Exercises

Validation Exercises

Has Vowels

Create a function `has_vowel`, that accepts a string and returns `True` if the string contains a vowel (a, e, i, o, or u) returns `False` otherwise.
Your function should work like this:

```
>>> has_vowel("rhythm")
False
>>> has_vowel("exit")
True
```

Hint:
Match objects are always "truthy" and `None` is always "falsey". Truthy meas when you convert something to a boolean, it'll be `True`.

Is Integer

Create a function `is_integer` that accepts a string and returns `True` if the string represents an integer.
By our definition, an integer:

- Consists of 1 or more digits
- May optionally begin with `-`
- Does not contain any other non-digit characters.

Your function should work like this:

```
>>> is_integer("")
False
>>> is_integer(" 5")
False
>>> is_integer("5000")
True
>>> is_integer("-999")
True
>>> is_integer("+999")
False
>>> is_integer("00")
```

```
True
>>> is_integer("0.0")
False
```

Is Fraction

Create a function `is_fraction` that accepts a string and returns `True` if the string represents a fraction.
By our definition a fraction consists of:

1. An optional `-` character
2. Followed by 1 or more digits
3. Followed by a `/`
4. Followed by 1 or more digits, at least one of which is non-zero (the denominator cannot be the number `0`).

Your function should work like this:

```
>>> is_fraction("")
False
>>> is_fraction("5000")
False
>>> is_fraction("-999/1")
True
>>> is_fraction("+999/1")
False
>>> is_fraction("00/1")
True
>>> is_fraction("/5")
False
>>> is_fraction("5/0")
False
>>> is_fraction("5/010")
True
>>> is_fraction("5/105")
True
>>> is_fraction("5 / 1")
False
```

Valid Time

Create a function that returns `True` if given a valid 24 hour time in the format HH:MM.
Example usage:

```
>>> is_valid_time("00:19")
True
>>> is_valid_time("01:37")
True
>>> is_valid_time("10:60")
```

```
False
>>> is_valid_time("23:59")
True
>>> is_valid_time("24:00")
False
```

Search Exercises

Each of these exercises involves searching in a dictionary.
You can download the dictionary.txt file here.
You can open and read from the dictionary file like this:

```
with open('dictionary.txt') as dict_file:
    dictionary = dict_file.read()
```

Tetravocalic

Find all lowercase words (no proper nouns) that include four consecutive vowels.

Hexadecimal Words

Find every word that consists solely of the letters A, B, C, D, E, and F.
Examples: decaf, bead, cab

Hexaconsonantal

Find at least one word with 6 consecutive consonants. For this problem treat `y` as a vowel.

Crossword Helper

Make a function `possible_words` that accepts a partial word with underscores representing missing letters and returns a list of all possible matches.
Use your crossword helper function to solve the following:

1. water tank: CIS____
2. pastry: ___TE
3. temporary: __A_S_E__

Repeat Letter

Find every word with 5 N's.