 [Department of Computer Science](http://www.cs.umd.edu/)

[CMSC132: Fall 2017](http://cs.umd.edu/class/fall2017/cmsc132/)

**Project:** Clear Cell Game

**Due Date:** Mon Sep 25 / Thu Sep 28, 8:00 pm

**Assignment Type:** Closed

## Overview

For this project you will implement code for a game named **clear cell game**. The game's goal is to maximize the number of cleared cells in a colored board.

We will provide the graphical user interface (GUI) and you need to develop the code that implements the rules of the game. A video illustrating the collapse game can be found at [Game Video](http://docs.google.com/video/Video.html). Keep in mind that you can finish this project without ever playing the game through the GUI. Also, keep in mind that you should not debug your code using the GUI (student tests are preferable).

**There are two deadlines associated with the project. Those deadlines are:**

**Mon Sep 25, 8:00 PM**

Your code must pass the first two public tests. That is the only requirement for this deadline. We will not grade the code for style. This first part is worth .5% of your course grade (NOT .5% of this project grade). Notice you can still submit late for this part.

**Thu Sep 28, 8:00 PM**

Final deadline for the project. Notice you can still submit late (as usual).

**We want to remind you of the academic integrity rules associated with the course as a project similar to this one has been done in the past. Implement your own code and if you are having difficulties with the project, see us during office hours.**

## Objectives

This project will allow you practice two-dimensional arrays, abstract classes, and test development.

## Grading

* (20%) Public Tests
* (30%) Release Tests
* **(40%) Secret Tests**
* (10%) Style

## Clarifications

## Code Distribution

The project's code distribution is available by checking out the project named ClearCellGame. The code distribution provides you with the following:

* **gui package**  → Represents the graphical user interface for the game. Executing the main method of this class will allow you to play the game.
* **model package**  → Includes the classes you need to implement.
* **tests package**  → Includes the public test model.
* **Text files**  → Represent the expected output for public tests.

## Specifications

You are expected to implement methods for the Game and ClearCellGame classes. The other classes have been provided and you should not modify them. You should familiarize yourself with the BoardCell class. The javadoc describing what you must implement can be found at [Project Javadoc](http://docs.google.com/doc/index.html).

Notice you are not required to write student tests for credit, however, if you need assistance during office hours you need to bring student tests that illustrates the problem you are experiencing. Also, keep in mind the percentage associated with secret tests is high, so you need to test your project thoroughly.

## Requirements

* Clearing one cell represents one point.
* **Notice that when a cell is clicked, one or more rows might be cleared as a result. Your program must collapsed all those rows.**
* While checking the cells surrounding a particular one, do not use out of bounds exceptions to implement the expected processing. You should verify whether a particular cell access is legal or not before attempting such access.
* Additional information about the game clearing rules can be found at [clearing rules](http://docs.google.com/ClearingRules.html). If you have any doubts about the clearing rules, please see us during office hours or in lecture.
* You may not use ArrayList for this project.
* You may not add any classes, but feel free to add any instance variables and private methods you understand are necessary.
* You will not be graded in terms of code coverage information provided by the submit server, although having a high code coverage is highly recommended (and encouraged).
* **IMPORTANT** → If you have a problem with your code and need assistance during office hours, you need to have a student test(s) that illustrates the problem you are experiencing.
* See [StudentTests.html](http://www.cs.umd.edu/class/fall2017/cmsc132/content/resources/StudentTests.html) for information regarding the implementation of student tests for this project.
* See [Style Guidelines](http://www.cs.umd.edu/class/fall2017/cmsc132/content/resources/StyleGuidelines.html) for information regarding style.
* We cannot provide any information regarding release nor secret tests. Once your project has been graded, you can see a TA if you would like to find out why you failed a release or secret test.
* The Random object parameter of the ClearCellGame constructor is a reference you will store as an instance variable of the ClearCellGame class. This object will be used while calling the getNonEmptyRandomBoardCell method of the BoardCell class. This is the only use you will have for this object (do not use it for anything else).

## Honor's Section Requirement

The following requirement is for students enrolled in the honor's section.

Add a new strategy (use number 2 for the ClearCellGame constructor) that clears cells in two steps. When a cell is clicked the first time, it will be cleared if it is green. If the cell has a color other than green, the first click will set it to green, and a second click will clear it.

## Suggestions on How To Start the Project

* Study the public tests before starting implementing your project.
* Notice that you can implement this project without using the GUI at all.

## Submission

Submit your project using the "Submit Project" option (available by right clicking on the project folder).

## Academic Integrity

Please make sure you read the academic integrity section of the syllabus so you understand what is permissible in our programming projects. We want to remind you that we check your project against other students' projects and any case of academic dishonesty will be referred to the [Office of Student Conduct](http://www.jpo.umd.edu/).