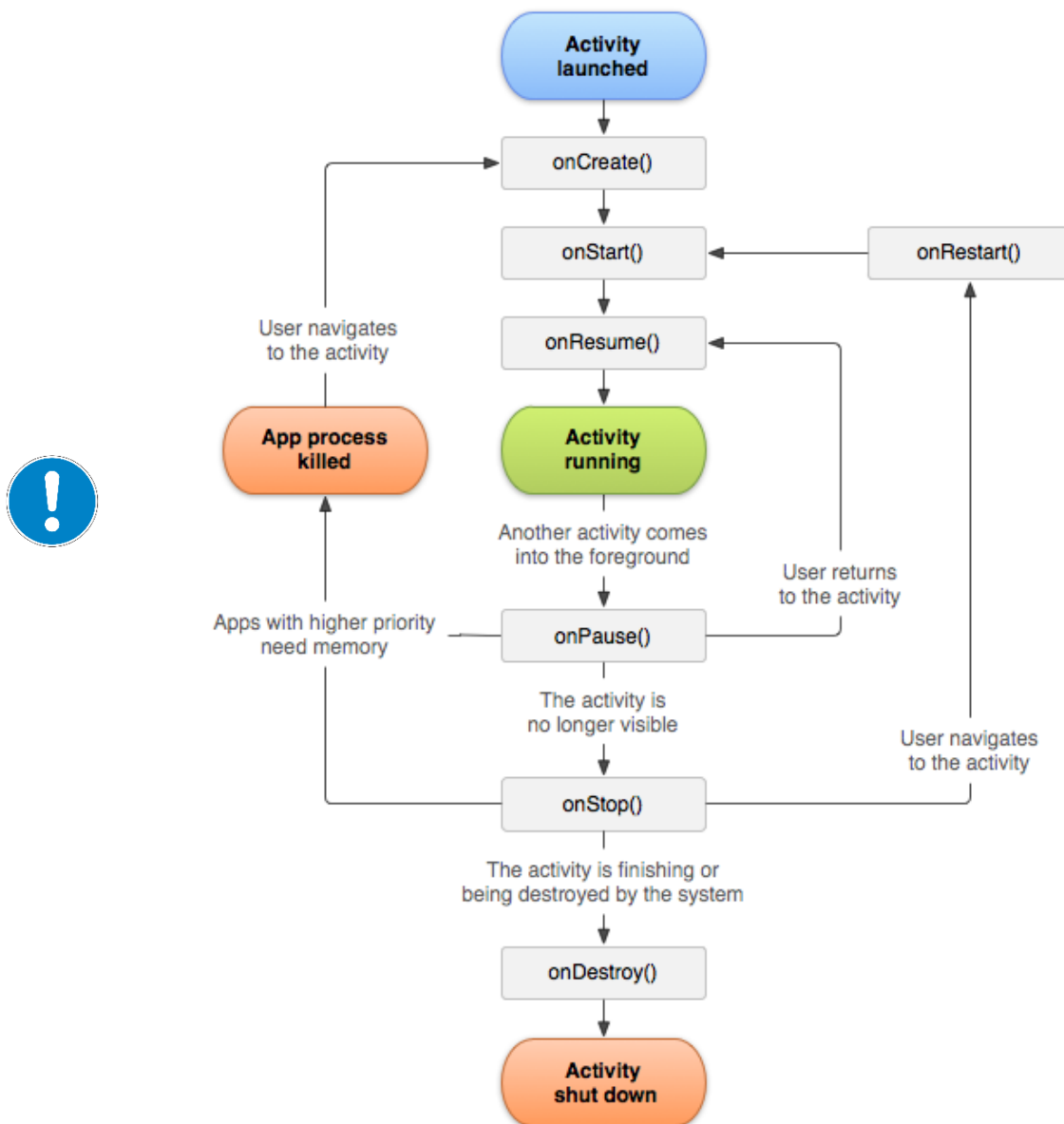
(...)

```
    public void ButtonReaction (View view){  
        Intent i = new Intent(this, SecondActivity.class);  
        startActivity(i);  
        finish();  
    }  
}
```

8. Add the second activity to the project: right mouse button click on your project domain (like *com.example.XXX.YYY* under *java* tree in left panel) and choose New -> Activity -> Basic Activity. Name it "SecondActivity".

9. Go back to layout editing screen, click at your *Button*, inside the right panel choose reaction for mouse button clicking: `onClick` and then choose your new function `ButtonReaction()`.
10. Run Android device emulator: menu Tool/Android/AVD Manager, choose virtual device, run it with green arrow.
11. Now feel free to run your first Android app on emulator: Run/Run 'APP'.
12. Be fascinated how fast all that stuff is working.
13. Observe reaction on *Button* clicking. What the *activities* are?

Activities are something similar to windows. When we are opening the new window, called activity, the previous one is paused. Activities lifecycle:



FINAL tasks:

- I. Write the application with two buttons, red and blue. After clicking one of them, message containing name of its colour should appear. TIP: use Toast popup.
- II. Run this app on your mobile phone.