



# Android App Development for Beginners MicroMasters Professional Android Development Program



This course will provide you with all that you need in order to start developing apps for Android. You will learn different concepts from UI, including foundations of the framework all the way to storing data, and publishing your app. Of course, we're assuming that you already know the basics of Java, that you're familiar with object-oriented programming. If you have questions, or in any moment feel that you can strengthen a little bit your skills on that matter, feel free to check our Java for android course.

On this course you will be learning from different instructors. Each week you'll have several video lectures covering both the concept and practice, including programming exercises. In each lesson you will build a different app. The design of the course is built in a matter that you will have access to code, slides, and everything you need in order to have a successful learning experience. Great, isn't it?

**We want this experience to be as relevant to your own personal learning goals as possible, so before to start, read this welcome kit, it has all the information you need to know to start this course.**

*Remember: this course is for people who have curiosity and passion about the world of Android development and accept the challenge.*

***Just like you!***  
***Join us and let's enjoy this ride together.***  
**WELCOME**

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## 1. What you'll learn

1. Android Application Structure
2. Life-Cycle of Application
3. Create a custom view class
4. Implement a custom application theme
5. Define a RecyclerView item list
6. Implement menu-based or drawer navigation
7. Integrate code from an external support library
8. Schedule a time-sensitive task using alarms
9. Schedule a background task using Job Scheduler
10. Designing and building a functional Android application
11. Debugging Android applications using different tools and plugins
12. Setting up and understanding your Android Development Environment
13. Create four applications in order to practice the concepts learned
14. Design and develop your own Android app as part of your final project.

## 2. About the apps you will build in this course

### Tip Calculator

This app will be a tip calculator where the user will be able to enter the bill amount and rate the service by tapping the icon available on the screen to calculate the final bill amount.

### Movie Manager

This App will display the latest movies currently playing in theaters, and the upcoming movies as well. To build this App we will use different Android UI elements such as Navigation Drawer, Fab, Snack bar, Coordinator Layout, and RecyclerView.

### Birthday Message

The App will be able to load your user contacts list and when the user click on each contact, the App will send an email with a birthday message.

### My personal to do list

The App will show your personal to do list, it will be a simple application, that will contain a recyclerview, an action, and it will display all the data that you put in like tasks.

## 3. Course Content

### Meet Android Studio

This lesson's purpose is to show Android Studio and its main characteristics, getting familiar with the IDE and being able to navigate the project structure. At the end of the lesson, the Developing Environment will be up and running, this is Android Studio and the Java Software Development Kit, or SDK.

### Lesson 1 Basics Concepts and UI

In this lesson you will be capable of listing the services involved with the Android Application Architecture, you will learn how to create applications and activities by thoroughly understand the life-cycle of an Android application and its main components, you will demonstrate knowledge of testing and debugging by using the system log output and logcat tools to trace code execution.

### Lesson 2 Working with Data and Material Design

You will apply knowledge of user interface and material design by creating a graphical user interface (GUI). You will build layouts using XML and Java code and implement menu-based or drawer navigation, among many other important functionalities, and of course you will customize the application theme, use RecyclerView to display a large data collection in a list or grid.

### Lesson 3 Asynchronous Loading and Background Tasks

This lesson is about Async task, threading and handlers, background services (Alarm JobScheduler) and loader, so you will demonstrate knowledge of background tasks and threading.

### Lesson 4 Persistent Data Storage

Data storage is a big issue, in this lesson you will learn how to save data persistently by determining appropriate use cases for local persisted data, and designing solutions to implement data storage using files, preferences, and databases; how to connect your app to the web by sharing preferences and files, SQLite databases, and Content providers.

### Lesson 5 System Integration and Deployment

This lesson will cover a couple of concepts on how to integrate with the system, how your app becomes part of the whole system using widgets. You will also learn a little bit of notifications and how to deploy. You will review a checklist with everything you need to know in order to do a deployment.



## Where do you find this content material?

edX GalileoX: CAAD002X Android App Development for Beginners Help

Course Discussion Learning Path List of Source Code Files Support Materials Earn a Valuable Credential MasterClass Sessions Progress

Android XCommunity

### Android App Development for Beginners

[Resume Course](#)

#### Lesson 1: Basic Concepts and UI

- Introduction
- Developing for Mobile
- Android Overview
- Android Basic Blocks
- Gradle Dependencies
- ButterKnife Library
- Learning and Working with my App
- Android Broadcast Intent and Broadcast Receiver
- Debugging
- Resources Lesson 1
- Exercises Lesson 1  
Exercises due Oct 29, 2017 18:30 CDT
- Quiz Lesson 1  
Quizzes due Oct 29, 2017 18:30 CDT

**Course Tools**

- Bookmarks
- Updates

**Important Course Dates**

Today is CDT

**Course Starts**

**Verification Upgrade Deadline**

You are still eligible to upgrade to a Verified Certificate! Pursue it to highlight the knowledge and skills you gain in this course.

[Upgrade to Verified Certificate](#)

**Course End**

After this date, course content will be archived.

**Certificate Available**

Day certificates will become available for passing verified learners.

**Course Handouts**

[Course Syllabus](#)

Android XCommunity

Course > Lesson 1: Basic Concepts and UI > Android Basic Blocks > Activities

Previous More Material Video Lectures Graded exercises Next

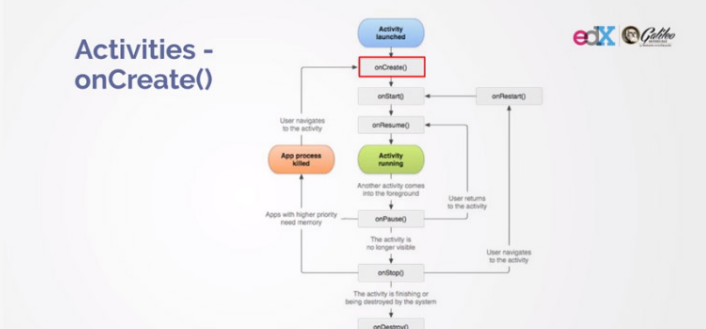
### Activities

[Bookmark this page](#)

#### Activities

Transcriptions


every application must have an Android manifest file in its root directory, the manifest file provides essential information about your App to set the Android system. In the manifest we set the application name, the permission, activities, and some other configurations. To create an Android activity we need to implement it as a subclass of the activity class, basically the class is part of the Android API classes. Over the course of its lifetime and activity goes through a number of states. You use a series of callbacks to handle transitions between states. Let's talk about them in more detail: the onCreate callback files when the system creates your activity, all the essential



## 4. Learning Path


The learning path suggests the best way to take this course, where to begin and how you should progress to build your learning progressively. It is a didactic tool, which suggests the best way.


*"The secret of getting ahead is getting started. The secret of getting started is breaking your complex overwhelming tasks into small manageable tasks, and starting on the first one."— Mark Twain*


**GalileoX: CAAD002X Android App Development for Beginners**
Help


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### LEARNING PATH

 **Verified Learners Only**  
☒ **Required : Graded**

	 <b>Content</b>	 <b>Exercises</b>	 <b>Communication</b>	 <b>Quizzes</b>
<b>Course Presentation</b>	Welcome kit Course Presentation Pre-Course Survey			
<b>Meet Android Studio</b> <b>2-3 hours</b> (September 04)	Introduction Android Studio Installation Android Studio Tour Android Emulator Hello World Tutorial	Install your Development Android Environment	Public Forum	
































# Android App Development for Beginners



## LEARNING PATH

 Verified Learners Only  
 Required : Graded

	 Content	 Exercises	 Communication	 Quizzes
Course Presentation	Welcome kit Course Presentation Pre-Course Survey			
Meet Android Studio 2-3 hours	Introduction Android Studio Installation Android Studio Tour Android Emulator Hello World Tutorial	Install your Development Android Environment	Public Forum	
Lesson 01 7-8 hours	Introduction Android Overview Android Basic Blocks Learning and working with my App Persisting Application State Debug Logcat Errors Android Broadcast Intent and Broadcast Receiver (teoria) Debugging Resources Lesson 1  <b>Extended Content</b>  Recap Lesson 1 Persisting Application State Persisting Application State Challenge Debug Logcat Errors	Layout Android Basic Concepts  Required  <b>Extended Exercises</b>  Working with Android-UI Controls	Public Forum  <b>Private</b>  Private Forum Private email	Quiz  Required 10 pts.
Lesson 02 6-7 hours	<b>Working with Data and Material Design</b> Introduction RecyclerView, Adapter & ViewHolder Fragments Material Design Elements Navigation Testing with Espresso Working with my App Adding Views Dynamically Resources Lesson 2 <b>Extended Content</b>  Building Layouts for screen configuration Working with Custom Styles & Themes Recap Lesson	Creating Accessible Applications Applying style to a group of views If you did the exercises you know the answer.  Required  <b>Extended Exercises</b>  Unit Test on Android Working with Fragments - TabLayout	Public Forum  <b>Private</b>  Private Forum Private email	Quiz  Required 10 pts.
Lesson 03 6-7 hours	<b>Asynchronous Loading and Background tasks</b> Introduction Android Hierarchical Navigation Custom Views Permission system AsyncTask, Threading and Handlers Using AsyncTask vs. Java Threads (with Handlers) Loaders AsyncTaskLoader & CursorLoader Background Services Android Scheduling Task Working with my App Resources Lesson 3 <b>Extended Content</b>  Android Service Example How to Create a WebView Recap Lesson	AsyncTask Activity  Required  <b>Extended Exercises</b>  Scheduling Tasks with JobScheduler	Public Forum  <b>Private</b>  Private Forum Private email	Quiz  Required 10 pts.
Lesson 04 6-7 hours	<b>Persistent Data Storage</b> Introduction Access Files In Assets Access Resources Save Data and Files SQLite Databases Content Providers Loaders Background Services Resources Lesson 4 <b>Extended Content</b>  Recap Lesson	Database Activity  Required  <b>Extended Exercises</b>  Savin Application Data	Public Forum  <b>Private</b>  Private Forum Private email	Quiz  Required 10 pts.
Lesson 05 5-6 hours	<b>System Integration and Deployment</b> Introduction Widgets Notifications Getting Ready for Deployment Publish on Play Store Resources Lesson 5  <b>Extended Content</b>  Recap Lesson	Home Widget with ListView Activity  Required  <b>Extended Exercises</b>  Using Notifications	Public Forum  <b>Private</b>  Private Forum Private email	Quiz  Required 10 pts.

### Plan ahead

- To complete this lesson, you must pass all the graded assignments, review the assignments, to plan enough time.
- Use due dates to stay on track: the lesson moves quickly, due dates will help guide your progress.
- Get help from your peers, if you want to discuss the course material, each lesson has discussion forums where peers and tutors are there to help.



## 5. Course length and Estimated Effort

### Course Length

6 weeks

### Estimated Effort

We expect this course will take you 8-10 hrs. per week to complete.

## 6. Grading policy and Certification

**Questionnaires (50%):** There will be 5 total quizzes and all will count.

**Exercises (20%):** There will be 5 assignments and all will count

**Final exam or final proctored exam for verified learners (30%):** There will be only one.

### Earning a Certificate

If you are interested in earning a certificate, you'll need to complete the formal quizzes that are housed at the end of each lesson, exercises, and final proctored exam. Students who complete all graded assignments with a cumulative 70% average will earn a verified certificate from edX, signifying successful completion of the course.

A 100-90

B 89-80

C 79-70

Certification earned with 70 or higher

D 69-60

F 59-00

### What is proctored exam?

Proctored exams are exams with time limits that you complete while online proctoring software monitors your computer. Proctoring software checks that you (as the person taking the exam) are the same person who is taking the course for credit, and detects any attempts to cheat on the exam.

## Note

- Proctored exams are visible only if you are enrolled in the verified track for your course. If you are not in the verified track, you take the same or an equivalent exam as a regular exam, without the requirement for online proctoring.
- **Verified learners must take a proctored exam**
- If you want to be eligible to purchase academic credit for passing your course, make sure you enroll in or upgrade to the verified track as early as possible during the course, so that you do not miss any credit eligibility opportunities.

## 7. How to Succeed in this Course

To be successful in this course the participant is expected to:

- Study all the lecture videos that conform each lesson, in them, the expert develops all the topics that were described on syllabus.
- Review the complementary readings or external references related to the topic.
- Perform all the activities in each lesson (Questionnaires, activities, final project).
- You will learn by doing “the more you practice, the more you can, the more you want to, the more you enjoy it” Practice means to perform over and over again. Each lesson comes with its sample code files, and concise instructions for how to build that code by yourself.
- Think! Reflect! Do! And Practice! About what you are learning.
- Participate in forums, your participation creates an active and dynamic learning community, in which you will find support and at the same time you will have the opportunity to contribute with your knowledge, experience and help your classmates.

***Making your own planning and setting intermediate deadlines in advance of the deadline will allow you to achieve your goals.***

## 8. How to follow video lectures and Handy Tricks

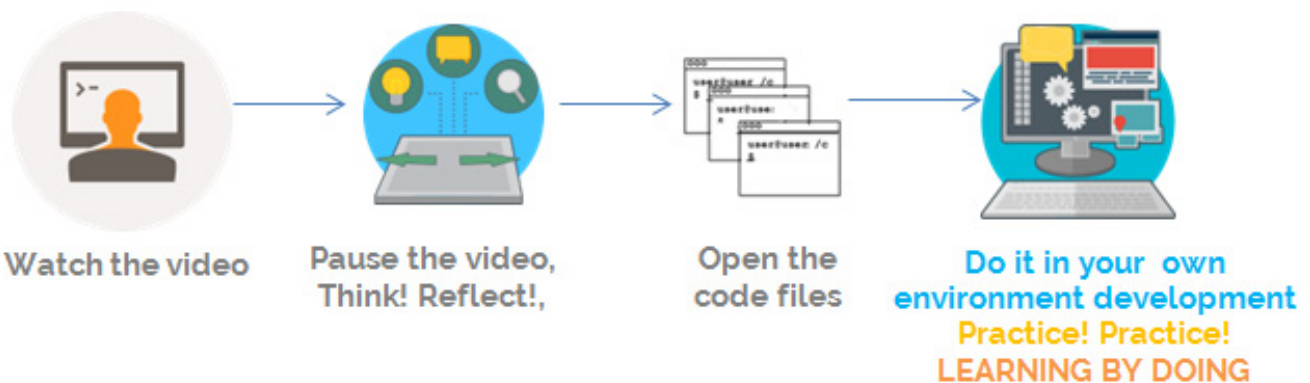
Why use “videos” to give the instruction? Well, here are some reasons,

- Students can watch a lesson anytime, anywhere
- Students have complete control of the lesson, which means they can repeat material or skip ahead as needed.
- Students learn by example, seeing every step in great detail. Learning by watching the professor move through the steps, enables them to take note.

So, how do we take advantage of this instruction method?

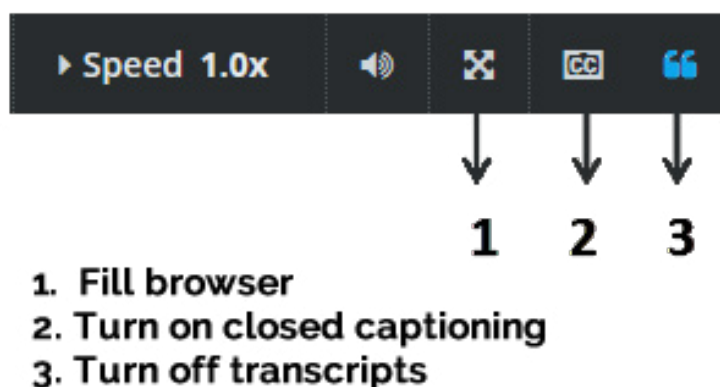
- Watching a video requires a commitment of time
- You can pause or rewind the video, so take advantage of this characteristic and move to your own pace. Something a classroom can not always offer.
- When it is about programming, open code file and do the example by watching the professor move through the steps.
- Take notes.

Basically, when it is about programming, we recommend you to do these four steps.



## Handy tricks to watch the video lectures

While you are studying, you may need to change the display size of the video or turn off transcripts, let's see how you can resize your video and two more actions that can be very helpful:



If you have a good internet connection, we recommend you change the video's resolution to HD at the Youtube Channel.

## 9. Academic Support

### Discussion Forum:

Forums are a unique opportunity to interact with students from all over the world. The community is diverse in experience, knowledge, language and culture. Forums are an excellent communication channels to post your doubts, comments or concerns.

Forums provides us with an incredible resource with different points of view, but remember, you are the one who enriches the forums with your participation and makes the community of the course stay active .

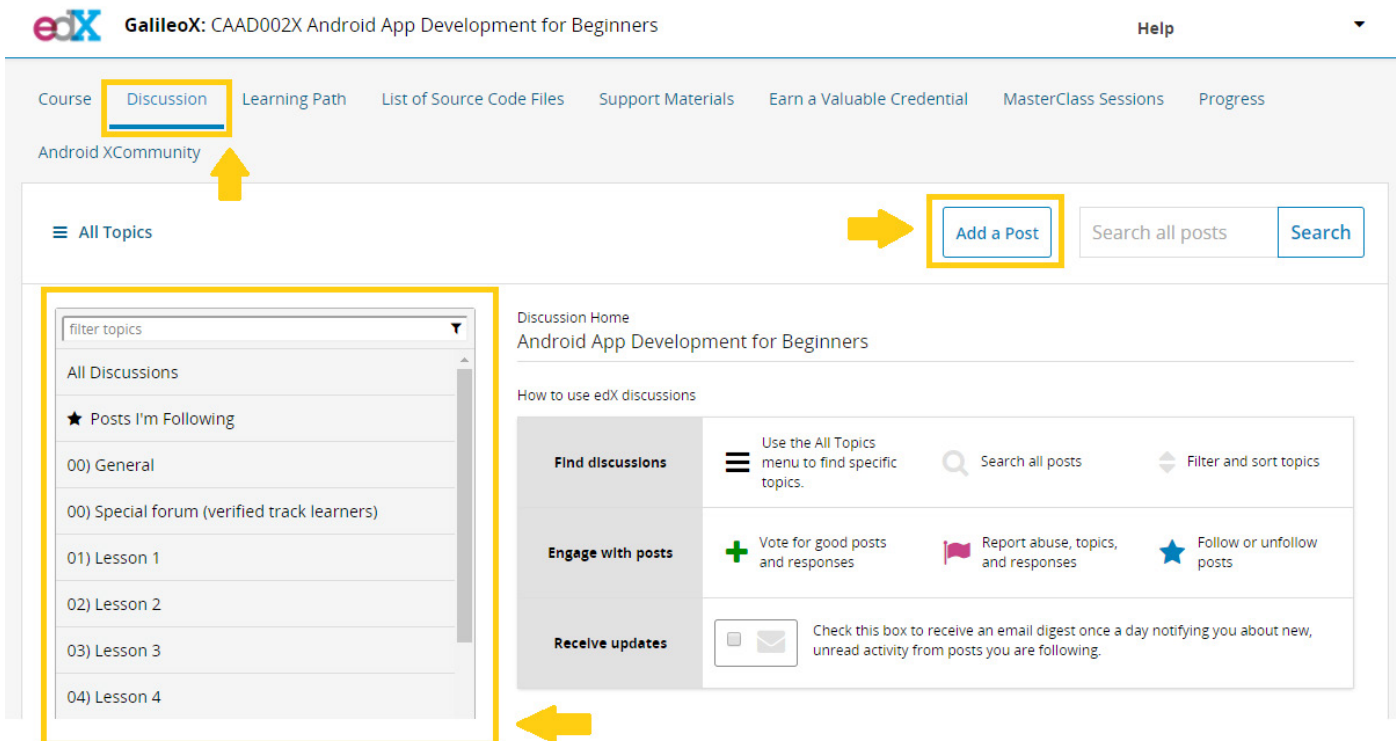
If you know the answer to a question that has been posted by one of your colleagues, we encourage you to answer it. Even if you don't know the exact answer, you can contribute to build a solution between all.

## Something very important is the following:

- Respect the categories established in the course, for example, if you have doubts of lesson 1 write your doubt in the forum created for the purpose, this way your questions will be solved by a member of the course team or a classmate quickly.
- Before posting, or creating a new thread, search in the discussion threads for similar questions or comments.
- Do not create new threads, it makes difficult to see your message and consequently you may not receive support from your team mates or team members.
- Always be polite and concise in your messages, remember the rules of netiquette.

To see all the categories within the discussion forum, click on the drop down menu in the upper left that says "All Discussions".

We will be communicating with you through the discussion forum on a daily basis. Please allow 24 hours to receive a response from our tutors. Also, all communication on the discussion forum must follow the edX Honor Code.



The screenshot displays the edX discussion forum interface for the course "GalileoX: CAAD002X Android App Development for Beginners". The navigation bar at the top includes links for Course, Discussion (highlighted), Learning Path, List of Source Code Files, Support Materials, Earn a Valuable Credential, MasterClass Sessions, and Progress. Below the navigation bar, the "Discussion Home" section is visible, featuring a search bar, an "Add a Post" button, and a "How to use edX discussions" section. The "How to use edX discussions" section provides instructions on finding discussions, engaging with posts, and receiving updates. A dropdown menu is open, showing a list of topics including "All Discussions", "Posts I'm Following", and various lesson-specific forums (00) General, 00) Special forum (verified track learners), 01) Lesson 1, 02) Lesson 2, 03) Lesson 3, and 04) Lesson 4.



## Weekly Emails:

We will be sending you course updates and interesting information about Android and Java World.

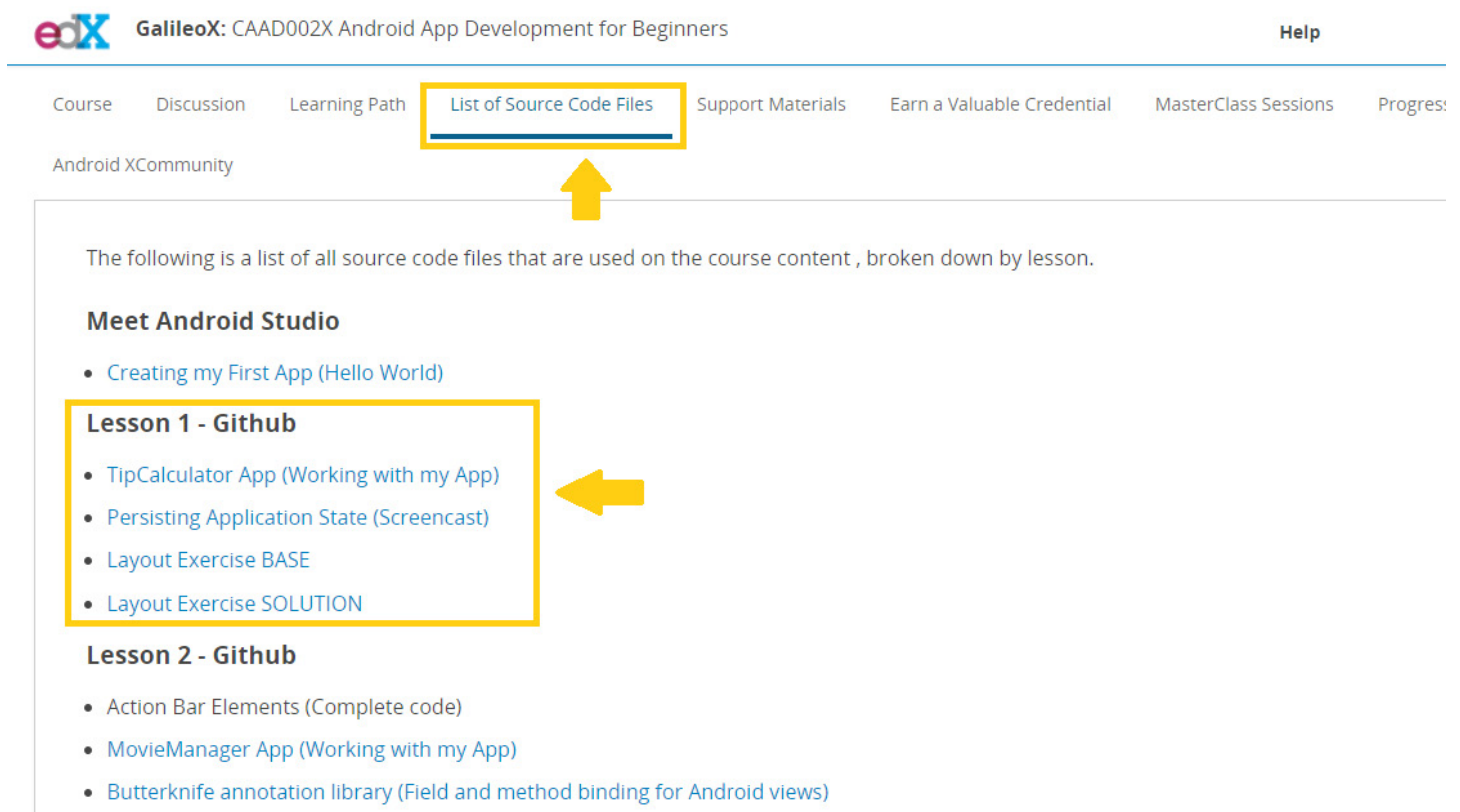
## MasterClass Sessions:

If you are part of the verified track, we will be offering live MasterClass sessions.

These MasterClass Sessions are interactive events hosted by subject specialists who have extensive teaching experience. They build upon the lessons coursework materials and allow students to participate in lively, collaborative discussions. Each session lasts up to an hour in total, including time for questions and answers towards the end. Details will be sent in the weekly emails.

## List of Source Code Files

You will find all the Source Code files at the end of each lesson at "Resources" section and under each video lecture.



edX GalileoX: CAAD002X Android App Development for Beginners Help

Course Discussion Learning Path **List of Source Code Files** Support Materials Earn a Valuable Credential MasterClass Sessions Progress

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The following is a list of all source code files that are used on the course content , broken down by lesson.

**Meet Android Studio**

- [Creating my First App \(Hello World\)](#)

**Lesson 1 - Github**

- [TipCalculator App \(Working with my App\)](#)
- [Persisting Application State \(Screencast\)](#)
- [Layout Exercise BASE](#)
- [Layout Exercise SOLUTION](#)

**Lesson 2 - Github**

- [Action Bar Elements \(Complete code\)](#)
- [MovieManager App \(Working with my App\)](#)
- [Butterknife annotation library \(Field and method binding for Android views\)](#)

< Previous



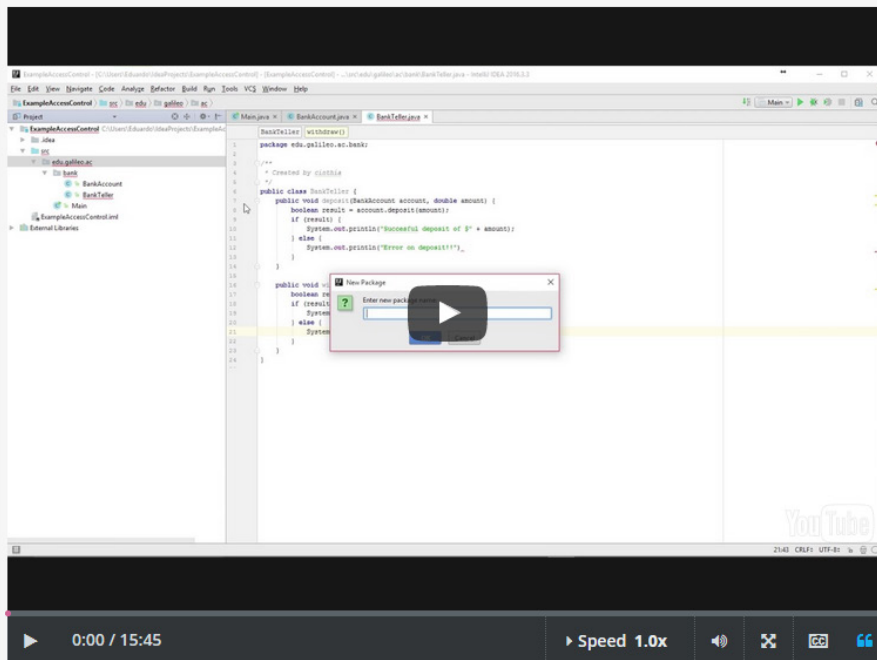
Next >

## Screencast Access control (video)

[VIEW UNIT IN STUDIO](#)

[Bookmark this page](#)

## Screencast Access control (video)



Start of transcript. Skip to the end.

In the following example, I will show you how to use Java's access modifiers.

First, we start our IDE and then select "create new project".

Next, we set the project's name and the domain.

Inside the project files, we will create a new package called "bank".

We enter the package name, and click in the "ok" button

Inside this package,

We will define the class "BankAccount"

To do so,

[STAFF DEBUG INFO](#)



Code Files ↓

video	Github	Codeboard
Access Control Screencast	<a href="https://goo.gl/07hFwE">https://goo.gl/07hFwE</a>	<a href="https://codeboard.io/projects/40525">https://codeboard.io/projects/40525</a>






## MasterClass Sessions for ID Verified Track Learners

These MasterClass Sessions are interactive events hosted by subject specialists who have extensive teaching experience. They build upon the lessons coursework materials and allow students to participate in lively, collaborative discussions. Each session lasts up to an hour in total, including time for questions and answers towards the end.

All live sessions are recorded, allowing students to watch and review previous sessions at any time.



### All Upcoming Sessions

	 Date	 Time CST	 Time UTC
Session 1	----	----	----
Session 2	----	----	----
Session 3	----	----	----
Session 4	----	----	----
Session 5	----	----	----

## 10. Verified Certificate

If you are taking this course to learn job skills or want to challenge and motivate yourself, **pursue a Certificate of Achievement to highlight the knowledge and skills you gain in this course and share it with the world.**

A verified certificate can provide proof for an employer, school, or other institution that you have successfully completed an online course.

## 6 Reasons to Consider Paying for a MOOC Verified Certificate

1. Sometimes we all need that extra push. Working towards a certificate keeps you motivated.
2. It verifies the participant identity with his/ her ID
3. It shows that the participant has successfully completed the course
4. Share the certificate through a link
5. Print the certificate and add it to your resume
6. Share it online on your LinkedIn profile, which allow you to share your new skills with professional contacts and potential employers

Certificate price \$ 99

## 11. Benefits of being a verified track learner

- Acces to course materials
- Acces to additional special content materials
- Acces to learning activities
- Acces to discussion forums
- Acces to the final course project
- Project review: Presonalized feedback and guidance for the course projects (Apps to be built) given by the instructors of the course.
- Acces to self-assessments
- Access to Quizzes and Final Exam
- Access to proctored Exam
- Direct messages: Do you have doubts? Ask directly to the instructors of the course. Access to special forums moderated by experts, get answers to your questions, discuss important topics related to course content and global trends in the field of application (verified track exclusive community)
- Access to hangouts (Live sessions with the instructors of the course)
- Receive a final grade

- Earn an edX Shareable Certificate
- Earn the first MicroMaster Program course (With a MicroMasters Credential in hand, students interested in continuing their studies at Galileo University or other possible universities may apply to the full online master's program)


## 12. Steps to change to a verified track learner

### First: Check the Verification Upgrade Deadline.

You will find the deadline by checking your course "Home" page for important course dates.

#### Course Tools

 Bookmarks

 Updates

#### Important Course Dates

Today is

Course End

After this date, course content will be archived.

Certificate Available

Day certificates will become available for passing verified learners.



## To upgrade to the verified track, follow these steps.

1. Go to your dashboard on [edx.org](https://edx.org).
2. Click on the green "Upgrade to Verified" button under the course.



**Android App Development for Beginners**

GalileoX - CAAD002X

View Course

**Related Programs:**  Professional Android Developer MicroMasters


Pursue a Certificate of Achievement to highlight the knowledge and skills you gain in this course.  
It's official. It's easily shareable. It's a proven motivator to complete the course.  
[Learn more about the verified Certificate of Achievement.](#)

**Upgrade to Verified**

3. Select the method you are going to pay: Paypal or credit card. After entering your payment information, click Place order.

**In Your Cart**

Your purchase contains the following:



**Android App Development for Beginners**  
Verified Certificate

**Summary**

Price	<b>\$99.00</b>
-------	----------------

Add coupon code (optional)





**Apply**

**TOTAL** **\$99.00**

**Order Details**

You will be automatically enrolled in the verified track of

**Select Payment Method**

**Card Holder Information**

First Name (required)  Last Name (required)

Address (required)  Suite/Apartment Number

City (required)  Country (required)

State/Province  Zip/Postal Code

**Billing Information**

Card Number (required)  Security Code (required)

Expiration (required)

**Place Order**

Upgrading to the verified track also involves verifying your identity. You need to take two verification photos with your webcam: one photo of yourself, and one photo of a government-issued photo identification card (e.g., passport, license). The verification you submit needs to be approved, which generally takes 2-3 business days. You can check the status of your verification on your dashboard.

For more information about verifying your identity, see [Verifying Your Identity](#) in the edX Learner's Guide.

## 13. This course is part of a MicroMasters Program

This course is part of a MicroMasters program called "Professional Android Developer". This MicroMasters program is a series of credit-eligible courses recognized by industry.

This MicroMasters Program will prepare you for the Google Associate Android Developer Certification Exam, and give you the opportunity to earn credit and put you on an accelerated path to an Information Technology Masters. It consists of four graduate level courses and a final capstone assessment from Galileo University, it was designed to advance your career, and each course provides deep learning in Android developer themes.

Learners who successfully complete and earn a Verified Certificate in all 4 courses and pass the final capstone assessment, are eligible to apply to the online or on-campus Master's program "Information Technology with Specialization in Systems Information and Database" at Galileo University.

The on-campus or virtual Master "Information Technology with Specialization in Systems Information and Database" is a 72 academic credits program that usually takes 2 years to complete. If you have successfully completed the MicroMasters Professional Android Developer program, which equals 18 academic credits (equivalent to 25% of Master's courses), you may be able to finish it in just 1, 5 years.

Cost of each MicroMasters Program course is \$ 99

### Course 1:

#### Java Fundamentals for Android Development (4 credits)

Gain entry-level skills and knowledge in Java fundamentals and an intro to Android Studio for a strong foundation in Android Apps.

### Course 2:

#### Android App Development for Beginners (4 credits)

Learn the Android app development process from Google experts.

### Course 3:

#### Professional Android App Development (4 credits)

Google Developer Experts show you how to become a Professional Android App Developer.

### Course 4:

#### Monetize Android Apps with Business Models (4 credits)

Create profitable Apps using proven business models and earn money by developing your Android App using AdMob.

### Course 5:

#### Android Developer Capstone Project: Building a Successful Android App (2 credits)

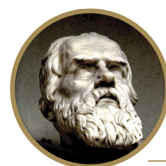
Demonstrate and implement the knowledge and skills acquired in the Android Developer MicroMasters Program.

### How to Earn Your MicroMasters Credential

Successfully complete and earn a *Verified Certificate in all four courses* and the final Capstone Project.

Earn a Valuable MicroMasters Credential and Prove you've gained the critical knowledge and in-demand skills to stand out in your field.

***Let's start!***



*Galileo*  
UNIVERSIDAD  
La Revolución en la Educación