

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

Exam 1 Practice Coding Part

Name (Print): _____ RHIT Username: _____

This part of the exam is **open course material**. You may use only the following resources:

- Your computer, connected via an SSH connection to your CSSE132 Linux VM, using a terminal text editor (e.g. `vim`) to write code
- 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, LLMs, instant messaging.
- Your smartphone, or other communication means.
- Any modern integrated development environment (IDE), like *VSCode*, *Atom*, etc.

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

IMPORTANT: Using any functions that have not been explicitly taught in this class will result in a zero grade for the involved part(s).

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. Submit any files you created or modified to Gradescope.
2. Read and sign this paper below.
3. Give this paper to your instructor.

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

Your Signature: _____ Date: _____

First: On your VM, use `git pull` in your Git repo to fetch the exam code. Look for files in the `exam1practice` directory.

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 output:

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:

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:

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

- Complete the ARM assembly functions in `problems.s`
Compile with `make test_asm`, run tests with `./test_asm`, debug with `gdb ./test_asm`
- Complete the C functions in `problems.c`
Compile with `make test`, run tests with `./test`, debug with `gdb ./test`

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.s problems.c`)
- ☐ Commit your solutions to Git. (`git commit -m "finish practice exam 1"`)
- ☐ Push your repository to the Git server. (`git push`)
- ☐ On your local (Windows) clone of the repo, run `git pull` to receive the updated files.
Make sure your local files have been updated.
- ☐ In the actual exam, you will upload your files from here to Gradescope.