NATIONAL UNIVERSITY
OF COMPUTER & EMERGING SCIENCES
PESHAWAR CAMPUS

Problem Set:	Assignment: AG07	**Semester**:	Fall 2018
Points:	*See autograder*		
Date Set:	*See autograder*	**Due Date**:	*See autograder*
Course:	CS118 Prog. Fundamentals	**Instructor**:	Dr. Nauman

1 File Handling

Since you are reading this, you have already downloaded and extracted the zip file.

1.1 Tasks to do

1. Complete the following tasks:

   (a) You are familiar with the `split` function for strings. It has an issue though. Consider the following file:

   ```
   Name,Father Name,Address,Age
   Ali,Tariq,'House 10, Street 20',30
   ```

   As you can see, if we use `split()` to split this, we will get an incorrect result since the address *value* for the first record has a comma within it. The solution for CSV is that they enclose the whole value in single quotes. However, our split function doesn't know about this.
   Try running:

   ```
   ''Ali,Tariq,'House 10, Street 20',30''.split(',')
   ```

   to see what the issue is.
   Here's your task. You need to write a new function `split_safe` which takes in a string and splits it on commas but makes sure that values enclosed in single quotes are preserved. So,

   ```
   s = ''Ali,Tariq,'House 10, Street 20', 30 ''
   split_safe(s)
   ```

   should produce the following:

   ```
   ['Ali', 'Tariq','House 10, Street 20','30']
   ```

   (To get a perfect score, you need to remove any spaces around the different values. For instance, note that the '30' in the list above does not have a space before or after it even though there are spaces around it in the original string.)
   If you are stuck, you can view a possible strategy for doing this at the end of this document.

   (b) You also need to write another function: `read_data` that takes in a directory name and a filename. The function should join them together in an operating-system agnostic way and then use the result as the relative path. The file at this relative path will be a CSV file that needs to be read in (as we did in class). The result should be a list of records – each record for one line in the CSV file.
   The record itself should be represented as a list (again, as in class). However, instead of using `split`, you should use your `split_safe` function.
   The function should return this list of records as its final result.

2. Run local tests and if they pass, submit the assignment using the submission command given on the Autograder assignment page. (Same as the first assignment.)

2 Strategy Hint

In order to safely split a string, you can follow the following strategy:

1. Iterate over the whole string.
2. Whenever a new comma is encountered, it means the current value is done and a new value is starting. The current value can be stored in a collection of values.
3. However, if a single quote is encountered, all commas will be ignored until the closing single quote is found. You can use a boolean variable to keep track of whether a single quote has been found.