Kotlin at an Android course

Programming languages come and go, and it is hard to predict which ones will stay. The Kotlin language has been around for some time now and like all programming languages has its super strong sides, and other aspects are more average.

In 2017 Google made it **an** official language for the Android platform (together with Java and C++).

The overall purpose of this week is that you will get a feel for the Kotlin language and have tried to write a number of small programs in Kotlin.

At the lecture Wednesday it is my plan to cover both some history and background and points to some of the interesting aspects of Kotlin.

My slogan for Kotlin is "*No news is good news*", meaning that Kotlin does not bring anything new to programming languages from a research perspective, but it is good at bringing state of the art to the Java platform.

The goal is that after this week you will be able to:

- Write simple (few lines up to a few pages) of Kotlin
- Can use the try.kotlinlang.org to experiment with kotlin programs
- Write kotlin programs that use streams
- Use the nullable types in Kotlin
- Use extension functions, and explain how they are useful to access Android Layout info.

Readings

Rather than start reading, I suggest you head over to the page "try.kotlinlang.org" and work your way through the following sections over the next week.

- In the examples section: All under Hello and Basic
    - Notice, there is often a link to the kotlin manual in the comments above the code. These examples are intended to be studied.

- In the Koans section, I recommend you try to solve the following puzzles as they give you a good intro to the language:
    - named arguments
    - nullable types
    - extension functions

For those who are more interested, I suggest you also study the following examples: * Destructuring (really

spiffy!)

Youtube

Like anything else, you can learn about kotlin on you tube. There are at least three kinds of videos out there:

- Advertisments. With any new language, there are consultancies who want to help you (for money). They want to advocate Kotlin to help their business.
- Technical overviews. These are intended for experienced developers and last half to one and a half hour. The idea is to give a developer a feel for the syntax and what can be done and how. I found this one useful https://www.youtube.com/watch?v=A2LukgT2mKc
- Tutorials of all kinds, where one particular aspect is walked through for those who are new to this. This tutorial tries to show how Kotlin is used in making a *very simple* android app. https://www.youtube.com/watch?v=QQa6Pt9AtRE

Android relation

On the page: http://kotlinlang.org/docs/tutorials/android-plugin.html there are several rather down to earth example of how Kotlin helps in the daily work of building Android apps.

Notice in particular that the improvement is done using the build-in facilities of Kotlin, and though extending the existing Android libraries leaving the originals intact.

Mandatory exercise

You should make a small kotlin program which has a `data class` named `Person` with `name`, `age`, and `mother` (other person).

- Create a list of 9 persons, one of them being `Eve`, who is the (grand)mother of all other persons. (you have to come up with a consistent solution to who is her mother - joke solutions are perfectly ok).
- Next write a function which using streams and filters return a list of all direct descendants of `Eve`.
- And an other function who finds all who are not immediate descendants.
- Finally, create an extention function on `Person` which return true if the person is child of `Eve`.

The entire program can be tested in the editor of try.kotlinlang.org