

Gebze Institute of Technology
Department of Computer Engineering
CSE 241/501
Object Oriented Programming
Fall 2014
Homework # 4
Due date Nov 17th 2015

In this homework, you will write your game of reversi program in C++ using object oriented techniques.

First, write a class named **Cell** to represent a reversi cell. The class **Cell** will hold the X and Y positions of the cell (a char and an int values). This class will also include all necessary setters/getters, constructors etc. Remember a cell can be empty, user or computer

Next, write a class named **Reversi** to represent and play the game. The class **Reversi** will hold a vector of vector of **Cell** objects to represent the living cells. In other words, this class will have **vector< vector<Cell> > gameCells;** in its private section.

The class **Reversi** will also have the following features and functions

- There is no limit for the board. Your game will resize according to the parameter for the constructor.
- There should be at least 3 constructors.
- The class will have functions to read and write from files. You will decide on the file format.
- The class will have functions to return the current width and height of the board
- The class will have a function that displays the current board on the screen
- The class will have two functions named play that plays the game for a single time step. First function does not take a parameter and it plays the computer. The second function takes a cell position and it plays the user.
- The class should have a function that returns if the game ended.
- The class should have a function named playGame. This function plays the game by asking the user the board size first then asks the user to play and the computer plays, etc.
- The class will have a static function that returns the number of living cells in all the games. Be careful here because there could be more than one game active at the same time.
- The class will have a function that takes another object **Reversi** as parameter and compares the reversi games. It returns true if the first game is better for the user, otherwise it returns false.
- Any other functions (public or private) needed.

Write your main function to test both classes. Make at least 5 objects of class **Reversi** and play the games at the same time.

You will use all the object oriented techniques that we learned in the class including **const**, **static**, **inline** keywords.

Notes:

- Do not use any C++ features that we did not learn during the lectures.