

TASKS AND ACTIVITIES

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Tasks and Activities

Task: stack of activities



Activity 3

Activity 2

Activity 1

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Tasks and Activities

An activity uses an intent to activate another activity

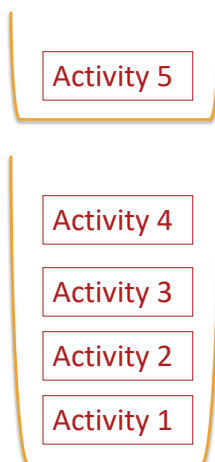


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Tasks and Activities

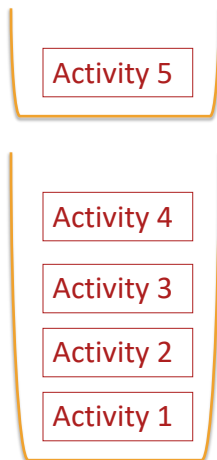
The user may choose to start another task from the home screen.



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Tasks and Activities



Go back to previous task via the home screen (or BACK button on API 32+)

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Tasks and Activities



BACK: go to the previous activity in *this* task

Almost all of this can be reprogrammed using intents and affinities.

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Affinities

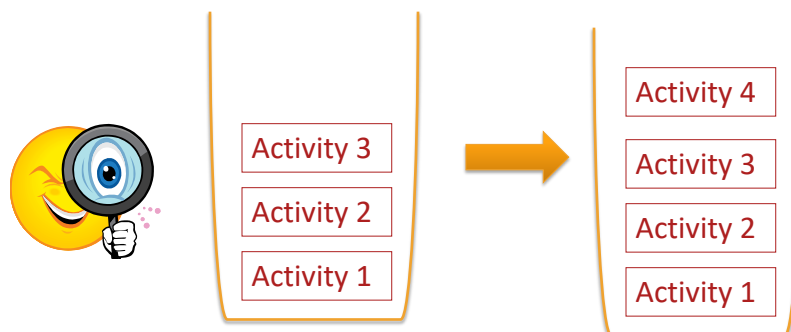
- Affinity between activities in an application
- **taskAffinity** attribute of **<activity>**
 - element to override default
- May be shared with activities in other tasks

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Affinities

Default behavior

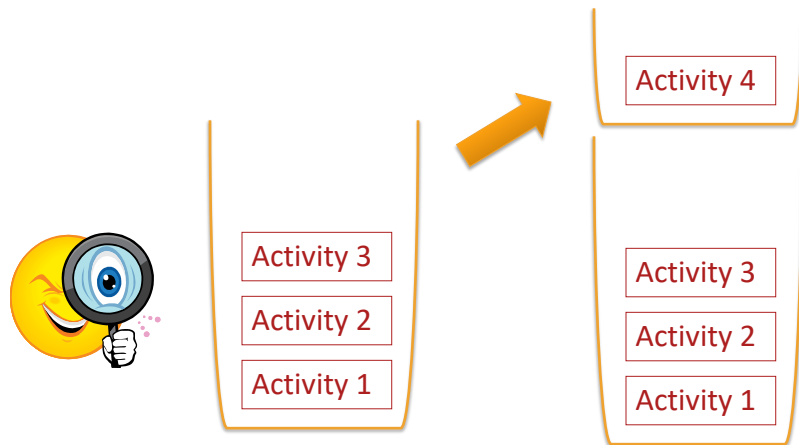


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Affinities

FLAG_ACTIVITY_NEW_TASK flag
in the intent

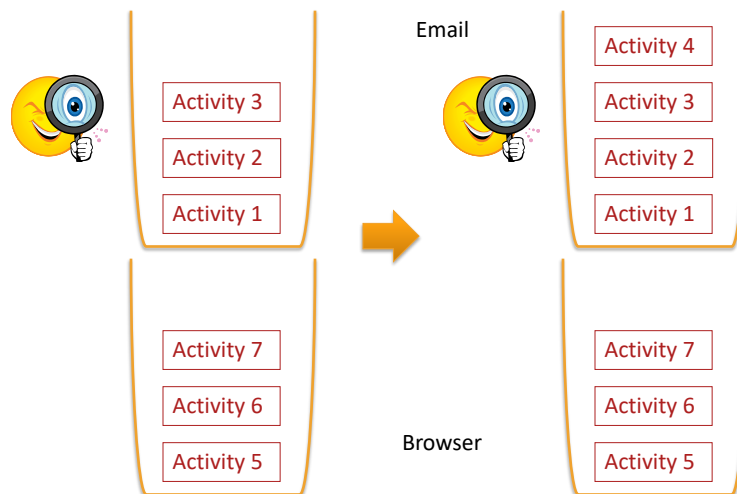


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Affinities

allowTaskReparenting attribute in
activity element

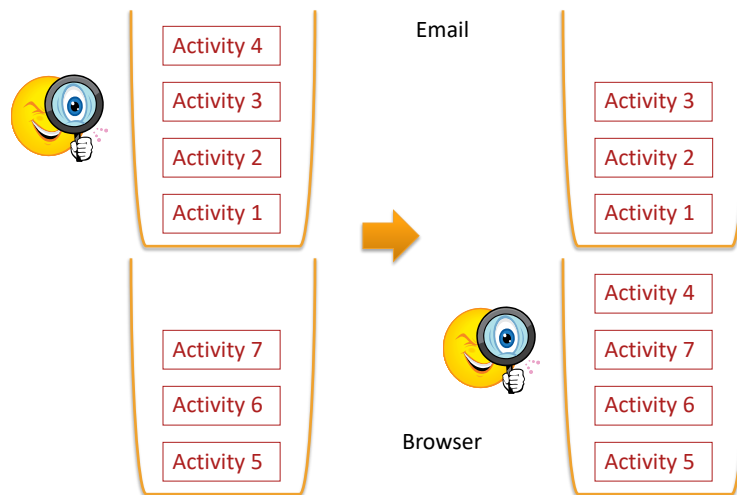


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Affinities

`allowTaskReparenting` attribute in activity element



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Processes and Threads

- Component elements (`<activity>`, `<service>`, `<receiver>`, `<provider>`) can specify with `process` attribute where they should run
 - Each component may run in its own process
 - Some components may share a process
 - Components of different applications may run in same process

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Launch Modes

Specified in `<activity>`
element's `launchMode`
attribute

	Which task activity starts in (default)	Multiple instances of activity	Other activities in its task	New instance for new intent
standard (default)	Originating task	Yes	Yes	Yes
singleTop	Originating task	Yes	Yes	Re-used if on top of stack
singleTask	New task	No	Yes (but it is always root activity)	No, intent dropped if not on top
singleInstance	New task	No	No	No, only activity in task

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Processes and Threads

- Each component runs in the main thread
- Free up resources: which process to terminate?

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ACTIVITY LIFE CYCLE

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Activity States

- Active  Visible and running
- Paused  Visible but some other activity is running
- Stopped  No longer visible
- Inactive  Not yet launched or just killed

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Application Priority



Active Process

Visible Process

Started Service Process

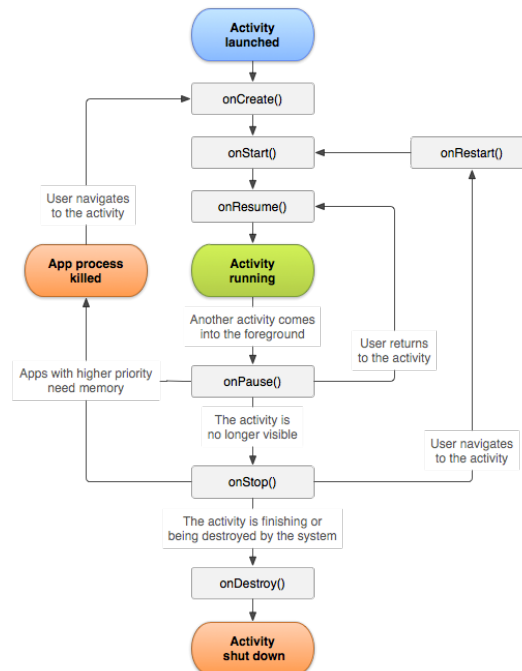
Background Process

Empty Process

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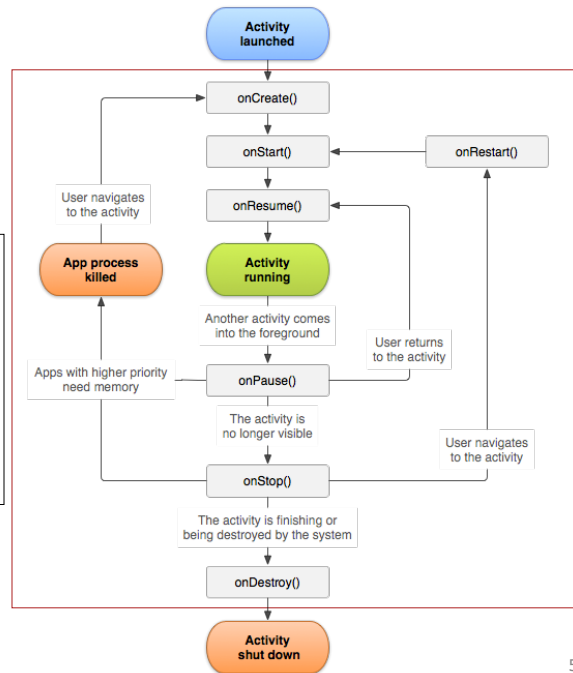
Activity Life Cycle



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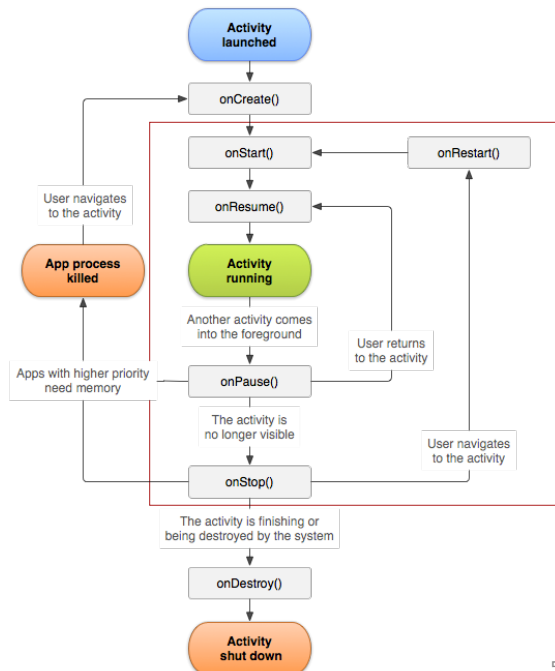
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- Full lifetime**
- From first call to onCreate...
 - ...to final call to onDestroy
 - Avoid creation of short-term objects, create them once in onCreate



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- Visible lifetime**
- From call to onStart to onStop
 - Visible but does not have the focus



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