

COMP5112/MSBD5009 - Assignment 3

Package list

folder tree:

```
assignment3-package
├── assignment3.pdf
├── cuda_push_relabel.h
├── cuda_push_relabel_skeleton.cu
├── datasets
│   ├── input1.txt
│   └── input2.txt
├── main.cu
├── README.pdf
├── serial
│   ├── main.cpp
│   ├── push_relabel.h
│   └── serial_push_relabel.cpp
```

2 directories, 10 files

- assignment3.pdf: assignment3 description
- datasets: sample input files
- main.cu: utility functions and the main function
- cuda_push_relabel.h: header file of assignment
- cuda_push_relabel_skeleton.cu: code skeleton, you need to fill up the function body
- README.pdf: the readme file
- serial: a serial implementation of the push-relabel algorithm (for your reference)

Please only modify ***cuda_push_relabel_skeleton.cu*** file

Please only submit ***cuda_push_relabel_skeleton.cu*** file to the Canvas

Check your CUDA environment

Use command `nvcc --version` to check your CUDA environment.

We use CUDA8.0 as our test environment.

If you cannot find `nvcc` command, please add the CUDA installation path to your shell environment:

- add `setenv PATH "${PATH}:/usr/local/cuda-8.0/bin"` to the end of your `~/.cshrc_user` file.
- re-login (logout and login) to active your new environment.
- run `nvcc --version` to check your environment again.

Compile and run:

`serial_push_relabel`

Compile:

```
$ g++ -std=c++11 main.cpp serial_push_relabel.cpp -o serial_push_relabel
```

Run:

```
$ ./serial_push_relabel <input file>
```

e.g. `./serial_push_relabel input1.txt`

You will find the output on the screen.

`cuda_push_relabel`

Compile:

```
$ nvcc -std=c++11 -arch=compute_52 -code=sm_52 main.cu cuda_push_relabel_skeleton.cu -o cuda_push_relabel
```

Run:

```
$ ./cuda_push_relabel <input file> <num of blocks per grid> <number of thread per block>
```

e.g. `./cuda_push_relabel input1.txt 8 32`

You will find the output on the screen.