Java 8 CompletableFutures

ImageStreamGang Example (Part 2)

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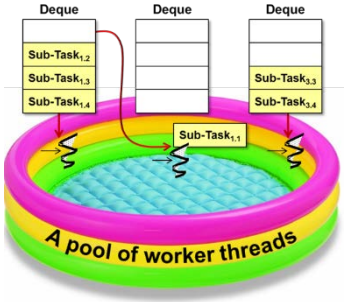
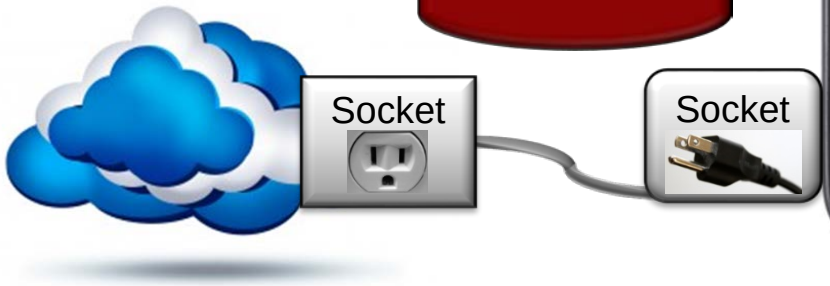
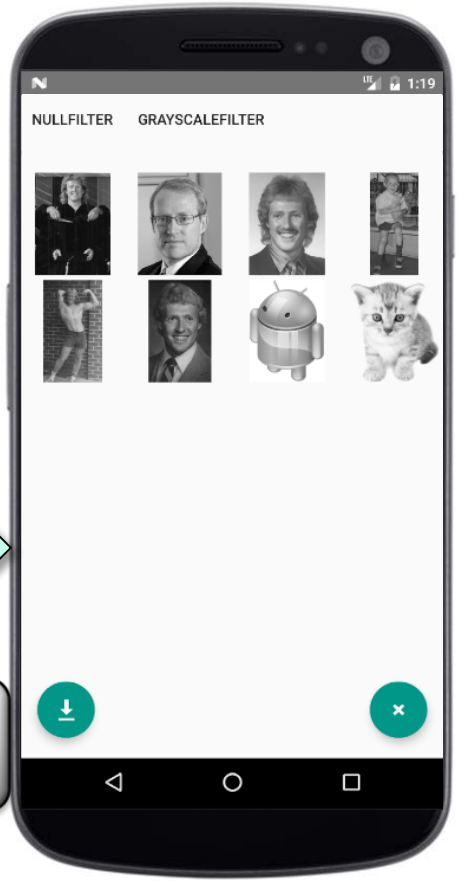
Learning Objectives in this Part of the Lesson

- Understand the design of the Java 8 completable future version of the ImageStreamGang app
- Know how the Java 8 completable future framework is applied to the ImageStreamGang app







Applying Completable Futures to ImageStreamGang

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- We focus on the method processStream()

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  listOfFutures = getInput()
    .stream()
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See app/src/main/java/livelessons/imagestreamgang/streams/ImageStreamCompletableFuture1.java

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Create a stream & ignore cached images

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Asynchronously download each URL in the input stream & return completable futures in the output stream

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Asynchronously filter & store each downloaded image in the input stream & return completable futures in the output stream

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Creates & stores list of completable futures to images that are being filtered & stored

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  - Uses “arbitrary-arity” allOf() & thenApply()

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void processStream() {
  List<CompletableFuture<List<Image>>>
  listOfFutures = ...

  CompletableFuture<List<List<Image>>>
    allImagesDone = StreamsUtils
    .joinAll(listOfFutures);

int imagesProcessed = allImagesDone
    .join()
    .stream()
    .collect(summingInt(List::size));
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Return a completable future that’s used to know when all asynchronous functions have completed

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End of Java 8 Completable Futures ImageStreamGang Example (Part 2)