Programming with Android: Activities

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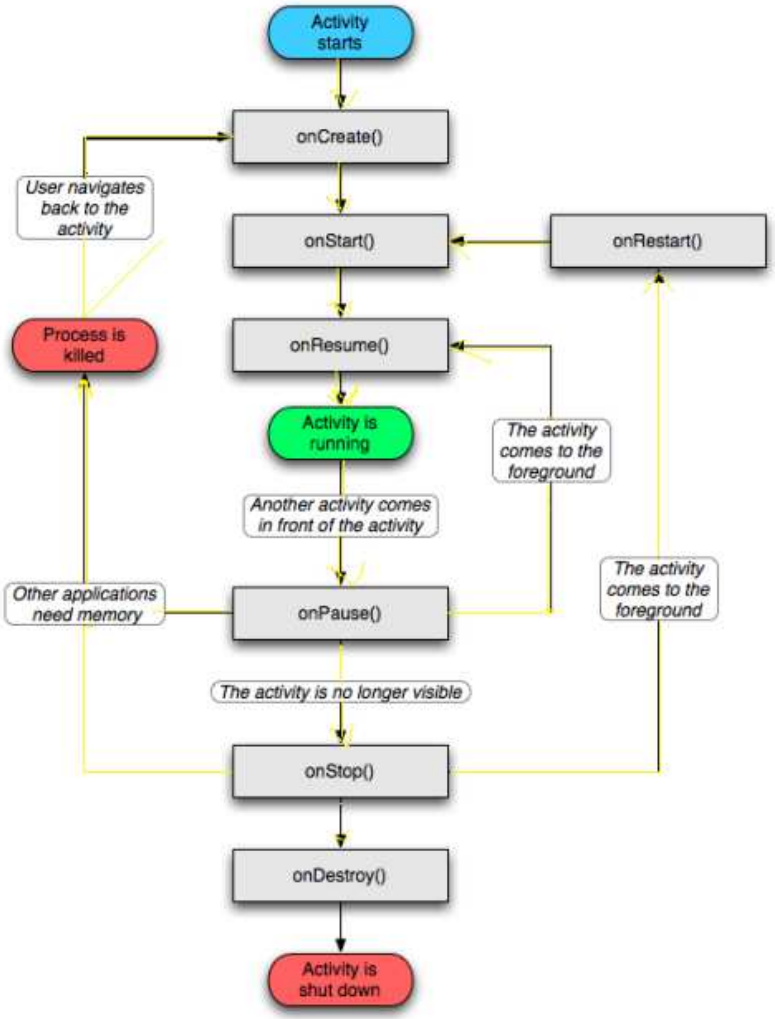
Activity

- Outline:
  - What is started by the device
  - It contains the application's informations
  - Has method to answer certain events
  - An application could be composed of multiple activities

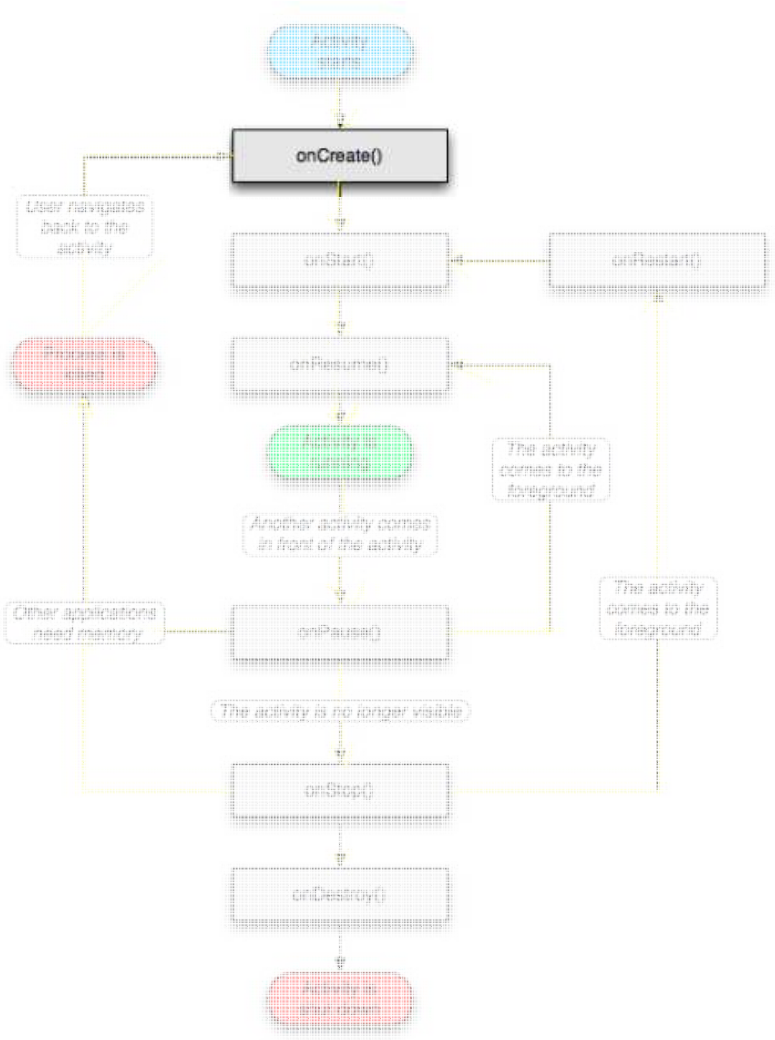
Creating an activity

- Create a class that is a subclass of Activity
- Implement callback methods
  - OnCreate():
    - Initialize
    - SetContentView()

Activity lifecycle

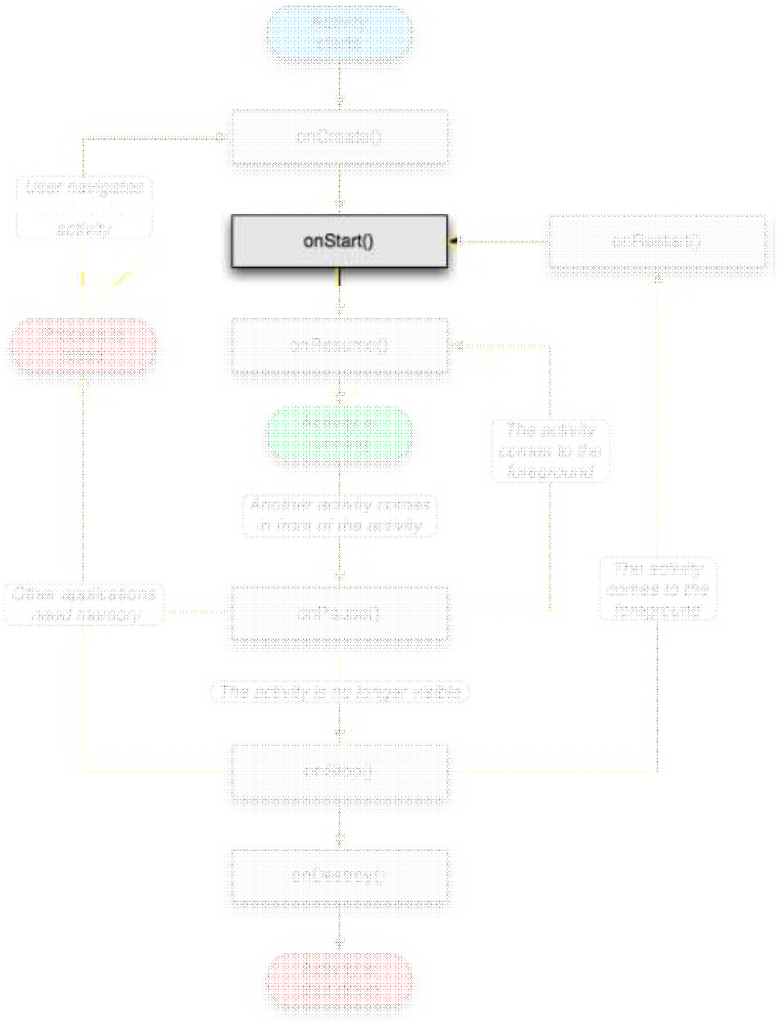


Activity lifecycle



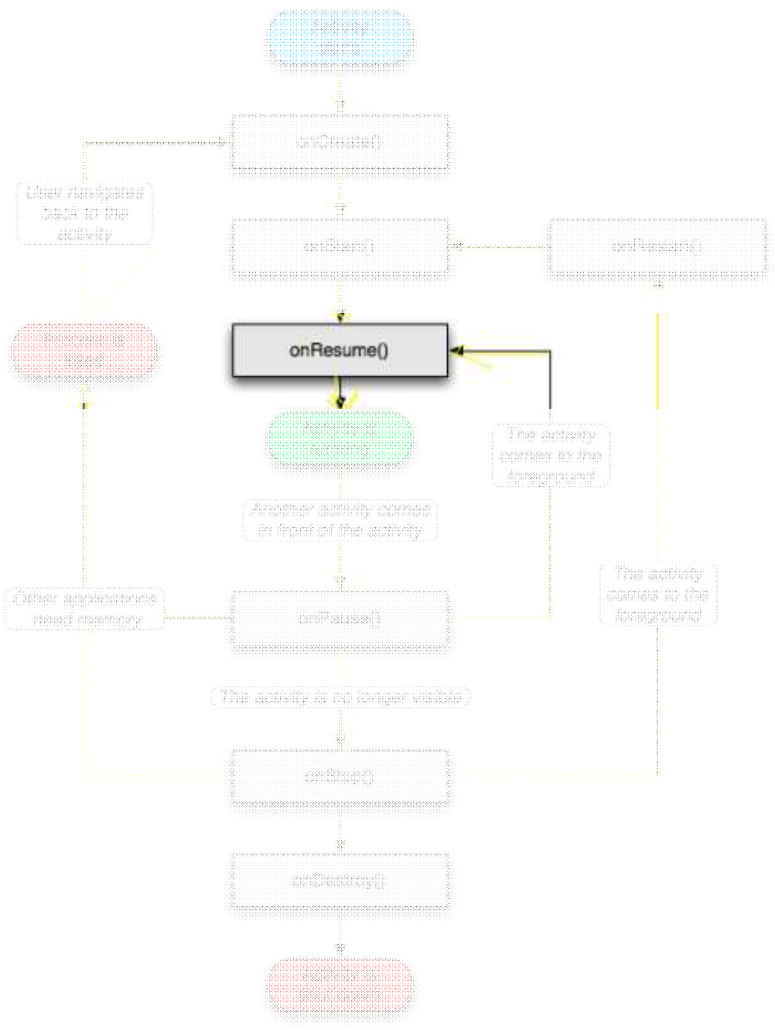
- OnCreate()
  - Called when the activity is created
  - Should contain the initialization operations
  - Has a Bundle parameter
  - If onCreate() succesfull terminates, it calls onStart()

Activity lifecycle



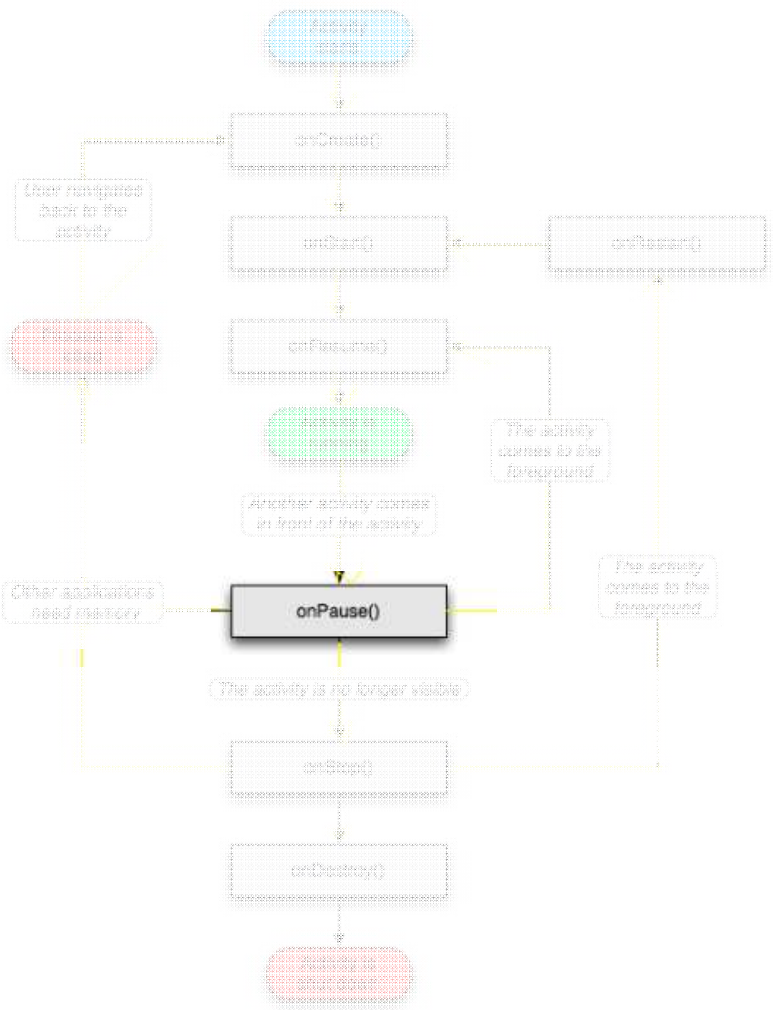
- OnStart()
  - Called when onCreate() terminates
  - Called right before it is visible to user
  - If it has the focus, then onResume() is called
  - If not, onStop() is called

Activity lifecycle



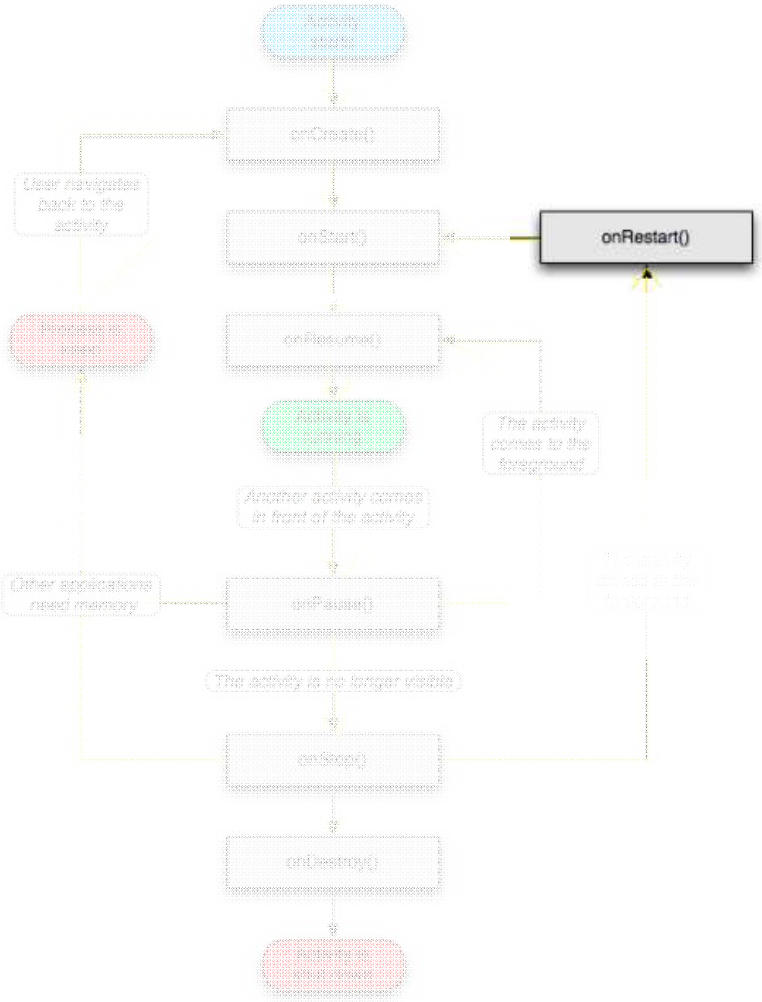
- OnResume()
  - Called when the activity is ready to get input from users
  - Called when the activity is resumed too
  - If it succesfully terminates, then the Activity is RUNNING

Activity lifecycle



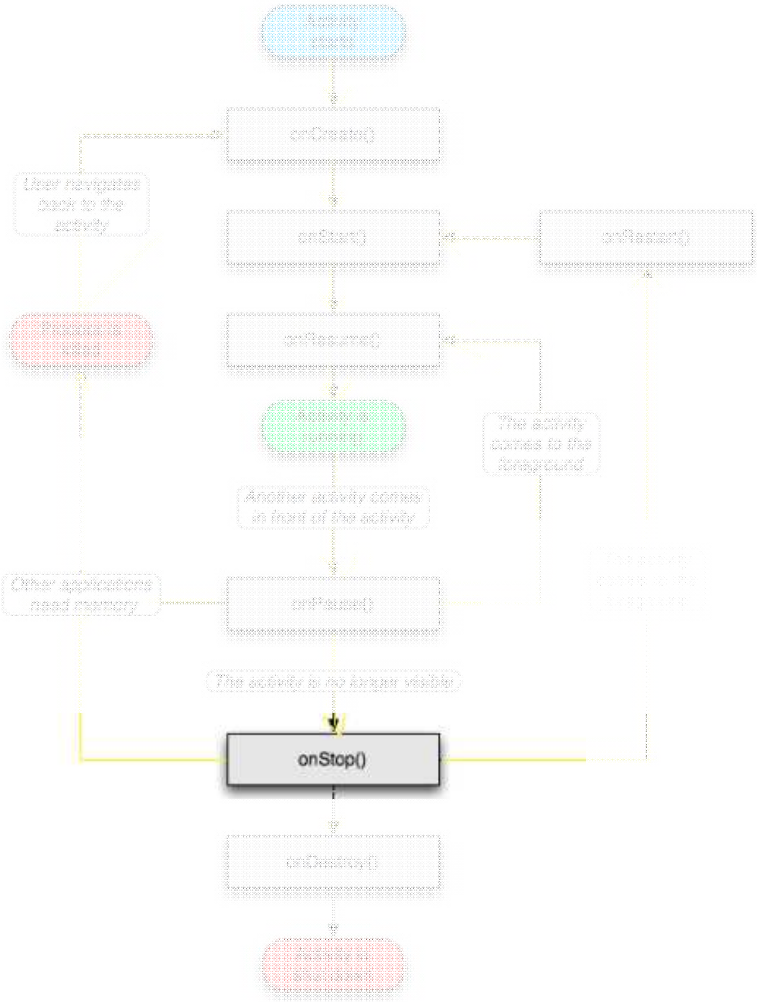
- OnPause()
  - Called when another activity comes to the foreground, or when someone presses back
  - Commit unsaved changes to persistent data
  - Stop cpu-consuming processes
  - Make it fast

Activity lifecycle



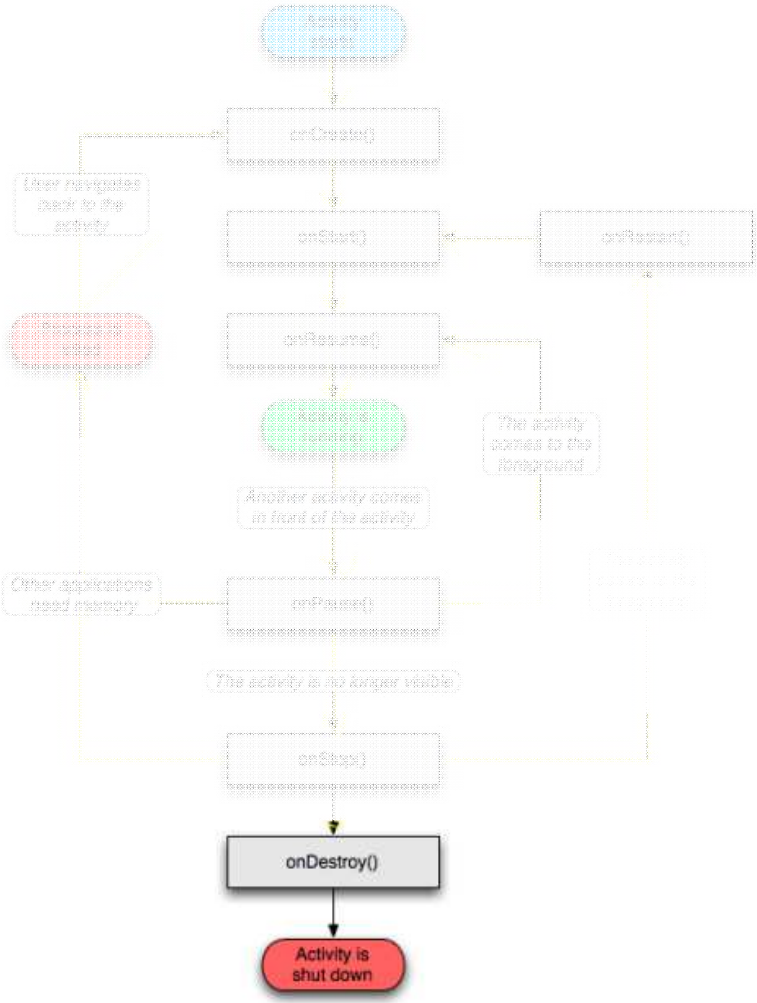
- OnRestart()
  - Similar to onCreate()
  - We have an activity that was previously stopped

Activity lifecycle



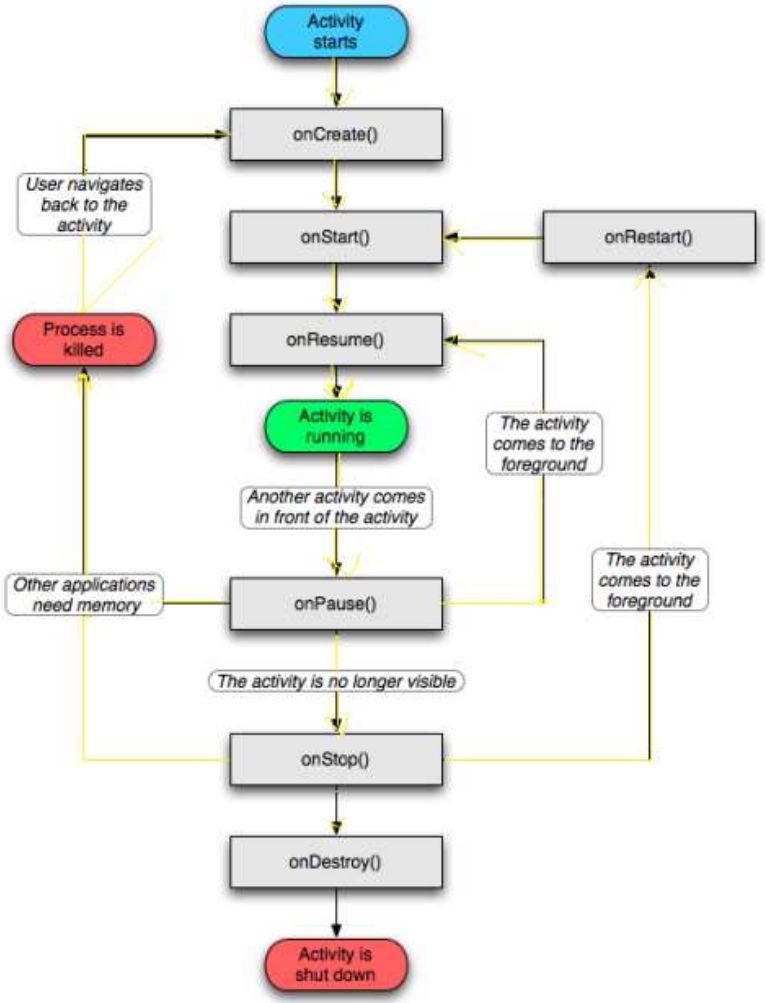
- OnStop()
  - Activity is no longer visible to the user
  - Could be called because:
    - the activity is about to be destroyed
    - another activity comes to the foreground

Activity lifecycle



- OnDestroy()
  - The activity is about to be destroyed
  - Could happen because:
  - The systems need some stack space
    - Someone called finish() method on this activity
    - Could check with isFinishing()

Activity loops



- Mainly 3 different loops
- **Entire lifetime**
  - Between onCreate() and onDestroy().
  - Setup of global state in onCreate()
  - Release remaining resources in onDestroy
- **Visible lifetime**
  - Between onStart() and onStop().
  - Maintain resources that has to be shown to the user.
- **Foreground lifetime**
  - Between onResume() and onPause().
  - Code should be light.

Activity: Conclusions

- Activities should be declared in the Manifest
- Extend the Activity class
- Code wisely
  - Put your code in the right place
  - Optimize it
  - Test even on low-end devices