CSSE 132 – Introduction to Systems Programming
Rose-Hulman Institute of Technology

SOLUTIONS To Exam 1 Practice - Coding Part

Name (Print):_____ RHIT Username:_____

This part of the two-part exam is **closed book**, but you are allowed to use only these acceptable sources:

- Your computer
- Your assignments and labs submitted in your individual repository for this term
- The CSSE 132 course website and things directly linked from it

You are not allowed to use:

- Other Internet resources, instant messaging.
- Your smartphone, or other communication means.
- Any modern integrated development environment (IDE), like *VSCode*, *Atom*, and etc.

Using these resources is considered academic dishonesty and will result in a penalty grade.

Your tasks for this coding part are described on the back of this page.

IMPORTANT: When you are finished with this part of the exam:

1. Add any files you created or modified to your repo.
2. Commit your solutions to your repo.
3. Push your repo to the server.
4. Read and sign this paper below.
5. Give this paper to your instructor.

I attest that all of my code for this exam is submitted to my Git repository and I have not received help on this exam from any source other than the acceptable sources listed above.

Your Signature:_____ Date:_____

First: Use Git to pull your repository on your Linux. Look for files in the `exam1practice` directory. If your repository does not have this directory, immediately ask your instructor for help.

Problem 1 (6 pts) In your repository, change to the `exam1practice/problem1` directory. Then issue this command:

```
head -n 18 nappy/bawdy/data | tail -n 9 | head -n 1
```

Write the result: `28900`

Change to the `exam1practice/problem1` directory again, and go in to `keelhaul`, then change to the `selfish` directory.

Write a *command-line expression* that, when run in the `selfish` directory, will print only the 10-th line of the `data` file.

Hint: this command-line expression should print out
`25025`

Your command-line expression: `head -n 10 data | tail -n 1`

Problem 2 (4 pts) Go to the `problem2 directory`. Check in the `numbers.txt` file for the only line that begins with 1154 (*not the 1154-th line*). Write the entire line in the space below.

Write the result: `11548`

Problem 3 (45 pts) On your Linux, go to the `problem3` directory.

- Complete the ARM assembly functions in `problems.s`
  Run `make` to compile and run `make run` to run the test.
- Complete the C functions in `problems.c`
  Run `make` to compile and run `./test` to run the test.

IMPORTANT: When you are finished with this part of the exam:

- ☐ Under the `problem3` directory, add any files you created or modified to Git. (`git add problems.c problems.c`)
- ☐ Commit your solutions to Git. (`git commit -m "finish exam 1"`)
- ☐ Push your repository to the Git server. (`git push`)
- ☐ Double check if the push is successful. Run `git log --stat -1` to check 1) if the latest commit includes correct file modification information, and 2) if the **first line** of the log message includes `origin/master` in the parentheses.