

ECE 759 Assignment 1

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1. 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) "cat ./sometext.txt"
- c) "tail -n 5 ./sometext.txt"
- d) "tail -n 5 ./*.txt"
- e) "for i in {0..6}; do echo \$i; done"

3.

a) No, there were not any modules loaded when I log in on Euler

```
ht@MacBook-Pro-151 ~ % ssh thuang293@euler.engr.wisc.edu
(thuang293@euler.engr.wisc.edu) Password:
=====

Announcements, outage notices, and status updates are available via the
Euler Mailing List. Sign up with a wisc.edu email address at:

|https://go.wisc.edu/77vc50

[
=====
|Last login: Tue Sep 10 22:12:05 2024 from 2607:f388:1082:2:4ae4:0:5:a74b
|[thuang293@euler-login-1 ~]$ module list
No modules loaded
|[thuang293@euler-login-1 ~]$ █
```

b) The version of gcc that is available to me without loading any modules is '14.1.1'

```
[[thuang293@euler-login-1 ~]$ gcc --version
gcc (GCC) 14.1.1 20240522 (Red Hat 14.1.1-4)
Copyright (C) 2024 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

c) These are all cuda modules available on Euler:

```
[[thuang293@euler-login-1 ~]$ module avail cuda
```

----- /opt/apps/lmod/modulefiles -----				
gromacs/cuda-12.2-mpich/2023.3	nvidia/cuda/11.0.3	nvidia/cuda/11.8.0	nvidia/cuda/12.2.0	nvidia/nvhpc-hpcx-cuda12/23.11
gromacs/cuda-12.2/2023.3	nvidia/cuda/11.3.1	nvidia/cuda/12.0.0	nvidia/cuda/12.5.0 (D)	nvidia/nvhpc-hpcx-cuda12/24.5 (D)
nvidia/cuda/10.2.2	nvidia/cuda/11.6.0	nvidia/cuda/12.1.0	nvidia/nvhpc-hpcx-cuda11/24.5	

Where:
D: Default Module

If the avail list is too long consider trying:

"module --default avail" or "ml -d av" to just list the default modules.
"module overview" or "ml ov" to display the number of modules for each name.

Use "module spider" to find all possible modules and extensions.
Use "module keyword key1 key2 ..." to search for all possible modules matching any of the "keys".

d) Another piece of software available as a module on Euler is **MATLAB**.

MATLAB is a programming and numeric computing platform widely used for data analysis, algorithm development, and model creation.

```
[[thuang293@euler-login-1 ~]$ module avail matlab
```

```
-----  
matlab/r2021a    matlab/r2021b    matlab/r2023a (D)
```

Where:

D: Default Module

(Source: https://www.mathworks.com/products/matlab.html?s_tid=hp_products_matlab)

4.

```
#!/usr/bin/env zsh  
  
#SBATCH -p instruction  
#SBATCH --cpus-per-task=2  
#SBATCH --job-name=FirstSlurm  
#SBATCH --output=FirstSlurm.out  
#SBATCH --error=FirstSlurm.err  
hostname
```

5.

- a) SLURM_SUBMIT_DIR
- b) SLURM_JOB_ID is the ID of the job allocation.
- c) Using “squeue” to track the status of job(s).
- d) Using “scancel” followed by the job ID to cancel a job that is still in the queue.
- e) Request a GPU resource for the job
- f) Submit a job array with index values between 0 and 9.

6.

```
#include <iostream>  
#include <cstdlib>  
#include <cstdio>  
using namespace std;  
  
int main(int argc, char *argv[]){  
    int x = atoi(argv[1]);  
    for (int i = 0; i <= x; i++){  
        printf("%d ", i);  
    }  
    printf("\n");  
  
    for (int j = x; j >= 0; j--){  
        cout << j << " ";  
    }  
    cout << endl;  
  
    return 0;  
}
```

References

- [1] <https://www.geeksforgeeks.org/endl-vs-n-in-cpp/>
- [2] <https://www.geeksforgeeks.org/cout-in-c/>
- [3] <https://www.geeksforgeeks.org/convert-string-to-int-in-cpp/>
- [4] https://slurm.schedmd.com/job_array.html
- [5] <https://unix.stackexchange.com/questions/417426/best-way-to-cancel-all-the-slurm-jobs-from-shell-command-output>
- [6] https://slurm.schedmd.com/sbatch.html#SECTION_OUTPUT-ENVIRONMENT-VARIABLES

Caveats

Me: 90% & Online Resources(e.g. GeeksForGeeks): 10%