Mobile Development: Android

CS 196 – 25 DotStar [Lecture M4]

Android Studio

Android Studio is an **integrated development environment (IDE)** used to develop applications written in **Java** for phones and tablets running the **Android** operating system.

The Basics

Android applications are made of what are called Activities. An **Activity** is an application component that provides a screen with which users can interact in order to do something, such as dial the phone, take a photo, send an email, or view a map.

Each Activity is represented by a Java class, which extends the Activity class. Each Activity should have its own layout file. The layout defines the visual structure for a **user interface (UI)** for the respective activity. The layout file is written in **Extensible Markup Language (XML)**, which is designed to be readable by both humans and computers.

When you first create your new project in Android Studio, you will see a visual representation of your main activity's layout. The **Main Activity** is the activity created when users first open your app. In this screen, you can drag and drop premade UI components in to your main activity. This way you can easily display text or images, create buttons and text fields for users to interact with, etc. Layouts are a good way to organize your components in a meaningful way.

To see each components definition in XML, click the text tab in the bottom left-hand corner. Here each component should have an id defined. Using this id, you can write java code that interacts with this specific component.

Some Helpful Tips

Material Design

Material Design is a style guide for how all Android apps should look. Creating your app with Material Design will set your app ahead, making it appear more professional and aesthetically pleasing than apps without Material Design. You can read all about Material Design here:

https://developer.android.com/design/material/index.html

Keyboard Shortcuts

Using Alt+Enter on PC and Mac wherever you have an error will automatically fix the error or suggest the most likely solution.

Ctrl+D on PC and Cmd+D on Mac will instantly duplicate the line of code you are editing. You can highlight larger or smaller fragments of code depending on what you want to duplicate.

Testing Your Code

You can test your code in two ways, by using an emulator or an Android device connected to the computer. I recommend using an Android device, as it is much faster than an emulator. However, you can speed up an emulator if you go to Tools->Android->SDK Manager. Then under "Extras" make sure you have the latest version of the emulator accelerator installed.

Android Developer Guide:
https://developer.android.com/guide/index.html

Android Studio & SDK can be downloaded at:
https://developer.android.com/sdk/index.html