CSCA20 Fall 2024 Term Test #2
Duration — 1 hours and 45 minutes
Aids allowed: Open Book, 1 Electronic device running Wing 101, NO INTERNET CONNECTION

Read and follow all instructions on this page, and fill in all fields appropriately. Do **not** turn this page until you have received the signal to start. If you use any space for rough work, indicate clearly what you want marked. Write as clearly and legibly as possible. No marks will be awarded to unreadable answers.

Skills Demonstrated

	User I/O	Loops	Selection	Loops + Selection	Strings/Lists	Functions	Testing	Documentation (internal)	Documentation (external)	File I/O	Dictionaries
Q1	▨							▨		▨	▨
Q2					▨	▨	▨	▨	▨		▨
Q3	▨	▨		▨	▨	▨	▨		▨	▨	
Total											

Total Pages = 8

[Use the space below for rough work. This page will not be marked unless you clearly indicate the part of your work that you want us to mark.]

Question 1.

Completion of this question demonstrates the skills of: Loops, Selection, Loops + Selection, Strings/Lists, Functions, Testing, and External Documentation

In the space below, write a function that takes in two lists, one of book titles, and one of the number of pages in the corresponding books, and returns the title of the longest book. However, if we come across a book that is more than 1000 pages long, the function should stop at that point (not checking any more books), and return the title of that book.

You must also include external documentation and testing for your function.

```
---EXAMPLE INPUT FILE---
Title,Author,Page Count,Publication Year
Life 3.0,Max Tegmark,364,2017
War and Peace,Leo Tolstoy,1392,1869
The Alignment Problem,Brian Christian,476,2020
Kindred,Octavia Butler,288,1979
---END OF INPUT FILE---
```

```
menu_prompt = """Choose an option:
F = Add a file
B = Add a book
L = Print the longest book so far
X = Exit
"""
```

Question 2.

Completion of this question demonstrates the skills of: User I/O, Loops, Selection, Loops + Selection, and File I/O

In the space below, write code that prompts the user with the `menu_prompt` on the opposite page. If the user chooses to add a file, you may assume the user will type the name of a file formatted similarly to the example input file. If the user chooses to add a book, they should be asked for the title and number of pages. If the user chooses to print the name of the longest book so far, you should use the function you wrote in the previous question (even if you were unable to complete the code, you may call it as though it was completed) to get the name of the longest book added thus far (or first book over 1000 pages).

If the user enters invalid input for the menu options, or a negative number of book pages, the program should display a warning and return to the menu.

```
def add_book(author_to_title, title_to_page_count, author, book_title, page_count):
    """
    INPUT:
    author_to_title is a dictionary mapping author names(str) to the set of
    titles(str) of books they have written
    author_to_page_count is a dictionary mapping author names(str) to the
    total(int) pages they have written in all the books we have added so far
    author(str) is the name of an author
    book_title(str) is the title of a book written by author
    page_count(int) is the number of pages in book_title
    OUTPUT:
    None

    Add the data for a specific book with title book_title and page_count number
    of pages, written by author to populate author_to_title and title_to_page_count
    """
```

Question 3.

Completion of this question demonstrates the skills of: Selection, Internal Documentation, and Dictionaries

Complete the function on the previous page. External documentation has been provided for you, and testing code is not required, but internal comments will be graded for this question.