Your submission for this assignment ***must include your full name*** *(as it appears on cuLearn) and you nine-digit* ***student number as a comment*** *at the top of* ***every source file you submit****.*

Your submission for this assignment must be a ***single source file*** *with a* ***file name of either 'comp1405_f19_#########_a5.py' or 'comp1005_f19_#########_a5.py'*** *(with the number signs replaced by your nine-digit student number). It* ***must also be written*** *using the* ***Python 3*** *programming language, and* ***must run on the official virtual machine****.*

Do not compress your submission *into a "zip" file.*

Late assignments will not be accepted *and will* ***receive a mark of 0****.*

Submissions that crash *(i.e., terminate with an error) on execution will* ***receive a mark of 0****.*

The due date for this assignment is Sunday, November 17, 2019, by 11:00pm.

Internet slang has entered (relatively) widespread usage, evolving from its roots as an obfuscation technique into a form of communication used principally to express dissatisfaction with the performance of a teammate or to caption photographs of domesticated animals. For this assignment, you will write a program for something resembling a 1337 (i.e., leetspeak) translator, that will receive a single sentence as a string argument and produce a string return value for the equivalent sentence in 1337. If you are not familiar with this "language", read more at https://en.wikipedia.org/wiki/Leet.

For this assignment, you need to write a series of functions. Download (and rename) the "starting_point_for_assignment_5.py" file from cuLearn, and add the required functionality:

- Write a main function that prompts the user to type a string and then remove all punctuation marks and replace all lowercase letters with their uppercase equivalent (using calls to the functions described below that you will write). Display this text to the user and then ask…
    - …if the user wants to replace phrases?
    - …if the user wants to replace words?
    - …if the user wants to replace letters and, if so, what letters?

    Depending upon how the user responds to each question, you would then call some or all of the functions described below (that you will write), printing the result after each step. After printing the final result you must ask the user if they would like to translate another string and, if the answer is yes, loop back to the input prompt. (n.b., Do NOT call the `main()` function again to achieve this repetition - use a loop.)

- Write a function to replace every lowercase character to its uppercase equivalent. You may not use upper(), and your solution MUST use the ord() and/or chr() functions. If you are not familiar with these functions, check the documentation at https://docs.python.org/3/library/functions.html. You may not use functions like encode or replace either - you are expected to use LOOPS to accomplish this replacement. This function must take **only the string to be modified as an argument** and must return the new string.

- Write a function to replace at least four different phrases (of two or three words) with established acronyms (e.g., replace "BY THE WAY" with "BTW") of your choosing. This function must take **only the string to be modified as an argument** and must return the string with the replacements. You may not use any built-in find, replace, encode, or translate functions, but you may write your own version of these functions if you wish, and you may use the indexing operator (i.e., the square brackets), the slicing operator (i.e., the colon), the "in" operator, and the len() function.

- Write a function to replace at least four different words with established abbreviations (e.g., replace "PLEASE" with "PLZ") of your choosing. This function must take **only the string to be modified as an argument** and must return the string with the replacements. The restrictions (in terms of what you can and cannot use) are the same as with the previous item.

- Write a function to replace at least eight different letters with established single or double character homoglyphs (e.g., replace "K" with "|<", "A" with "4", "I" with "1", etc.) of your choosing. This function must take **two arguments - the string to be modified and** a string of letters as an argument (i.e., the letters that the user decided they wanted to replace). If any of those letters are among the eight different letters you have coded homoglyphs for, your function must replace those letters with the homoglyphs. If any of the letters passed as an argument are ones that you have not coded homoglyphs for, print an explanation do the user (i.e., print a message like "This program cannot translate the letter …"). This function must return the string with the replacements. The restrictions (in terms of what you can and cannot user) are the same as with the previous item.

- Make sure that every time you ask the user a yes or no question you validate that the answer is yes or no (using any combination of uppercase and lowercase letters) before proceeding. To clarify, if the user answers with something other than yes or no, ask the question again.

- **Please note that you cannot (for any reason) use global variables in the creation of your submission for this assignment. Global constants, on the other hand, are permitted.**

On the following page, you can find a transcript example of how your program might appear during execution (but of course the phrases, words, and letters your program replaces are expected to be different).

Transcript Example (with user input in red)

n.b., for this example, the following replacements were selected by the programmer:

replace phrase "CAN I HAVE" with "I CAN HAZ" (if user chooses to replace phrases)
replace phrase "BY THE WAY" with "BTW" (if user chooses to replace phrases)
replace word "CHEESEBURGER" with "CHEEZBURGER" (if user chooses to replace words)
replace letter "A" with "@" (if user chooses to replace letters)
replace letter "E" with "3" (if user chooses to replace letters)

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Type the string to be translated: By the way, can I have a cheeseburger?

BY THE WAY CAN I HAVE A CHEESEBURGER


Do you want to replace phrases? oops
Please enter yes or no. Do you want to replace phrases? yes

Do you want to replace words? Yes

Do you want to replace letters? YES

What letters do you want to replace? AEZ
This program cannot replace the letter 'Z'.


String for translation   BY THE WAY CAN I HAVE A CHEESEBURGER

After replacing phrases  BTW I CAN HAS CHEESEBURGER

After replacing words    BTW I CAN HAS CHEEZBURGER

After replacing letters  BTW I C@N H@S CH33ZBURG3R


The translated string is 'BTW I C@N H@S CH33ZBURG3R'.


Do you want to translate another string? nO

Goodbye.
```

This program (along with any other program submitted in this class) must be a completely original work, authored by you and you alone, prepared for this offering (i.e., Winter 2019) of COMP1005/COMP1405. Do not discuss this assignment with anyone except the instructor or the teaching assistants, and do not copy source code samples from the internet or any other source.