

## Final Project Proposal Scrabble

### Game: Scrabble

- Main class woo.java
  - Protected 15 by 15 2d array arraylist to represent board, with the different multiplicative values displayed at various spots
  - Protected ArrayList<String> 100 pieces
    - 98 marked with letters and have different point values
    - 2 left blank for players to insert whatever letter they want, no point value, used by typing in the keyword "blank" when inserting letters
- 2-4 players, each an instance of subclass player
  - int points
  - ArrayList<String>(7) to contain pieces currently in possession
- Words are read left to right or top to bottom

### Rules:

- Each player starts with 7 pieces (contained in an ArrayList)
- Whenever a player creates a word, they receive however many pieces they used from the stock of 100 until there is none left
- The game ends once all pieces have been used or every single player skipped their turn consecutively
- The winner is the player with the most points

### Implementation

- Insert word by picking a spot to begin inserting letters (First player will have to insert a piece in the center of the board)
- User will have the option to state orientation of word (i.e from right to left or up and down) before continuing to build their word
- Insert letters one by one (by array coordination), once finished, type keyword "done"
  - As each letter is input, check the spaces around it (left and right if word is being build from up to down and vice versa) to ensure no invalid words are created on the sides while also keeping track of the points of each input along with the multipliers.
  - Should any side words be deemed invalid, the entire word is discarded
- Complete whole word by building it backwards from the last input
- Check validity of word with an implemented dictionary
  - Dictionary will be implemented with classes BufferedReader, FileReader, IOException, and Keyboard.java
  - Inputted words will be checked with a file of a dictionary

- Should the input be deemed invalid, the other players will be prompted to decide if the word is valid or not
- Points calculated as the word was being input will be added to the player's points if the word is valid by dictionary or the other players
- After word is created, the number of letters used will be replaced randomly from the stock of remaining pieces

Options during game:

- Insert a word
- Skip turn
- Shuffle pieces
  - Returns all the pieces you have to the ArrayList of remaining pieces, shuffles the ArrayList, and then draws the last 7, this takes one turn