جامـــــعـة المـــــسـتـقـبـل
AL MUSTAQBAL UNIVERSITY

كلية العلوم

قســــــــم الأنظمة الطبية الذكية
Intelligent Medical Systems Department

Subject: Android application Lifecycle

Class: 3rd

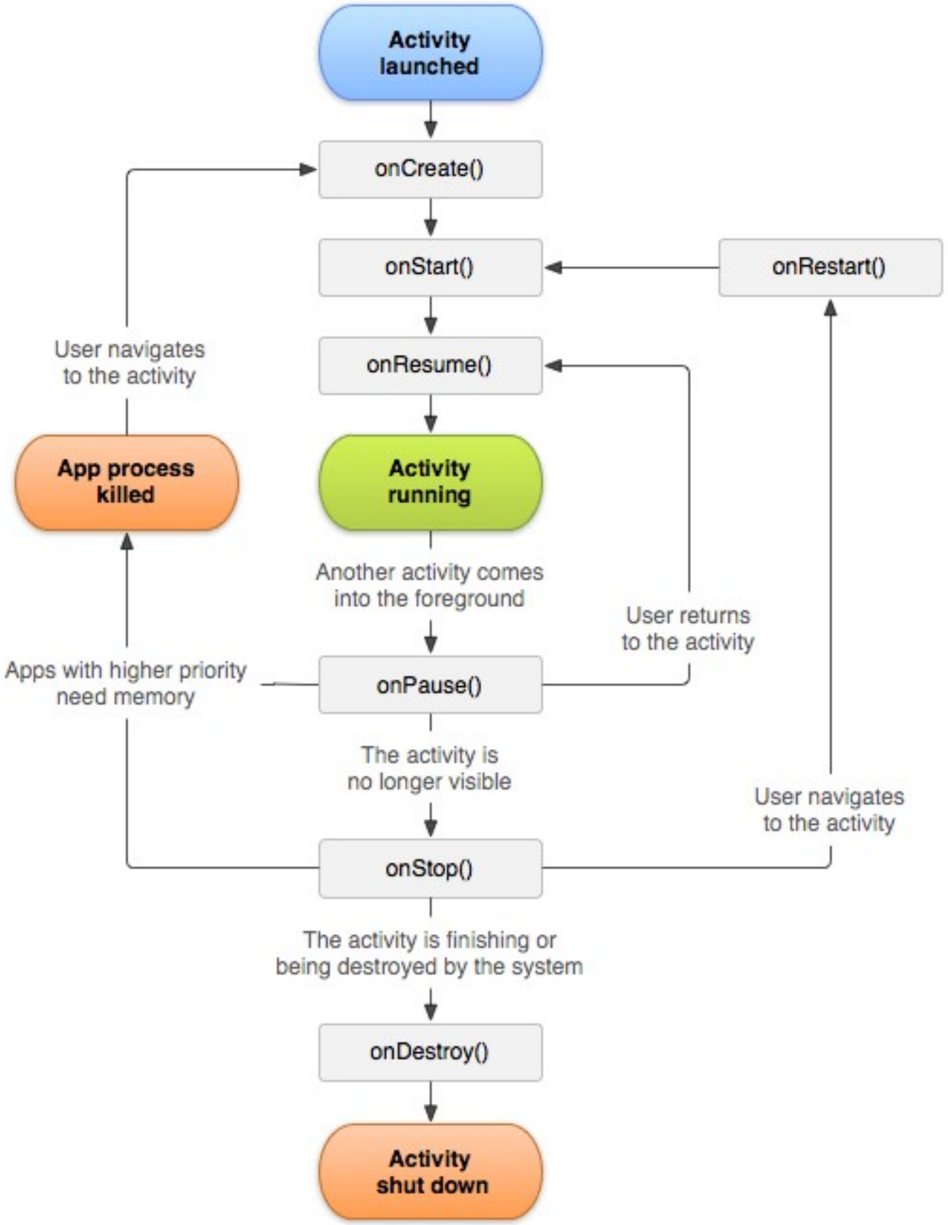
Lecturer: Asst.Lect Mustafa Ameer Awadh

Lecture: (6)

Study Year: 2024-2025

Android Activity Lifecycle

Let's see the 7 lifecycle methods of android activity.


Activity launched
onCreate()
onStart()
onRestart()
User navigates to the activity
onResume()
App process killed
Activity running
Another activity comes into the foreground
User returns to the activity
Apps with higher priority need memory
onPause()
The activity is no longer visible
User navigates to the activity
onStop()
The activity is finishing or being destroyed by the system
onDestroy()
Activity shut down

The Activity class defines the following call backs i.e. events. You don't need to implement all the callbacks methods. However, it's important that you understand each one and implement those that ensure your app behaves the way users expect.

Sr.No	Callback & Description
1	**onCreate()** This is the first callback and called when the activity is first created.

2	**onStart()** This callback is called when the activity becomes visible to the user.
3	**onResume()** This is called when the user starts interacting with the application.
4	**onPause()** The paused activity does not receive user input and cannot execute any code and called when the c activity is being resumed.
5	**onStop()** This callback is called when the activity is no longer visible.
6	**onDestroy()** This callback is called before the activity is destroyed by the system.
7	**onRestart()** This callback is called when the activity restarts after stopping it.

Example

This example will take you through simple steps to show Android application activity life cycle. Follow the following steps to modify the Android application we created in *Hello World Example* chapter −

Step	Description
1	You will use Android studio to create an Android application and name it as *HelloWorld* under a package *World Example* chapter.
2	Modify main activity file *MainActivity.java* as explained below. Keep rest of the files unchanged.
3	Run the application to launch Android emulator and verify the result of the changes done in the applicatior

Android Activity Lifecycle Example

It provides the details about the invocation of life cycle methods of activity. In this example, we are displaying the content on the logcat.

File: MainActivity.java

```
package example.mrcet.com.activitylifecycle;

import android.app.Activity;
import android.os.Bundle;
import android.util.Log;

public class MainActivity extends Activity {

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    Log.d("lifecycle","onCreate invoked");
  }
  @Override
  protected void onStart() {
    super.onStart();
    Log.d("lifecycle","onStart invoked");
  }
  @Override
  protected void onResume() {
    super.onResume();
    Log.d("lifecycle","onResume invoked");
  }
  @Override
  protected void onPause() {
    super.onPause();
    Log.d("lifecycle","onPause invoked");
  }
  @Override
  protected void onStop() {
    super.onStop();
    Log.d("lifecycle","onStop invoked");
  }
  @Override
  protected void onRestart() {
    super.onRestart();
    Log.d("lifecycle","onRestart invoked");
  }
```

An activity class loads all the UI component using the XML file available in *res/layout* folder of the project. Following statement loads UI components from *res/layout/activity_main.xml file*:

```
setContentView(R.layout.activity_main);
```

An application can have one or more activities without any restrictions. Every activity you define for your application must be declared in your *AndroidManifest.xml* file and the main activity for your app must be declared in the manifest with an <intent-filter> that includes the MAIN action and LAUNCHER category as follows:

File: activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="example.mrcet.com.activitylifecycle.MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```