

## Re: Issue with Module 8 Assignment

From: Chance Pascale (cpascal3@jhu.edu)

To: wuyujiangacademy@yahoo.com

Date: Sunday, March 27, 2022, 07:31 PM CDT

The issue here is as you have described. If you can submit your assignment with a note to the effect that it built with your computer then I will give you full credit.

Cheers,  
Chance

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**From:** Yujiang Wu <wuyujiangacademy@yahoo.com>

**Sent:** Sunday, March 27, 2022 8:15:00 PM

**To:** Chance Pascale <cpascal3@jhu.edu>

**Subject:** Issue with Module 8 Assignment

**External Email - Use Caution**

Hi Professor Chance,

I have an issue with this assignment.

I used **cusolverDnSSgels** from [2.4.2.14. cusolverDn<t1><t2>gels\(\)](#) to solve linear equations and it works fine on my local computer.

```
yw30000@DESKTOP-3DVKOCG: /usr/local/cuda/include
linearSolve.cu ./cusolver/unitTest_linearSolve.cu
nvcc assignment.o utility.o matrixmultiplication.o unitTest_matrixmultiply.o linearSolve.o unitTest_linearSolve.o -L /usr/local/cuda/lib64 -lcublas -lcudart -lcusolver -o assignment
Test 1: Matrix multiplication: 2x9 x 9x2 --> 2x2. Linear solve: 3x3 3x1
-----
Matrix multiplication took: 458.719 ms
Matrix A:
0.000000 2.000000 4.000000 6.000000 8.000000 10.000000 12.000000 14.000000 16.000000
1.000000 3.000000 5.000000 7.000000 9.000000 11.000000 13.000000 15.000000 17.000000
Matrix B:
0.000000 9.000000
1.000000 10.000000
2.000000 11.000000
3.000000 12.000000
4.000000 13.000000
5.000000 14.000000
6.000000 15.000000
7.000000 16.000000
8.000000 17.000000
Matrix A multiplies Matrix B:
408.000000 1056.000000
444.000000 1173.000000
Matrix A:
1.000000 2.000000 3.000000
4.000000 5.000000 6.000000
2.000000 1.000000 1.000000
Matrix B:
6.000000
15.000000
4.000000
after gels: info_gpu = 0
after gels: miter = 1
Linear Solver took: 450.287 ms
Solution X:
1.000000
1.000000
1.000000
Press ENTER to exit...
```

However, when I compile the same program in Vocareum, it does not compile and complains that identifier "cusolverDnSSgels" is undefined.

```
./cusolver/linearsolve.cu(42): error: identifier "cusolverDnSSgels_bufferSize" i
./cusolver/linearsolve.cu(61): error: identifier "cusolverDnSSgels" is undefined
2 errors detected in the compilation of "/tmp/tmpxft_00005701_00000000-60_linear
Makefile:17: recipe for target 'all' failed
make: *** [all] Error 2
```

After some research, I think the reason is that

**cusolverDnSSgels is defined in [cudaToolkit version 11.6.2](#) while it is not defined in [cudaToolkit version 8.0](#).**

#### cuSOLVER :: CUDA Toolkit Documentation

The API reference guide for cuSolver, the CUDA sparse matrix library.

On my local computer, I have cuda 11.4

```
yw50000@DESKTOP-3DVKOCG:/usr/local/cuda/include$ nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2021 NVIDIA Corporation
Built on Wed Jun 2 19:15:15 PDT 2021
Cuda compilation tools, release 11.4, V11.4.48
Build cuda_11.4.r11.4/compiler.30033411_0
```

while on Vocareum, it is still using cuda 8.0

```
ddd_v1_w_jmZ_1031672@runweb47378:~/module8/cusolver$ nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2016 NVIDIA Corporation
Built on Tue Jan 10 13:22:03 CST 2017
Cuda compilation tools, release 8.0, V8.0.61
```

I am not sure how to solve it. Do I need to make it works in vocareum necessarily?

Thanks.

Yujiang Wu