

Assignment-2

This assignment-2 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.

Goals:

The goals of this group assignment are as follows:

- To learn a **System Login and Credential Management (SLCM)** module of an enterprise software system. A robust SLCM is at the heart of strong authentication and authorization. This assignment is about setting up a programming environment and develops a small version of SLCM.

Other goals are:

- 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

As part of this assignment-2, develop a python module named **SLCM.py** with the following functions/methods with the stated inputs, logic, and outputs.

1. A function named **getusername_paswd()**
 - i) Asks user's *username* and user's *password* as inputs from a user
 - ii) validate that the *username* is an email address, and password is at least 8 characters long containing at least one alphabet in uppercase, one in lowercase, one digit, and a special character in {*#, @, %, ** }. If a valid username and password are entered, the function returns the username and password; otherwise, the user is asked to reenter the username and password until valid entries are received.
2. A function named **secure_store()**
 - i) Receives two parameters—username and password, as string parameters returned by **getusername_passwd()** function.
 - ii) Encrypts password with AES encryption algorithm and stores the username and password in a file named **credential.dat**
 - iii) Display if the username and password supplied are stored in the file successfully.
3. The main function **main()**
 - i) Invokes function **getusername_passwd()**

- ii) Invokes function **secure_store()** if the function `getusername_passwd()` returns 1.

Test your program for the following username, password inputs.

1. Shyam.45@gmail.com, sh45@ampyare (invalid)
2. setobaagh@hotmail.com, girraFe345\$5x (valid)
3. abc@gmail.com, axnSorry123 (invalid inputs)
4. Mtkkt2@yahoo.com, selolo123 (invalid inputs)
5. Fattyacid, 89AxmenShow@45 (invalid inputs)
6. plainingrain@double.com, Grain34\$3 (invalid)
7. Shyam.45@gmail.com, sh45@ampyarE (valid)
8. setobaagh@hotmail.com, girraFe345%5x (valid)

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 **SCM.py** with the above functions and implementations in python.
2. The **credential.dat** created by the above function to store all valid usernames and passwords, as listed above.

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. File names as specified format, program heading, proper spacings, comments, and documentation of the project, +50 pts.
2. Function **getusername_passwd()**
 - a. Correct function names, parameters (10pts)
 - b. Correct logic and implementation (40pts)
3. Function **secure_store()**
 - a. Correct function names, parameters (10pts)
 - b. Correct logic and implementation (40pts)
 - i. calls AES encryption function to encrypt given password
 - ii. stores the username and encrypted password in the correct file.
 - iii. Display a message if data is stored in the file in append mode.
4. Function **main()**
 - a. Correct function names, parameters (10pts)
 - b. Correct logic and implementation (40pts)

Total: 200 pts to be scaled to 100.

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

Good Luck