

## Homework Assignment #4

**Assigned Date:** March 13, 2014

**Due Date:** submit a compressed (zip) file of the assignment's project folder, including its files and subfolders, via Blackboard by 11:59pm on April 3, 2014. There will be a penalty of 20 points per day for turning in the assignment after the due date. I will not accept your submission after April 5, 2014.

### Problem Statement

Read Chapter 8 (SpotOn Game App) and test run the app. As spots appear on the screen, quickly tap them with a mouse (or finger if you run it on an Android device). Try not to allow any spot to complete its animation, as you will lose one of your remaining "lives". The game ends when you do not have any remaining "live" and a spot completes its animation without you touching it. Trace the app's code and understand how the app works. For this assignment, inspired by the SpotOn Game app, you are to create a LearnToCount Game app intended for children who want to learn how to count numbers from 1 to 30 in ascending order. The general requirements for this app are as follows:

1. Similar to the graphical user interface of the SpotOn Game app, the graphical user interface for this LearnToCount Game app is as follows:
  - a. Instead of displaying a bug for each spot, the LearnToCount Game app displays a number for each spot. For example, for Level 1, display numbered spots from 1 to 10.
  - b. Similar to the SpotOn game, in the LearnToCount game, each of those spots randomly moves on the screen and it gets smaller over time.
  - c. Instead of displaying High Score and Score, the LearnToCount display the Remaining Time (in seconds) that the current level will end and the Total Elapsed Time for the current play. Similar to the SpotOn game, the LearnToCount game displays the current Level.
  - d. Unlike the SpotOn game, the LearnToCount game does not need any remaining lives.
2. Considering that the intended users of this app are children who want to learn how to count numbers in ascending order, the rules of the LearnToCount game app are as follows:
  - a. Each play consists of four levels.
    - i. Level 1, which displays numbered spots from 1 to 10, is allotted 60 seconds to complete.
    - ii. Level 2, which displays numbered spots from 11 to 20, is allotted 55 seconds to complete.
    - iii. Level 3, which displays numbered spots from 21 to 30, is allotted 50 seconds to complete.
    - iv. Level 4, which *randomly* displays ten numbered spots between 1 and 30, is allotted 45 seconds to complete.
  - b. The remaining time label counts down the remaining time for each level. When the remaining time hits zero, the game ends.
  - c. To play the LearnToCount game, in every level, the player taps on the numbered spots in *ascending* order.
  - d. If the player correctly taps the lowest number, the app removes it from the screen and plays a sound that speaks out that lowest number. If the player incorrectly taps a number that is not the current lowest number on the screen, the app keeps that number of the screen and plays a sound that speaks out "uh oh".
  - e. If there is no more numbered spot on the screen and the remaining time has not reached zero, increase the level number and reset the remaining time to the allotted time for this higher level. The player continues playing this higher level.
  - f. If the current level is Level 4 and the player has removed all numbered spots on the screen before the remaining time reaches zero, the app plays an applause sound and the game ends.