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IT D CTI

In this problem set you will implement two versions of the .00 word game.

Don't be intimidated by the length of this problem set. Here is a tip to read, try to do it with reason and motivation, not mindlessly. The idea is to start this problem set and do it as soon as possible.

Let's begin describing the .00 word game. This game is played between two players. Each player is dealt a hand of 7 letters. The players then choose one or more words from their letters. Each valid word receives a score based on the length of the word and the letters in that word.

The rules of the game are as follows:

Dealing

- A player is dealt a hand of n letters chosen randomly from a set of $n=7$ or $n=10$.
- The player rearranges the hand into m words. The words are then scored, since each letter has a point value.
- Some letters may remain unused; these won't be scored.

Scoring

- The score for the hand is the sum of the scores for each word formed.
- The score for a word is the sum of the points for letters in the word multiplied by the length of the word plus 0 points if all n letters are used on the first word formed.
- Letters are scored as follows: `a` is worth 1, `i` is worth 1, `n` is worth 1, `t` is worth 1, `e` is worth 1, and so on. We have defined the dictionary `SCRABBLE_LETTER_VALUES` that maps each lowercase letter to its Scrabble letter value.
- For example, 'weed' would be worth 32 points ($(4 + 1 + 1 + 2)$ for the four letters, then multiply by `len('weed')` to get $(4 + 1 + 1 + 2) * 4 = 32$). Be sure to check that the hand actually has 1 'w', 2 'e's, and 1 'd' before scoring the word.
- As another example, if $n=7$ and one forms the word 'win' on the first try, it would be worth 10 points (the scores for 'w' is 4, 'i' is 1, 'n' is 1, $1 + 1 + 1 + 7 = 10$), in addition to 0 points for using n letters.

Next, we will see how the game is implemented in two versions.

Loading word list from file...

83667 words loaded.

Enter n to deal a new hand, r to replay the last hand, or e to end game: n

Current Hand: p z u t t t o

Enter word, or a "." to indicate that you are finished: tot

"tot" earned 9 points. Total: 9 points

Current Hand: p z u t

Enter word, or a "." to indicate that you are finished: .

Total score: 9 points.

Enter n to deal a new hand, r to replay the last hand, or e to end game: r

Current Hand: p z u t t t o

Enter word, or a "." to indicate that you are finished: top

"top" earned 15 points. Total: 15 points

Current Hand: z u t t

Enter word, or a "." to indicate that you are finished: tu

That is not a valid word. Please choose another word

Current Hand: z u t t

Enter word, or a "." to indicate that you are finished: .

Total score: 15 points.

Enter n to deal a new hand, r to replay the last hand, or e to end game: n

Current Hand: a q w f f i p

Enter word, or a "." to indicate that you are finished: paw

"paw" earned 24 points. Total: 24 points

Current Hand: q f f i

Enter word, or a "." to indicate that you are finished: qi

"qi" earned 22 points. Total: 46 points

Current Hand: f f

Enter word, or a "." to indicate that you are finished: .

Total score: 46 points.

Enter n to deal a new hand, r to replay the last hand, or e to end game: n

Current Hand: a r e t i i n

Enter word, or a "." to indicate that you are finished: inertia
"inertia" earned 99 points. Total: 99 points
Run out of letters. Total score: 99 points.

Enter n to deal a new hand, r to replay the last hand, or e to end game: e

ow s ss o

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