

CBL programming project “2048” Backlog

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Project Description: A game inspired by the online game “2048” in which we’ll implement a 4x4 grid with the goal of the user getting to the highest number possible by combining squares with the same number on them. As

Topics of choice:

- Game design - creating and implementing graphics and animation to the user interface (green)
- Save & Load system - saving progress; the program will remember the different users’ names, attempts and high scores (red)

Backlog items:

Rendering the 4x4 grid.

- Start the application, click the “Start game” button and a 4x4 grid shows up, resize the window, the grid stays square and properly visible.

Applying and rendering randomly generated and randomly placed numbers, so that they don’t overlap upon starting the game.

- Start the application, click the “Start game” button and the same 4x4 grid shows up, however now some of the squares now contain a random number and the numbers are not exceeding the grid lines and are not overlapping as well as have the same properties as the grid.

Coordinating each arrow key press to a move counter and triggering the next move upon the click and after each click the randomly generated numbers shift to the user’s input - up, down, left or right.

- Start the application, click the “Start game” button and after the 4x4 grid and the generated numbers have shown up, the program takes in the user’s input and moves the squares accordingly without exiting the grid.

Applying and rendering randomly generated and randomly placed numbers, so that they don’t overlap after a move.

- Start the application, click the “Start game” button and after the 4x4 grid shows up with some randomly generated numbers, the user can click the arrow buttons and all the numbers in the board will shift to the next free slot according to the user’s imputed direction. After each press, in a randomly picked empty slot a new number appears. This continues until the grid is complete.

Summing the shifted numbers.

- Start the application, click the “Start game” button and after the grid has shown up and the program moves the squares based on the user’s input, it sums up two numbers if they have “bumped” into each other (meaning if a square’s movement goes into another square and they have the same number, the numbers get added and the squares become one without overlapping).

Creating the graphics for the windows, squares and numbers.

- Using a graphic software, we create different graphics for the windows of the game, squares and numbers based on a color code system and similar style.

Creating the animations for the movement of the squares.

- Using Java Swing, we will create smooth movement for the squares after each move and an animation for when the squares combine in a similar style for user experience and convenience.

Creating a username based login system.

- Start the application, and a new window pops up with it asking you to input your username. After inputting it, it renders the 4x4 grid with the “Start game” button and the user’s username is shown on the top left corner.

Implementing a “Log out” button.

- Start the application, and a new window pops up with it asking you to input your username. After inputting it, it renders the 4x4 grid with the “Start game” button and the user’s username is shown on the top left corner and additionally there is now a “Log out” button, which after clicking on it, directs the user to the start screen.

Keeping track of the username and the sum of all of the squares on the board.

- Start the application, and a new window pops up with it asking you to input your username. After inputting it, it renders the 4x4 grid with the “Start game” button and the user’s username is shown on the top left corner and additionally there is now also a “Highscore - ” and the score of the user’s best game - the sum of all of the numbers on the grid after the game. After each additional game it should check if the latest game’s score was bigger than the highscore and if so, after the game it should update this number with the new highscore.

Displaying the high scores once you put in your username.

- Start the application and input your username into the system. After that click on the option of viewing all your stored scores. After playing the game and making a new high score, the program remembers it and it is visible in the window with personal high scores.