Assignment 1

Help

Assignment 1: "Two Apps Please"

On this page:

Overview

For this assignment you will create **2** apps using the skills and concepts you learned in weeks 1 - 3. The first app assignment is carefully specified. The second app assignment allows for more flexibility and creativity. After the deadline for submitting these apps has passed, you will then be asked to evaluate the apps of some of your peers using the grading rubric provided. Some of your peers will be evaluating your app at that time. When the peer evaluation period is over, you will be able to see the feedback provided by your peers.

Even if you do not have time to complete both apps, you can and should submit 1 of the apps to earn partial credit and to gain some valuable feedback from your peers.

- Due: See the Week 3 Overview page for details.
- Grading: This activity is worth 20 points or 20% of your final course grade. It is calculated based upon the scores awarded by your peers.
- Have questions about this assignment? Need some help? Want to offer a helping hand to others? Discuss this assignment here!

Guidelines for App #1: Two Famous Computer Scientists

Step 1: Research for Your App

Find and pick **2** famous computer scientists (living or dead) that you will include in your app. For each person you will need to include an image and text. Some suggested historical figures are listed below as a starting point. You're not limited to picking one of these, but we encourage learning about them and also trying to find at least 1 famous computer scientist not listed below!

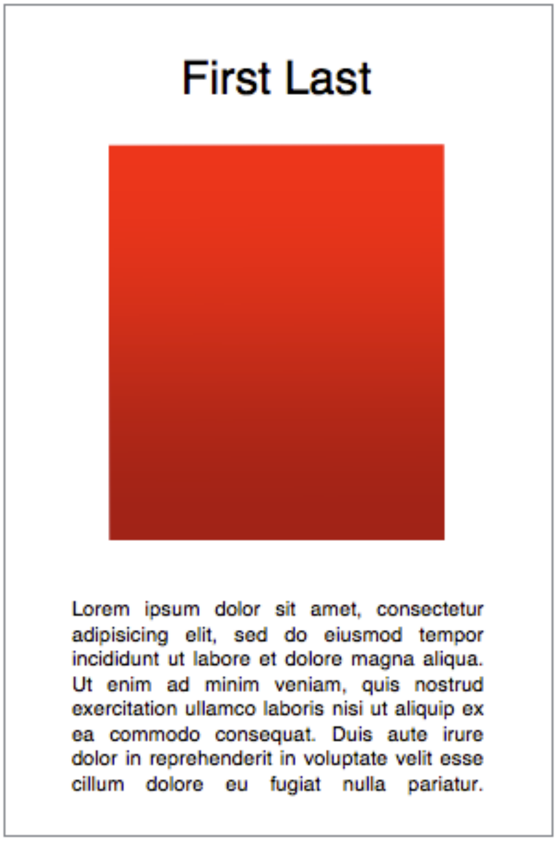
- Ada Lovelace
- Alan Turing
- Grace Hopper

- Charles Babbage
- John von Neumann
- Donald Knuth

Step 2: Create Your App

Requirements:

- The app name should include the last names of the 2 computer scientists you chose (see above).
- The package name should not include your real name. Remember to use the format abc.def (lowercase words, separated with periods).
- The app icon is up to you but should represent the contents of the app in some simple way.
- The minimum SDK value should be 8.
- Use 2 relative layouts to implement the following:
    - In portrait orientation, the following should appear in order from top to bottom:



First Last

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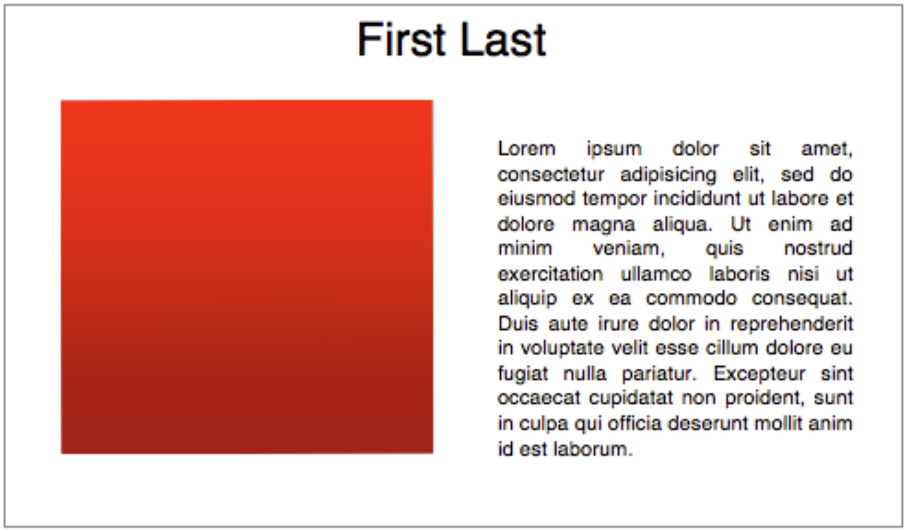
        - The first person's full name. The name should be centered.
        - The first person’s image (as a jpg or png file). This image should be centered.
        - Descriptive text about this person.

    - When the phone is flipped from portrait to landscape, the layout should include:



First Last

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- The second person's name centered in the middle of the display.
- The second person’s image. This image should be on the left and underneath the name.
- The descriptive text of this person. This text should be to the right of the image and also underneath the name.

Step 3: Refine and Test Your App

Check for the following:

- Check the dimensions of your images. The total in-memory size for each image must be less than 2MB (assume each pixel requires 4 bytes and there are 1024×1024 bytes in 1MB).
- There should be a small 8dp margin between each item.
- Text size must be at least 22sp. For grading purposes, write the text size directly in your layout xml (rather than using a theme or dimension value).
- The image must not be too large for small phones.
- There must be at least 2 lines of text displayed in portrait view; the image should not be more than half the screen width in landscape view. Hint: Check your layout in different device screens.
- If any text is too long for the small screen, then the layout should include a scroll view.
- For accessibility purposes, add content description attributes to your images to help partially-sighted and blind users know the content of the images (blind Android users use a text-to-speech tool).

Step 4: Capture Screenshots to Submit

Use the screenshot functionality in the Eclipse Devices view to take 4 screen capture pictures directly from the running device or emulator. Do not use your Windows/Mac/Linux screen capture tool.

Create 4 new emulators with different screen sizes and densities (ARM API level 10 is fairly quick). Take 1 screen capture of each of the following :

- Your app running in portrait mode on a [2560 x 1600 xhdpi] screen.
- Your app running in portrait mode on a [320 x 480 mdpi] screen.
- Your app running in landscape mode on a [1024 x 600 mdpi] screen.

- Your app running in landscape mode on a [480 x 800 hdpi] screen.

Name these files port-2560x1600-xhdpi.png, port-320x480-mdpi.png, land-1024x600-mdpi.png, and land-480x800-hdpi.png, and verify you are uploading the correct screenshot when you submit.

If you can't complete this step, see the FAQ below for a sneaky work-around.

Step 5: Export Your App

Export your app as a signed apk file. The apk file should be valid for at least 50 years.
Hint: You will need to create a key and keystore if you have not already done so.

Guidelines for App #2: Build Something Creative!

App #2 can be about anything that is interesting to you but cannot be the same app you created for App #1 in this assignment. Be sure to test your app in an API level 10 emulator. Other than that, the content and functionality of the app is entirely up to you to decide! You will need 1 screenshot and a signed apk file for submission.

Rules for Both Apps

- These apps must be brand new, created from scratch, and created purely for this assignment for this particular instance of this course. You may not reuse layouts or text from existing Android projects. The purpose here is to prove to yourself that you really can create a new app that satisfies the above requirements.
- The app's manifest file must not specify any permissions.
- The app may only perform its stated or specified purpose. The app must not perform anything malicious or hide any devious actions.
- The app should meet reasonable expectations of decency to a worldwide audience. To use a movie analogy, in the United States, Australia, New Zealand, and possibly others, this would be a "G" or "PG" rating; in the United Kingdom, a “U” or “PG” rating; in India, a “U” rating. We're not stopping you from making other kinds of apps—just don't submit them as an assignment!
- Your apps must at least work on emulator level 10. To have confidence in your expected score, check to make sure that your app works on an emulator API level 10 and other higher-level emulators or devices if you have them.

Submission Checklists

Check that you've completed all of the above steps and then gather the following materials to have ready to upload at the link below:

App #1 Submission Checklist

- The portrait xml layout file and your landscape xml layout file.

- The 4 screenshot png files (see specifications of each, above).
- The signed apk file.
- Write at least 1 sentence about why you chose each person.
- A few notes about your development experience. For example, what was the hardest part of this assignment or the part that required the most time?

App #2 Submission Checklist

- The signed apk file.
- A screenshot of your app.
- Briefly answer the following 4 questions:
    - What does your app do?
    - Why did you decided to build the app?
    - What do you remember most about your development experience? For example, what was the hardest part of this assignment or the part that required the most time?
    - What would you like to do next to your app?
- Optionally, you may post some code to receive feedback from your peers on your code. No need to post an entire file. If you're particularly pleased with some code you have written, include it! The code snippet does not need to be large, just share the experience of what you managed to create.

Note, your second app will only be graded on completion (was it done or not) and not on functionality or design. You will, however, get comments back from your peers, so this is a chance to say "Hello World" in your own creative way.

Submit Apps for Peer Evaluation

Grading

Your peers will grade your apps against each of the following criteria:

App #1 Grading Questions:

- Does the app require any permissions to install? If yes: Do not continue. The review stops immediately and the project is awarded 0 points.
- Is the app about famous computer scientists?
- Is the app name correct?
- Do the layout xml files use a relative layout?
- If the text is too long for the small screen, does the layout include a scroll view?
- Is the portrait layout correct? (3 items stacked vertically with an 8dp margin.)
- Is the landscape layout correct? (Center title at top, image and text under the title, with an 8dp margin.)
- Are the screenshot dimensions and orientations correct?
- Did the user upload a signed apk file and answer the development question?

App #2 Grading Questions:

- Does the app require any permissions to install? If yes: Do not continue. The review stops immediately and the project is awarded 0 points.
- Did the user upload a screenshot?
- Was an apk included?
- Did the participant answer the 4 questions?

Rubric

You can earn up to 10 points for each of your apps. Each app will be evaluated independently of the other. Your peers will award points based upon the following scale:

- **10 out of 10 points—Excellent**: The assignment is fully completed and correct. No more than 1 error or omission was found.
- **8 out of 10 points—Sufficient**: The assignment is almost complete. At least 2 errors were found, but these were simple oversights and could be fixed fairly quickly.
- **5 out of 10 points—Partial**: The assignment was partially completed but had significant errors and would still require significant time to finish.
- **0 out of 10 points—Poor**: The assignment fell far short of being complete.

Feedback

When reviewing the work submitted by a fellow peer, install and play with the apps they provide. Give the app developer some constructive advice and some helpful feedback on their efforts. If they also included some code, please congratulate them and give them some feedback or comments about it.

FAQ

Q. What if I have more questions?
A. Use the forum. Don't panic! This assignment is meant to be educational (by helping you learn about computer science), give you a sense of accomplishment (by having you create a specific app using everything you learned), and allow you to be creative (in that you made your own app!).

Q. Can I use (Person XYZ)?
A. Yes, as long as they have made some lasting impact on the field of computer science.

Q. Can I use Angrave?
A. No. I'm not famous or important enough.

Q. Can my first app do more than what is specified?
A. Yes, provided it's directly related to the purpose of the app (i.e., providing information about famous CS people). Be sure to test your app carefully.

Q. Can I publish my completed app (e.g., on a website or in the Google Play Store)?

A. Yes, but we ask that you wait until after this assignment is over.

Q. Can I include text and images from site XYZ?
A. Yes, provided you are complying with the license and copyright information of the materials. For example, you may need to include any attribution information in your text (e.g., "Text from Wikipedia"). Here is a list of many Creative Commons-licensed and Public Domain images that often can be used if given proper attribution.

Q. Can I use different image types in my first app (i.e., not png, jpg)?
A. No.

Q. What if my image's dimensions are too large?
A. Use Angrave's image reducer Java program or some other tool to make them smaller.

Q. Can I submit my first app as my second app too?
A. No. Your second app must be about something else and you need to write it from scratch.

Q. Must I export my app as an apk using a real key in a key store, or can I use the one I found inside my project's bin/directory?
A. The bin/apk file is signed with your local debug key—you cannot upload that one. You need to follow the instructions and export your project as a signed Android apk file and use your own key.

Q. Help! My emulator(s) is (are) just not working, so I can't generate the screenshots from the device view.
A. Here's a sneaky trick: You can also generate screenshots from the graphical layout view by right clicking on the image, but don't do this until you admit defeat with the emulator.

Q. Can my second app use XYZ android component/feature?
A. Yes, as long as your app runs in the emulator API level 10 and does not specify any permissions. We strongly suggest you build something simple first—get your assignment finished and then try harder stuff!

Q. Can my second app use libGDL/web framework/XYZ non-Android technology?
A. No. The purpose of this assignment is to work with Android directly, not a framework that hides or wraps Android.

Q. But what about XYZ? I'm scared to start.
A. Just jump in—it's time to get your hands dirty! Try building these apps and see how far you can get before you get stuck. Enjoy the process. Expect to get stuck. Expect to help each other in the forums. Expect to celebrate when your app works!

Q. Can I get help on the forums/on website XYZ?
A. You can get help when things go wrong, but the app development must be yours. Show the world that you can create a new app from scratch.

Q. Can I pair-program/work with someone else?

A. Feel free to give help and get help but this app should be your own work.

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