

# uCertify

## Course Outline

### Android Programming for Beginners



13 Nov 2024

1. Exercises, Quizzes, Flashcards & Glossary

Number of Questions

2. Expert Instructor-Led Training

3. ADA Compliant & JAWS Compatible Platform

4. State of the Art Educator Tools

5. Award Winning Learning Platform (LMS)

6. Chapter & Lessons

Syllabus

Chapter 1: Introduction

Chapter 2: Beginning Android and Java

Chapter 3: First Contact: Java, XML, and the UI Designer

Chapter 4: Exploring Android Studio and the Project Structure

Chapter 5: Getting Started with Layouts and Material Design

Chapter 6: Beautiful Layouts with CardView and ScrollView

Chapter 7: The Android Lifecycle

Chapter 8: Java Variables, Operators, and Expressions

Chapter 9: Java Decisions and Loops

Chapter 10: Learning Java Methods

Chapter 11: Object-Oriented Programming

Chapter 12: More Object-Oriented Programming

Chapter 13: The Stack, the Heap, and the Garbage Collector

Chapter 14: Anonymous Classes – Bringing Android Widgets to Life

Chapter 15: Android Dialog Windows

Chapter 16: Arrays, Maps, and Random Numbers

Chapter 17: Adapters and Recyclers

Chapter 18: Data Persistence and Sharing

Chapter 19: Localization

Chapter 20: Animations and Interpolations

Chapter 21: Drawing Graphics

Chapter 22: Threads and Starting the Live Drawing App

Chapter 23: Particle Systems and Handling Screen Touches

Chapter 24: Supporting Different Versions of Android, Sound Effects, and Spinner Widget

Chapter 25: Design Patterns, Multiple Layouts, and Fragments

Chapter 26: Building a Simple Image Gallery App

Chapter 27: Advanced UI with Navigation Drawer and Fragment

Chapter 28: Android Databases

Chapter 29: A Quick Chat before You Go

Videos and How To

7. Live labs

Lab Tasks

Here's what you get

## 1. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

## 2. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over

- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

### 3. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

### 4. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
  1. Best Postsecondary Learning Solution
- **2015**
  1. Best Education Solution
  2. Best Virtual Learning Solution
  3. Best Student Assessment Solution
  4. Best Postsecondary Learning Solution
  5. Best Career and Workforce Readiness Solution
  6. Best Instructional Solution in Other Curriculum Areas
  7. Best Corporate Learning/Workforce Development Solution

- **2016**

1. Best Virtual Learning Solution
2. Best Education Cloud-based Solution
3. Best College and Career Readiness Solution
4. Best Corporate / Workforce Learning Solution
5. Best Postsecondary Learning Content Solution
6. Best Postsecondary LMS or Learning Platform
7. Best Learning Relationship Management Solution

- **2017**

1. Best Overall Education Solution
2. Best Student Assessment Solution
3. Best Corporate/Workforce Learning Solution
4. Best Higher Education LMS or Learning Platform

- **2018**

1. Best Higher Education LMS or Learning Platform
2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

- **2019**

1. Best Virtual Learning Solution
2. Best Content Authoring Development or Curation Solution
3. Best Higher Education Learning Management Solution (LMS)

- **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

## 5. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

## Syllabus

### Chapter 1: Introduction

- Who this course is for
- What this course covers
- Conventions used

### Chapter 2: Beginning Android and Java

- Technical requirements
- What's new in the third edition?
- Why Java and Android?
- The beginner's first stumbling block
- How Java and Android work together
- Setting up Android Studio
- What makes an Android app?

- The structure of Android's Java code
- Building our first Android app
- Deploying the app so far
- Frequently asked questions
- Summary

### Chapter 3: First Contact: Java, XML, and the UI Designer

- Examining the logcat output
- Exploring the project Java and the main layout XML
- Adding buttons to the main layout file
- Leaving comments in our Java code
- Coding messages to the user and the developer
- Writing our first Java code
- Frequently asked questions
- Summary

### Chapter 4: Exploring Android Studio and the Project Structure

- Project Explorer and project anatomy

- Exploring the file and folder structure of the Empty Activity project template
- Exploring the file and folder structure of the Basic Activity project template
- Exploring a Basic Activity project
- Exploring the Android emulator
- Summary

## Chapter 5: Getting Started with Layouts and Material Design

- Finding out about Material Design
- Exploring Android UI design
- Introducing layouts
- Building a precise UI with ConstraintLayout
- Laying out data with TableLayout
- Linking back to the main menu
- Summary

## Chapter 6: Beautiful Layouts with CardView and ScrollView

- Attributes quick summary
- Building a UI with CardView and ScrollView
- Creating a tablet emulator



- Frequently asked question
- Summary

## Chapter 7: The Android Lifecycle

- The life and times of an Android app
- How Android interacts with our apps
- A simplified explanation of the Android lifecycle
- How we handle the lifecycle phases
- Lifecycle demo app
- The structure of Java code – revisited
- Introducing fragments and the lifecycle
- Summary

## Chapter 8: Java Variables, Operators, and Expressions

- Java is everywhere
- Understanding Java syntax and jargon
- Storing and using data with variables
- Using variables

- Changing values in variables with operators
- Trying out expressions
- Summary

## Chapter 9: Java Decisions and Loops

- Making decisions in Java
- Switching to make decisions
- Repeating code with loops
- for loops
- Loops demo app
- Summary

## Chapter 10: Learning Java Methods

- Methods revisited
- Method structure
- Using method demo apps
- Exploring method overloading
- Scope and variables revisited
- Method recursion

- Questions
- Summary
- Further reading

## Chapter 11: Object-Oriented Programming

- Important memory management warning
- Object-oriented programming
- Looking at the code for a class
- Basic classes app
- Frequently asked questions
- Summary

## Chapter 12: More Object-Oriented Programming

- Remember that encapsulation thing?
- Static methods
- Encapsulation and static methods mini-app
- OOP and inheritance
- Inheritance example app

- Polymorphism
- Frequently asked questions
- Summary

## Chapter 13: The Stack, the Heap, and the Garbage Collector

- All the Android UI elements are classes too
- Inner and anonymous classes
- Frequently asked questions
- Summary

## Chapter 14: Anonymous Classes – Bringing Android Widgets to Life

- Declaring and initializing the objects
- Creating UI widgets from pure Java without XML
- Exploring the palette – part 1
- Anonymous classes
- Exploring the palette and more anonymous classes – part 2
- The Widget Exploration app
- Using WebView
- Running the Widget Exploration app

- Summary

## Chapter 15: Android Dialog Windows

- Dialog windows
- The Note to Self app
- Summary

## Chapter 16: Arrays, Maps, and Random Numbers

- A random diversion
- Handling large amounts of data with arrays
- Simple array example mini-app
- Getting dynamic with arrays
- Entering the nth dimension with arrays
- ArrayList
- Arrays and ArrayList instances are polymorphic
- More Java collections – meet the Java HashMap
- The Note to Self app
- Frequently asked questions

- Summary

## Chapter 17: Adapters and Recyclers

- RecyclerView and RecyclerViewAdapter
- Adding RecyclerView, RecyclerViewAdapter, and ArrayList to the Note to Self project
- Running the app
- Frequently asked questions
- Summary

## Chapter 18: Data Persistence and Sharing

- Android intents
- Adding a settings page to Note to Self
- Persisting data with SharedPreferences
- Reloading data with SharedPreferences
- Making the Note to Self settings persist
- More advanced persistence
- Backing up user data in Note to Self
- Frequently asked questions
- Summary

## Chapter 19: Localization

- Making the Note to Self app accessible for Spanish and German speakers
- Running Note to Self in German or Spanish
- Summary

## Chapter 20: Animations and Interpolations

- Animations in Android
- Animation demo app – introducing SeekBar
- Frequently asked questions
- Summary

## Chapter 21: Drawing Graphics

- Understanding the Canvas class
- Using the Canvas class
- Canvas demo app
- The Android coordinate system
- Creating bitmaps
- Manipulating bitmaps

- Bitmap manipulation demo app
- Frequently asked question
- Summary

## Chapter 22: Threads and Starting the Live Drawing App

- Creating the Live Drawing project
- The game loop
- Threads
- Implementing the game loop with a thread
- Running the app
- Summary

## Chapter 23: Particle Systems and Handling Screen Touches

- Adding custom buttons to the screen
- Implementing a particle system effect
- Handling touches
- Running the app
- The Android Studio Profiler tool



- Summary

## Chapter 24: Supporting Different Versions of Android, Sound Effects, and Spinner Widget

- Handling different versions of Android
- The SoundPool class
- Sound demo app introducing the Spinner widget
- Summary

## Chapter 25: Design Patterns, Multiple Layouts, and Fragments

- Introducing the model-view-controller pattern
- Android design guidelines
- Real-world apps
- Device detection mini-app
- Configuration qualifiers
- Fragments
- Our first Fragment app
- Fragment reality check
- Frequently asked question

- Summary

## Chapter 26: Building a Simple Image Gallery App

- Angry Birds classic swipe menu
- Building an image gallery/slider app
- Summary

## Chapter 27: Advanced UI with Navigation Drawer and Fragment

- Introducing NavigationView
- Examining the Simple Database app
- Starting the Simple Database project
- Exploring the autogenerated code and assets
- Coding the Fragment classes and their layouts
- Using the Fragment classes and their layouts
- Summary

## Chapter 28: Android Databases

- Databases 101
- SQL syntax primer

- Android SQLite API
- Coding the database class
- Coding the Fragment classes to use the DataManager class
- Running the Age Database app
- Summary

## Chapter 29: A Quick Chat before You Go

- Publishing
- Make an app!
- Keep learning
- My other channels
- Goodbye and thank you

## 6. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality

- No hardware costs

## Lab Tasks

### **Beginning Android and Java**

- Building an Android App

### **First Contact: Java, XML, and the UI Designer**

- Adding Button
- Handling Button Clicking using Java Methods

### **Exploring Android Studio and the Project Structure**

- Exploring an Empty Activity and Android Emulator
- Exploring a Basic Activity Project

### **Getting Started with Layouts and Material Design**

- Creating and Exploring a Layout Project
- Creating a Table Layout

### **Beautiful Layouts with CardView and ScrollView**

- Building a UI using CardView and ScrollView
- Creating a Tablet Emulator

### **The Android Lifecycle**

- Creating the Lifecycle Demo App

### **Java Variables, Operators, and Expressions**

- Understanding Java Syntax

## **Java Decisions and Loops**

- Understanding Loops

## **Learning Java Methods**

- Using Method Overloading

## **Object-Oriented Programming**

- Using Class

## **More Object-Oriented Programming**

- Using Encapsulation and Static Methods
- Using inheritance

## **The Stack, the Heap, and the Garbage Collector**

- Using Buttons and TextView Widgets

## **Anonymous Classes – Bringing Android Widgets to Life**

- Exploring Widgets

## **Android Dialog Windows**

- Creating a Dialog Window

## **Arrays, Maps, and Random Numbers**

- Creating an App using Array
- Using Dynamic Array
- Using Multidimensional Array

## **Adapters and Recyclers**

- Adding and Displaying Notes Using RecyclerView, RecyclerViewAdapter, and ArrayList

## **Data Persistence and Sharing**

- Adding Settings Page to an App

## **Localization**

- Running App in German or Spanish

## **Animations and Interpolations**

- Using Animations

## **Drawing Graphics**

- Using the Canvas
- Using Bitmap Manipulation

## **Threads and Starting the Live Drawing App**

- Creating the Live Drawing Project and Implementing the Game Loop using Thread

## **Particle Systems and Handling Screen Touches**

- Implementing a Particle System Effect

## **Supporting Different Versions of Android, Sound Effects, and Spinner Widget**

- Creating a Sound App using a Spinner Widget

## **Design Patterns, Multiple Layouts, and Fragments**

- Creating a Device Detection App
- Creating a Fragment App

## **Building a Simple Image Gallery App**

- Building an Image Slider App

## Advanced UI with Navigation Drawer and Fragment

- Creating a Simple Database Project

### Here's what you get

**35**

LIVE LABS

**35**

VIDEO TUTORIALS

**01:26**

HOURS

You can't stay away! Get



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