CSCI 445 - Homework #1: Introductions, LaTeX and Basic Android App development*

Assigned January 25th; Due 11:59pm on January 30th, 2024

Prof. Adwait Nadkarni

1   Assignment Description {10 points}

In this assignment, you will learn how to use LaTeX while introducing yourself to the professor. You will also complete a small programming task, by designing a simple hello world app. Complete the following steps:

1.1   Introduction and LaTeX {5 points}

1. Download and install a LaTeX environment for your personal computer. I recommend TeX Live. If you are using Mac OS X, see the MacTeX distribution. If you are using Linux, packages should be available in your distribution's package manager. TeX Live also works on MS Windows; however, many Windows users also use MiKTeX.

2. Read through a LaTeX tutorial and experiment with the different provided examples. There are many tutorials. I learned LaTeX from the following tutorial: http://www.maths.tcd.ie/~dwilkins/LaTeXPrimer/ Another good resource is the Not So Short Introduction to LATEX.)

3. Create a LaTeX document with the name of the assignment, your name, and the date. The document should use 11pt font and have 1-inch margins (hint: use the "`geometry`" package with option "`margin=1in`"). Optionally, use the "`times`" package to change the document font. There should be two sections, as described below:

   (a) The first section should be titled "Introduction." In this section, describe (1) who you are and where you are from, (2) your degree of study, research interests, etc., (3) why you are taking this class (and what you hope to get out of it), and (4) anything else you would like me to know. Please use paragraphs as appropriate. Note that paragraph separation should **not** be done with \\, but rather with an empty line between paragraphs. This creates nice indentation in the output document.

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*Last revised on January 16, 2024.

(b) The second section should be titled "Ethics Agreement." In this section, you should quote the ethics statement in the syllabus on the course website (using `\begin{quote}` ... `\end{quote}`), and then add a statement that you agree to the ethics statement and will abide by it.

1.2 Hello World Android app {5 points}

Create a simple Android app using Android studio. The app should be built using the latest version of Android Studio using the API level 31 (or later) as the target SDK version. I recommend looking at the official Android documentation before building your first app: https://developer.android.com/training/basics/firstapp/index.html.

The app needs to adhere to the following requirements:

1. Target API level >31 (i.e., Android 12 and up)

2. Display "Hello World" in the main *activity* (Hint: Just follow the first app tutorial for this step).

3. Display a "Hello World" *notification* every 30 seconds, even when the app is not running in the foreground. (Hint: Look at the AlarmManager, NotificationManager, and IntentService classes in Android's developer guide and official documentation. However, there are other ways to do this as well.)

4. Note: Test the application with the emulator (i.e., create an Android Virtual Device (AVD) using Android Studio, for a Pixel 6 or 6A device).

NOTE: Applications that crash on start, or do not compile, will get ZERO credit.

2 Submission Instructions

Submit your solution as a single tarball (tar.gz archive) named **lastname-hw1.tar.gz** to Blackboard. The solution should contain two components: (1) A single PDF for the LATEXportion, and (2) An APK file, i.e., an executable Android archive, generated as a solution to the programming part of the assignment. To upload your assignment, navigate to the "CSCI 445: Mobile Application Security (Spring 2024)" course. Use the "Homework 1" assignment. Please note that if LATEX is not used for this assignment, you will receive zero points.

Please post questions (especially requests for clarification) about this homework to Piazza.