TEST REPORT

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Description of the testing conducted and results for the modules in the Connect 4 game interface.

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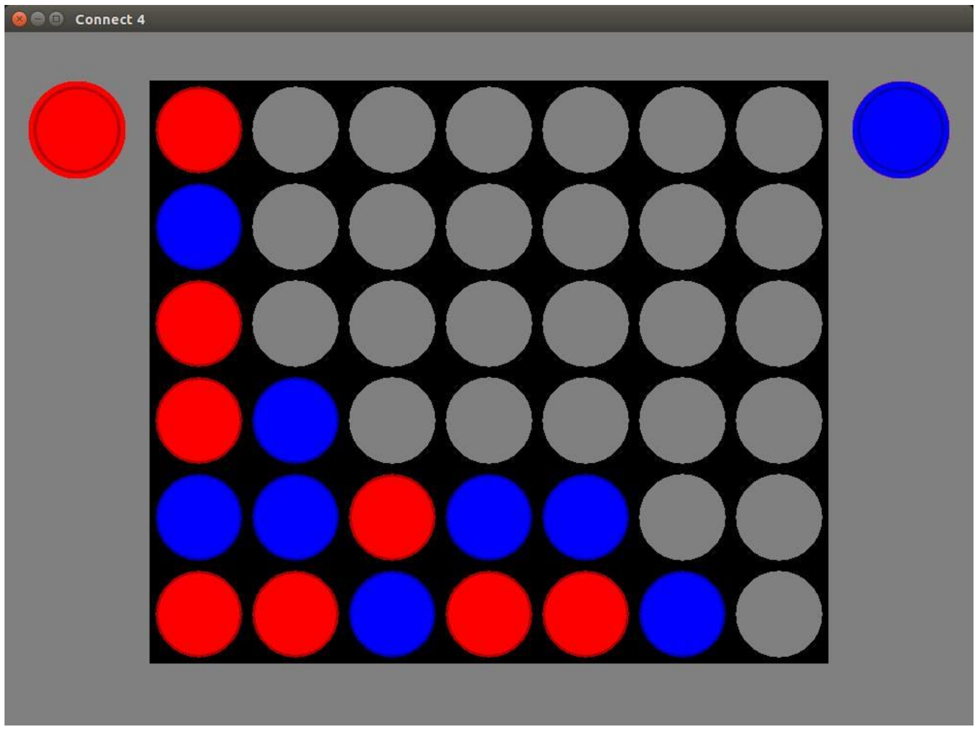
Notes:

(i) To avoid repetition throughout this report, whenever the symbol, b, is seen as input for a function, it refers to a valid state of an object of type Board as depicted by the following image :



(ii) Any input with the format < *action* > implies the import is some action performed on client side, such as mouse clicks, and opening/closing a program.

1. board.h

1.1 board_create() : Board

Input: none
Expected Output: A new board object that is empty

1.2 board_destroy(Board b) : Board

Input: A board object

Expected Output: The input board object should be freed from memory, nothing should be returned

1.3 board_checkCell(Board b, int row, int col) : Token

Input: b, 1, 1
Expected Output: BLUE

Input: b, 1, 6
Expected Output: EMPTY

Input: b, 0, 0
Expected Output: RED

1.4 board_dropToken(Board b, Token token, int col) : int

Input: b, RED, 3

Expected Output: 0 (successful token drop)

Input: b, BLUE, 0

Expected Output: -1 (column is full, cannot drop token)

1.5 board_dropPosition(Board b, int col) : int

Input: b, 5
Expected Output: 1

Input: b, 1
Expected Output: 3

Input: b, 0
Expected Output: -1 (full column, so row is out of bounds)

1.6 board_empty(Board b) : void

Input: b
Expected Output: An empty board, with no tokens in play

2. gameLogic.h

2.1 handleMainMenuMouseClick(int x, int y) : MenuState

Input: 450, 580
Expected Output: Open the Setup game mode

Input: 480, 750
Expected Output: Closes the game window

Input: 251, 30
Expected Output: Nothing, remain in the Main Menu

2.2 checkBoardStatus(Board b) : BoardStatus

Input: b
Expected Output: IN_PROGRESS

Input: b (where red token has 4 in a row in the setup mode)
Expected Output: INVALID_BOARD

Input: b (where red token has 4 in a row in 1 player mode)
Expected Output: RED_WON

3. gaphics.h

3.1 init() : bool

Input: < starting the program >
Expected Output: true

Input: < starting the program

Expected Output: false (if error(s) occurred when starting the program such as: incorrect installation of SDL, and invalid window creation.)

3.2 loadMedia() : bool

Input: < starting the program >
Expected Output: true (all media file successfully found in given path)

Input: < starting the program >
Expected Output: false (one or more media files failed to load)

3.3 close_sdl() : void

Input: **<** Closing the game >
Expected Output: Sets all loaded media to NULL and program window closes

3.4 dropToken(Board b, Token tokenColour, int col) : bool

Input: b, RED, 3
` **Expected Output:** true

Input: b, BLUE, 0
Expected Output: false (column already full)

3.5 deleteStillToken(FallingToken *fallingToken) : void

Input: fallingToken->isFalling == true
Expected Output: Change noting

Input: fallingToken->isFalling == false
Expected Output: Removes the token from the structure

3.6 drawFallingToken(FallingToken *fallingToken) : void

Input: fallingToken->token == RED
Expected Output: Render (display) a red token in the appropriate column and row

3.7 transitionSetupRender() : void

Input: < Staring the setup mode gameplay >
Expected Output: All media required for the setup game mode is rendered onto the screen

3.8 updateFallingToken(FallingToken *fallingToken, float dt) : void

Input: fallingToken with the following properties:
fallingToken->isFalling == true
fallingToken->y == a
fallingToken->v == b
dt == c
Expected Output: using the values a, b, and c, calculate the new velocity and height of the falling token.

3.9 displayBoard(void) : void

Input: < start any game mode >
Expected Output: The game board is rendered on the screen

3.10 displaySetupTokens(void) : void

Input: < Starting setup game mode >
Expected Output: Renders any setup tokens needed in the setup game board

3.11 displayMainMenu(void) : void

Input: <Starting program or returning to the main menu from another screen >
Expected Output: The main menu is displayed

3.12 mainMenuRender() : void

Input: <Starting program or returning to the main menu from another screen >
Expected Output: Renders images of the main menu

3.13 highlightToken(int row, int col) : void

Input: 2,1
Expected Output: Token located in row 3, column 1 is highlighted

4. linkedList.h

4.1 Template <T> class List

This list is responsible for keeping track of all moving tokens in the game
To simplify testing we will assume the list is represented as:
{ obj0, obj1, obj2, obj3 }

4.1.1 addToList(T *newitem, List<T> *list) : List<T> *

Input: BLUE, { RED, RED, BLUE }
Expected Output: { BLUE, RED, RED, BLUE }

4.1.2 deleteFromList(T *toDeleteItem, List<T> *list) : List<T>*

Input: RED, { RED, BLUE, BLUE, RED }
Expected Output: { BLUE, BLUE, RED }

Input: BLUE, { }
Expected Output: NULL

4.1.3 traverseList(void (*f)(T *item), List<T> *list) : void

Input: free(), { BLUE, BLUE, RED }
Expected Output: { } (The list is traversed, and each element is set to NULL)

5. sdl2_connect4.h

5.1 connect4() : int

Input: <Starting the program>	(This is the main function that starts the program)
Expected Output: 0	(When game closes successfully)