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Operating Systems Assignment

UPDATED!

SAFE DELETE

Description

rm command is used to remove files in Linux. Even using *–r* option, you may recursively remove a directory and every file or subdirectories inside. The command however is error-prone because it removes the files/directories without any warning, and retrieving the deleted files is not simple (not without using third-party tools).

This project aims to develop an ***alias*** for **rm** command which makes it possible to avoid deleting files/directories mistakenly. The required specifications are as follows:

1- ***rm*** will ask the user to confirm deleting the file.
2- **Every deleted file will be zipped** and moved to a special folder named ***trash,*** which is located in the home directory. The program should create a trash folder under the home directory if it is not found.
3- In case that files with the same name are deleted, only the last deleted file will be preserved in the trash folder and the previously deleted file with the same name will be overwritten.
4- The command should be able to remove a directory and all of its subdirectories. So if it is a directory (being removed): a *single zip file* will be created for the whole directory. The option used in this case is ***–r***. If while deleting a directory the option -r is not used, an error message should be printed.
5- The ***rm*** command provides the possibility of retrieving the deleted files to the current directory. The option used here will be ***–u***. If the file is not found in the trash folder, an error message will be given. The command verifies if any file with the same name exists in the current directory, in which case a warning is printed on the screen and the user is asked to confirm replacing the existing file.
6- Optionally, when deleting a file, the user may add a password to encrypt the file the password protected zip. In case of the retrieval of a password-protected file, ***rm*** command will prompt the user to provide the password. The option, in this case, will be ***–p password***. For instance, the command ***rm –p passme ./data.txt*** should zip and password protect ***data.txt*** file and move it to the trash subdirectory.

7- ***rm*** maintains *a file inside the trash folder* that contains the list of the deleted files and whether they are password protected or not. When a file is deleted, a line is added to this file, and when a file is retrieved, the corresponding line is removed. If a deleted file has been zipped with a password, the ***rm*** command should ask for the password by printing a message on the screen. If the provided password is incorrect, the command will repeat asking for the password two more times.
8- [*optional*] The passwords used to zip a file should be at least 8 characters, including a combination of lowercase and uppercase characters, and digits.

Sample Runs:

rm myfile.dat	# will delete myfile.dat by zipping and moving it to the trash directory
rm –u myfile.dat	# will undelete myfile.dat
rm –p MyPass1 sampleFile	#will delete sampleFile by password protected zipping the file and moving it to trash directory
rm –u sampleFile	# will prompt : The file is password protected. Please enter the password
rm –r Pics	# deletes Pics directory and its subdirectories
rm –u Pics	# undeletes Pics and its subdirectories
rm –r –p secretKey2 Pics	# deletes Pics directory and its subdirectories by password protected zipping them
rm –u Pics	# undeletes Pics and its subdirectories. The user will receive the message: The file is password protected. Please enter the password

Deliverable

You need to use your **student number** with extension *.sh* as your assignment file name (example ***0654826****.sh*, in case of 2 students ***0654826_0654827****.sh*). Only one student should submit the assignment.

Put a comment line on top of your assignment including *your name, your student number, and your class (A, B, C, etc. or "retaker")*. Both students should belong to the same group or joint class.

The deadline to submit your assignment is week 4.8, the 22 of June.

FAILURE to submit correct information or correct naming of the file will result in FAILURE.

You need to submit your assignment by following the instruction that will be given in the same directory of the assignment.

As by the course description*, there is always the possibility of an oral check* to verify/clarify the completeness and understanding of the code submitted.

NB: Installation!

The alternative command should be an ALIAS, and it should NOT ALTER ANY EXISTING FILE IN THE CONFIGURATION OF THE SHELL! The file should be loaded as the following:

. ***0654826***.*sh*

FROM THE HOME DIRECTORY (“.” Is a command, not a mistake).