**Midterm for CS 639 - Android**

**Summer 2019**

**Versions 1, 2 and 3**

**Dr. Scharff**

* **Read the complete document.**
* **Complete this document. Rename it as *MidtermLastNameFirstnam2019-vX.docx. X depends on the version of the test that you must do.***
* **Do not change the order of the questions.**
* **Put your code and apk file in GitHub.**
* **Send your questions on Slack.**

**Your name:**

1. **Practical part**

**Version 1:** Develop an app that converts miles into kilometers. The app will take miles as inputs and return kms as outputs. Note: 1 miles = 1.609 km.

**Version 2:** Develop an app that converts dollars into francs CFA. The app will take dollars as inputs and return francs CFA as outputs. Note: 1 dollar = 586.84 francs CFA. CFA is a money used in West Africa.

**Version 3:** Develop an app that converts dollars into Comorian francs. The app will take dollars as inputs and return Comorian francs as outputs. Note: 1 dollar = 439.36 Comorian francs. Comoros is a country in the Indian Ocean.

It is recommended to use Fragments.

Push your code to github with the name MidtermFristNameLastNAme.

Grading criteria:

* Names of files should be respected
* Code is in GitHub
* Apk is easily accessible
* Code is formatted to be readable
* Code uses variables with well-chosen names (in Java and XML)
* The app does what it is supposed to do
* There is no crash
* Look-and-feel (UI) is modern and appealing
* The user experience (UX) to do the computation and subsequent ones is seamless and does not generate confusion (IMPORTANT)

1. **Written part**

**Each question counts as 8 points. Questions 9 and 12 are 10 points.**

1. **Version 1:** Which Android configuration file holds the permission to use the Internet?

**Version 2:** What is the permission that permits to use the Internet? Write the XML code that will be present in AndroidManifest.xml.

**Version 3:** What is the permission that permits to make a call? Write the XML code that will be present in AndroidManifest.xml.

Answer: Manifest file.

1. **Version 1:** What is the path where image files are located?

**Version 2:** What is the path where layout files are located?

**Version 3:** What is the directory where string files are located?

Answer: Project/res/drawable

1. During an Activity lifetime, what is the first callback method of the *Activity* class invoked by the system?

Answer: onCreate() is the method.

1. In order to display a Ul defined in the XML layout file *main.xml*, what *Activity* method should be called?

Answer: setContentView() is the method.

1. What *Activity* method should be called to retrieve a reference to an Android view by using the *id* attribute of an XML resource?

Answer: findViewById() is the method.

1. What does the following code achieve?

Intent intent = new Intent(FirstActivity.this, SecondActivity.class);

startActivityForResult(intent);

Answer: It launches the SecondActivity and sends back the result to the FirstActivity when the SecondActivity is finished.

1. Version 1: Write the code to log *information* about the value of variable *x.*

Version 2: Write the code to log an *error* about the value of variable *x.*

Version 3: Write the code to log a *warning* about the value of variable *x.*

*Answer:* Log.i(“MyActivity”, "value of variable=" + x);

1. Write the code to create a Toast that displays “*This is not a bug, but a feature!*”. The duration of the Toast is *Toast.LENGTH\_SHORT*.

Complete the code below:

Context context = getApplicationContext();

CharSequence text = “This is not a bug, but a feature!”;

int duration = Toast.LENGTH\_SHORT;

Toast toast = Toast.makeText(context, text,duration);

Toast.show();

1. Complete the code of the following AsyncTask class. What you have to complete is introduced by \_\_\_\_.

**Write your answers DIRECTLY in the code**.

public class DownloadFilesTask extends AsyncTask<URL, Integer, Long> {

protected Integer doInBackground(String... urls) {  
         int count = urls.length;  
         long totalSize = 0;  
         for (int i = 0; i < count; i++) {  
             totalSize += Downloader.downloadFile(urls[i]);  
             publishProgress((int) ((i / (float) count) \* 100));  
             // Escape early if cancel() is called  
             if (isCancelled()) break;  
         }  
         return totalSize;  
     }  
  
     protected void onProgressUpdate(Void... progress) {  
         setProgressPercent(progress[0]);  
     }  
  
     protected void onPostExecute(Integer result) {  
         showDialog("Downloaded " + result + " bytes");  
     }  
 }

How do you execute a DownloadFilesTask t?

DownloadFilesTask t = new DownloadFilesTask();

t.execute(“File Path”);

1. What is the name of the build system that is used in Android Studio?

Answer: Gradle

1. What is Jetpack?

Answer: Jetpack is a suite of libraries, tools, and guidance to help developers write high-quality apps easier.

1. Explain what is/are the difference/s between *ConstraintLayout and RelativeLayout*?

Answer: ConstraintLayout is more flexible than RelativeLayout as it supports drag and drop option in the Android Studio Layout Editor.