**OOP in Java**

**Project:**

**Due date:** as indicated on Moodle

***Must work either in pairs or in groups of 2***

**Objectives:**

* Use OOD and OOP
* Use inheritance and polymorphism
* Be an expert in playing the “**enhanced**” minesweeper ☺

**Instructions:**

1. Create a Minesweeper game. For more info about the game, please visit: <http://en.wikipedia.org/wiki/Minesweeper_(video_game)>

**Special requirements:**

1. You need to add the concept of having more than one mine under a single square
2. You need to add the concept of lives to the game. The player starts with three lives. Every time he/she steps on a mine (or a group of mines under one square) a life is lost.
3. You need to add the concept of rewards. While the player clears the field, he/she may also discover a treasure. Be creative in adding different types of treasures. The minimum set is the following:
   1. A **shield** 🡪 protects the player against three mines
   2. A **probe** 🡪 can be used to discover a mine (or a group of mines under one square). Can only be used once.
   3. Being **immortal** 🡪 should be very rare to find. Once the player has it, the player get an infinite amount of lives.
   4. **Bonus** score 🡪 some bonus score is added to the current score of the player
4. Should keep a list of the top 10 scores. The way to calculate the score is left up to you to decide. The minimum requirement is the way it is calculated in Windows.
5. Should be able to save the state of the game at any point of time and load it again.
6. Once the player runs out of lives, the game terminates and all mines and rewards are revealed.
7. GUI interface is required; will talk about it in class soon. For now, you can start with the logic and the underlying data structure.
8. The code MUST be divided into classes following the OOD guidelines and principles discussed in class.
9. Project name, control names, variable names must all be meaningful.
10. Internal documentation is a must.
11. Once you are done, you need to **zip the whole folder of the project** and upload it to Moodle; ONLY one submission per group.
12. The group has to demonstrate their project in the lab; no credit will be given without the presentation.

**Have fun ☺**