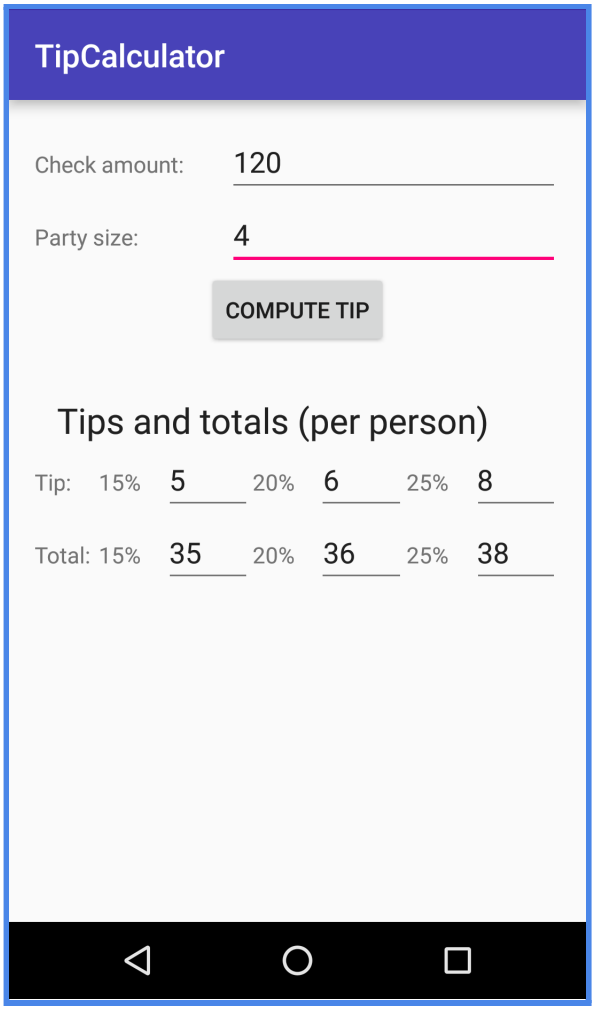
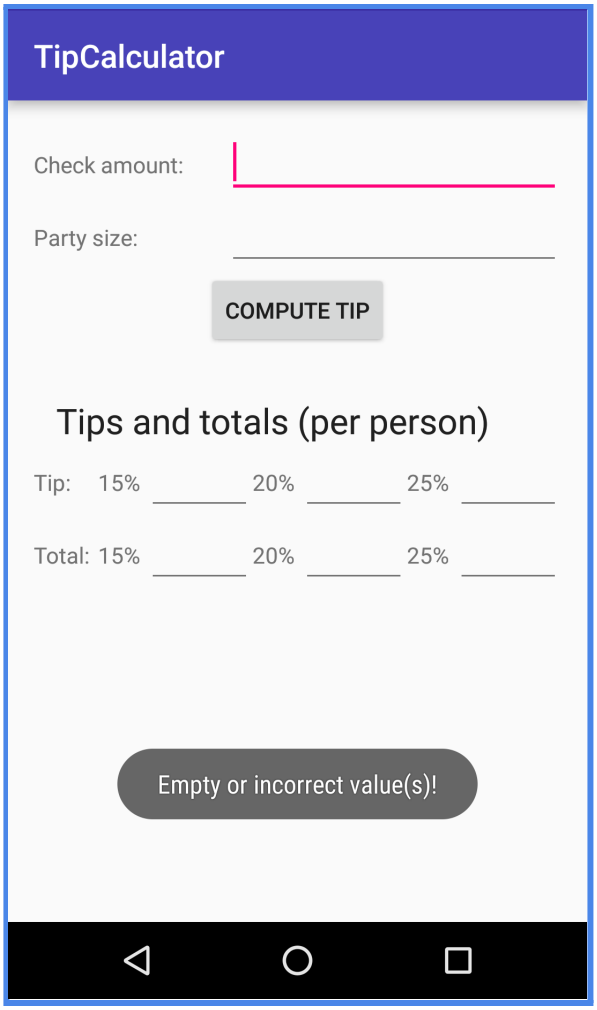
Assignment 4: Android Development

In this assignment you will build a simple Android app similar in spirit to the one shown at the end of the class for the Android lesson. The app you must build is a simple tip calculator that:

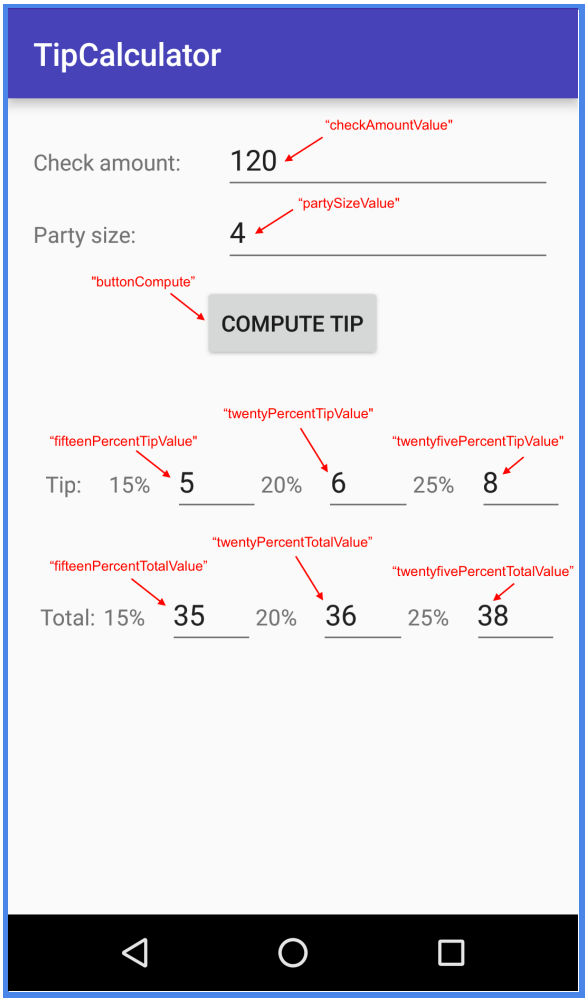
1. Takes as input the amount of the check and the number of people splitting the check.
2. Produces as output both the amount of tip and the total amount each person should pay for a 15%, 20%, and 25% tip. Output values must be computed assuming that the check is split evenly and must be **rounded to the nearest integer**.
3. Visualizes an error using a Toast in case empty or invalid (e.g., negative) values are provided as input. (You can also accomplish this in other ways, for example, not allowing negatives to be entered)

Two screenshots for the app are shown here:





Please try to keep your UI similar to the one shown. Even if your UI is different, **please make sure to use the identifiers shown in the next figure for the key widgets in the UI**. This is very important, as we will use these identifiers to automatically test your app. The identifiers are also listed next to the figure for your (copy-and-paste) convenience.



Identifiers:

- `"checkAmountValue"`
- `"partySizeValue"`
- `"buttonCompute"`
- `"fifteenPercentTipValue"`
- `"twentyPercentTipValue"`
- `"twentyfivePercentTipValue"`
- `"fifteenPercentTotalValue"`
- `"twentyPercentTotalValue"`
- `"twentyfivePercentTotalValue"`

For example, in the XML layout file for your app, the entry for the text field used to input the check amount should have the following ID: `android:id="@+id/checkAmountValue"`. For another example, the entry for the button used to trigger the computation of tips and totals should have the following ID: `android:id="@+id/buttonCompute”`.

To complete the assignment you must perform the following tasks:

1. In the root of **your individual GitHub repository**, create a directory called `Assignment4`. Hereafter, we will refer to this directory in your local repo as `<dir>`.
2. Create an Android app project called “TipCalculator” in `<dir>`. This should results in having a directory `TipCalculator` under `<dir>`.

3. Create a single activity, called `TipCalculatorActivity`, that includes the functionality of the app and is part of package `edu.qc.seclass.tipcalculator`. If you define additional classes, they should also be part of that same package.
4. Define the IDs for the key widgets in the app as described above.
5. Provide a `manual.md` file (in MD format) that describes how to use the app. Put the file in `<dir>`. Think of this file as a (very concise) user manual.
6. Include ALL the files necessary to run your app from within Android Studio. We strongly recommend that you download your own solution from GitHub, import it, and run it either on your machine from a different directory or on a different machine, so as to ensure that you have included all the required files.
7. As usual, submit your solution by
    - Pushing your code to the remote GitHub repository.
    - Submitting the commit ID for your submission on Blackboard. (You can get your commit ID by running "git log -1" and copying the hexadecimal ID it produces.)

Notes:

1. The minimum target for your Android app should be API Level 21.
2. Also in this case, you can perform multiple commits and work on multiple branches as you produce your solution. This is not only fine, but actually encouraged. Just make sure that your final solution is committed to the `master` branch.
3. Feel free to **take inspiration** from online resources when developing your app. However, be careful not to copy and paste entire pieces of functionality. The tool we use to identify cases of plagiarism is likely to have access to the same online resources that are available to you.