Computer Science 1 (../index.html) CPSC 1301K (../index.html)

Syllabus (../syllabus.html)   Calendar (../calendar.html#currentWeek)   Misc. (../misc.html)

Project 5: Words in a File

< Previous (project4.html)

Note: This project is **optional** and will only increase your projects category grade

Due Date

See the calendar (../calendar.html#currentWeek) for due date.

Objectives:

- Using functions
- Validate user input
- File I/O: Opening, verifying it opened, reading and closing
- String manipulation
- Using dictionaries

Description

Write a Python script that displays all of the words in a file, within a specified letter range.
Example files:

- `theRoadNotTakenByRobertFrost.txt` (theRoadNotTakenByRobertFrost.txt)
- `bible-kjv-justLowercaseWords.txt` (bible-kjv-justLowercaseWords.txt)
- `mobyDick-wordsOnly.txt` (mobyDick-wordsOnly.txt)
- `shakespeare-wordsOnly.txt` (shakespeare-wordsOnly.txt)

Requirements

Write a Python script that prompts the user for 1) a filename and 2) a letter. Your script will then display all of the words (and the number of occcurrences) that appear in the file that start with the specifed letter. If the script is not able to open the file, alert the user and request another filename until the script is successful. Additionally, if invalid input is given for the requested letter, prompt the user until valid input is given. Accept both uppercase and lowercase letters. For the specified letter, your script will display "`\nAll words starting with LETTER:`" (where `LETTER` is replaced with a single letter). Next, your script will display all of the words (and the number of times) that appear in the file (ignoring case) that start with that letter. Display the words in the order that they are in the file (is is the default for Python dictionaries). Finally, you must use at least three functions. Your script must contain a `main()` function and it cannot be the longest function.

Examples (user input in **bold face blue**)

```
Please enter a filename: theRoadNotTakenByRobertFrost.txt
Please enter in a letter: o

All words starting with o (and the number of occurrences of each word):

one (3)
other (1)
Oh (1)
on (1)
```

```
Please enter a filename: bonus.txt

ALERT: Unable to open bonus.txt!

Please enter a filename: invalidFilename.txt

ALERT: Unable to open invalidFilename.txt!

Please enter a filename: theRoadNotTakenByRobertFrost.txt
Please enter in a letter: NOT A single letter
Please enter in a letter: ?
Please enter in a letter: Two roads diverged...
Please enter in a letter: w

All words starting with w (and the number of occurrences of each word):

wood (2)
where (1)
was (1)
wanted (1)
wear (1)
worn (1)
way (2)
with (1)
```

Submission

Submit your `project5.py` and your `rubric-project5.txt` to the appropriate Assignment tab/folder in CougarVIEW (https://cougarview.columbusstate.edu). Optionally, you can submit your project to "Section 01 Only: Project 5" on codePost.io (https://codePost.io).

Rubric:

```
Points       Item
----------   -------------------------------------------------------
_____ / 8    Meaningful comments
_____ / 9    3+ functions (including main())
_____ / 10   User input validated
_____ / 16   File I/O (opening, catching exceptions, reading, closing)
_____ / 16   Correct output
_____ / 12   Dictionary usage
_____ /  1   Completed rubric (estimates for each line including hours spent)


_____ / 72   Total



_____    Approximate number of hours spent

I, (REPLACE WITH YOUR FULL NAME), affirm that the code that I submitted is my own work and that I did not receive help that was not authorized by the instructor.
```

Notes

1. Before writing any code, write the comments. Then, get just the prompt working. Verify that it works. Then, work on the next step.

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