MOBILE APPLICATION DEVELOPMENT

ACTIVITIES AND INTENT

GETTING ACTIVE THROUGH ACTIVITIES

There are 4 types of application components/building blocks:

Activities

1. Activity provides user interface
2. Usually represents a single screen
3. Can contain one or more views
4. Extends the Activity base class

Services

1. No user interface
2. Runs in background
3. Extends the Service base class

BroadcastReceiver

1. Receives and Reacts to broadcast Intents
2. No UI but can start an Activity
3. Extends the BroadcastReceiver base class

ContentProviders

1. Makes application data available to other apps [data sharing]
2. Uses SQLite database as storage
3. Extends the ContentProvider base class

ACTIVITY

- An *activity* is the entry point for interacting with the user. It represents a single screen with a user interface.
- Most apps contain multiple screens, which means they comprise multiple activities. Typically, one activity in an app is specified as the *main activity*, which is the first screen to appear when the user launches the app. Each activity can then start another activity in order to perform different actions.
- For example, an email app might have one activity that shows a list of new emails, another activity to compose an email, and another activity for reading emails.
- Although the activities work together to form a cohesive user experience in the email app, each one is independent of the others.
- As such, a different app can start any one of these activities if the email app allows it.
- For example, a camera app can start the activity in the email app that composes new mail to allow the user to share a picture.

Getting Active Through Activities

Activity

```
public class MyApp extends
Activity {


   public void onCreate() { ... }
   public void onPause()  { ... }
   public void onStop()   { ... }
   public void onDestroy(){ ... }
   ….
}
```

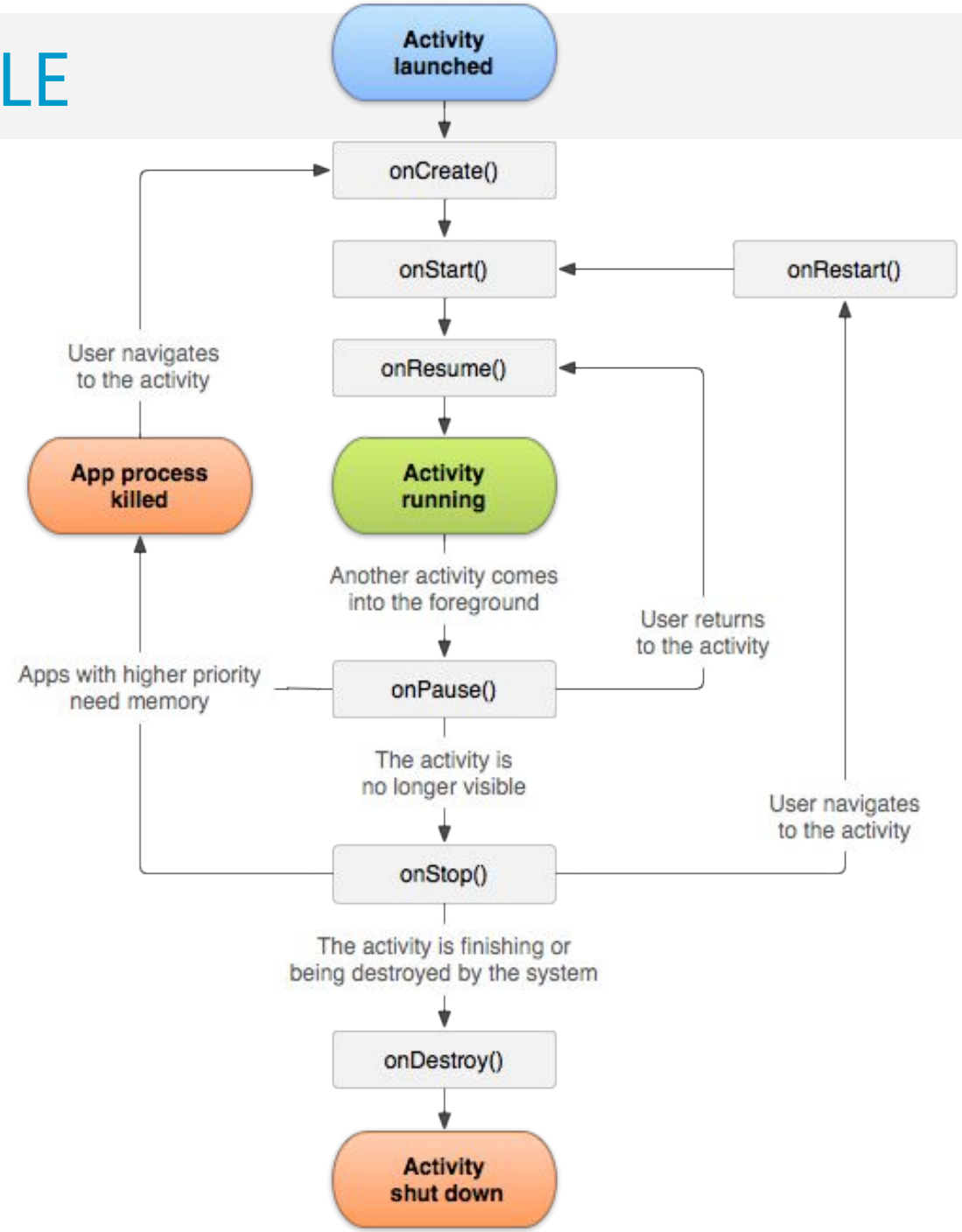
Called when the Activity is **created** the first time.

Called when the Activity is **partially visible**.

Called when the Activity is **no longer visible**.

Called when the Activity is **dismissed**.

ACTIVITY LIFECYCLE



INTENTS

- An Intent is a messaging object you can use to request an action from another app component.
- Although intents facilitate communication between components in several ways, there are three fundamental use cases:
  - **Starting an activity**
  - **Starting a service:** A Service is a component that performs operations in the background without a user interface.
  - **Delivering a broadcast:** A broadcast is a message that any app can receive.
- There are two types of Intent.
  - **Explicit intents**
  - **Implicit intents**

INTENTS

- ***Explicit intents*** specify which application will satisfy the intent, by supplying either the target app's package name or a fully-qualified component class name.
- You'll typically use an explicit intent to start a component in your own app, because you know the class name of the activity or service you want to start.
- For example, you might start a new activity within your app in response to a user action, or start a service to download a file in the background.
- ***Implicit intents*** do not name a specific component, but instead declare a general action to perform, which allows a component from another app to handle it.
- For example, if you want to show the user a location on a map, you can use an implicit intent to request that another capable app show a specified location on a map.

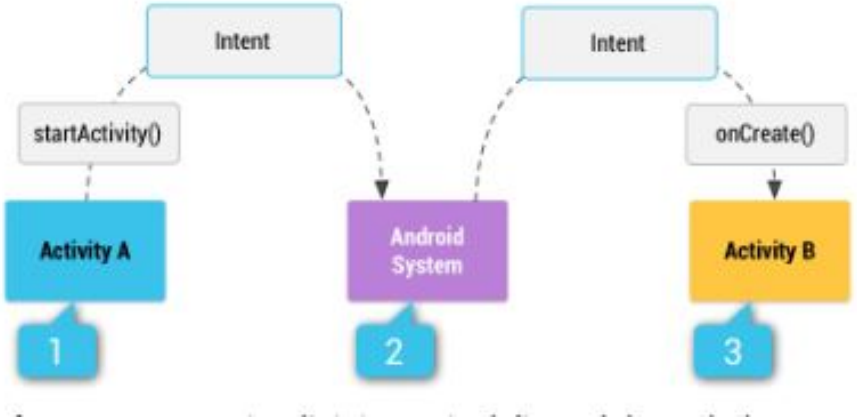
ACTIVITY: INTENT FILTERS

- **Intent filters** are a very powerful feature of the Android platform.
- Intent Filters are declared if you want to start receiving/communicating with other applications.
- Ability to launch an activity based not only on an ***explicit*** request, but also an ***implicit*** one. For instance:
  - An explicit request might tell the system to "Start the Send Email activity in the Gmail app".
  - By contrast, an implicit request tells the system to "Start a Send Email screen in any activity that can do the job."
- It includes three elements
  - Action
  - Category
  - Data

```
<activity android:name=".ExampleActivity" android:icon="@drawable/app_icon">
    <intent-filter>
        <action android:name="android.intent.action.SEND" />
        <category android:name="android.intent.category.DEFAULT" />
        <data android:mimeType="text/plain" />
    </intent-filter>
</activity>
```

IMPLICIT INTENT

- How an implicit intent is delivered through the system to start another activity:
- **Step 1:** Activity A creates an Intent with an action description and passes it to startActivity()



- The Android System searches all apps for an intent filter that matches the intent.
- When a match is found, the system starts the matching activity (Activity B) by invoking its onCreate() method and passing it the Intent.

THANK YOU!