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Assignment 1

GitHub Repo: Lebrra

(Assignment 1 Path: https://github.com/Lebrra/repo759/tree/main/HW01)

1. [Instructions Link] I went through a) through c) and understand how to time code, how to submit my assignments with git, and what the recommended workflow is when it comes to working on my assignment.
2.
   a. `cd somedir`
   b. Two ways:
      - `echo "$(<sometext.txt)"`
      - `printf "$(<sometext.txt)"`
   c. `tail -5 sometext.txt`
   d.
```
for file in *.txt; do
    tail -5 $file;
    echo “”;  # added for better spacing
done
```
   e. Two ways:
      - `for i in {0..6}; do echo "$i"; done`
      - `for ((i=0; i<=6; i++)) do echo "$i"; done`
3.
   a. No, there are no modules loaded.
   b. 13.2.0
   c. modules found when searching `module keyword “cuda”`:
      - gromacs/cuda-12.2: gromacs/cuda-12.2/2023.3
      - gromacs/cuda-12.2-mpich: gromacs/cuda-12.2-mpich/2023.3
      - intel/dpct: intel/dpct/latest, intel/dpct/2024.0.0
        - Migrate existing CUDA* code to SYCL code.

- nvidia/cuda: nvidia/cuda/10.2.2, nvidia/cuda/11.0.3, nvidia/cuda/11.3.1, ...
- nvidia/nvhpc-hpcx-cuda11: nvidia/nvhpc-hpcx-cuda11/24.5
- nvidia/nvhpc-hpcx-cuda12: nvidia/nvhpc-hpcx-cuda12/23.11, ...

d. I see Euler has a module for blender, which I know to be a 3D modeling software.

4. Link to file: https://github.com/Lebrra/repo759/tree/main/HW01/task4.sh
5. (help with Slurm commands found here https://curc.readthedocs.io/en/latest/running-jobs/slurm-commands.html)
   a. It seems that jobs are run in the same directory as their sh files. For example, I ran DirectoryTest.sh within my HW01 folder, and the directory was "/srv/home/lblasczyk/repo759/HW01".
   b. The SLURM_JOB_ID is an environment variable that identifies any given job. This id is needed if a user wants to interact with the job, such as checking its status or canceling it.
   c. I can check my queued jobs by calling `squeue --user=lblasczyk`. I can also look for in progress jobs with `sstat --job=[jobID]` using the jobID that was provided when I sbatch'ed the job. I can see if the job has been completed using `sacct --user=lblasczyk` or `sacct --job=[jobID].`
   d. A job can be cancelled with `scancel [jobID]` using the jobID obtained when a job was sbatch'ed. I believe this works for queued and active jobs.
   e. That command requests a generic resource of one GPU core.
   f. This allows a job to run several times, and these jobs can run simultaneously. (https://slurm.schedmd.com/job_array.html)
6. Link to file: https://github.com/Lebrra/repo759/tree/main/HW01/task6.cpp
   a. How I set up an input for N: https://stackoverflow.com/questions/55867700/how-to-pass-an-argument-in-the-sbatch-command-line
      so when running the task6.sh do: `sbatch task6.sh [N]`

All references have been linked near the question I used them for. I also did a bit of Google searching for Linux cheat sheets because I'm rusty with Linux. I did not use ChatGPT for this assignment.