

# CS 465 Cybersecurity Principles and Practice

## *Programming Assignment #2*

Student Name: \_\_\_\_\_ Grade: \_\_\_\_\_

### **Program Operation** (85 points total)

In the following, by “the profile” we mean the profile of the owner.

#### **Program startup** (4 points total)

- Accepts input file name via command line argument.
- Reports error and terminates if first command is (creating the profile owner) not correct.

#### **viewby** (6 points total)

- Denies access to the profile if some friend is already viewing it.
- Denies access to the profile if the friend name does not exist.

#### **logout** (4 points total)

- Reports error if no friend is viewing the profile.
- A friend is no longer viewing the profile i.e. successfully logs him out.

#### **friendadd** (6 points total)

- Denies access if no friend is viewing the profile.
- Denies access to friends, allow access to the profile owner
- Reports error if a friend already exists
- When access is granted, successfully creates a new friend

#### **listadd** (5 points total)

- Denies access if no friend is viewing the profile.
- Denies access to friends, allows access to the profile owner.
- Reports error if list already exists.
- Successfully creates a new list

#### **friendlist** (5 points total)

- Denies access if no friend is viewing the profile.
- Denies access to friends, allows access to the profile owner.
- Reports error if friend or list does not exist.
- Successfully adds friend to list.

**postpicture** (10 points total)

- Denies access if no friend is viewing the profile.
- Reports error if picture name is "friends.txt", "audit.txt", "lists.txt", or "pictures.txt".
- Reports error if picture already exists.
- When successful, the owner of the created picture (text file) is the current friend that is viewing the profile.
- When successful for regular friend, the permissions for the picture (text file) created are "owner:rw -- --, ProfileOwner:rw -- --".

**readcomments** (11 points total)

- Denies access if no friend is viewing the profile.
- Reports error if picture name is "friends.txt", "audit.txt", "lists.txt", or "pictures.txt".
- Reports error if the picture does not exist.
- Determines if current friend has individual permissions and correctly grants/denies access.
- Determines if current friend has list permissions and correctly grants/denies access.
- If friend is not an owner or in a list, grants/denies access according to rules for others.
- Successfully displays and logs all content of the picture (text file).

**writecomments** (11 points total)

- Denies access if no friend is viewing the profile.
- Reports error if picture name is "friends.txt", "audit.txt", "lists.txt", or "pictures.txt".
- Reports error if the picture does not exist.
- Determines if current friend has individual permissions and correctly grants/denies access.
- Determines if current friend has list permissions and correctly grants/denies access.
- If friend is not an owner or in a list, grants/denies access according to rules for others.
- Successfully appends a line of text to picture (text file).

**chlst** (8.0 points)

- Denies access if no friend is viewing the profile.
- The command cannot be executed by friends other than the current picture owner or profile owner.
- The list for the picture cannot be changed to a list where the current owner does not belong unless the owner of the picture is the profile owner.
- If picture name or list name does not exist, an appropriate error is displayed and logged

**chmod** (6.0 points)

- Denies access if no friend is viewing the profile.
- Can be executed only by the picture owner or profile owner.
- If picture name does not exist, an appropriate error is displayed and logged

**chown** (6.0 points)

- Denies access if no friend is viewing the profile.
- Can only be executed by profile owner.
- If picture name or friend name does not exist, an appropriate error is displayed and logged

**end** (3 points total)

- Creates and writes out "lists.txt" file in appropriate format.
- Creates and writes out "pictures.txt" file in appropriate format.
- Stops reading commands and exits program.

**Documentation** (15 points total)

- Algorithms are discussed and code comments are included. (5.0 points)
- Clearly and thoroughly explained file format used for "friends.txt" file. (2.0 points)
- Format of the output files `lists.txt`, `pictures.txt`, and `audit.txt` (3.0 points)
- Provided at least two test cases that were different from the sample ones provided. (5.0 points)