

Difference Between Fragment and Activity

An **Activity** is like a full-screen window in an Android app. It controls the whole screen and manages what the user sees and interacts with. When you open an app, you usually start with an Activity.

A **Fragment**, on the other hand, is like a small part of an Activity. It is a reusable piece of UI that can be placed inside an Activity. You can have multiple Fragments inside a single Activity, and they can change dynamically without needing to restart the whole screen.

Key Differences:

1. **Independence** – An Activity can run on its own, but a Fragment must be inside an Activity.
 2. **UI Handling** – An Activity manages the whole screen, while a Fragment only controls a portion of it.
 3. **Reusability** – Fragments can be reused in multiple Activities, making them more flexible.
 4. **Lifecycle Dependency** – A Fragment's lifecycle is linked to its Activity, meaning if the Activity is destroyed, its Fragments are also destroyed.
-

Fragment Lifecycle vs. Activity Lifecycle

Both Activities and Fragments have lifecycles, but Fragments have a few extra steps because they need to attach to an Activity.

Activity Lifecycle (Simplified):

1. **onCreate()** – Activity is created.
2. **onStart()** – Activity becomes visible.
3. **onResume()** – Activity is active and user can interact.
4. **onPause()** – Activity is partially hidden (e.g., another app appears).
5. **onStop()** – Activity is no longer visible.
6. **onDestroy()** – Activity is completely removed.

Fragment Lifecycle (Simplified):

1. **onAttach()** – Fragment is attached to an Activity.
2. **onCreate()** – Fragment is created.
3. **onCreateView()** – UI layout for the Fragment is created.
4. **onStart()** – Fragment becomes visible.
5. **onResume()** – Fragment is active and interactive.
6. **onPause()** – Fragment is partially hidden.
7. **onStop()** – Fragment is no longer visible.
8. **onDestroyView()** – Fragment's UI is removed.
9. **onDestroy()** – Fragment instance is destroyed.
10. **onDetach()** – Fragment is detached from the Activity.

Key Differences in Lifecycle Handling:

- **Fragments have extra lifecycle steps** like `onAttach()`, `onCreateView()`, and `onDestroyView()`, which Activities don't have.
- **Fragments depend on the Activity's lifecycle**, meaning when the Activity stops, the Fragment stops too.
- **Fragments can be added, removed, and replaced dynamically**, while Activities usually restart completely when switching.