CIT 383: Scripting 1
Fall 2022
Final Project

This final assignment is intended to be a group project. Each member of the team should make sure to contribute equally in some form to the coding project. Note that the final will require that each student understands the functions and that the group created and be able to extend that code to implement additional requirements. The project is made up of two parts: 1 and 2.

Part 1

You are a team of system administrators for an organization, and your team has been informed that several files are frequently modified by some malicious individuals who gain access to some computers in the organization's network. Due to the possibility of this happening again, you have been tasked to create a script that will be used, from time to time, to monitor files that are most impacted by such attacks. In doing so, your script should perform the following tasks:

1.   Accept the IP address of a target(compromised) computer, the username and password for an account on the target computer and identify all the files in the **home directory** of the user which have been modified in the **past three days** (it is assumed that such files have been compromised). Your script should display the names of the affected files and their last modified dates. Thereafter, the script should send an email to your CTO listing the files that have been attacked and list the display name of the user whose files were impacted by the attack. This must be a well-composed email. Prior to sending the email, ask the user of your script to enter the email address of the sender as well as their password (hidden at entry), and the email address of the CTO. Your script should select the smallest-sized file and attach it to the email to the CTO. Assume that your company uses Gmail for email communications.   [60 points]

2.   Download all the affected files to a specified folder on the computer running the script (the local computer). Ask the user to specify the directory into which the files should be downloaded. If no directory is specified, the affected files should be downloaded to the home directory of the current user.   [30 points]

In developing the code, you are required to use at least 3 methods to solve the problem. The program should provide a menu for the user to select from. Your script for part 1 should be named using the following format: final_proj_[group_number]_part1.py, where [group_number] should be replaced with your group number.

Part 2

Additionally, as system administrators, you have been assigned the task of creating user accounts for employees. The file (employee.csv) attached to the Canvas assignment has the details of new employees hired recently. Based on the content of the file, you are required to write a script (using a minimum of 3 user-defined functions) to create user accounts for all employees as follows:

i. Using the employee file, create user groups based on the unique user groups specified in the file.   15 points

ii. For each employee, the username should be a combination of the last name and the first character of first name. For example, an employee with first name **Frank** and last name **Thomas** would have a username of ***thomasf.*** Assume usernames are not case sensitive. If two or more employees have the same first and last names, append a suffix (a number) to the username: ***thomasf, thomasf1, thomasf2, etc.*** Please note that the first occurrence of a duplicate username should have no suffix.   20 points

iii. For each username, create a user account using the Linux ***useradd*** command (as part of your python script). In using this command, ensure that the First and Last Names form part of the account information for each user. For example, while creating an account with username ***thomasf1***, the full name "Thomas Frank" must be included. Check for duplicate user accounts (use the /etc/passwd file) prior to creating new user accounts.

                                                                                                       10 points

iv. For each user account created, add the user to the appropriate group based on the contents of the employee file. For example, if Frank Thomas belongs to the IT group (based on employee file) add ***thomasf*** to the IT group.   5 points

v. Write the first Name, last Name, username, and password generated to a CSV file named useraccounts.csv   10 points

Just as was required for part 1, your script should be named using the following format: ***final_proj_[group_number]_part2.py***, where [group_number] should be replaced with your group number.

For both files, make sure to include the appropriate shebang and include comments that list the names of the group members.

What and where to submit: Submit both python files referenced in the parts above via the Canvas assignment. A single group member should submit the code by the due date.