Computer Graphics

1 - Lab: Environment Setting for Lectures & Assignments

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Introduction

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Topics Covered

- Installing Python Interpreter
- Python 2 & Python 3
- Installing Additional Python Modules
- Running Python Interpreter
- Time for Lab Assignment 1

Install Python Interpreter

- Python **3.5** or later
  - https://www.python.org/downloads/

- Note that all submissions for assignments should work in Python **3.5**.

- You can use any OS that runs Python.

Python 2 & Python 3

- Python 2 is still in active use.

- Python 3 is the future of Python.
  - A lot of very useful features & fixes for well-known problems
  - To do this, **Python 3 breaks backward compatibility**.

- If you're familiar with Python 2, you have to know the difference between Python 2 and 3.
  - The following link would be helpful:
  - http://sebastianraschka.com/Articles/2014_python_2_3_key_diff.html

(Optional) Creating Isolated Python Environments

- If you already have some projects using Python 2 on your laptop, you have to use both Python 2 & 3 on the same machine.

- In this case, I recommend using **virtualenv** / **virtualenvwrapper**.
  - which allow you to create isolated Python environments for each version of Python.
  - https://virtualenv.pypa.io/en/latest/
  - https://virtualenvwrapper.readthedocs.io/en/latest/

Install Additional Modules

- We'll use a few python modules in this class
  - NumPy, PyOpenGL, glfw
- My recommendation for installing python modules is using **pip** (Python Package Index)
- NumPy
  - Windows

```
> py -3 -m pip install numpy
```

  - Ubuntu

```
# if you don't have pip, install it first.
$ sudo apt-get install python3-pip

$ python3 -m pip install numpy
```

Install Additional Modules

- PyOpenGL
  - Windows
    - Download proper *PyOpenGL-3.1.2-cp**3x**-cp**3x**m_xxx.whl* for your system from https://www.lfd.uci.edu/~gohlke/pythonlibs/#pyopengl

```
> py -3 -m pip install PyOpenGL-<version in your file>.whl
```

  - Ubuntu

```
$ python3 -m pip install PyOpenGL
```

Install Additional Modules

- GLFW
  - Windows

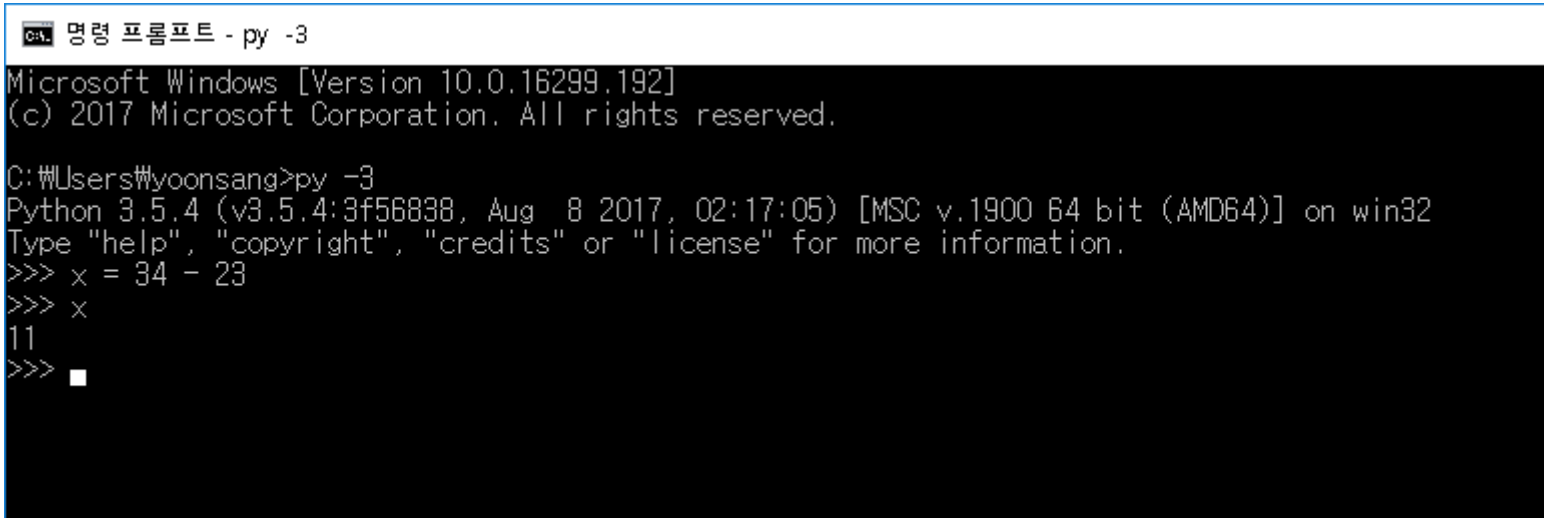
```
> py -3 -m pip install glfw
```

  - Ubuntu

```
$ sudo apt-get install libglfw3
$ python3 -m pip install glfw
```

Running Python Interpreter 1

- **Interactive mode**
  - Windows: Start, type “cmd”, `> py -3`
  - Ubuntu: Start, type “terminal”, `$ python3`
  - Suitable for simple tests
  - To exit the interpreter, type exit() and press enter key.



Running Python Interpreter 2

- **Non-interactive mode (runs a source file)**
  - Windows
  - Ubuntu
  - In most cases, you will use this mode.

```
> py -3 test.py
```

```
$ python3 test.py
```

- You can write a Python source file using your favorite editor.
  - Vim, Notepad++, Sublime Text, Atom, IDLE …
  - I’m personally using vim & gvim.

Python References

- https://docs.python.org/ko/3/tutorial/index.html
- https://docs.python.org/3/tutorial/index.html
- https://www.tutorialspoint.com/python3/

Lab Assignment 1

- Now, let's start the lab assignment 1.
- Lab assignment 1 is just for practice, will not be included in the final grade.

- However, you need to complete and submit your answers to figure out how to set up the environment and how to submit assignments.

- Go to the page of this course at learn.hanyang.ac.kr and click "Lab Assignment 1, 1".
- If you finished the assignment, submit your work to the "Lab Assignment 1, 1".