Assignment 1

The goal of the assignment is to create a Minesweeper game. During the development you can practice the following techniques in Android:

- Java programming
- Activity creation
- Creating XML UI
- Drawing on Custom views
- Applying basic View components

Deadline: 20th of September 23:59

Assignment Details

The task is to implement a basic Minesweeper game. You can read about the game on this site: http://en.wikipedia.org/wiki/Minesweeper_(video_game)

You can apply the following limitations in your game:

- 5X5 game area is enough
- 3 mines are enough
- On the UI you can have a ToggleButton (other solutions e.g. two buttons are also welcome) to determine what happens when you click on a field on the table:
  - Place a flag
  - "Try" a field
- If you click on a field in the "Try a field" mode than:
  - If you hit a mine, the game ends.
  - If you did not hit a mine, a number appears on that field indicating how many mines are nearby.
- If you click on a field in the "Place a flag" mode than:
  - If you flagged a field but there is no mine, the game ends.
  - If you flagged a field and there are no more mines, the game end and the player wins!
- You can display messages to users with Toasts or **Snackbars** (preferred)!

You can try out the game here, placing flags work with right click (here you have more flags than mines):
http://minesweeperonline.com/
If you want, you can implement different game logic in the Minesweeper, the focus here is on having a working game that handles user interactions and displays the game field properly.

Tips and Advises

- One Activity is enough in this game.
- The architecture can be the same as in the TicTacToe game.
- You can draw texts and numbers on the custom view with the *drawString(…)* function of the *Canvas*.
- For setting the proper text size check these methods and topics:
  - paint.setTextSize(…)
  - paint.getBounds(…)
  - http://stackoverflow.com/questions/7549182/android-paint-measuretext-vs-gettextbounds

- A basic design like what we had in the TicTacToe is enough, e.g. a flag can be a circle and a mine can be a star or cross.
- For special UI solutions (**optional/extra**) you can use one of these libraries:
    - https://github.com/wasabeef/awesome-android-ui

Grading

The maximum is 10 points for a version which meets the requirements listed in the Assignment Details section. If your app crashes during testing or misses out some features, you will get reduced points.
Late submissions will get a point reduction: 1 point after each full day past due date. (Please submit it by email.)

Apps with added features, nice UI or elegant implementation details may be awarded with extra points.

Submitting the Assignment

Compress the whole Android Studio project folder in a single zip.
(You can reduce the size of the zip if you delete the *ProjectName**build* folder from the zip before upload, as there is limit for size and timeout also. **But** the *ProjectName**app**build* folder is required, as it contains the apk file.)

Upload it to the https://www.aut.bme.hu/Members/MyResults.aspx page of the course until the due date for Assignment 1.

If you have any questions regarding the assignment, the submission, etc. write me an email.