CS320 Assignment #2

Purpose

This assignment is designed to familiarize you with shell scripting.

Requirements

This assignment consists of six major requirements.

1) Developing solutions to the four problems below.
2) Ensuring that your programs compile and run correctly using the tools available in a standard linux distribution.
3) Documenting your solutions correctly.
4) Organizing your *git repository* correctly.

Problem

1) In this assignment you will play the role of Cheaty McCheaterpants. Your instructor, BigBritches McMakesyouwork, has just assigned you your final project for the semester. After checking your grade (and spending more time doing math to figure out the minimum score you need to pass than you did studying the entire semester) you have come to the conclusion that with a score of 100% you are going to receive exactly 70% in the class, any less and you will fail (mostly because you think extra credit is for suckers). Unfortunately for you, Cheaty McCheaterpants, you don't even know how to start the actual assignment. Fortunately you know the finer points of success; cheating, lying and stealing. You also have me, your helpful narrator. The following three steps will lead us to an illegitimate C in this god forsaken course.
    a. Step 1. We know that you need a perfect score on the final project, and we know from the way some of the less socially aware students brag that they are getting 100% on every assignment AND that they are already done with the assignment. Unfortunately, because you don't associate with people like that, you have no idea what their name is or, more importantly, their login information. We do, however, know three very important pieces of information.
        i. McMakesyouwork is lazy about his security.
        ii. He has a TA that you can bribe.
        iii. The TA will provide you with all of the current account information.

        After you slip $50 bucks in the right pocket, you have gained a copy of the gradebook and the student login information. (This is quite literally the easiest way to steal important information from an organization and one of the key points of account security when terminating employees).

        Write a script that takes two arguments. The first argument should be the grades file

location and the second argument should be the logins file location. Your script must determine the name of the student that has received 100 on all of the assignments and echo that name to stdout. Next your script must determine both the login name and password for that user and echo that information as well.
<NAME>
<USERNAME>
<PASSWORD>

b. Step 2. Try logging into their gitlab account! Whats that? Smarty McBetterthanyou changed their default password??? That Jerk! Fortunately, Smarty wasn't very smart when setting up their repositories and accidentally made them public:

https://gitlab.com/smartysmartymcsmartypants/cs320assignment3

Go ahead and clone the repository to your local computer.

Unfortunately their repository is a mess. They have files everywhere with nonsense names and no file extensions! We do know something about the class fortunately. We know that all of the assignments are written in C!

Write a script that takes a single argument. The argument will be the root directory of the repository. The script will then copiy all of the C programs to the current directory (the directory the script is run from) and make sure you tack a ".c" onto the end of each of those files. Every time a file is copied, it should echo the final name of the file copied (including the ".c"). (There are four files you want). Use this on Smarty's repository to copy all of his C programs!

c. Step 3. Now that you have all of Smarty's C programs we have to figure out which one is the final project. We literally don't care enough to figure out what the final project is supposed to do, but we do know what the first three assignments did.
    i. Assignment #1 Took in a single integer on the command line in degrees and printed out the cosine of the input to three decimal places.
    ii. Assignment #2 Took in a single integer on the command line and printed out the square root of the input to four decimal places.
    iii. Assignment #3 Took in a single integer on the command line and printed out that number divided by 10 to five decimal places.

Based on this information write a script that takes four command line argument compiles each of the c programs that matches one of those command line arguments, determines which assignment each one is and echos the file name and the assignment that it corresponds with. Use this script to determine which .c file goes with each assignment.
Yes! Now we can turn that file in and we are saved from another semester of McMakesyouwork's insufferable 'humor'. (You should really only turn in your three shell scripts).

2) You must ensure that your code can be run on a standard Debian based linux distribution using the shell tools of your choice. You may develop your solution on any machine you desire, as long as the final solution works on a standard linux distrubtion.

3) Your solution must have a complete comment header as is detailed below. During runtime, each of your solutions to section 1 must output a correct **title string** as the first line printed. It should be in this format:

```
Assignment #1-1, <NAME>, <EMAIL>
```

Each problem should follow this format, with the second number incremented for each problem in part 1. For example the second problem in part one should have the title string:

```
Assignment #1-2, Scott Lindeneau, slindeneau@gmail.com
```

4) You must place a copy of your solutions inside a repository named cs320Assignment2 in your git profile on rijekay. Your files **MUST** be named **`prog2_1.sh`**, **`prog2_2.sh`**, **`prog2_3.sh`** and must not be modified after the turn in time. The modified timestamp for each **`.sh`** file in your **`repository`** will be used as the submission time for that file. If it is after the due date, it will be counted as late.

You are also responsible for two additional files that will be part of every assignment (after assignment #1). You **MUST** place a copy of the programming rubric in your repository. You must not rename it (it should be: cs320programmingrubric.pdf) and by placing it in the repository you should also be reading it and acknowledging that this is the rubric by which you will be graded.

You will also place a README.md file[1] in your assignment directory. This file should contain a description **IN YOUR OWN WORDS** of the project along with a short description of each file, what it is, how to compile and/or run it. These descriptions may be short as long as they are accurate.

YOU MAY NOT HAVE ANY OTHER FILES IN YOUR GIT REPOSITORY. If you have any other files in your git repository the assignment will be considered **not** complete.

5)

[1] If you are familiar with reddit commenting/posting then you are familiar with markdown. They use markdown exclusively for user provided content. Most git repos use md as the format of choice for readme files and install text.
Here is a good cheat sheet: https://github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet

Example Output

```
Assignment #2-1, Scott Lindeneau, slindeneau@gmail.com

John Doe

masc1234

FizzBuzz

Assignment #2-2, Scott Lindeneau, slindeneau@gmail.com

ABCDE.c

12345.c

A1B2C.c

1A2B3.c

Assignment #2-3, Scott Lindeneau, slindeneau@gmail.com

ABCDE.c Assignment #1

12345.c Assignment #2

A1B2C.c Assignment #3

1A2B3.c Assignment #4
```

Additional Details

- You do not need to do input checking. You can assume that the input value is a valid input.

Late Policy

Late programs will be accepted with a penalty of 5% per day for three days after due date.

Cheating Policy

There is a zero tolerance policy on cheating in this course. You are expected to complete all programming assignments on your own. Collaboration with other students in the course is not permitted. You may discuss ideas or solutions in general terms with other students, but you must not exchange code. (Remember that you can get help from me. This is not cheating, but is in fact encouraged.) I will examine your code carefully. Anyone caught cheating on a programming assignment or on an exam will receive an "F" in the course, and a referral to Judicial Procedures.

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DUE: 9/20 11:59pm

Extra Credit

The problem should be titled Assignment #2-4 and saved in a file prog2_4.sh.

Extra credit is graded on a complete/incomplete basis and will be added to your class total at the end of the semester. Oh Snap! It looks like we forgot a major problem. The C file we stole from Smarty still has Smarty's name and email information in it!

Write a script that takes three arguments. The first argument will be the name of the file we wish to modify. The second argument will be the name we wish to change and the third argument will be what we want the change to become. For example if we wanted to change “Smarty McSmartypants” to “Scott Lindeneau” we would execute

./prog2-4 abcde.c “Smarty McSmartypants” “Scott Lindeneau”

And the file abcde.c will be modified such that all of the “Smarty”'s will be changed to “Scott”s! We could then just run this script twice and everything would be changed to our info without manually editing the file! (once for the name and once for the email).

Great!