

CS10A

“Text Twist”

Integrating lists, sets, strings, loops, file input and the random and itertools module.

Hints: `list(str)` explodes a string into characters, `"".join(list)` combines letters into a word, `random.choice` picks a random item from a list, `random.shuffle` permutes a list, `text.split("")` splits a text into words.

You’ve seen this game or current crossword variants. You are given a set of 7 letters and have to use the letters to find words between 3 and 7 letters long. If you get stuck, you can “twist” the letters into a new order which might suggest hints.

First you read in a dictionary file as a big string and `split` it into words. You can store the dictionary in a global variable called `WORDS`. You can make up your own dictionary file for testing, the official 3000 word dictionary will be supplied in Latte. You have to put the file in a known directory on your computer which you read from using basic file commands (CH 6).

In your `main` function, you filter `WORDS` for 7 letter words then pick one using `random.choice` as the clue. I stored the clue in exploded form as a list of letters. `main` calls `getallwords(clue)` which calls `getwords(clue, n)` in a for loop with `n` ranging from 3 to 7. `getwords` uses `itertools.permutations(clue, n)` to find all `n`-letter extracts from clue, which must be joined together and tested for membership in `WORDS`. Be careful to remove duplicate words, and sort each list of words alphabetically. For example, `getallwords('wonder')` returns `['end', 'new', 'nod', 'nor', 'now', 'one', 'owe', 'own', 'red', 'row', 'down', 'word', 'owner', 'wonder']` where the 3-letter words are sorted as are the 4-letter words.

Now that you have the clue and the answers you can have `main` call `twist(clue, answers)` which makes up the top-level while loop of the game. The user has to guess which 3-7 letter words can be assembled from the letters in the clue. The loop also allows “q” to quit and “t” to “twist” (`random.shuffle`) the clue.

TWIST uses a sentinel flag for quitting and a SET called `guesses`. It uses a subroutine `printboard(clue, guesses, answers)` which shows the user the progress so far followed by the clue, and asks for input of a word or command. If a word is entered, it is added to the set `guesses`. Here is a printout of a game, where answers IN `guesses` are printed out and answers NOT IN `guesses` are printed as blanks e.g “____” for a 4 letter word.

The while loop should end when all the words have been found, or if the user types “q”.

tsunais
Guess a word, or q for quit or t for twist: sun

sun

tsunais
Guess a word, or q for quit or t for twist: sin

sin

sun

tsunais
Guess a word, or q for quit or t for twist: h

nut
sin

sun

tsunais
Guess a word, or q for quit or t for twist: t

nut
sin

sun

tissuna
Guess a word, or q for quit or t for twist: q
Thanks for playing!