

## **Python Project Proposal - Team Scrabble**

### **Members:**

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### **Description:**

For our final project, we will create a board solver that could be used to “assist” one’s game in Scrabble or Words With Friends. It will take in the current state of the board, as well as the letters in your hand, and compute the most valuable move possible.

### **Functional Specifications:**

The program will consist of three parts: The algorithm to consider the state of the board and search for all possible moves, the GUI frontend which will be used by the user to input their chosen moves, their opponent’s moves, and the word management portion, which will attempt to synchronize our initial wordlist with Zynga’s internal wordlist.

### **Packages, Modules, and Important classes:**

We will break the project into four main parts:

- Graphical User Interface – We will create a basic UI representation for the board and the user’s letter-gutter. This will represent the access point for the user.
- Board Class - Will represent the board and support queries against the current state.
- Algorithm - The algorithm will perform two functions: identifying board positions where words can be placed, and performing pattern matching against the current board arrangement and wordlist to search for words.
- Wordlist Management - Words that are not accepted by Words With Friends must be ejected from the wordlist, and unexpected words seen from opponents must be registered. In addition, the wordlist must support queries based on pattern matching.

### **3rd Party Libraries:**

We will be utilizing the PyGame package for the user interface. PyGame developed by the PyGame Community, which is released under the GNU Lesser General Public License.

We will also be using multiprocessing to separate the user interface interaction process from the computation process, for user experience reasons.

### **Project work-flow:**

We will divide the work-flow fairly evenly, with Alex completing the algorithm and word-management classes, while Nate will do the UI and input classes.