

Technical Guide

KnowSys Project

Design: In this Scrabble(Trademark of Hasbro) like project, we used five classes: Inventory, Board, Player, TileRack and Tile.

Implementing Tests: In this project, we created tests for every method in every class we created to ensure that all the functionality we have is working well. All of the JUnit tests pass.

Tile Class:

It is the class that has the function to identify the value of the letter. Letter 'Y' is 2 points, 'A, E, I, O, U' is 1 and the rest of them are 5. It assigns values and letters for each tile.

TileRack Class:

This is the class that has all the function for players' tile rack. It uses an ArrayList to keep the tiles. In this class, the remove method removes tiles from the rack and the refill method fills the tile rack again after a move is complete. However, if the inventory size is not enough to refill the tile rack, code to handle those cases has not been implemented.

Board Class:

The Board class uses a double array. This class creates the game board which is a 20 x 20 board. The class has a place method which places the tiles to the board while the remove method does the opposite. The isEmpty method checks to ensure whether a particular place on the board is filled or not. A toroidal board is not implemented.

Inventory Class:

Inventory class uses ArrayList for the tiles. This class creates and holds 400 tiles according to the rules that are used for this game. The collection is then shuffled so that when the TileRack is created, the tiles drawn are random.

Player Class:

It is the class that represent players. Each player has a name, tile rack with tiles. A player also knows the score. The class has methods which allow the player to place tiles on the board. A

separate ArrayList keeps track of the tiles used in a particular move. The tiles are then removed from the TileRack. The moveComplete method then calculates the score and ensures that the TileRack is filled again. The score method only calculates the score by one player and does not incorporate the existing letters on the board that might also play a role in score.