Software Methods and Tools

Spring 2018

Assignment 3
Due on 11:59PM, Monday, February 19, 2018

1. (50 points) Create a sequence diagram for the Tetris video game. The diagram depicts the scenario of moving a falling piece in each clock cycle (e.g. clock tick). It must include the instance of the following classes and their interactions: *Clock*, *GameBoard*, *InformationPanel*, and *GameControl*. Feel free to add more objects if you think it is necessary.

Hint: This sequence diagram is essential as the Tetris game play can be seen as a repetition of the logic that it defines. It involves a number of specific activities, such as moving the piece down to the next row of the playing field (if possible), retrieving the current game status (e.g. position of the falling piece), landing the piece (e.g. if the bottom of the playing field is reached), and checking to see if game is over. You need to figure out all the involved activities and how they should be organized (e.g. the occurrence condition and order). At the end you should represent them as interactions between participating instances of the sequence digram.

2. (30 points) Create a state diagram for the *GameControl* class. It must include at least three states: *GameOver*, *GamePaused*, and *NewGame*. For each state, include state name and activity when applicable. For each transition, include event, guard, and activity when applicable.

Add the screenshots of your sequence diagram and state diagram in a pdf document. Briefly describe the design of each diagram in your document. Please make sure that the included pictures are clear to read.