

Computer Graphics, Lab Assignment 1

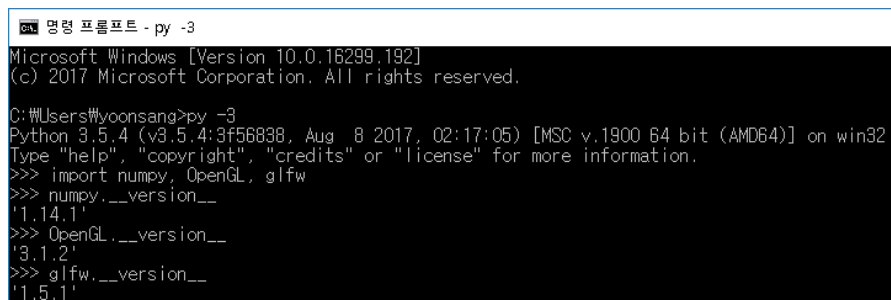
Handed out: March 13, 2023

due: 23:59, March 19, 2022 (NO SCORE for late submissions!)

Submit your assignment only through the lecture home at portal.hanyang.ac.kr.

1. This assignment aims to make you set up a Python environment and practice submitting an assignment. To do this,
 - A. Install Python, NumPy, PyOpenGL, glfw as instructed in the Lab1-EnvSetting slides.
 - B. Start the python interpreter in the interactive mode and import numpy, OpenGL, glfw and print the version of those modules and capture the screenshot. Refer the example screenshot 2017xxxxxx.jpg below.
 - C. You can use Windows command prompt or Linux terminal or something like that to run Python interpreter in interactive mode.
 - D. Submit a single image file - **[studentID]-[assignment#]-[prob#].jpg** (or png or gif) (e.g. **2017123456-1-1.jpg**)

1. Example screenshot: 2017xxxxxx.jpg



```
cmd 명령 프롬프트 - py -3
Microsoft Windows [Version 10.0.16299.192]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\#yoonsang>py -3
Python 3.5.4 (v3.5.4:3f56838, Aug 8 2017, 02:17:05) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import numpy, OpenGL, glfw
>>> numpy.__version__
'1.14.1'
>>> OpenGL.__version__
'3.1.2'
>>> glfw.__version__
'1.5.1'
```

2. Write down a Python program to:
 - A. Create a 1d array M with values ranging from 2 to 26 and print M.
 - B. Reshape M as a 5x5 matrix and print M.
 - C. Set the first column of the matrix M to 0 and print M.
 - D. Assign M^2 to the M and print M.

E. Now, let's consider the first row of matrix M as vector v. Calculate the magnitude of the vector v and print it.

i. Hint: $\|x\| = \sqrt{x_1^2 + x_2^2 + \dots + x_n^2}$

ii. Hint: Use np.sqrt()

F. Submit a single .py file - **[studentID]-[assignment#]-[prob#].py** (e.g. **2017123456-1-2.py**)