**Test case explanation:**

**gameOver:**

* Shows that if the tile bag is empty and placing a tile causes a player’s hand to be empty, then the game will end and display the scores and the winner. If the scores are equal, then the game will call a draw.

**placeTile1:**

* Specifying an invalid tile (improper format, does not exist in the player’s hand) or an invalid position fail.

1. Invalid position fail -> place R5 at F26

2. Doesn’t exist in players hand -> place R6 at E6

3. Improper placing of tile (on top of another tile)-> place O1 at C10

* Placing a tile next to one that shares no similarity fails -> place R5 at L6
* Placing a tile next to an (adjacent) duplicate fails ->place O1 at L6 (checking next to one tile)
* Placing a tile next to one that only shares one type of similarity succeeds (show both colour and shape successes)

1. Similar colour -> place R1 at G6 which is placed in a segment containing Red tiles

2. Similar shape -> place O1 at C11 which is placed next to R1

* Placing a tile in a segment adds one to the score for every tile in the segment (including the tile itself) -> place O6 at M10 depicts this behaviour
* Placing a tile as part of two segments adds to the score for every tile in each segment, plus an extra point for the tile itself (2 in total) -> place R6 at F10
* Creating a qwirkle results in 6 bonus points and "QWIRKLE!!!" being printed to the screen -> place )3 at M11

**placeTile2:**

* Shows that placing a tile next to a segment in which the adjacent tile is valid, but already contains the specified tile, will fail (Y2 at G1). Also shows that placing a tile next to a segment in which the adjacent tile is valid, but the segment’s similarity type is different to the similarity between the specified tile and the adjacent tile, will fail (Y2 at H2).
* Shows that placing a tile between two segments that share a similar tile is invalid (R4 at B3) but placing a tile at the corner of two segments that share a similar tile is fine (R4 at B6). Also shows that placing a tile between two segments that don’t share a similar tile is also fine (Y5 at G4)
* Shows that placing a tile between two segments of different similarity types is invalid (R4 at H6), but placing a tile at the corner of two segments of a different similarity type in fine (R4 at H6)

**loadGame:**

loadGame0: file does not exist

loadGame1: invalid number of players

loadGame2: invalid player name

loadGame3: invalid player score

loadGame4: invalid player hand

loadGame5: invalid player difficulty

loadGame6: invalid board format

loadGame7: invalid tilebag

loadGame8: invalid current player name

loadGame9: valid game

**Test cases yet to be created:**

**runGame:**

* Game end condition
* Stalemate condition

**replaceTile:**

* Attempting to replace a tile that doesn’t exist in the player’s hand will fail
* Attempting to replace a tile that does exist in the player’s hand will succeed
* Attempting to replace a tile while the tile bag is empty will fail

**Everything else:**

* getInput, boardToString and displayGameState are all tested implicitly in other test cases, we will display the fact that newGame and saveGame work on the day.