

Example Requirements Document

2048 Requirements Document

Overview: 2048 is a one player game in which the goal is to generate the highest possible score by moving and combining tiles on a board. The user moves tiles in one of four directions each turn and depending upon various factors some of the tiles may (or may not) combine with one another. Each tile has a number value and when two tiles combine they create a new tile with the combined value of the previous two. The user wins the game by combining two 1024 tiles to create a 2048 tile (though the user can continue playing beyond this point if (s)he wishes to).

Requirements:

1. General Game Characteristics

1.1 The board shall be a 4x4 grid of squares.

1.2 At any point in the game, a given square shall be either empty or occupied by a tile.

1.3 No square shall be occupied by two tiles simultaneously.

1.4 When the user starts a new game, the board shall be empty except for two randomly selected squares that shall be occupied by tiles.

1.4.1 The starting number tiles placed onto the board shall each have a 10% chance of having a face value of 4 and a 90% chance of having a face value of 2.

1.5 The game shall consist of a sequence of turns taken by a single user. These turns shall proceed one after the other until the game is finished.

2. Nature of a Turn

2.1 The user shall be able to choose a direction (unless the game is over, see section 3). The tiles shall then move, combine (if applicable), and continue moving (if applicable). A new tile shall then be added to the board.

2.2 Moving

2.2.1 The user shall be able to select one of four directions: up, down, left, or right.

2.2.1.1 If the user chooses 'right', the tiles shall move to the right in their respective rows.

2.2.1.2 If the user chooses 'left', the tiles shall move to the left in their respective rows.

2.2.1.3 If the user chooses 'up', the tiles shall move up in their respective columns.

2.2.1.4 If the user chooses 'down', the tiles shall move down in their respective columns.

2.2.2 All tiles shall move within their current row and/or column until they reach the end of the board.

2.2.3 All tiles shall move within their current row and/or column until there are no spaces between themselves and other tiles in the same column or row.

2.2.4 If a tile is located at the edge of the board prior to the selection of the direction of the move it shall not move.

2.3 Combining Tiles

2.3.1 Basic Description of Combining

2.3.1.1 An individual combination consists of exactly two tiles being removed from the board and one new tile being added to the board.

2.3.1.2 On each turn, every combination that satisfies all of the requirements below shall be carried out and no combinations shall be carried out beyond those.

2.3.2 Requirements for combination

2.3.2.1 Two tiles shall be combined only if they have the same face value.

2.3.2.2 On a turn in which the user moved tiles left or right, two tiles shall be combined only if they are horizontally adjacent to one another.

2.3.2.3 On a turn in which the user moved tiles up or down, two tiles shall be combined only if they are vertically adjacent to one another.

2.3.2.4 If a tile is added to the board as the result of a combination then it shall not itself be combined with another tile on the same turn it is added to the board.

2.3.2.5 If a tile could otherwise combine with two different tiles, it shall combine with the tile further toward the side of the board (up, down, left, or right) toward which the user moved the tiles this turn.

2.3.3 Effects of a combination

2.3.3.1 When two tiles are combined they shall be removed from the board.

2.3.3.2 A new tile shall be added to the board. It shall occupy whichever of the two squares just vacated by the combined tiles is further in the direction toward which the user moved the tiles this turn.

2.3.3.3 The new tile shall have face value equal to the sum of the face values of the two tiles that were combined.

2.3.3.4 The user's score shall increase by the face value of the new tile. This shall happen for each new tile added in a given turn.

2.3.4 When the tiles have finished combining, they shall continue moving (if possible) in the same manner described above in section 2.2 and in the same direction that they moved earlier this turn.

2.4 Adding Tiles

2.4.1 After tiles have been moved and combined, one new tile shall be added to the board.

2.4.2 One square shall be selected at random from among the empty squares on the board and the new tile shall occupy this square.

2.4.3 The new tile shall have face value 2 or 4. There shall be a 90% chance of a new tile having face value 2 and a 10% chance of it having face value 4.

3 Game End Criteria

3.1 When the user has no possible direction to move, (i.e. every square on the board contains a number tile and there are no possible combinations on the board) this shall cause the game to be over and the user's score shall be saved.

3.2 The user shall be able to start a new game at any time. This will end the current game.

4 Winning the Game

4.1 If the user creates a tile with face value 2048 by combination then (s)he shall be informed that (s)he has won the game.

4.2 The user shall be able to continue play even after having won the game, so long as the conditions for the game ending (outlined in section 3) are not met.