Lab 6-1 – Sentence Breakdown

Goals

- Familiarity with lists
- Practice using list functions
- Review of for loops

Setup

- In PyCharm, create a new project or open an existing one (such as Labs)
- Create a new Python file using the following naming convention:
  `ITP115_L6_1_`*`LastName_FirstName`*
  (replace *LastName* with your last/family name and *FirstName* with your first name)
- Your new file must begin with comments in the following format (replace the name and email with your actual information):

```
# Name, USC email
# ITP 115, Spring 2020
# Lab 6-1
```

Requirements

Your program must perform the following:

- Ask the user for a sentence that includes numbers and letters
- Create two new empty lists to keep track of which indices from the sentence contain numbers, and which indices contain letters
- Iterate through your sentence to check whether each character is a number or letter using the string functions **`isalpha()`** and **`isdigit()`**
  - Example: the user enters "**`dog 123`**"
    - Letters occur at indices 0, 1, 2
    - Numbers occur at indices 4, 5, 6
    - The space in the middle is not a number nor letter, so 3 is not in either list
- Reprint the original sentence, replacing all the letters as dashes, and below it print the indices at which those letters originally occurred
- Reprint the original sentence again, replacing all the numbers as dashes. Below this, print the indices at which numbers originally occurred

  - If there were no numbers or letters in the sentence, output NONE where those indices would have been printed

- Things to keep in mind
  - Remember to check if your numbers/letters list is empty before printing it
  - Use a for loop to check each character in the sentence

- **For a challenge**
  - Make a third list for saving the indices of special characters such as *, #, $, etc. and output the original sentence with special character replacements and the indices at which they occurred, similar to how you wrote the numbers and letters lists

Sample Output 1

```
Please enter a sentence (including numbers): Kate drank 15 coffees

Here is the sentence breakdown:


LETTERS:

---- ----- 15 -------

Letters occur at the following positions:

0 1 2 3 5 6 7 8 9 14 15 16 17 18 19 20


NUMBERS:

Kate drank -- coffees

Numbers occur at the following positions:

11 12
```

Sample Output 2

```
Please enter a sentence (including numbers): Dogs rule!
```

```
Here is the sentence breakdown:


LETTERS:

---- ----!

Letters occur at the following positions:

0 1 2 3 5 6 7 8


NUMBERS:

NONE
```

Deliverables and Submission Instructions

- Create a zip file containing your Python code. This cannot be done within PyCharm. Find the file or folder on your computer and compress it.
  a. Windows:
     1. Using File Explorer, select your lab file
     2. Right click
     3. Send to ->
     4. Compressed (zipped) folder
  b. Mac OSX:
     1. Using Finder, select your lab file
     2. Right click
     3. Compress "*FileName*"
- Upload the zip file to your Blackboard section:
  1. On Blackboard, click on the Labs item in the course menu on the left.
  2. Click on the specific item for this assignment (starts with L and a number).
  3. Click on the Browse My Computer button and select your zip file.
  4. Click the Submit button.