

# Tweet Analyzer

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## TWEET ANALYZER

This assignment is based on the social network site Twitter. Twitter allows users to read and post messages (called tweets) that are between 1 and 140 characters long (inclusive). In this assignment, you will be writing functions that we imagine are part of the programs that manage Twitter feeds.

Here are some example Twitter messages:

- The @Raptors ballgame through the eyes of a #UofT computer scientist <http://bit.ly/1qiEVR6>
- Attending #uoft @cssu Pi Week Pie a Prof Event
- @UofTHacks don't worry, I'll handle the twitter feeds!

### Some Twitter terminology

**tweet** : A message posted on Twitter that is between 1 and 140 characters long (inclusive).

**hash symbol** : The character #.

**hashtag** : A word or phrase in a tweet that begins with the hash symbol. For example, #uoft and #csc108 are two examples of hashtags. Hashtags are used to label important words or terms in a message.

**username** : The name of a Twitter user. For example, Raptors and cssu. A Twitter username must be between 1 and 14 characters long (inclusive).

**mention** : A tweet that includes a username preceded by the character @. For example, the tweet Meet the @cssu executive! is a mention of the Twitter user cssu.

**reply** : A tweet that is posted in response to another user's tweet. A reply tweet starts by mentioning the other user. For example, the tweet @cssu Where is your office? could be a reply to the Meet the @cssu executive! tweet. In this assignment, a reply is a valid tweet that starts with the @ symbol. For a complete list of Twitter terms, check out the Twitter glossary.

## WHAT TO DO

In the starter code file `tweet.py`, complete the following function definitions. Use the Function Design Recipe that you have been learning in class. We have included the type contracts in the table (see Table 0.1); please read through the starter code to understand how the functions will be used. We will be marking your docstrings in addition to your code.

### No Input or Output!

Your `tweet.py` file should contain the starter code, plus the function definitions specified above. Your `tweet.py` file must not include any calls to function `print` or `input`. Also, do not include any extra code outside of the function definitions.

### Want to earn a good mark? Test your work!

You should carefully verify your code before submitting to determine whether it works: the Test step of the Function Design Recipe is particularly important for assignments. Once the deadline has passed, we will run our own set of tests on your submission. To test your work, you should call on each function with a variety of different arguments and check that the function returns the correct value in each case. This can be done in the shell or using another `.py` file, but must not be done in `tweet.py`.

### Type checks

We are providing a type-check module that can be used to test whether your functions have the correct parameter and return types. To use the type checks, place `a1_type_checker.py` in the same directory as your `tweet.py` and run it.

If the type-check module reports The type checker passed: Your function parameters and return types match the assignment specification. This does not mean that your code works correctly in all situations. We will do a thorough job of testing your code once you hand it in, so be sure to thoroughly test your code yourself before submitting. Otherwise: Look carefully at the message provided by the type-check module. One or more of your parameter or return types does not match the assignment specifica-

<b>Function name: (Parameter types) -&gt;Return type</b>	<b>Description</b>
is_valid_tweet: (str) ->bool	The parameter represents a potential tweet. Return True if and only if the potential tweet is no less than 1 and no more than 140 characters long.
contains_hash_symbol: (str) ->bool	The parameter represents a valid tweet. Return True if and only if the tweet contains a hash symbol.
is_mentioned: (str, str) ->bool	The first parameter represents a valid tweet and the second represents a valid username (not preceded by @). Return True if and only if the tweet mentions that username preceded by @. Note: if a tweet contains @dancing, then we would consider username dan to be mentioned.
report_shortest: (str, str) ->str	The two parameters represent valid tweets. This function must return one of three strings: 'Tweet 1', 'Tweet 2', or 'Same length' spelled and capitalized exactly as specified here. Return 'Tweet 1' if the first tweet is shorter than the second, 'Tweet 2' if the second tweet is shorter than the first, and 'Same length' if the tweets have the same length.
is_reply:(str) ->bool	The parameter represents a valid tweet. Return True if and only if this tweet is a reply.
format_reply_to: (str, str) ->str	The first parameter represents a valid username or a valid username preceded by @, and the second parameter represents a valid tweet. Prepare a reply tweet to the given username. The reply should consist of a mention of that username followed by a space and the given tweet. If the reply tweet is at most 140 characters long, return it. Otherwise, return a string that indicates how many extra characters there are in the invalid reply tweet. For example, if the reply tweet was 143 characters long, the string '3 characters too long' would be returned. The "too long" return string must be a single string that contains the number of extra characters followed by the string ' characters too long'

Table 0.1: Function descriptions

tion. Fix your code and re-run the type-check module tests. Make sure the type-check module tests pass before submitting your solution.