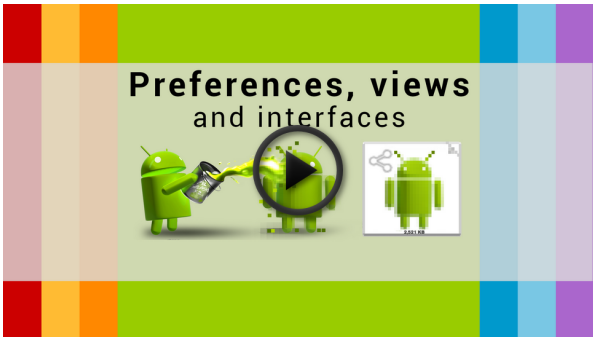
Week 7 Overview

Help

An App for Bitmaps and Images

On this page:

Video Lectures

Video Lecture	Key Topics	Transcript	Video Download	C
7.1. Preferences, views and interfaces				
 (00:22:01)	• Working with SharedPreference objects • Creating Views in Java • Working without a layout xml • Adding an OnClickListener • Coloring text		(38.0 MB)	

Next Steps for 7.1

Download and extract Imagen-v1.zip then,

1. Add extra code to make the text change to a blue color if you have clicked too many times. The following
   if(clickCount>200) { *doSomething-to-set-the-textview-to-blue* }
2. Can you increase the text size each time the app is restarted and onCreate is started?
3. Hint: Use Android's Settings app to manage your app and clear its preferences.
4. Create your own app that creates its own TextView in Java and uses Preferences and OnClickListener.
5. (Optional) Further Reading:
   - Shared Preferences
   - Responding to UI vents
   - Hexadecimal color values. See the 'hex' column for common colors written in hexadecimal. These va
     values but no alpha value. So replace the "#" with "0xFF" to make an 8 digit hexadecimal number of

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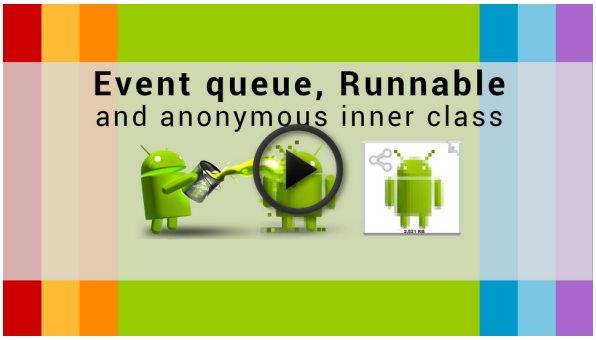
example opaque alice blue is 0xFFF0F8FF.

- TextView reference

7.2. Event queue, Runnable and anonymous inner class

Video Lecture	Key Topics	Transcript	Video Download	
 (00:10:07)	• Introducing the Android Event Queue • Don't be a hog; Work fast, don't sleep • Runnable interfaces • Using postDelayed to delay UI code until later • Introducing anonymous interfaces and listeners		(17.1 MB)	

Next Steps for 7.2

Download and extract Imagen-v2.zip then,

1. Play with the app.
2. Experiment with slowing down the event thread. In your own app a short delay makes the app sluggish, b surprise when you add a long sleep delay (10,000 milliseconds) to your onCreate or other UI method.
3. In your own app create a Runnable object (see the code below) then use view.postDelayed to execute y

```
Runnable r = new Runnable() { public void run() { doSomethingHere... } };
```

4. (Optional) Further Reading:
   - System Clock reference
   - Android's Threads and Processes guide
   - Creating Runnable objects

7.3. With Canvas and Paint I'll draw on your Bitmap

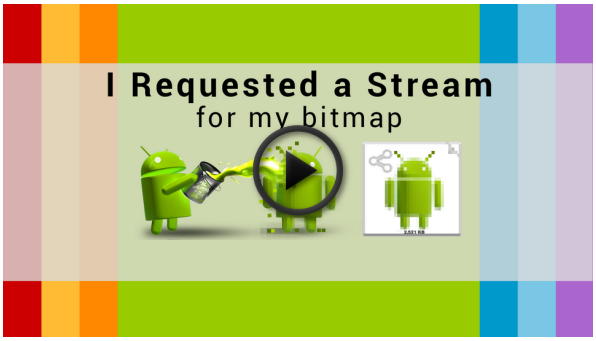
Video Lecture	Key Topics	Transcript	Video Download
 (00:15:31)	• Creating bitmaps • Bitmap configurations • Wiring up a Canvas, bitmap and ImageView • ARGB colors using hexadecimal integers • Who flipped the Y axis? • Drawing lines and bitmaps		(29.1 MB)

Next Steps for 7.3

Download and extract Imagen-v3.zip then,

1. Play with the app. For simplicity we created a fixed sized bitmap, so it will work best on 480x600 devices
2. Can you make some country flags and other simple graphics?
3. (Optional) Further Reading:
   - Bitmap reference
   - Canvas reference
   - ImageView reference
   - Hexadecimal color values. See the 'hex' column for common colors written in hexadecimal. These va values but no alpha value. So replace the "#" with "0xFF" to make an 8 digit hexadecimal number of example opaque alice blue is 0xFFF0F8FF.

7.4. I Requested a Stream for my bitmap

 (00:20:03)	• Intent to pick a picture • Adding images to the emulator's gallery • startActivityForResult • onActivityResult • Working with URIs, ContentResolver, and streams		(32.7 MB)

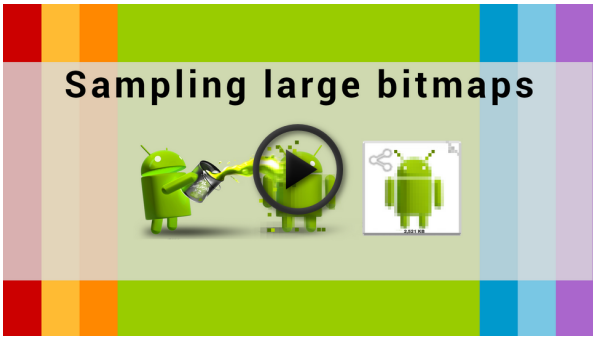
Next Steps for 7.4

Download and extract Imagen-v4.zip and import the project then,

Video Lecture	Key Topics	Transcript	Video Download	

1. You will need an emulator or device with external storage. Push the graphics inside 'artwork/' using DDM emulator's SD Card and run the MediaScanner ('Media Provider').
2. Play with and review the source with the app
3. Push the graphics inside 'artwork/' into your own emulator's SD Card and run the MediaScanner ('Media
4. Use my source code to help add startActivityForResult and onActivityResult methods to your own app.
5. Test it! Hint: it will work for some but not all of the images.
6. (Optional) Further Reading:
   - Interacting with other apps
   - Intent reference
   - InputStream reference

7.5. Sampling large bitmaps

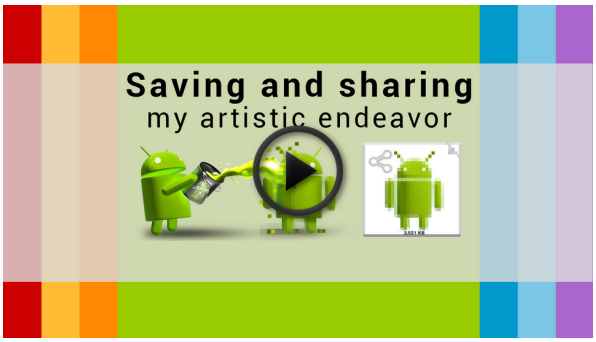
 (00:13:39)	• Using BitmapFactory.Options to read just the image size. • Finding the default screen size in pixels. • Sampling bitmaps to reduce their size • Using a 'while' loop		(23.5 MB)	

Next Steps for 7.5

Download and extract Imagen-v5.zip then,

1. Play with and review the code.
2. Add large-bitmap support to your own app and test it!
3. Keep playing with and developing your own app.
4. Simple challenge: Can you use a while loop with Imagen-v3 to draw many lines, bitmaps, or text at differ forums!
5. Advanced challenged: Experienced Java programmers can also create thread to decode the image in th Runnable to update the ImageView and use view.post to run this update on the UI event thread.
6. (Optional) Further Reading:
   - Working with Bitmaps

7.6. Saving and sharing my artistic endeavor

Video Lecture	Key Topics	Transcript	Video Download	
 (00:29:32)	• Mutable bitmaps • Drawing bitmap on another bitmap • Transparent paint and ARGB color • Drawing text • Saving bitmaps • External storage • Files and directories • Date and time • Sharing Bitmaps		(52.0 MB)	

Next Steps for 7.6

Download and extract Imagen-v6.zip then,

1. Play with the project and review the code to save the bitmap, register it with the Media Scanner, and sha
2. Add saving and sharing functionality to your app.
3. For this instance of the course, we're out of time for this week's content so did not cover AsyncTasks anc finally block. However an example of both can be found in our Download-APK.zip project.
4. (Optional) Further Reading:
   - File reference
   - Environment reference
   - File storage guide
   - Date and Time format reference and example code
   - Date and Time format reference and example code

Modern Code in General

 (00:03:11)	Java is a small language compared to English—it only has 50 words! Round off your week with Lawrence's song that includes all the keywords of Java. The lyrics are here (txt , pdf). Did he include them all?		(9.7 MB)	

Assignments

Once you have finished watching the videos for this week, complete the quiz on the information you learned.

To begin, access the quiz page below and click the **Start Quiz Now** button at the bottom of that page. You have 5 attempts to complete this quiz.

Go to Week 7 Quiz

This quiz is due by Sunday, February 9 at 11:55 PM Central Time (time zone conversion).

The third assignment for the course is now available. To find out more about it, access the Assignment 3 page below.

Go to Assignment 3

This assignment is due by Sunday, February 9 at 11:55 PM Central Time (time zone conversion).

Time

This module will last **7 days** and should take **approximately 4-8 hours** of dedicated time to complete, including the videos and assignments.

Tips for Success

To do well this week, I recommend that you do the following:

- Review the video lectures a number of times to gain a solid understanding of the key questions and concepts introduced this week.
- When possible, provide tips and suggestions to your peers in this class. As a learning community, we can help each other learn and grow. One way of doing this is by helping to address the questions that your peers pose. By engaging with each other, we'll all learn better.
- It's always a good idea to refer to the video lectures in your responses. When appropriate, critique the information presented.
- Take notes while you watch the lectures for this week. By taking notes, you are interacting with the material and will find that it is easier to remember and to understand. With your notes, you'll also find that it's easier to complete your assignments. So, go ahead, do yourself a favor; take some notes!

Getting and Giving Help

We strongly encourage you to join the culture of the application development community. This means not struggling with problems in isolation! Rather, when you encounter a problem, please try the following:

- Turn to your favorite search engine and search the Internet for help. Often, you will be most successful in finding the help you need by searching for the exact text of an error message you

might be encountering. Sometimes, adding the term RESOLVED to your search query will help you hone-in on Discussion forum posts where someone else has received advice that ultimately resolved the problem they were encountering.
- Form groups of friends, both here in this class and perhaps locally in your geographic area. You can explore the Getting to Know Your Classmates forum, reach out via the course's social media venues, or join a Meetup.
- Use the forums dedicated to each week's topics for help solving technical problems on your computer or Android device. Please use the forum that most closely matches your problem. Explore the forum to see if others have encountered the same problem and received helpful advice that may be useful in your situation. If your problems persist, please do post in the forums to ask for help.

If you encounter a problem with the course itself, you have options! You can get help via any of the following means:

- You can report a specific problem by clicking on the **Help** link at the top right of any course page.
- Use the Course Materials Errors forum for problems with course materials such as typos, factual errors, or grading errors.
- Use the Technical Issues forum for problems related to the Coursera platform such as broken links, error messages, and other technical issues.

Due to the very large number of students enrolled in this course, the instructor is not able to answer emails sent directly to his account. Rather, all questions should be posted to one of the above forums. You are encouraged to help your fellow students by responding to posts made in these forums with solutions and by "voting up" the most important posts. University of Illinois staff will monitor these forums and will focus their attention on those that have been voted up the most.

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