

The Anatomy of Android Applications



Broad Composition

1. Activity

2. Service

3. Content
Provider

4. Broadcast
Receiver



The background is a solid blue color. It features three sets of white, wavy, concentric lines. One set is on the left side, another is in the top right corner, and a third is in the bottom right corner. These lines create a sense of movement and depth.

Activities

Activity


- Represents the user interface (UI) screens
- Activities go through various states in their lifecycle, including onCreate, onStart, onResume, onPause, onStop, and onDestroy.
- Back stack is used to manage the history of activities.
- Each screen in your app is typically implemented as an activity

Activity

- Any application can ask the Application Framework to start a specific activity in another application.
- Intents work asynchronously



Intents

- Explicit vs Implicit
 - Intent filters - Activities, services, and broadcast receivers define intent filters in their manifest entries to specify the types of intents they can handle.
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Services

Service

- Used for background tasks
- Does not have a user interface
- Can also be started based on a request from another application

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Content Provider

Content Provider

- Enables applications to store and share data with other applications
- Applications interact with a Content Provider through the ContentResolver interface
- Through this interface, other applications can query and if allowed, modify another application's data.
- Content provider component can't be activated through intents

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Broadcast Receiver

Broadcast Receiver

- Responds to system-wide broadcasts.
- Handles events like battery status and camera events.
- Uses Intent objects to represent broadcasts. Intent object however only contains the message associated with the broadcast and does not specify any Activity object that has to be triggered
- No user interface, but can create notifications using the Notification Manager.

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AndroidManifest.xml

Bringing them all together

The Manifest File

- All components in an Android app must be declared in the AndroidManifest.xml file.
- The manifest file specifies an app's capabilities through Intent Filters.
- User permissions for data and network access are declared in the manifest.
- It lists required hardware, software services, and external libraries.



THANKS