

Assignment-5

This **assignment-5** is a team/group assignment to foster student's ability to work in a team by following a common set of rules to achieve common goals and learn secure programming.

This assignment must be done by students enrolled in a group with the prefix "**BiWeeklyAssignment456-**" under the group category with the prefix "**PA456Groups**". Please make sure you find your group members for this assignment. Go to your Groups tab on the course site, and find your group member in a group name with the mentioned prefix.

Goals:

The goals of this group assignment are as follows:

- To learn how to filter file names and file contents for file input/output validation. A secure program must validate proper file input to the program and also the contents in the file.

Other goals are as below:

- To foster discussion and learning on the topics of the course discussed during an entire week.
- To encourage using a collaboratory tool such as a github.com repository that can be shared and edited remotely by multiple members.
- To encourage using a programming collaboratory tool such as Slack, Zoom, and email to communicate and effectively discuss with each other.
- To bolster skills in documenting a software project

Inside your Pycharm project, you created for **assignment-2** (in previous weeks), download and copy a skeletal python module named **ConfighandlerRegex.py** and file **my_config.txt** from Instructor's repository **301-sp** in github.com.

- A complete repository can be downloaded as a zip file through <https://github.com/convexnaresh/301-sp/archive/main.zip>

The file **my_config.txt** has a configuration setting keywords such as *controls*, *progress*, *slideNumber*, etc. The values associated with such settings can be assigned true or false or default or empty (separated by a colon (:)).

The file **ConfighandlerRegex.py** has two major functions/methods with the stated inputs, logic, and outputs. Your job is to implement the following functions as described:

1. A function-1 named **classify_settings(filename)**

- i) Receives a parameter—**filename**
- ii) Initialize four empty lists, namely, **seton, setoff, setdefault**
 - a. **seton** is a list that stores all keywords that are set to be 'true'
 - b. **setoff** is a list that stores all keywords that are set to be 'false'
 - c. **setdefault** is a list that stores all keywords that are set to be 'default'
- iii) Write a logic to read the file, and use **regular expressions** to filter and insert every setting keywords such as *controls, progress, slideNumbers, etc.* into the corresponding lists depending upon their assignment values such as 'true', 'false', 'default'; as you can see in my_config_regex.txt file.
- iv) Return four lists from this function in the order of **seton, setoff, setdefault**

2. Another function-1 named **print_settings(setonlist, setofflist, setdefaultlist)**

- i) Receives a list parameter as defined in the function.
- ii) Print keywords in each of the list in the form

Expected Program output:

```
1) Set On keywords:

    1) Controls
    2) Keyboard
    3) ..

2) Set Off keywords:

    1) slideNumber
    2) history
    3) ..

3) Set default keywords:

    1) transitionSpeed
    2) ..
```

The main function **main()** (already written for you, do not modify this function)

Bonus Points (50 pts.)

Write a half-page report on “evil” regular expression; use a tool such as <http://www.wuestholz.com/downloads/regexcheck.zip> to find out if the regular expression you used on the above program suffer ‘exponential backtracking’. Submit a screenshot of the output of the tool you used to check your regular expression.

Deliverables for this group assignment

Each group should create its group's repository on github.com and commit final versions of the following two files into the same repository:

1. The program file ***ConfighandlerRegex.py*** with the above functions and implementations in python.

To have your submissions graded, please add your Instructor (convex.naresh@gmail.com) as one of the project's collaborators. Your Instructor can download and execute your programs to grade them. No modification to files in the repository is permitted after the due date of this assignment. On your D2L dropbox for this assignment, please submit the **HTTPS URL** of your repository.

In case you have a problem, any single member of your group should submit the above two files in your D2L dropbox for this assignment.

Grading Criteria:

1. Creating and sharing a project repository for this assignment with Instructor's email address convex.naresh@gmail.com **+50 pts**. The repository must contain two files:
 - a. ***ConfighandlerRegex.py***
 - b. ***my_config_regex.dat***

Note:

- It does not apply to those who have already shared a GitHub repository with the Instructor while doing assignment-1. However, the same repository must contain the python program files.
 - The repository must be updated with the final program version by the assigned due date for full credit.
2. File names as specified format, program heading, proper spacings, comments, and documentation of the project, **+50 pts**.
 3. **Function-1**
 - a. Correct function names, parameters and correct returns (if any) **(10pts)**
 - b. Correct logic and implementation using regular expressions module. **(40pts)**
 4. **Function-2**
 - a. Correct function names, parameters and correct returns (if any) **(10pts)**
 - b. Correct logic and implementation, and the expected output are obtained. **(40pts)**

Total: 200 pts to be scaled to 100.

For details, refer to the **rubrics** attached with assignment-4.

Remember to agree on, check or verify what your group member submits if anything wrong will affect all the members equally.

Good Luck