TensorFlow 환경설치 및 자료 받기

제주대학교 컴퓨터공학과
변영철 교수
yungcheolbyun@gmail.com

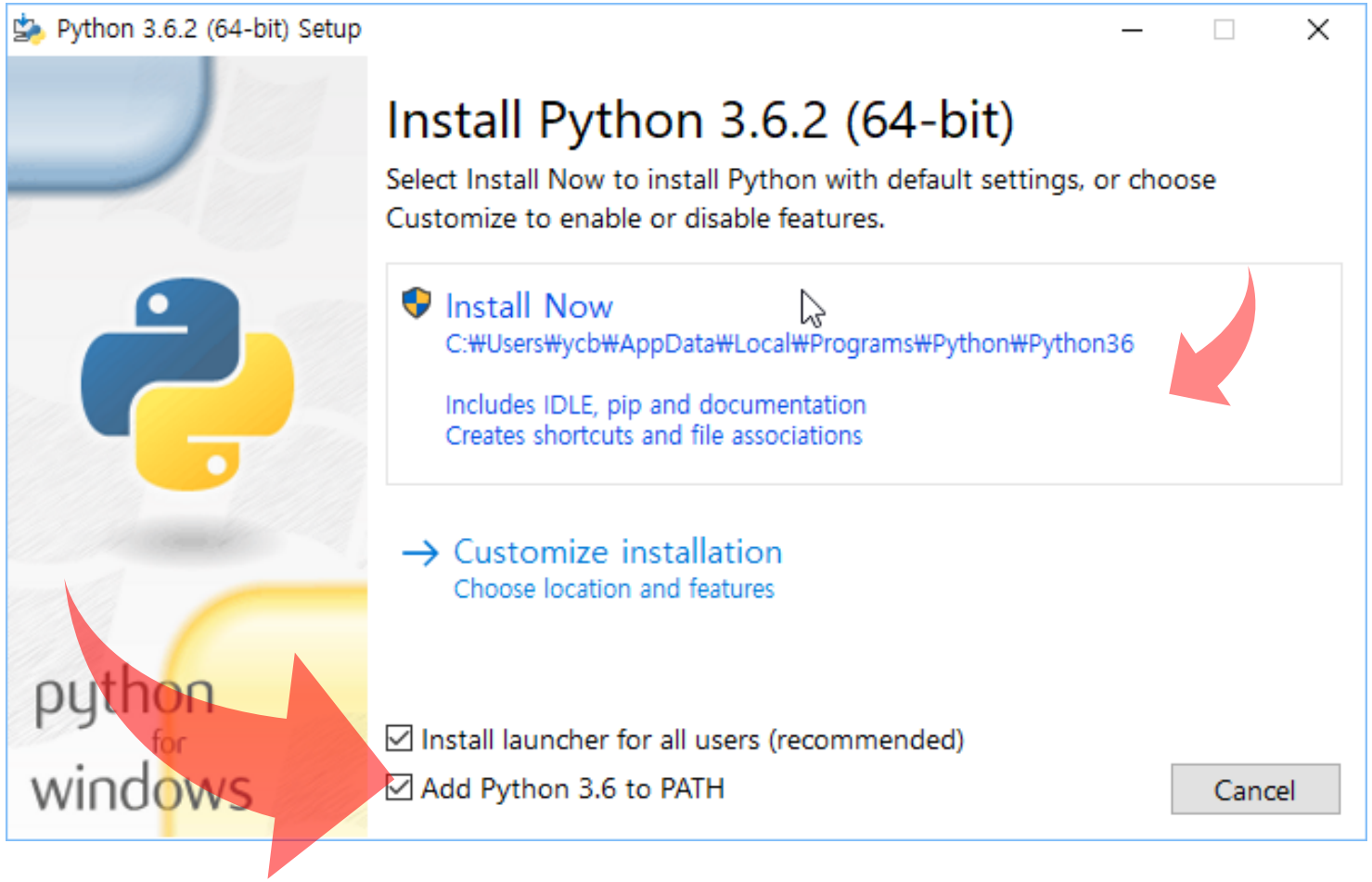
공부할 내용

- Python 설치
- TensorFlow 설치
- PyCharm 설치
- PyCharm을 이용한 코딩
- Git 설치
- 단축키 설정

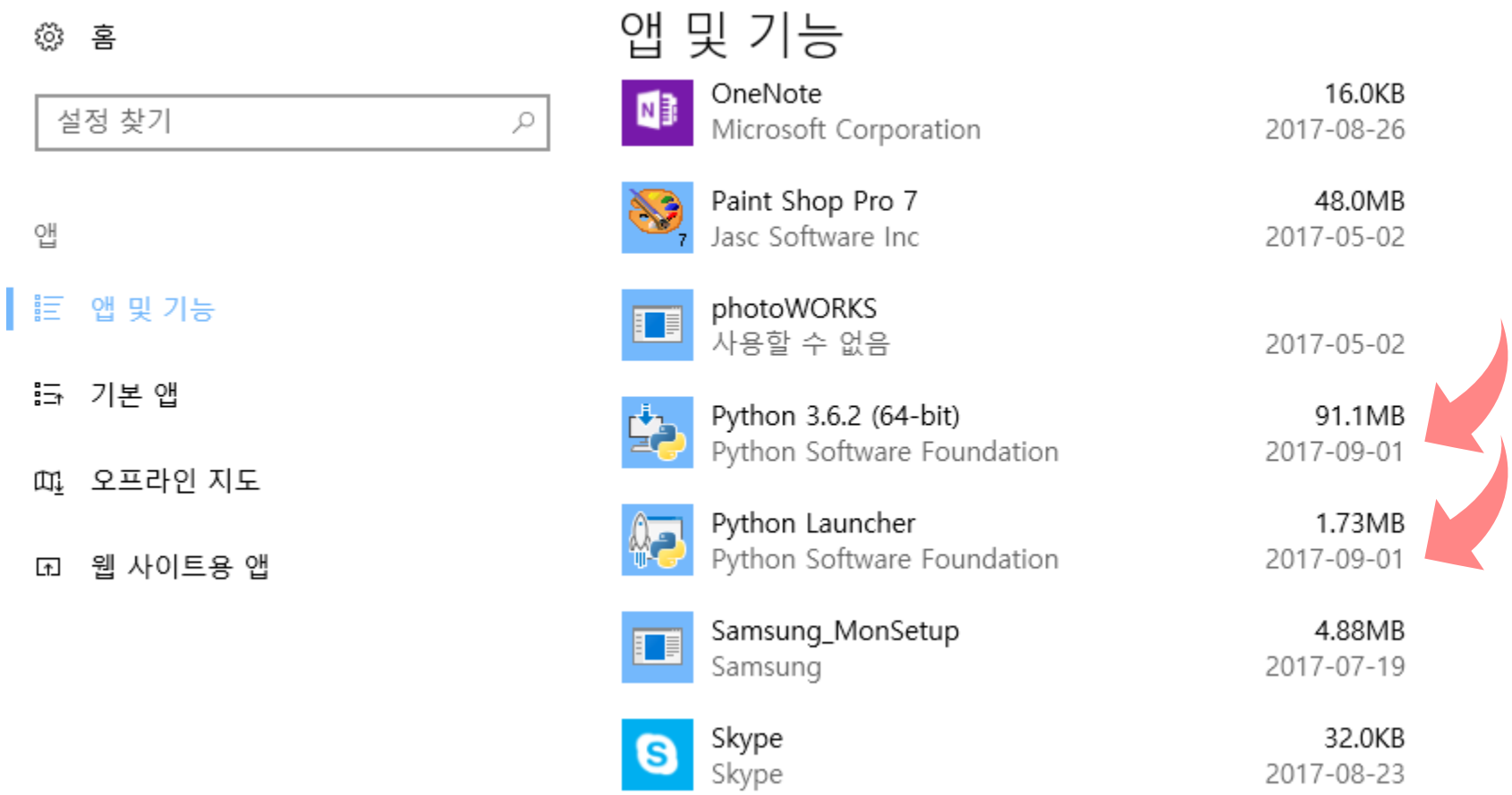
(1) Python 설치

- https://www.python.org/downloads/
- 최신버전 설치(64bit)

주의) 3.6.x 버전으로 설치



(1) Python 설치


홈
설정 찾기
앱
앱 및 기능
기본 앱
오프라인 지도
웹 사이트용 앱
앱 및 기능
OneNote
Microsoft Corporation
16.0KB
2017-08-26
Paint Shop Pro 7
Jasc Software Inc
48.0MB
2017-05-02
photoWORKS
사용할 수 없음
2017-05-02
Python 3.6.2 (64-bit)
Python Software Foundation
91.1MB
2017-09-01
Python Launcher
Python Software Foundation
1.73MB
2017-09-01
Samsung_MonSetup
Samsung
4.88MB
2017-07-19
Skype
Skype
32.0KB
2017-08-23

(2) TensorFlow 설치

Python을 설치하면 pip도 설치됨.

1. pip 업그레이드

> pip install --upgrade pip

(이미 최신 버전이 설치되어 있음)

2. pip로 TensorFlow 설치

> pip install tensorflow==1.5.1

주의) 1.5.x 버전으로 설치

(3) Pyton & TensorFlow 테스트

- 도스 창에서 Python과 TensorFlow 테스트

```
>python
>>> import tensorflow as tf
>>> hello = tf.constant('Hello,World!')
>>> sess = tf.Session()
>>> print(sess.run(hello))
Hello,World!
```

```
>>> a = tf.constant(2)
>>> b = tf.constant(3)
>>> print (sess.run(a + b))
5
```

(4) PyCharm 설치

Download PyCharm

Windows macOS Linux

Version: 2018.3.1

Build: 183.4588.64

Released: December 5, 2018

System requirements

Installation Instructions

Previous versions

Professional

Full-featured IDE
for Python & Web
development

DOWNLOAD

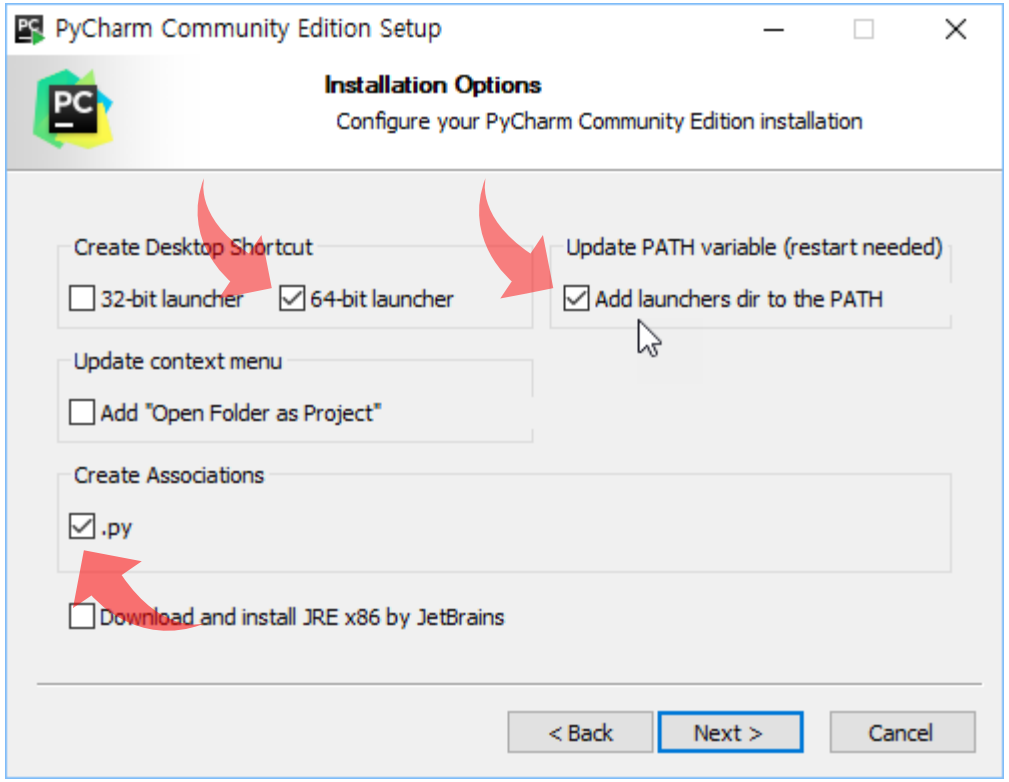
Free trial

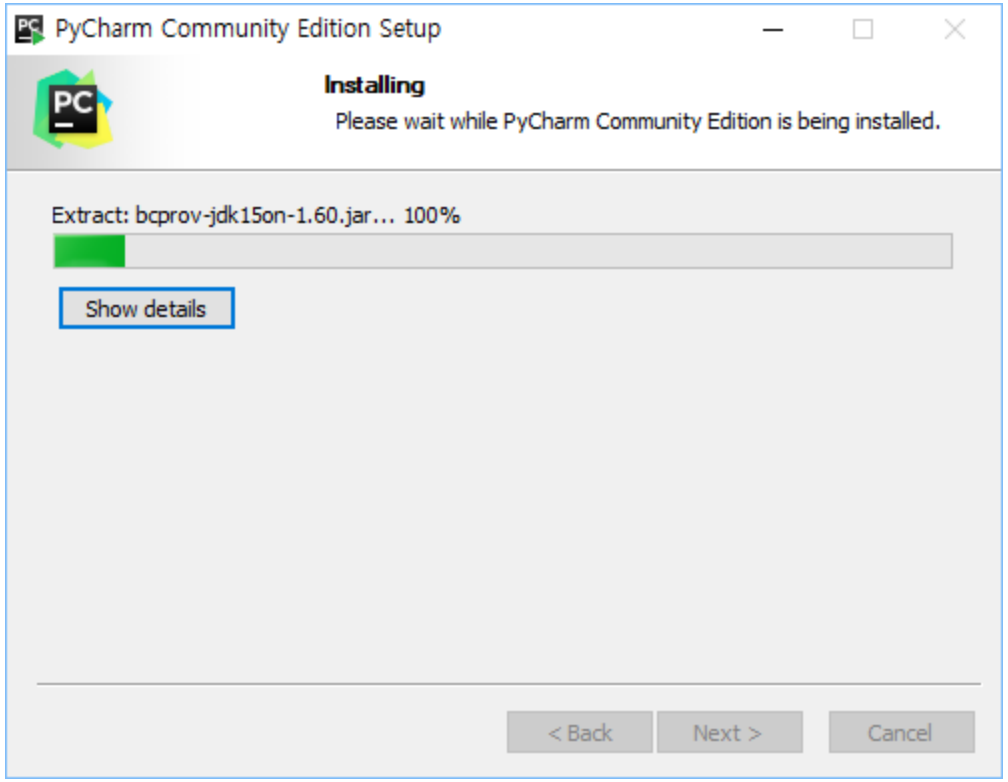
Community

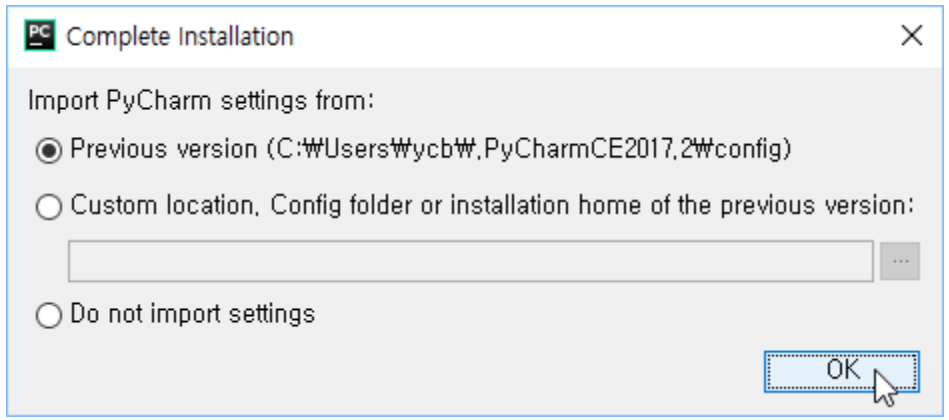
Lightweight IDE
for Python & Scientific
development

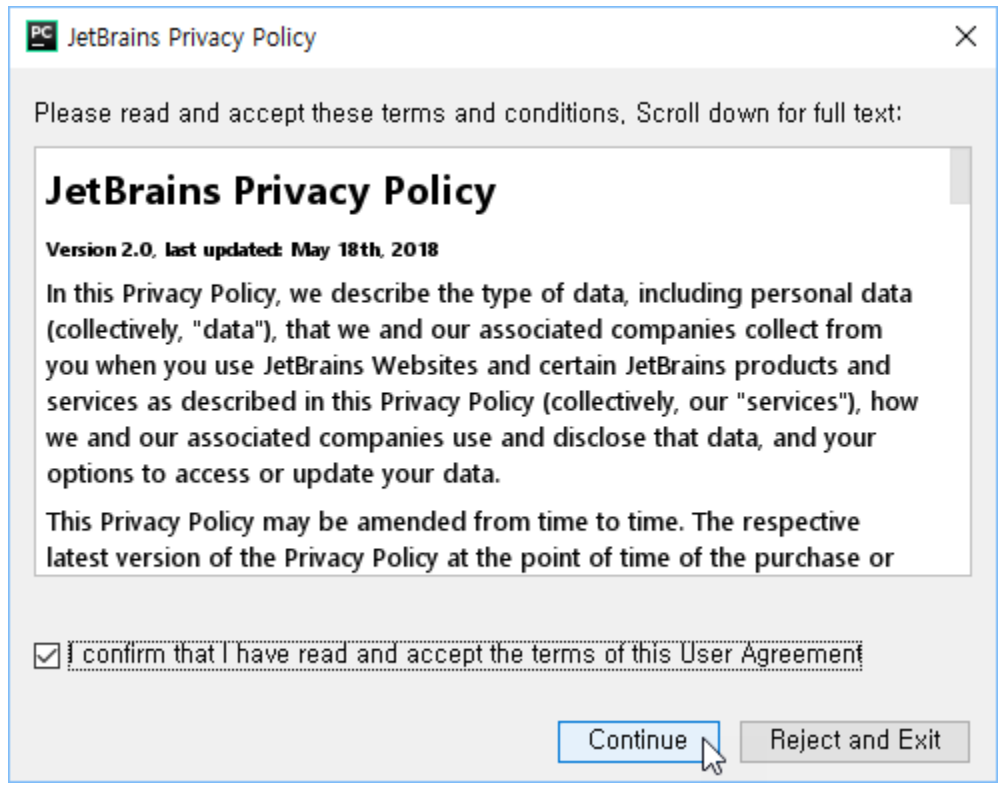
DOWNLOAD

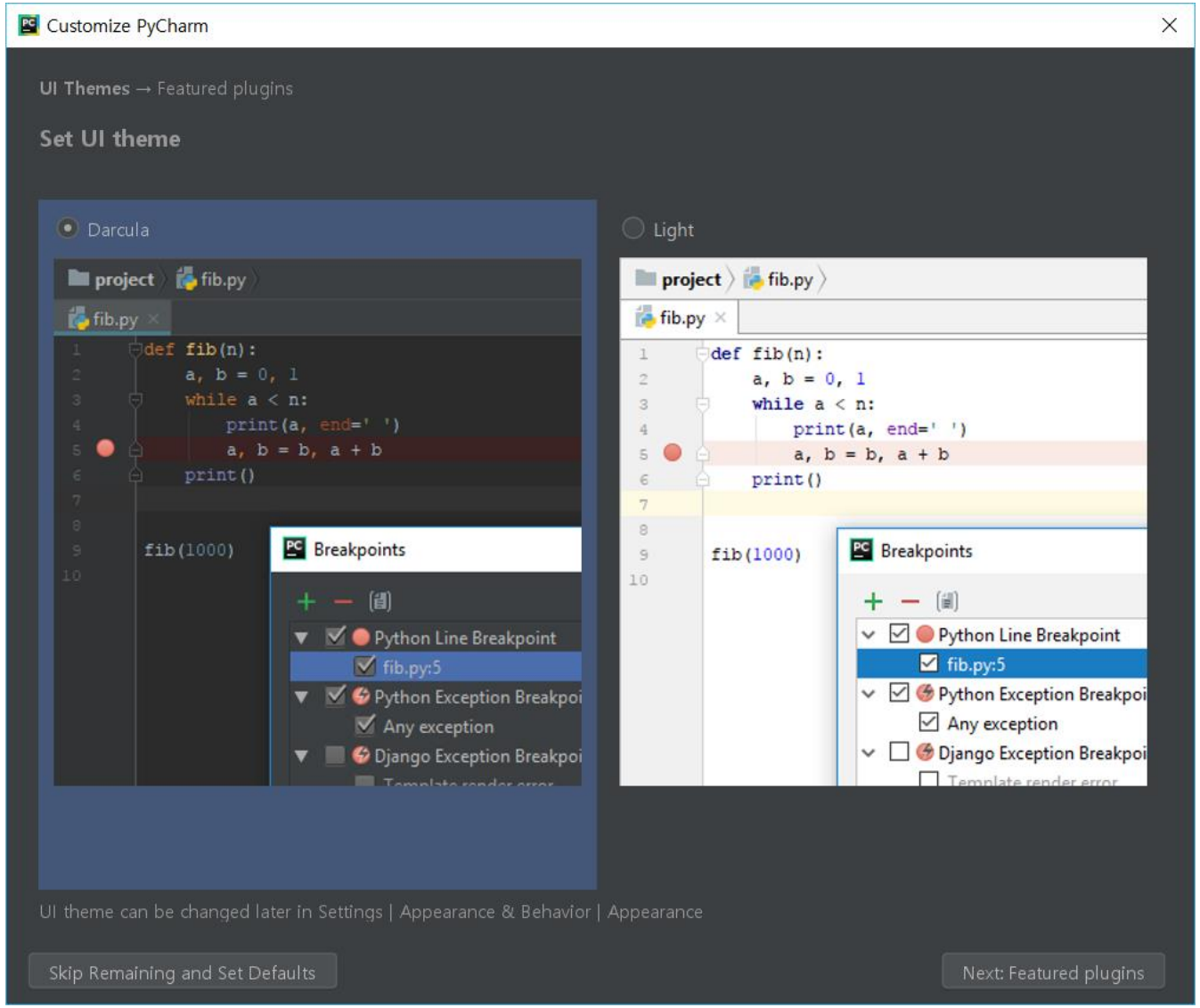
Free, open-source

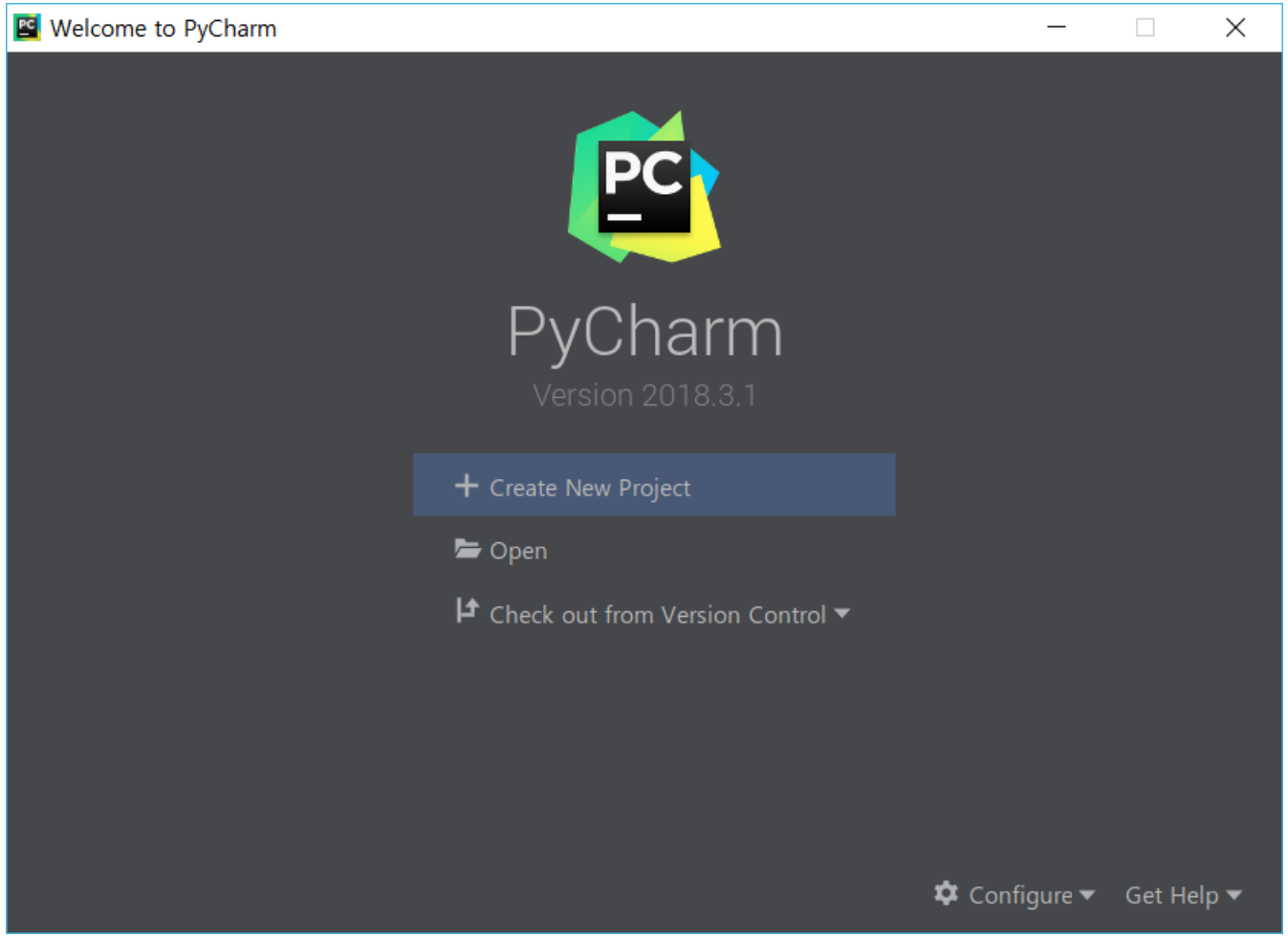

PyCharm Community Edition Setup
Installation Options
Configure your PyCharm Community Edition installation
Create Desktop Shortcut
32-bit launcher
64-bit launcher
Update PATH variable (restart needed)
Add launchers dir to the PATH
Update context menu
Add "Open Folder as Project"
Create Associations
.py
Download and install JRE x86 by JetBrains
< Back
Next >
Cancel


PyCharm Community Edition Setup
Installing
Please wait while PyCharm Community Edition is being installed.
Extract: bcprov-jdk15on-1.60.jar... 100%
Show details
< Back
Next >
Cancel

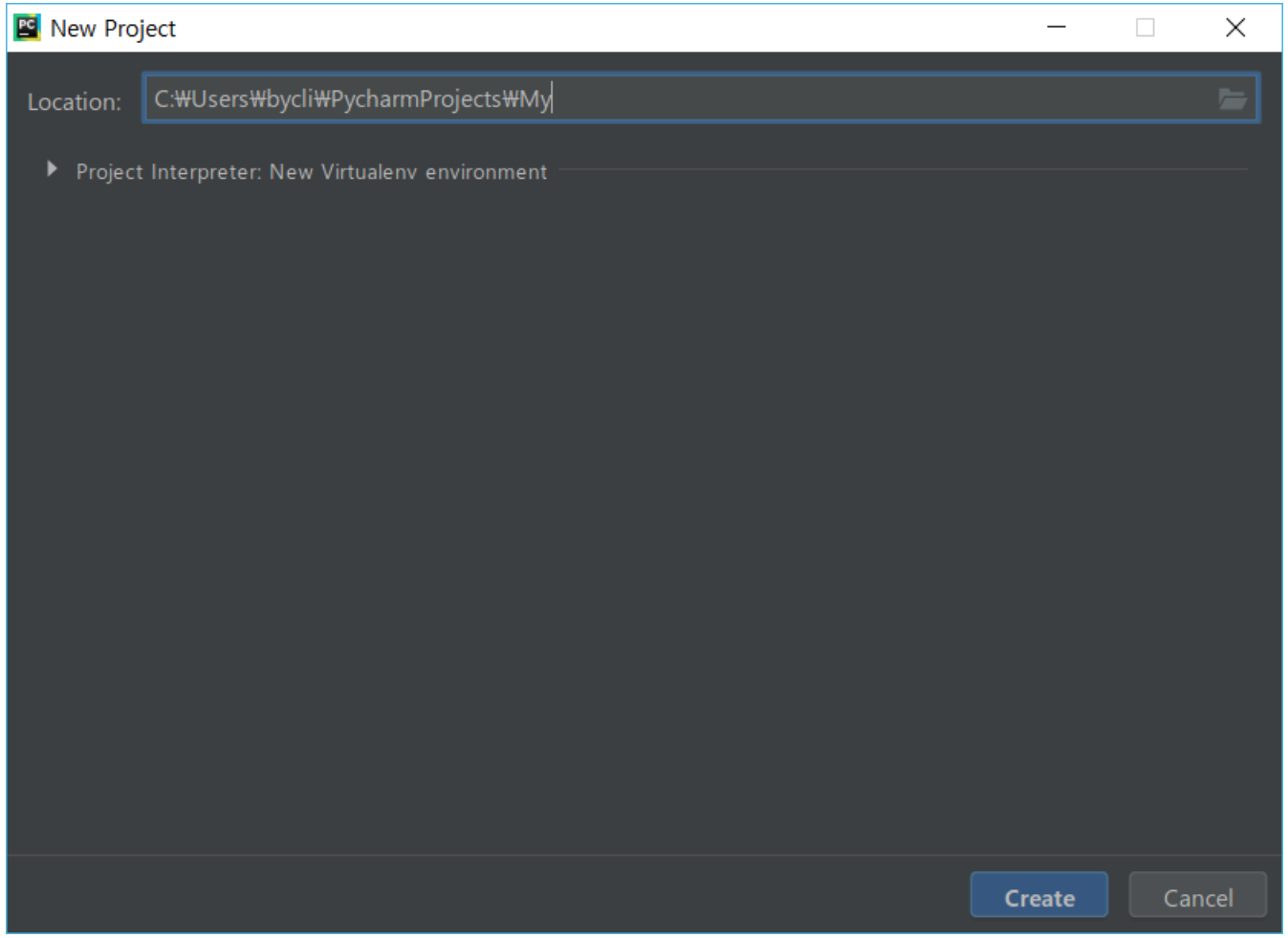

Complete Installation
Import PyCharm settings from:
Previous version (C:₩Users₩ycb₩.PyCharmCE2017.2₩config)
Custom location, Config folder or installation home of the previous version:
Do not import settings
OK

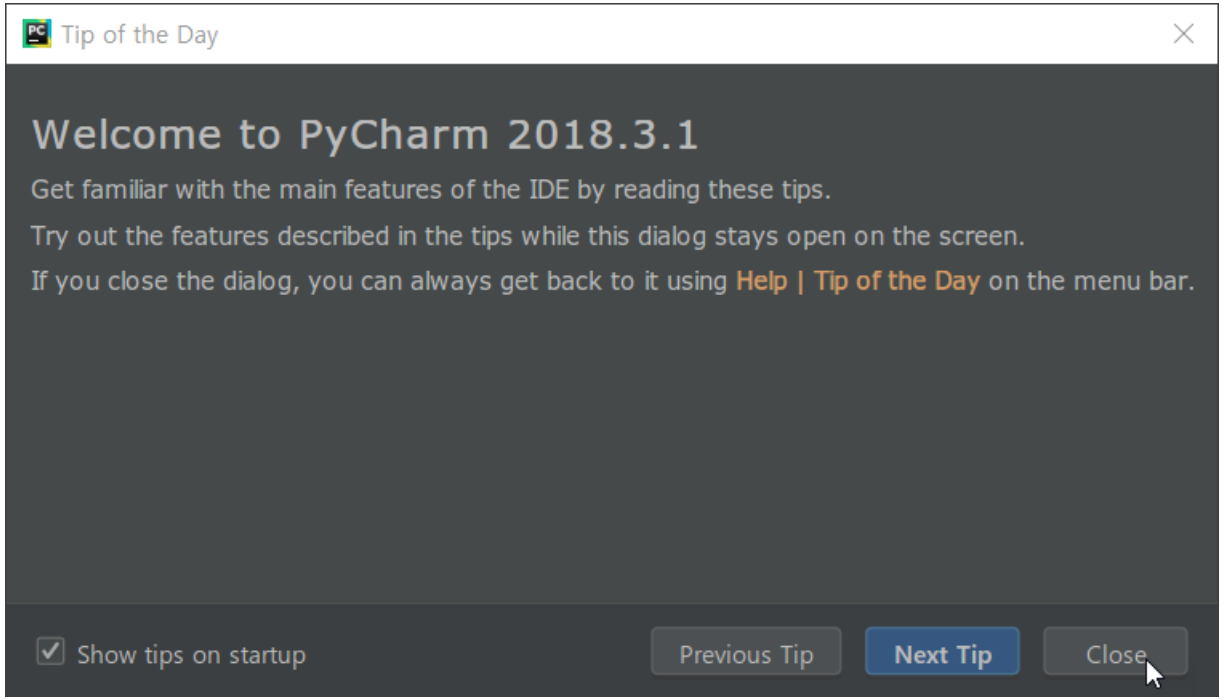

JetBrains Privacy Policy
Please read and accept these terms and conditions. Scroll down for full text:
JetBrains Privacy Policy
Version 2.0, last updated: May 18th, 2018
In this Privacy Policy, we describe the type of data, including personal data (collectively, "data"), that we and our associated companies collect from you when you use JetBrains Websites and certain JetBrains products and services as described in this Privacy Policy (collectively, our "services"), how we and our associated companies use and disclose that data, and your options to access or update your data.
This Privacy Policy may be amended from time to time. The respective latest version of the Privacy Policy at the point of time of the purchase or
I confirm that I have read and accept the terms of this User Agreement
Continue
Reject and Exit

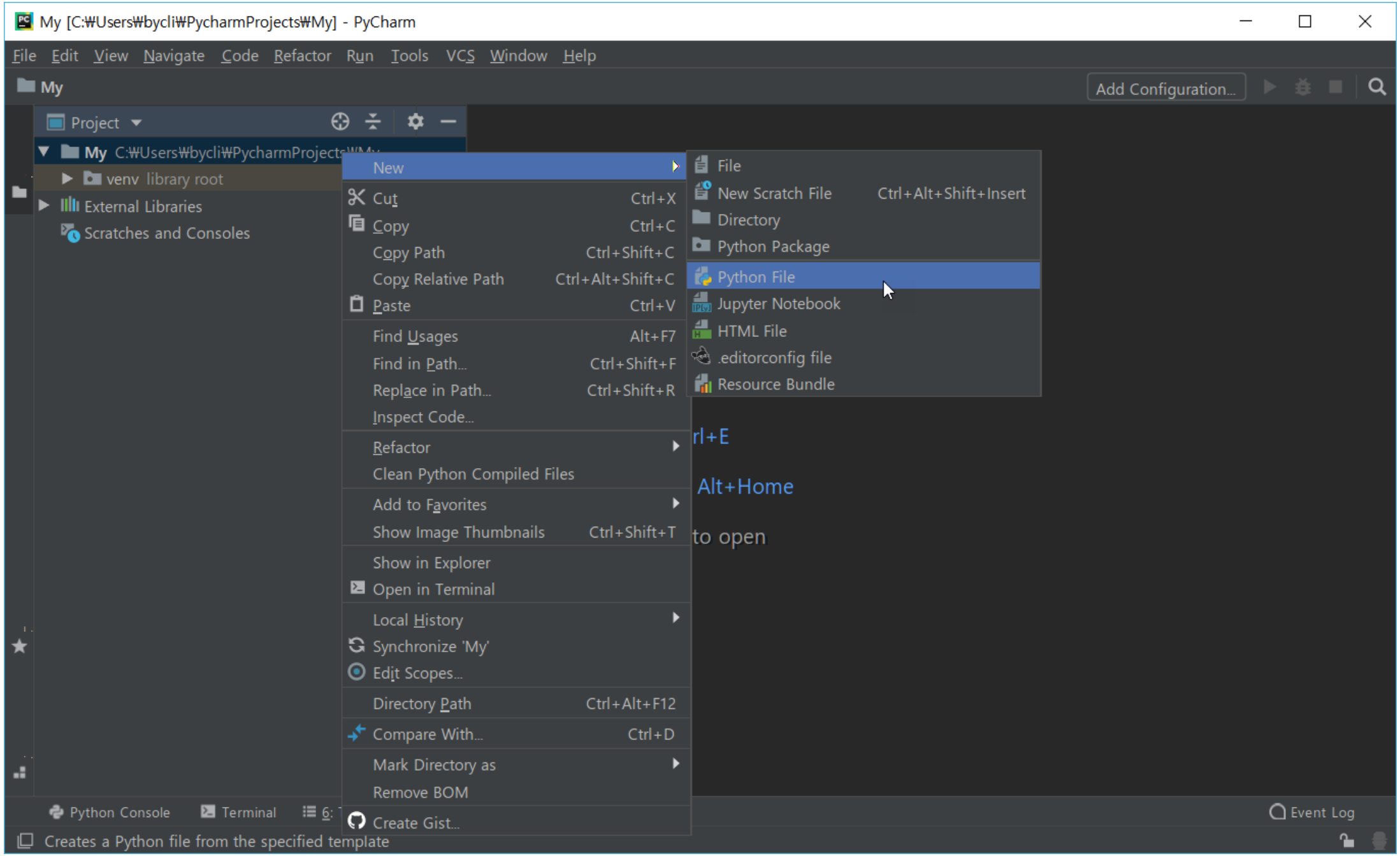

Customize PyCharm
UI Themes → Featured plugins
Set UI theme
Darcula
Light
project
fib.py
def fib(n):
a, b = 0, 1
while a < n:
print(a, end=' ')
a, b = b, a + b
print()
fib(1000)
Breakpoints
Python Line Breakpoint
fib.py:5
Python Exception Breakpoi
Any exception
Django Exception Breakpoi
UI theme can be changed later in Settings | Appearance & Behavior | Appearance
Skip Remaining and Set Defaults
Next: Featured plugins

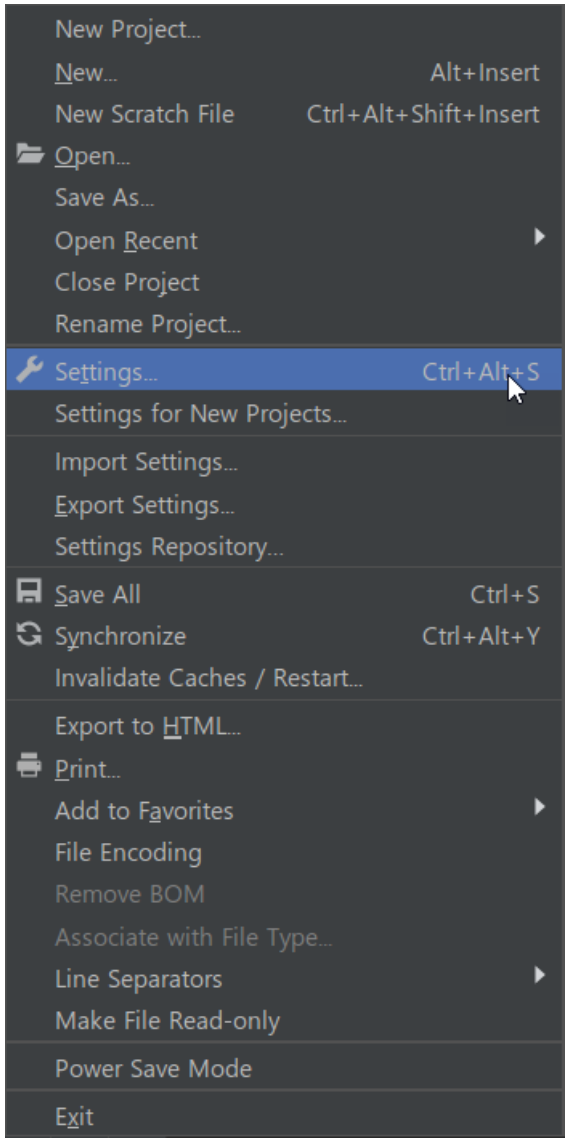

Welcome to PyCharm
PyCharm
Version 2018.3.1
Create New Project
Open
Check out from Version Control
Configure
Get Help

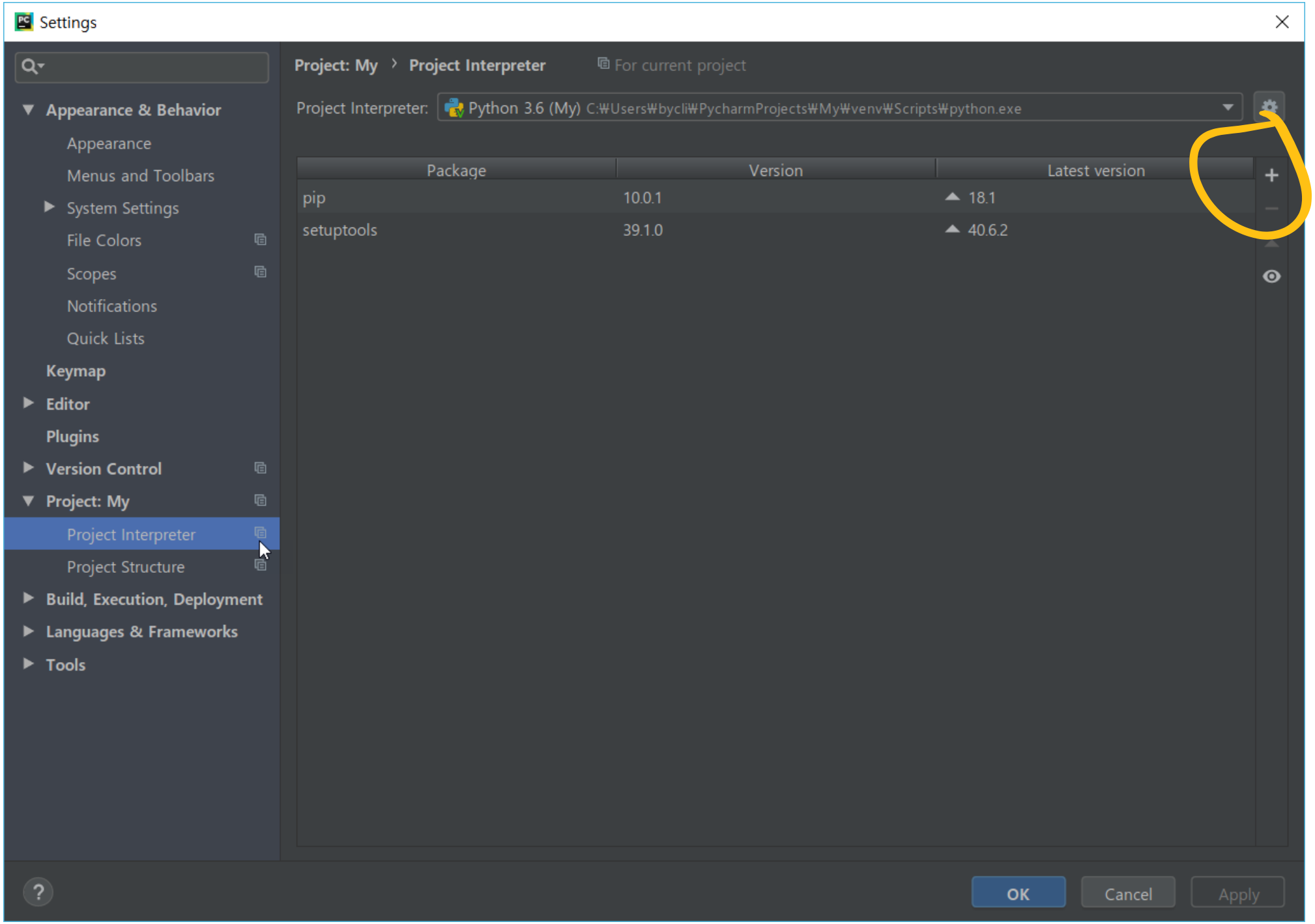
(5) PyCharm을 이용한 코딩

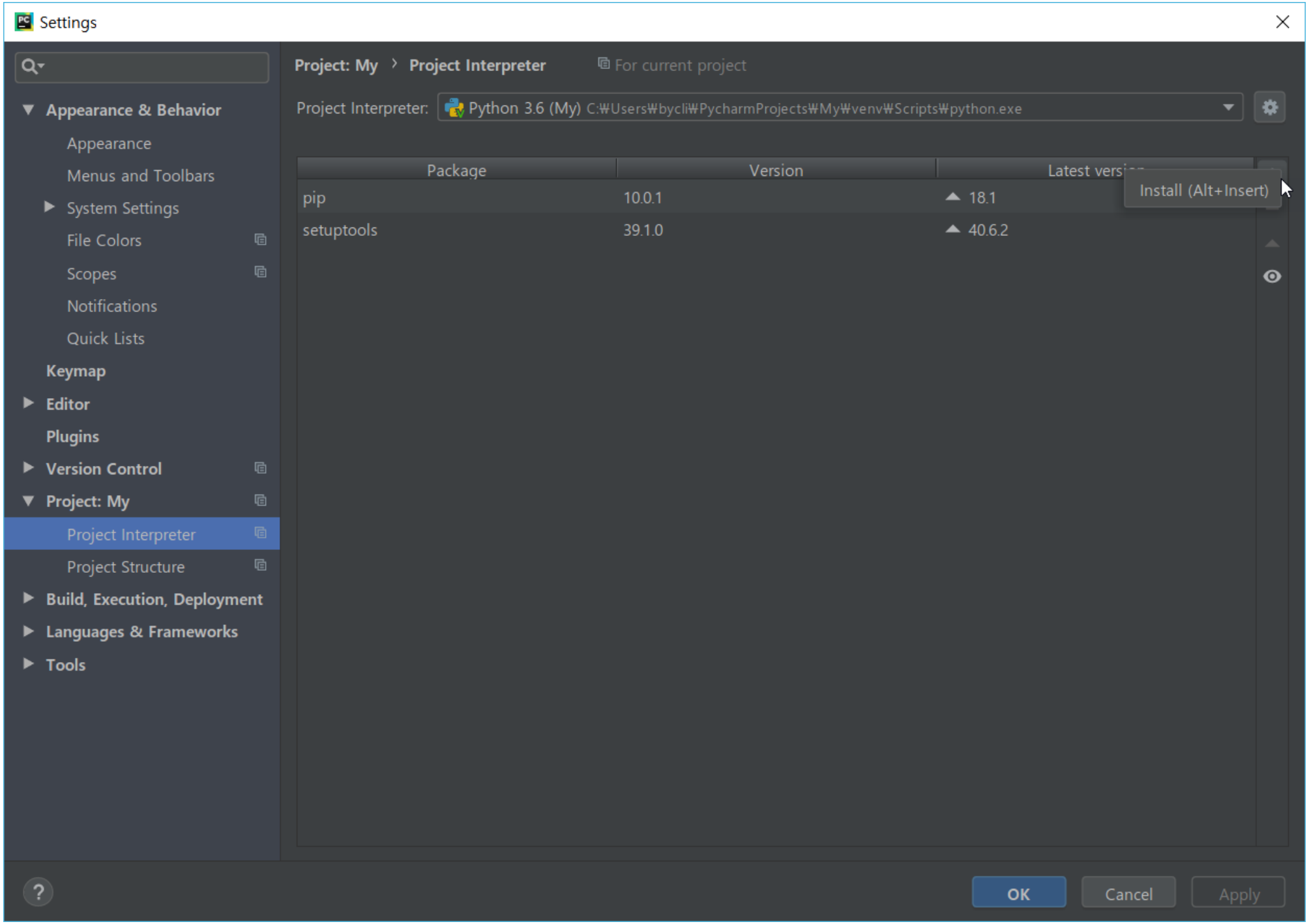


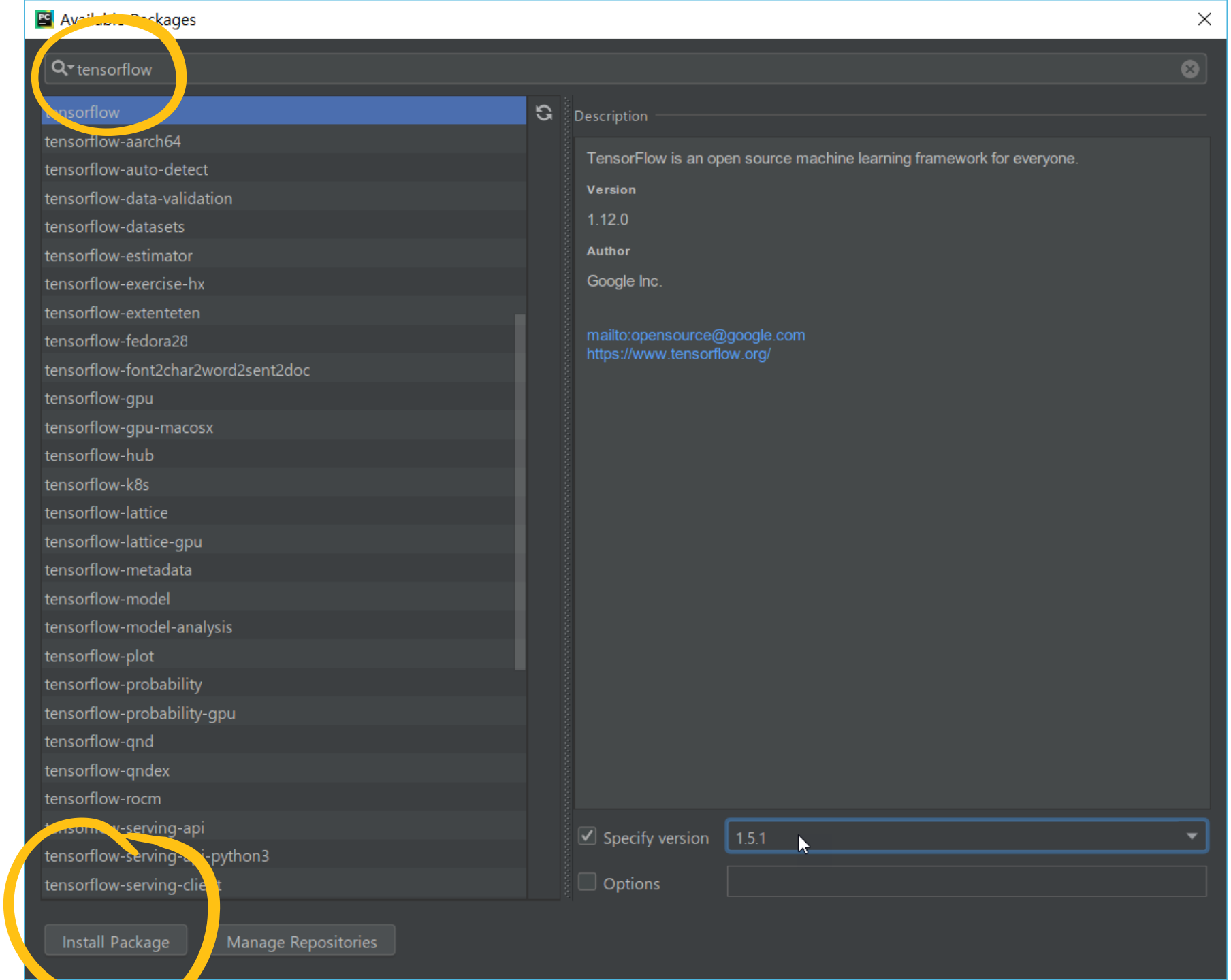

Tip of the Day
Welcome to PyCharm 2018.3.1
Get familiar with the main features of the IDE by reading these tips.
Try out the features described in the tips while this dialog stays open on the screen.
If you close the dialog, you can always get back to it using Help | Tip of the Day on the menu bar.
Show tips on startup
Previous Tip
Next Tip
Close

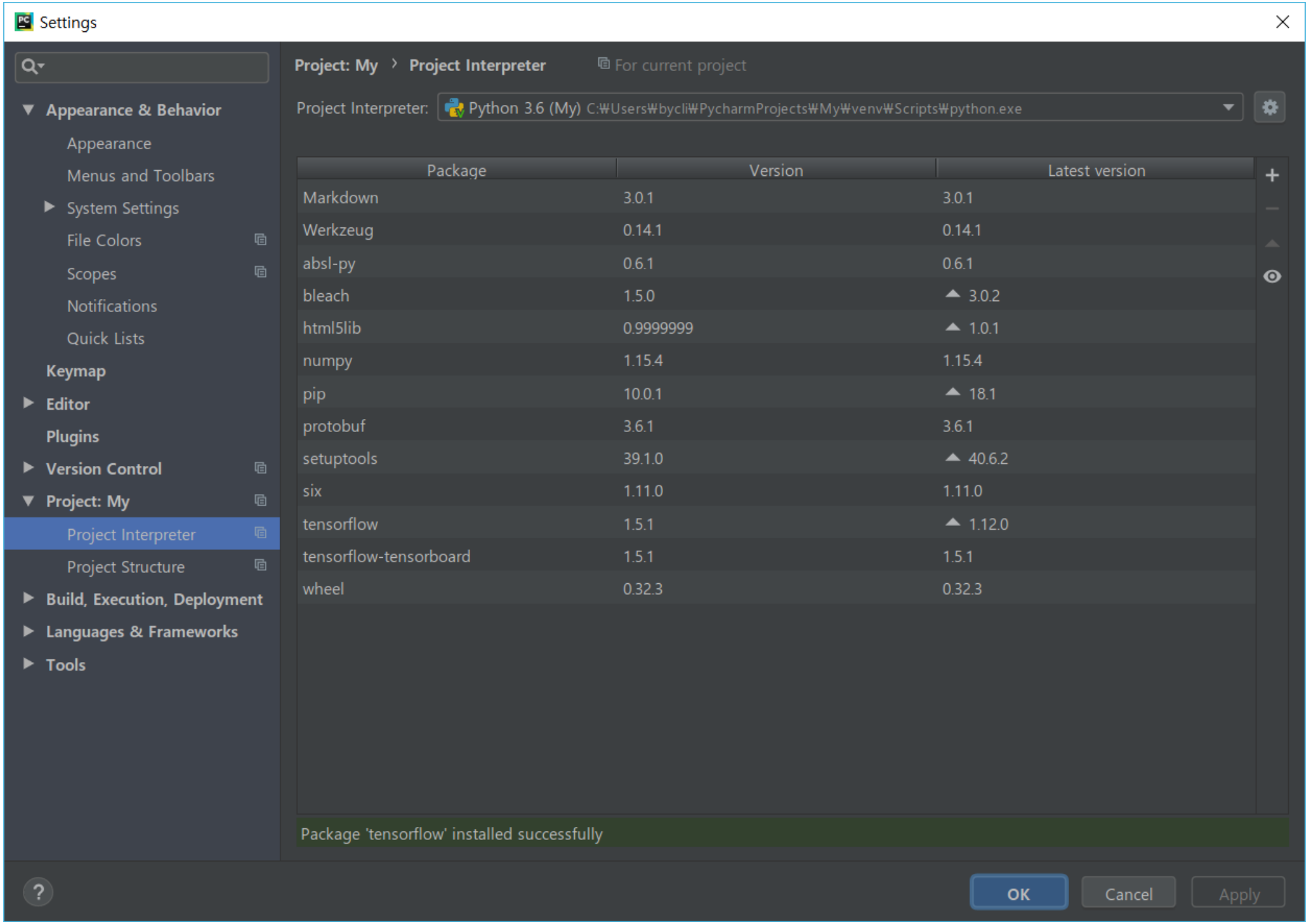

My [C:₩Users₩bycli₩PycharmProjects₩My] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
My
Add Configuration...
Project
My C:₩Users₩bycli₩PycharmProjects₩My
venv library root
External Libraries
Scratches and Consoles
New
Cut Ctrl+X
Copy Ctrl+C
Copy Path Ctrl+Shift+C
Copy Relative Path Ctrl+Alt+Shift+C
Paste Ctrl+V
Find Usages Alt+F7
Find in Path... Ctrl+Shift+F
Replace in Path... Ctrl+Shift+R
Inspect Code...
Refactor
Clean Python Compiled Files
Add to Favorites
Show Image Thumbnails Ctrl+Shift+T
Show in Explorer
Open in Terminal
Local History
Synchronize 'My'
Edit Scopes...
Directory Path Ctrl+Alt+F12
Compare With... Ctrl+D
Mark Directory as
Remove BOM
Create Gist...
File
New Scratch File Ctrl+Alt+Shift+Insert
Directory
Python Package
Python File
Jupyter Notebook
HTML File
.editorconfig file
Resource Bundle
rl+E
Alt+Home
to open
Python Console
Terminal
Event Log
Creates a Python file from the specified template


New Project...
New... Alt+Insert
New Scratch File Ctrl+Alt+Shift+Insert
Open...
Save As...
Open Recent
Close Project
Rename Project...
Settings... Ctrl+Alt+S
Settings for New Projects...
Import Settings...
Export Settings...
Settings Repository...
Save All Ctrl+S
Synchronize Ctrl+Alt+Y
Invalidate Caches / Restart...
Export to HTML...
Print...
Add to Favorites
File Encoding
Remove BOM
Associate with File Type...
Line Separators
Make File Read-only
Power Save Mode
Exit

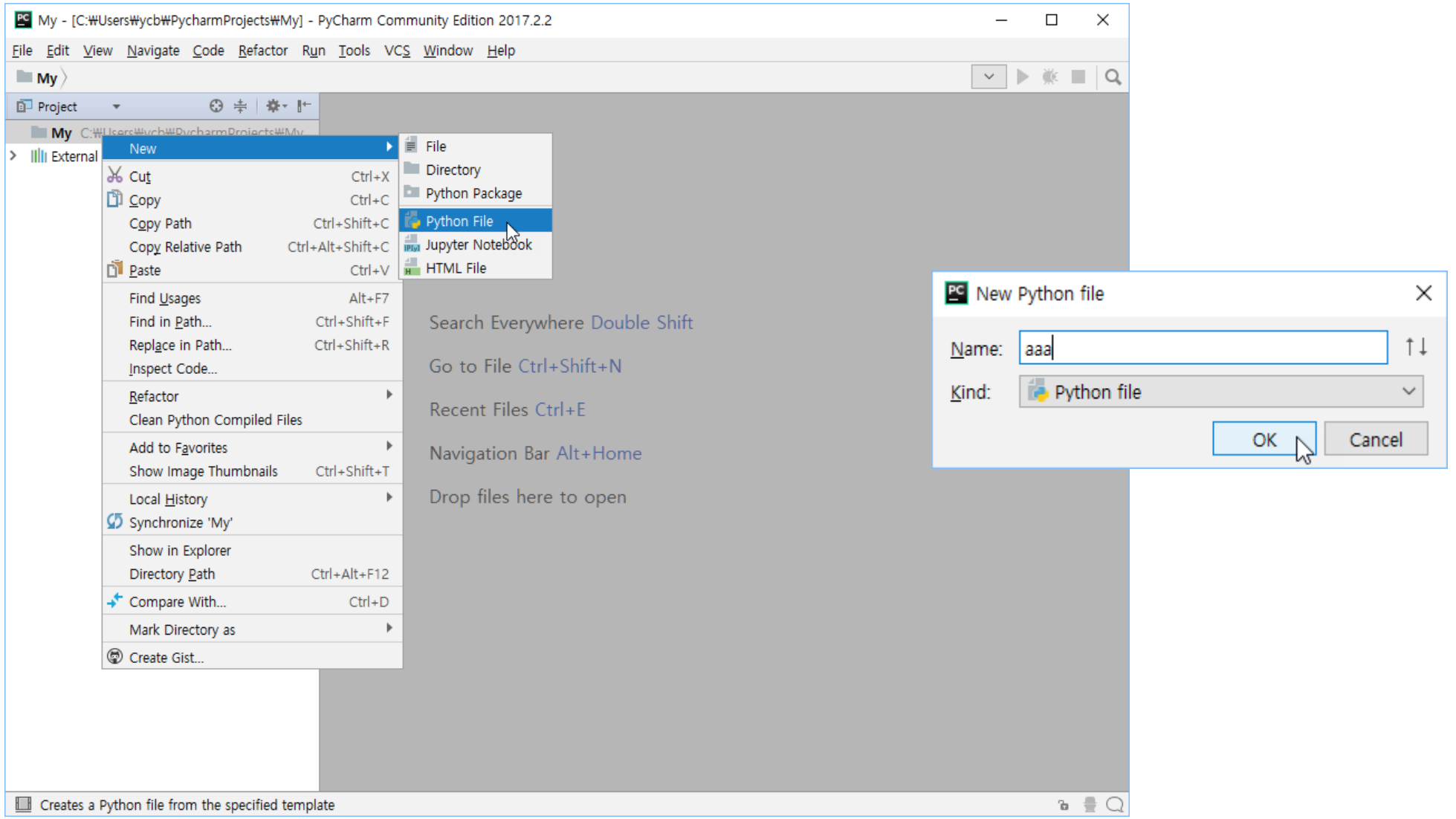

Settings
Appearance & Behavior
Appearance
Menus and Toolbars
System Settings
File Colors
Scopes
Notifications
Quick Lists
Keymap
Editor
Plugins
Version Control
Project: My
Project Interpreter
Project Structure
Build, Execution, Deployment
Languages & Frameworks
Tools
Project: My › Project Interpreter
For current project
Project Interpreter: Python 3.6 (My) C:₩Users₩bycli₩PycharmProjects₩My₩venv₩Scripts₩python.exe
Package
Version
Latest version
pip
10.0.1
18.1
setuptools
39.1.0
40.6.2
OK
Cancel
Apply


Settings
Appearance & Behavior
Appearance
Menus and Toolbars
System Settings
File Colors
Scopes
Notifications
Quick Lists
Keymap
Editor
Plugins
Version Control
Project: My
Project Interpreter
Project Structure
Build, Execution, Deployment
Languages & Frameworks
Tools
Project: My › Project Interpreter
For current project
Project Interpreter: Python 3.6 (My) C:\Users\bycli\PycharmProjects\My\venv\Scripts\python.exe
Package
Version
Latest version
pip
10.0.1
18.1
setuptools
39.1.0
40.6.2
Install (Alt+Insert)
OK
Cancel
Apply


Available Packages
tensorflow
tensorflow
tensorflow-aarch64
tensorflow-auto-detect
tensorflow-data-validation
tensorflow-datasets
tensorflow-estimator
tensorflow-exercise-hx
tensorflow-extenteten
tensorflow-fedora28
tensorflow-font2char2word2sent2doc
tensorflow-gpu
tensorflow-gpu-macosx
tensorflow-hub
tensorflow-k8s
tensorflow-lattice
tensorflow-lattice-gpu
tensorflow-metadata
tensorflow-model
tensorflow-model-analysis
tensorflow-plot
tensorflow-probability
tensorflow-probability-gpu
tensorflow-qnd
tensorflow-qndex
tensorflow-rocm
tensorflow-serving-api
tensorflow-serving-api-python3
tensorflow-serving-client
Description
TensorFlow is an open source machine learning framework for everyone.
Version
1.12.0
Author
Google Inc.
mailto:opensource@google.com
https://www.tensorflow.org/
Specify version
1.5.1
Options
Install Package
Manage Repositories


Settings
Appearance & Behavior
Appearance
Menus and Toolbars
System Settings
File Colors
Scopes
Notifications
Quick Lists
Keymap
Editor
Plugins
Version Control
Project: My
Project Interpreter
Project Structure
Build, Execution, Deployment
Languages & Frameworks
Tools
Project: My › Project Interpreter
For current project
Project Interpreter: Python 3.6 (My) C:¥Users¥bycli¥PycharmProjects¥My¥venv¥Scripts¥python.exe
Package
Version
Latest version
Markdown 3.0.1 3.0.1
Werkzeug 0.14.1 0.14.1
absl-py 0.6.1 0.6.1
bleach 1.5.0 3.0.2
html5lib 0.9999999 1.0.1
numpy 1.15.4 1.15.4
pip 10.0.1 18.1
protobuf 3.6.1 3.6.1
setuptools 39.1.0 40.6.2
six 1.11.0 1.11.0
tensorflow 1.5.1 1.12.0
tensorflow-tensorboard 1.5.1 1.5.1
wheel 0.32.3 0.32.3
Package 'tensorflow' installed successfully
OK
Cancel
Apply

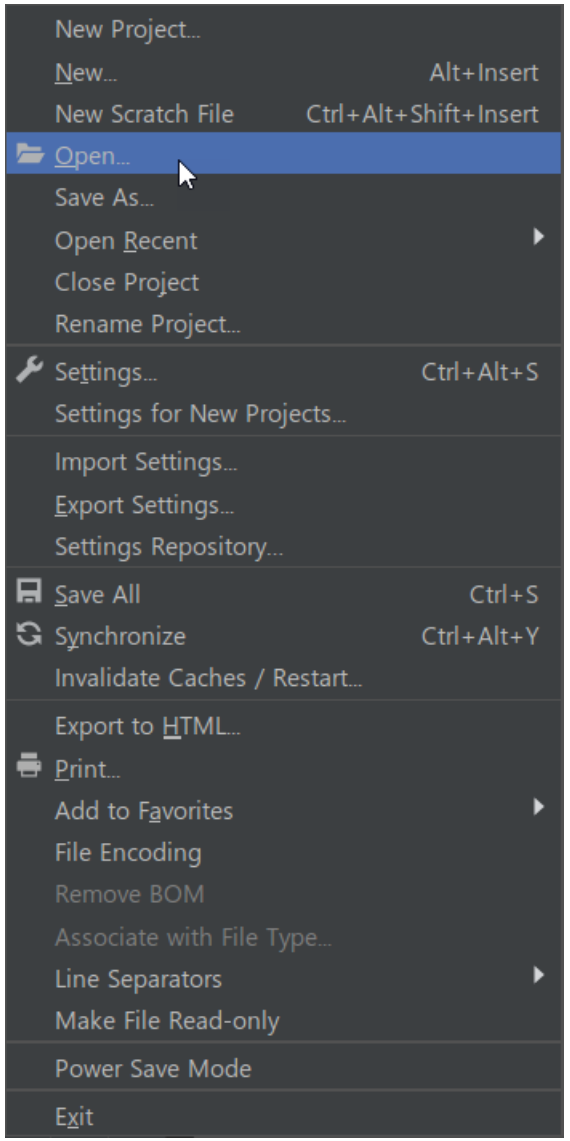
(5) PyCharm을 이용한 코딩

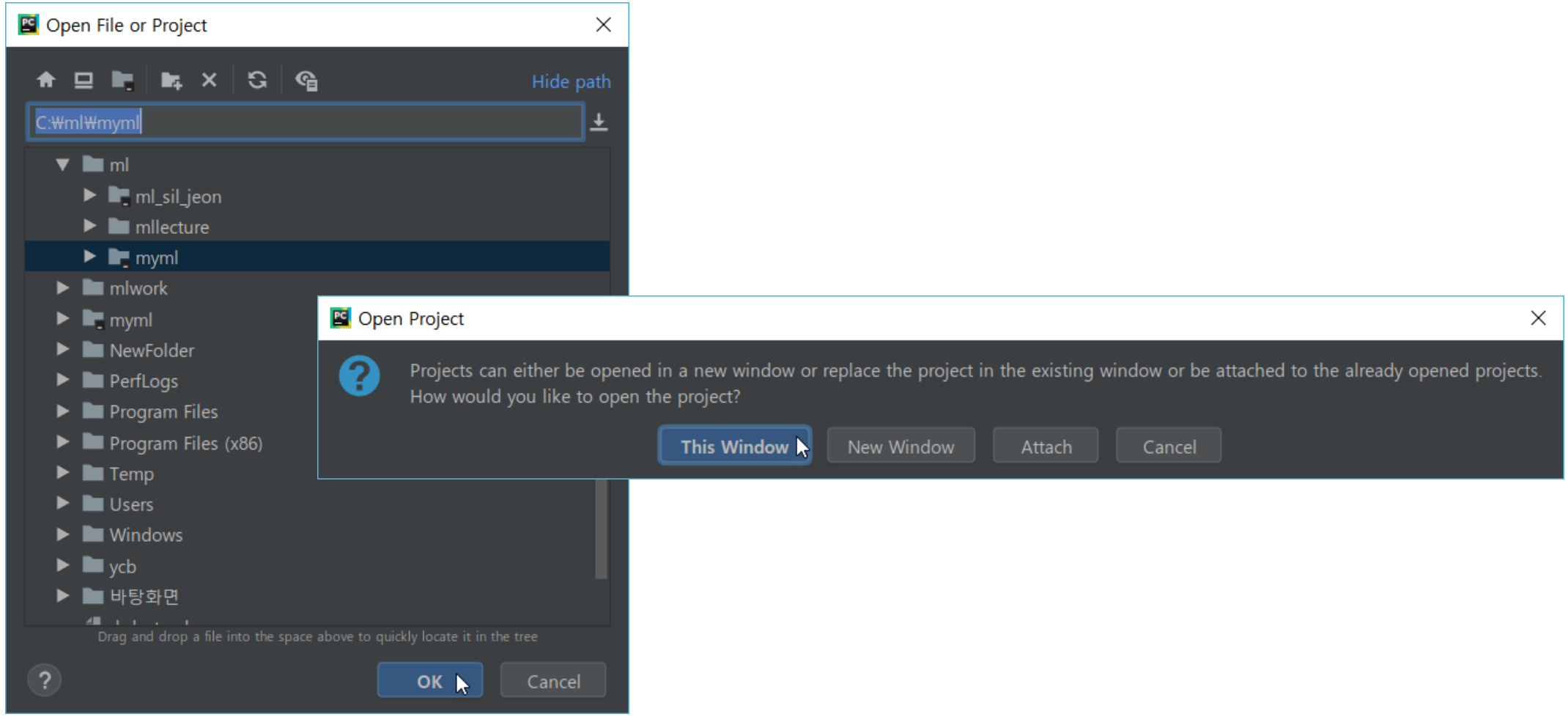


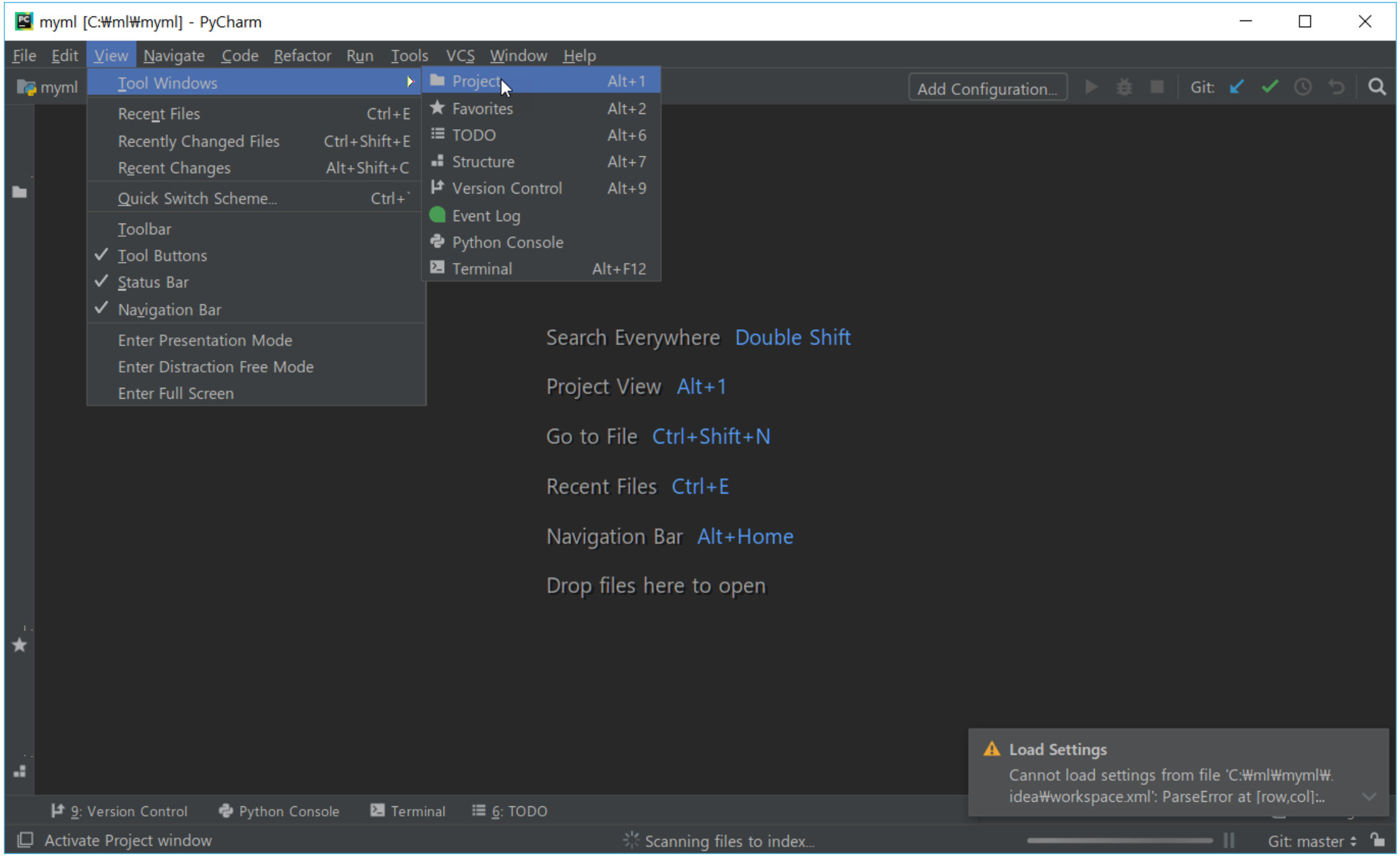
(5) PyCharm을 이용한 코딩

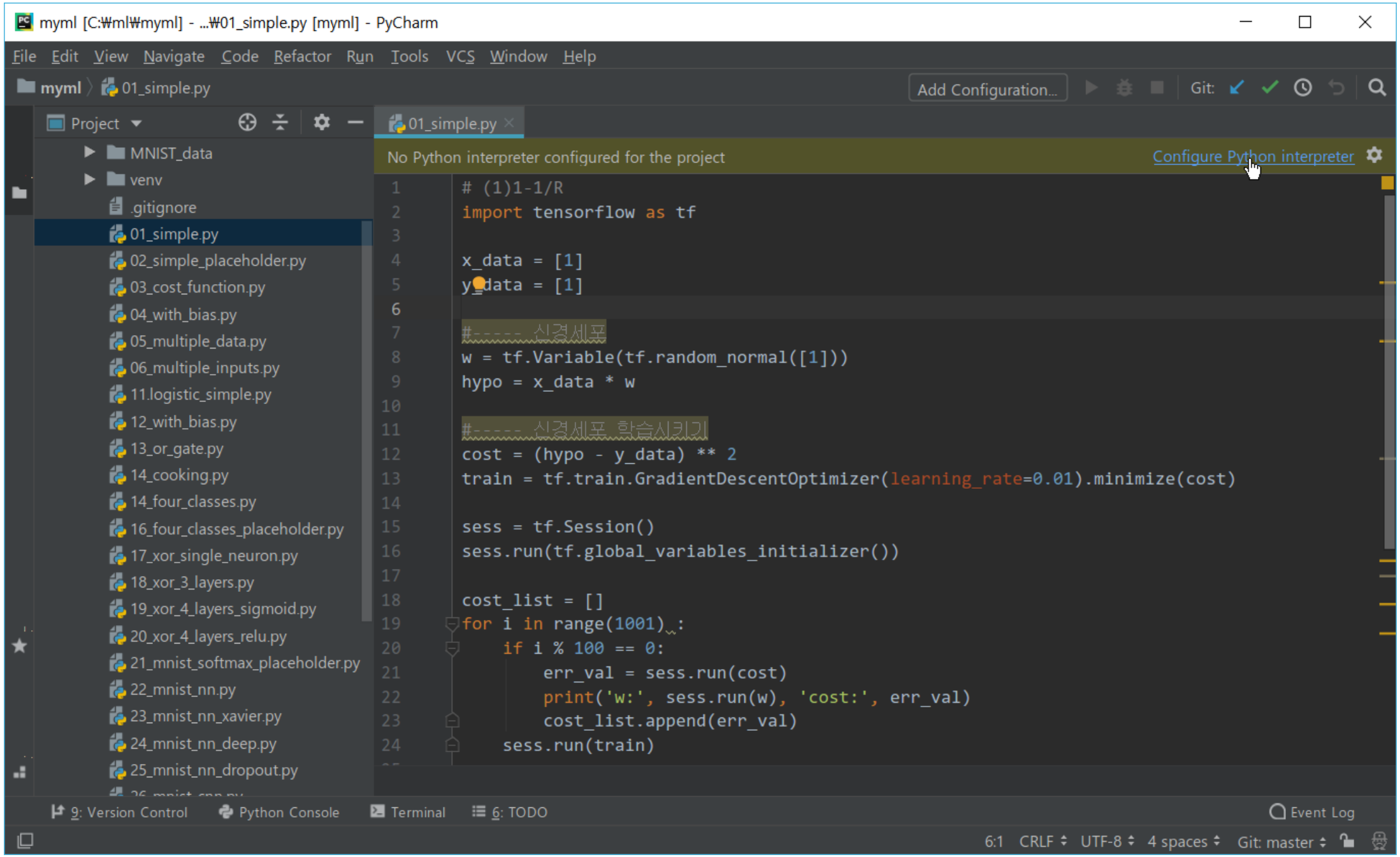
```
import tensorflow as tf

a = tf.constant(3);
sess = tf.Session()
print(sess.run(a))
```

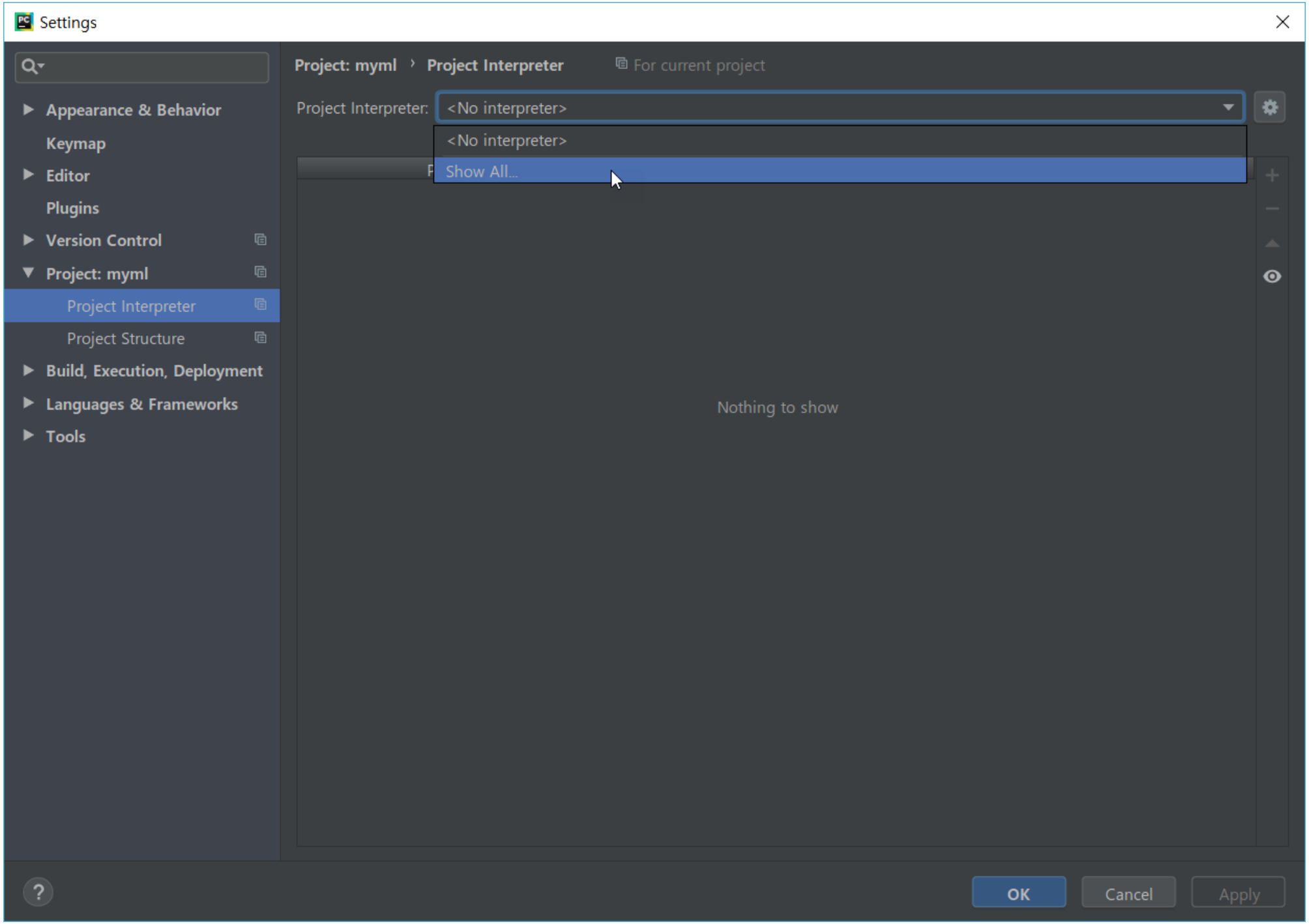
(5) PyCharm을 이용한 코딩

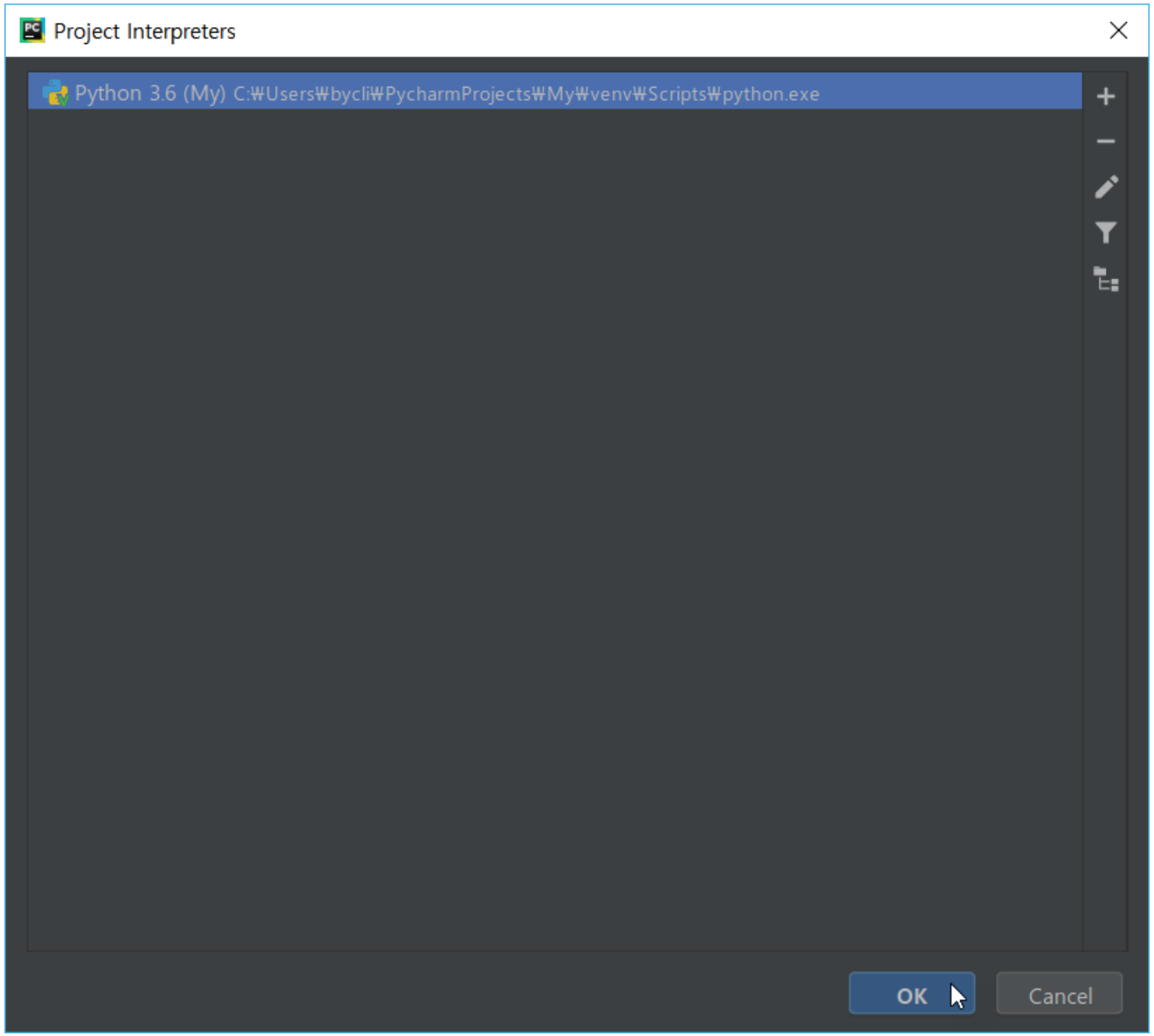


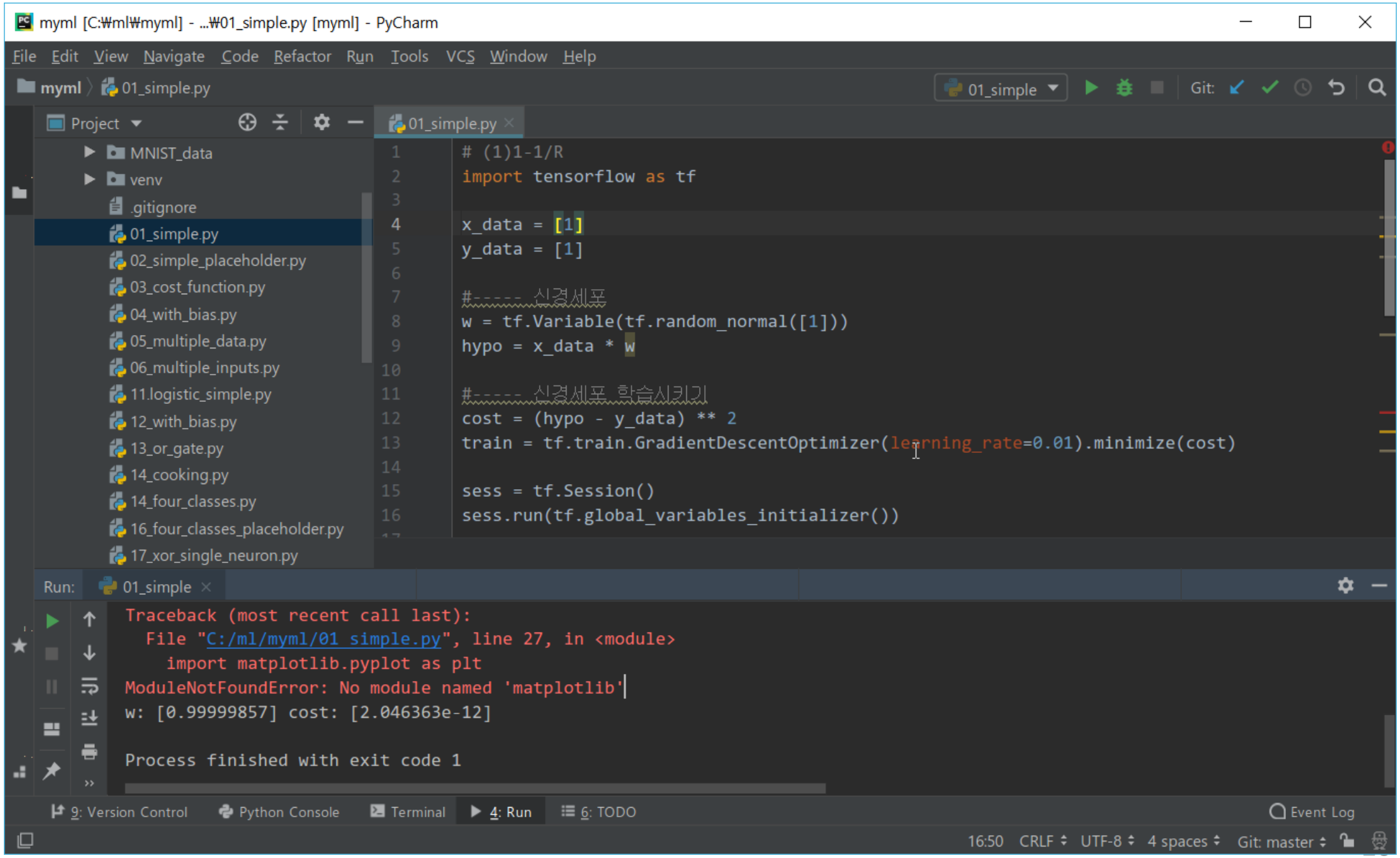

Open File or Project
Hide path
C:₩ml₩myml
ml
ml_sil_jeon
mllecture
myml
mlwork
myml
NewFolder
PerfLogs
Program Files
Program Files (x86)
Temp
Users
Windows
ycb
바탕화면
Drag and drop a file into the space above to quickly locate it in the tree
OK
Cancel
Open Project
Projects can either be opened in a new window or replace the project in the existing window or be attached to the already opened projects.
How would you like to open the project?
This Window
New Window
Attach
Cancel

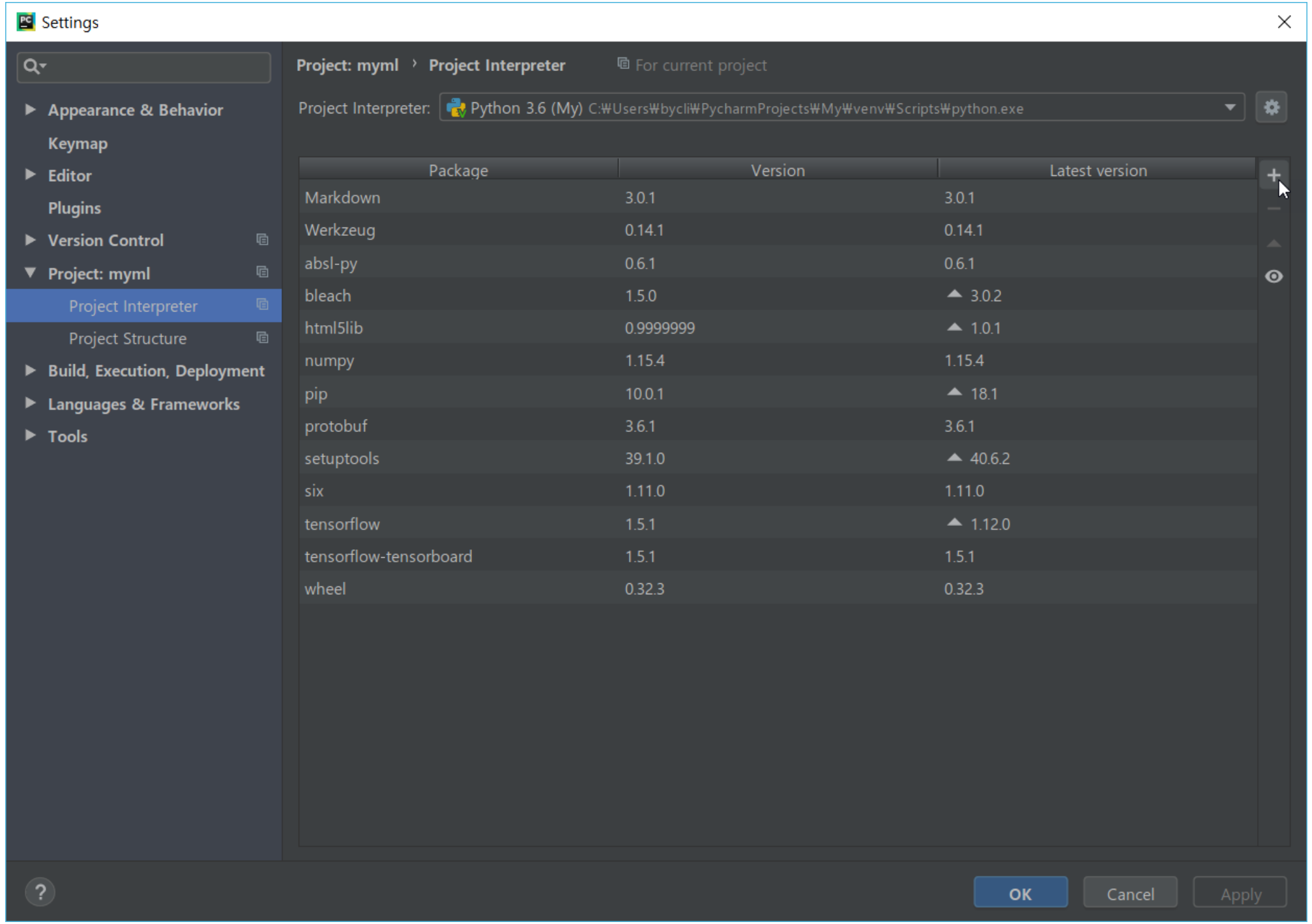

myml [C:₩ml₩myml] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
myml
Tool Windows
Recent Files Ctrl+E
Recently Changed Files Ctrl+Shift+E
Recent Changes Alt+Shift+C
Quick Switch Scheme... Ctrl+`
Toolbar
Tool Buttons
Status Bar
Navigation Bar
Enter Presentation Mode
Enter Distraction Free Mode
Enter Full Screen
Project Alt+1
Favorites Alt+2
TODO Alt+6
Structure Alt+7
Version Control Alt+9
Event Log
Python Console
Terminal Alt+F12
Add Configuration...
Git:
Search Everywhere Double Shift
Project View Alt+1
Go to File Ctrl+Shift+N
Recent Files Ctrl+E
Navigation Bar Alt+Home
Drop files here to open
Load Settings
Cannot load settings from file 'C:₩ml₩myml₩.idea₩workspace.xml': ParseError at [row,col]:...
9: Version Control
Python Console
Terminal
6: TODO
Activate Project window
Scanning files to index...
Git: master

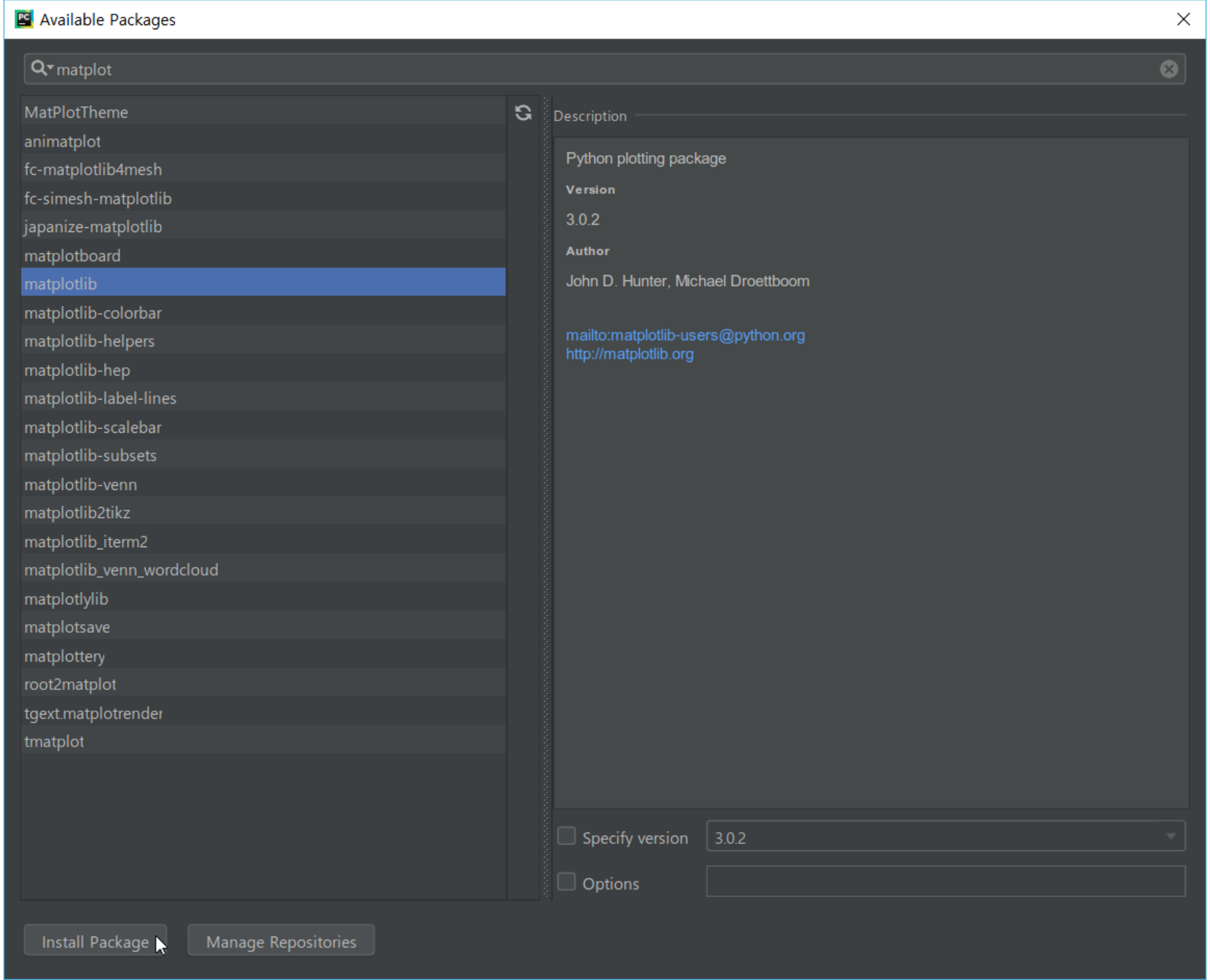

myml [C:₩ml₩myml] - ...₩01_simple.py [myml] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
myml 01_simple.py
Add Configuration...
Git:
Project
MNIST_data
venv
.gitignore
01_simple.py
02_simple_placeholder.py
03_cost_function.py
04_with_bias.py
05_multiple_data.py
06_multiple_inputs.py
11.logistic_simple.py
12_with_bias.py
13_or_gate.py
14_cooking.py
14_four_classes.py
16_four_classes_placeholder.py
17_xor_single_neuron.py
18_xor_3_layers.py
19_xor_4_layers_sigmoid.py
20_xor_4_layers_relu.py
21_mnist_softmax_placeholder.py
22_mnist_nn.py
23_mnist_nn_xavier.py
24_mnist_nn_deep.py
25_mnist_nn_dropout.py
01_simple.py
No Python interpreter configured for the project
Configure Python interpreter
1 # (1)1-1/R
2 import tensorflow as tf
3
4 x_data = [1]
5 y_data = [1]
6
7 #----- 신경세포
8 w = tf.Variable(tf.random_normal([1]))
9 hypo = x_data * w
10
11 #----- 신경세포 학습시키기
12 cost = (hypo - y_data) ** 2
13 train = tf.train.GradientDescentOptimizer(learning_rate=0.01).minimize(cost)
14
15 sess = tf.Session()
16 sess.run(tf.global_variables_initializer())
17
18 cost_list = []
19 for i in range(1001):
20 if i % 100 == 0:
21 err_val = sess.run(cost)
22 print('w:', sess.run(w), 'cost:', err_val)
23 cost_list.append(err_val)
24 sess.run(train)
9: Version Control
Python Console
Terminal
6: TODO
Event Log
6:1 CRLF UTF-8 4 spaces Git: master


Settings
Appearance & Behavior
Keymap
Editor
Plugins
Version Control
Project: myml
Project Interpreter
Project Structure
Build, Execution, Deployment
Languages & Frameworks
Tools
Project: myml › Project Interpreter
For current project
Project Interpreter:
<No interpreter>
<No interpreter>
Show All...
Nothing to show
OK
Cancel
Apply


Project Interpreters
Python 3.6 (My) C:₩Users₩bycli₩PycharmProjects₩My₩venv₩Scripts₩python.exe
OK
Cancel


myml [C:₩ml₩myml] - ...₩01_simple.py [myml] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
myml 01_simple.py
01_simple
Git:
Project
MNIST_data
venv
.gitignore
01_simple.py
02_simple_placeholder.py
03_cost_function.py
04_with_bias.py
05_multiple_data.py
06_multiple_inputs.py
11.logistic_simple.py
12_with_bias.py
13_or_gate.py
14_cooking.py
14_four_classes.py
16_four_classes_placeholder.py
17_xor_single_neuron.py
01_simple.py
1 # (1)1-1/R
2 import tensorflow as tf
3
4 x_data = [1]
5 y_data = [1]
6
7 #----- 신경세포
8 w = tf.Variable(tf.random_normal([1]))
9 hypo = x_data * w
10
11 #----- 신경세포 학습시키기
12 cost = (hypo - y_data) ** 2
13 train = tf.train.GradientDescentOptimizer(learning_rate=0.01).minimize(cost)
14
15 sess = tf.Session()
16 sess.run(tf.global_variables_initializer())
Run: 01_simple
Traceback (most recent call last):
File "C:/ml/myml/01_simple.py", line 27, in <module>
import matplotlib.pyplot as plt
ModuleNotFoundError: No module named 'matplotlib'
w: [0.99999857] cost: [2.046363e-12]
Process finished with exit code 1
9: Version Control
Python Console
Terminal
4: Run
6: TODO
Event Log
16:50 CRLF UTF-8 4 spaces Git: master

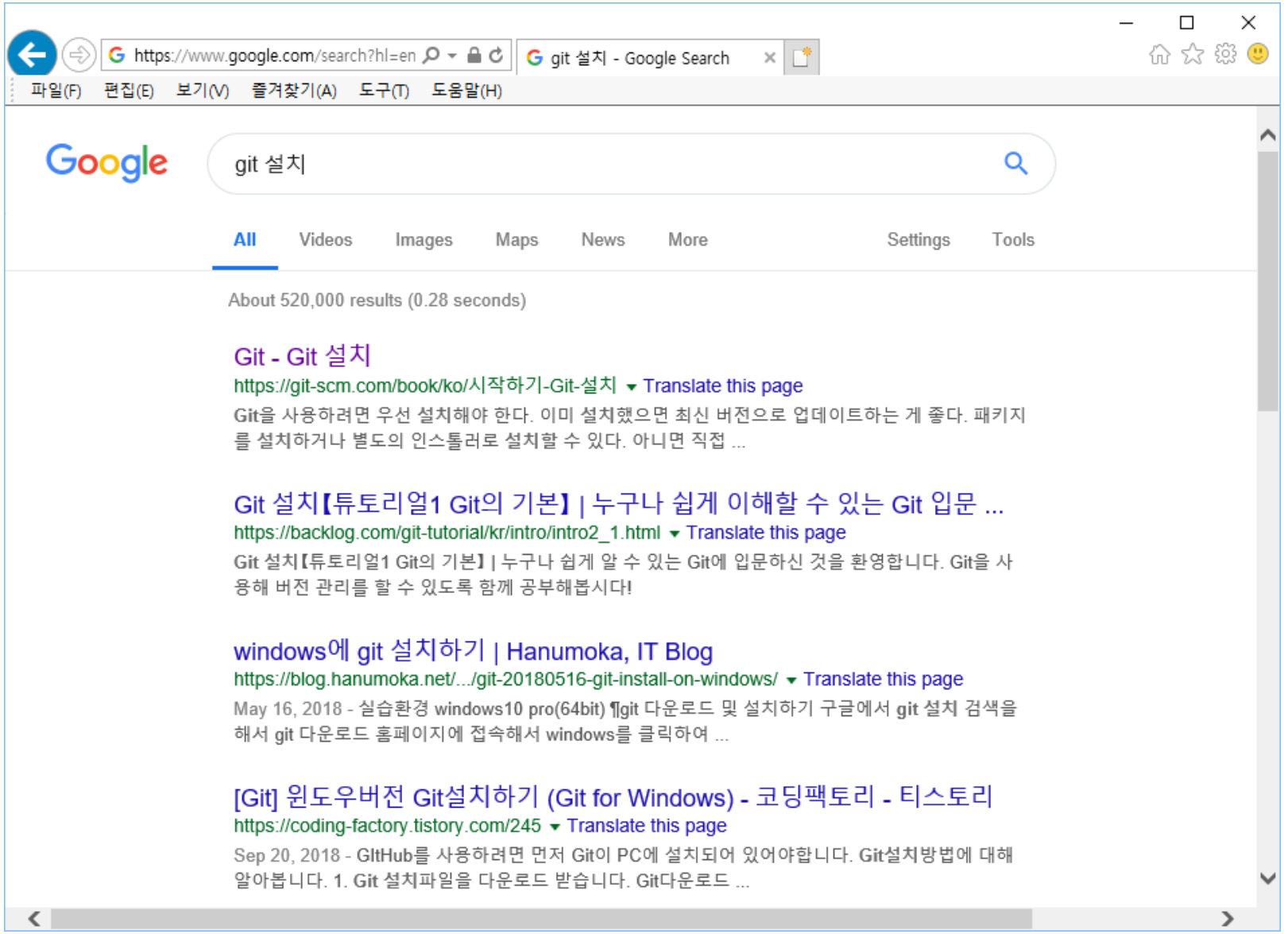

Settings
Appearance & Behavior
Keymap
Editor
Plugins
Version Control
Project: myml
Project Interpreter
Project Structure
Build, Execution, Deployment
Languages & Frameworks
Tools
Project: myml › Project Interpreter
For current project
Project Interpreter: Python 3.6 (My) C:₩Users₩bycli₩PycharmProjects₩My₩venv₩Scripts₩python.exe
Package
Version
Latest version
Markdown 3.0.1 3.0.1
Werkzeug 0.14.1 0.14.1
absl-py 0.6.1 0.6.1
bleach 1.5.0 3.0.2
html5lib 0.9999999 1.0.1
numpy 1.15.4 1.15.4
pip 10.0.1 18.1
protobuf 3.6.1 3.6.1
setuptools 39.1.0 40.6.2
six 1.11.0 1.11.0
tensorflow 1.5.1 1.12.0
tensorflow-tensorboard 1.5.1 1.5.1
wheel 0.32.3 0.32.3
OK
Cancel
Apply


Available Packages
matplot
MatPlotTheme
animatplot
fc-matplotlib4mesh
fc-simesh-matplotlib
japanize-matplotlib
matplotboard
matplotlib
matplotlib-colorbar
matplotlib-helpers
matplotlib-hep
matplotlib-label-lines
matplotlib-scalebar
matplotlib-subsets
matplotlib-venn
matplotlib2tikz
matplotlib_iterm2
matplotlib_venn_wordcloud
matplotlylib
matplotsave
matplottery
root2matplot
tgext.matplotrender
tmatplot
Description
Python plotting package
Version
3.0.2
Author
John D. Hunter, Michael Droettboom
mailto:matplotlib-users@python.org
http://matplotlib.org
Specify version
3.0.2
Options
Install Package
Manage Repositories

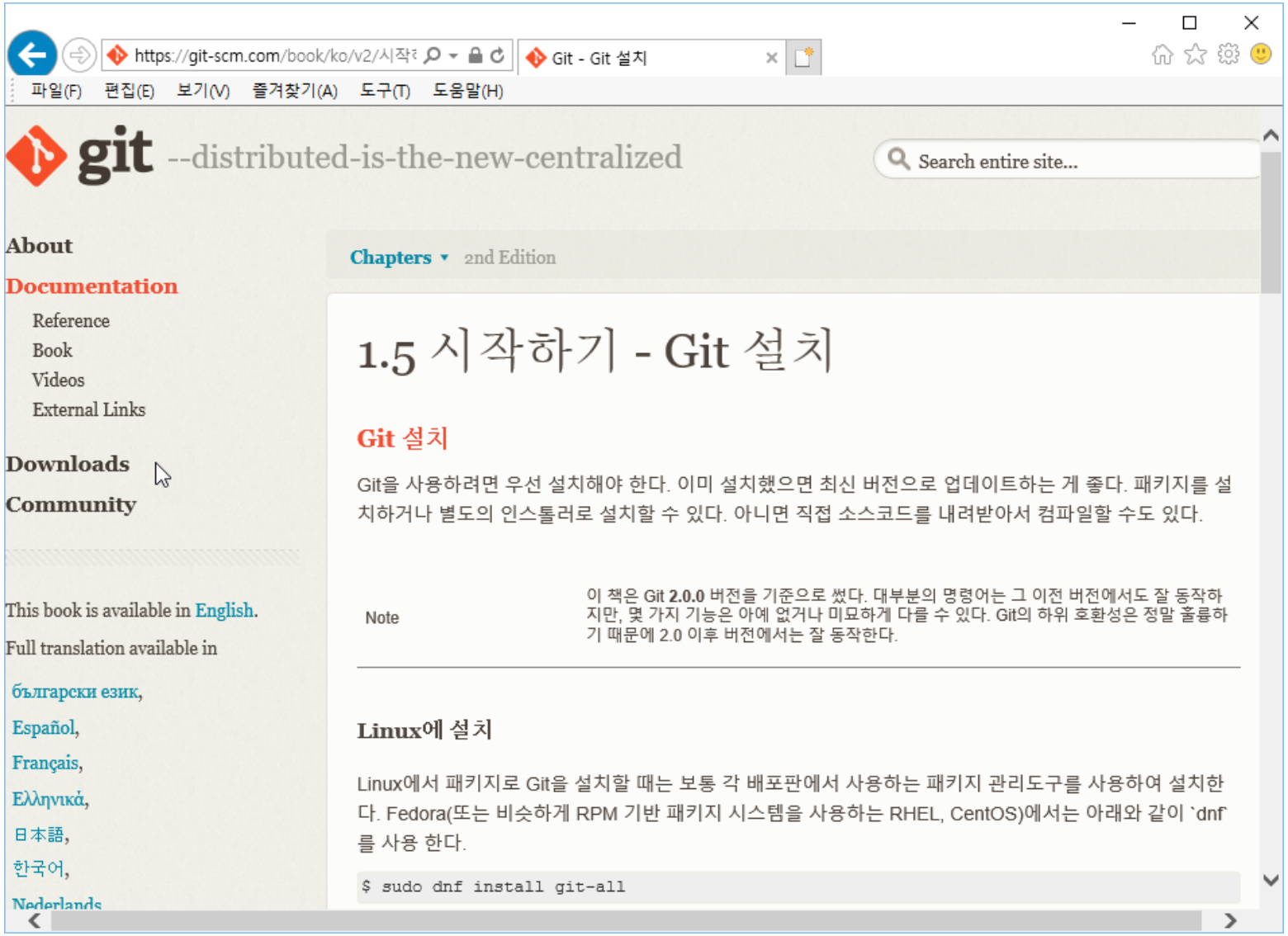
```
import tensorflow as tf

x_data = [1]
y_data = [1]

#----- 신경세포 만들기
w = tf.Variable(tf.random_normal([1]))
hypo = w * x_data

#----- 신경세포 학습시키기
cost = (hypo - y_data) ** 2
train = tf.train.GradientDescentOptimizer(learning_rate=0.01).minimize(cost)

sess = tf.Session()
sess.run(tf.global_variables_initializer())

cost_list = []
print('w:', sess.run(w), 'cost:', sess.run(cost))
for i in range(1001) :
    sess.run(train)
    if i % 100 == 0:
        err_val = sess.run(cost)
        print('w:', sess.run(w), 'cost:', err_val)
        cost_list.append(err_val)

# 오류가 줄어드는 모습 보기
import matplotlib.pyplot as plt
plt.plot(cost_list)
plt.show();

#----- 테스트/예측해 보기
print(sess.run(w * [3]))
```

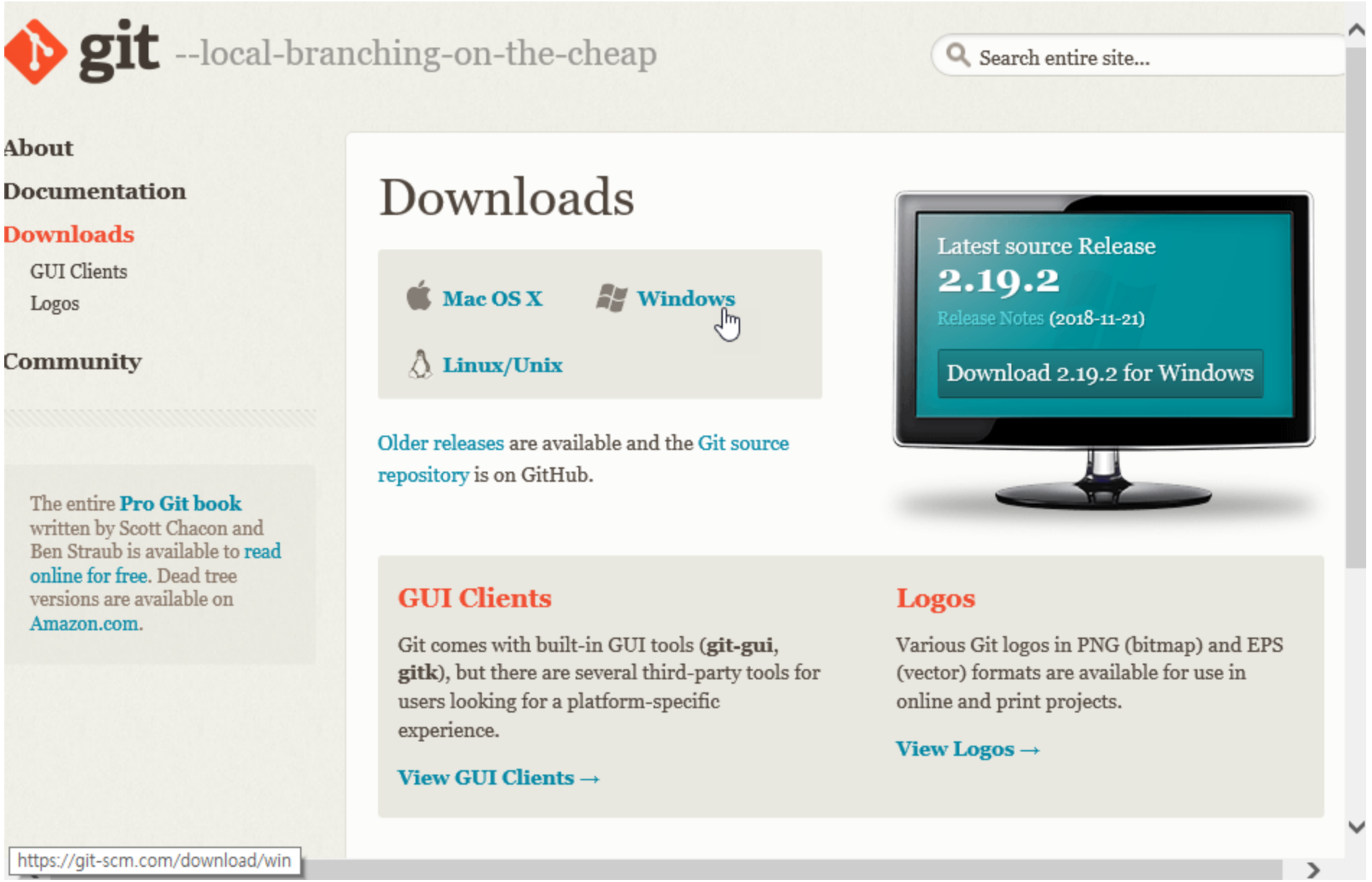
(6) git 설치

- Google에서 'git 설치' 검색



(6) git 설치


https://git-scm.com/book/ko/v2/시작
Git - Git 설치
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
git --distributed-is-the-new-centralized
Search entire site...
About
Documentation
Reference
Book
Videos
External Links
Downloads
Community
This book is available in English.
Full translation available in
български език,
Español,
Français,
Ελληνικά,
日本語,
한국어,
Nederlands
Chapters 2nd Edition
1.5 시작하기 - Git 설치
Git 설치
Git을 사용하려면 우선 설치해야 한다. 이미 설치했으면 최신 버전으로 업데이트하는 게 좋다. 패키지를 설치하거나 별도의 인스톨러로 설치할 수 있다. 아니면 직접 소스코드를 내려받아서 컴파일할 수도 있다.
Note
이 책은 Git 2.0.0 버전을 기준으로 썼다. 대부분의 명령어는 그 이전 버전에서도 잘 동작하지만, 몇 가지 기능은 아예 없거나 미묘하게 다를 수 있다. Git의 하위 호환성은 정말 훌륭하기 때문에 2.0 이후 버전에서는 잘 동작한다.
Linux에 설치
Linux에서 패키지로 Git을 설치할 때는 보통 각 배포판에서 사용하는 패키지 관리도구를 사용하여 설치한다. Fedora(또는 비슷하게 RPM 기반 패키지 시스템을 사용하는 RHEL, CentOS)에서는 아래와 같이 `dnf`를 사용 한다.
$ sudo dnf install git-all


git --local-branching-on-the-cheap
Search entire site...
About
Documentation
Downloads
GUI Clients
Logos
Community
Downloads
Mac OS X
Windows
Linux/Unix
Older releases are available and the Git source repository is on GitHub.
Latest source Release
2.19.2
Release Notes (2018-11-21)
Download 2.19.2 for Windows
The entire Pro Git book written by Scott Chacon and Ben Straub is available to read online for free. Dead tree versions are available on Amazon.com.
GUI Clients
Git comes with built-in GUI tools (git-gui, gitk), but there are several third-party tools for users looking for a platform-specific experience.
View GUI Clients →
Logos
Various Git logos in PNG (bitmap) and EPS (vector) formats are available for use in online and print projects.
View Logos →
https://git-scm.com/download/win

Downloading Git

Your download is starting...

You are downloading the latest (**2.19.2**) **64-bit** version of **Git for Windows**. This is the most recent maintained build. It was released **10 days ago**, on 2018-11-21.

If your download hasn't started, click here to download manually.

Other Git for Windows downloads

Git for Windows Setup

32-bit Git for Windows Setup.

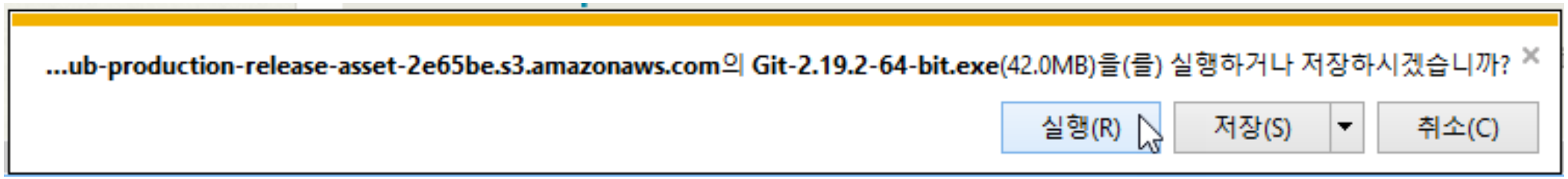
64-bit Git for Windows Setup.

Git for Windows Portable ("thumbdrive edition")

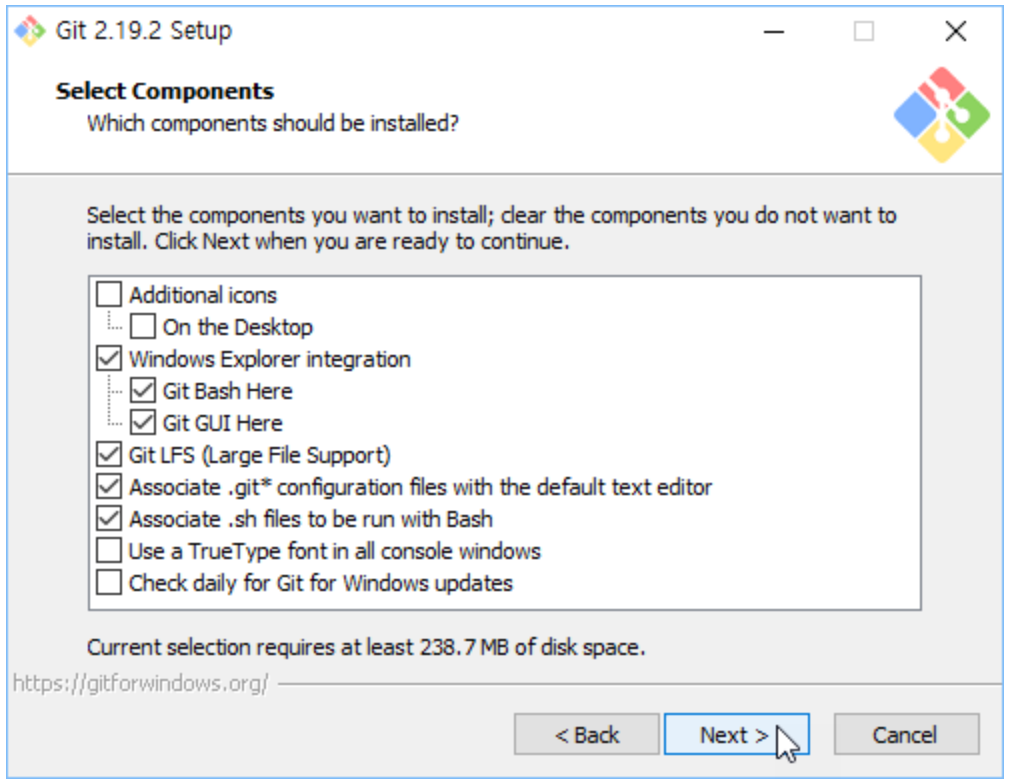
32-bit Git for Windows Portable.

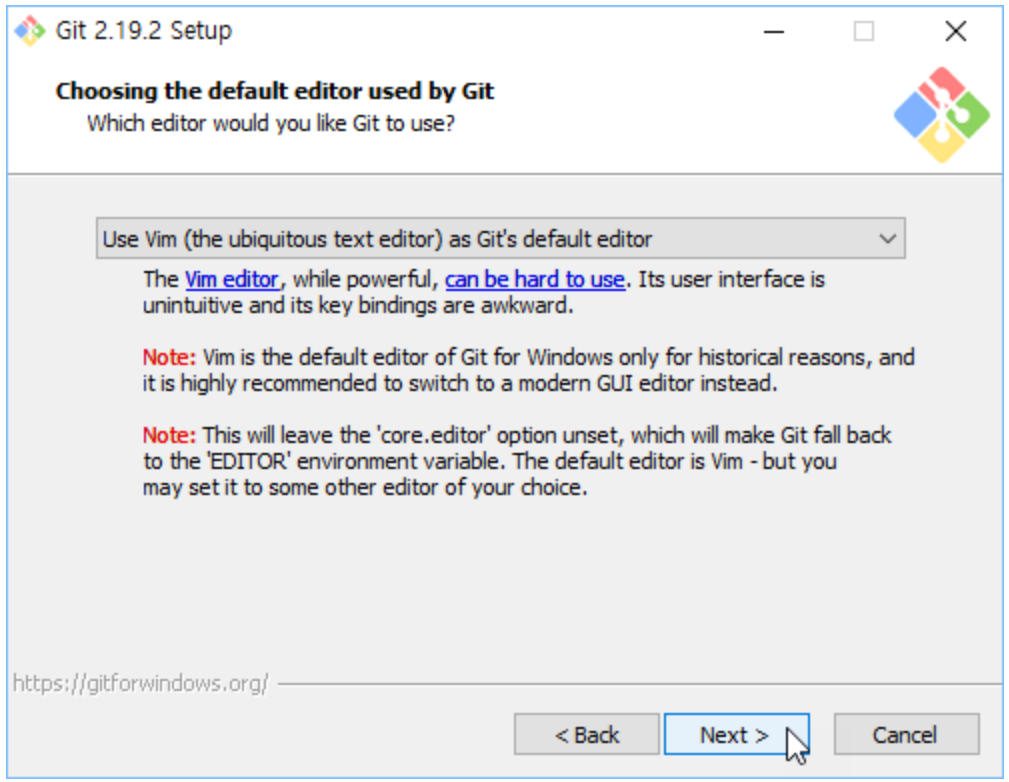
64-bit Git for Windows Portable.

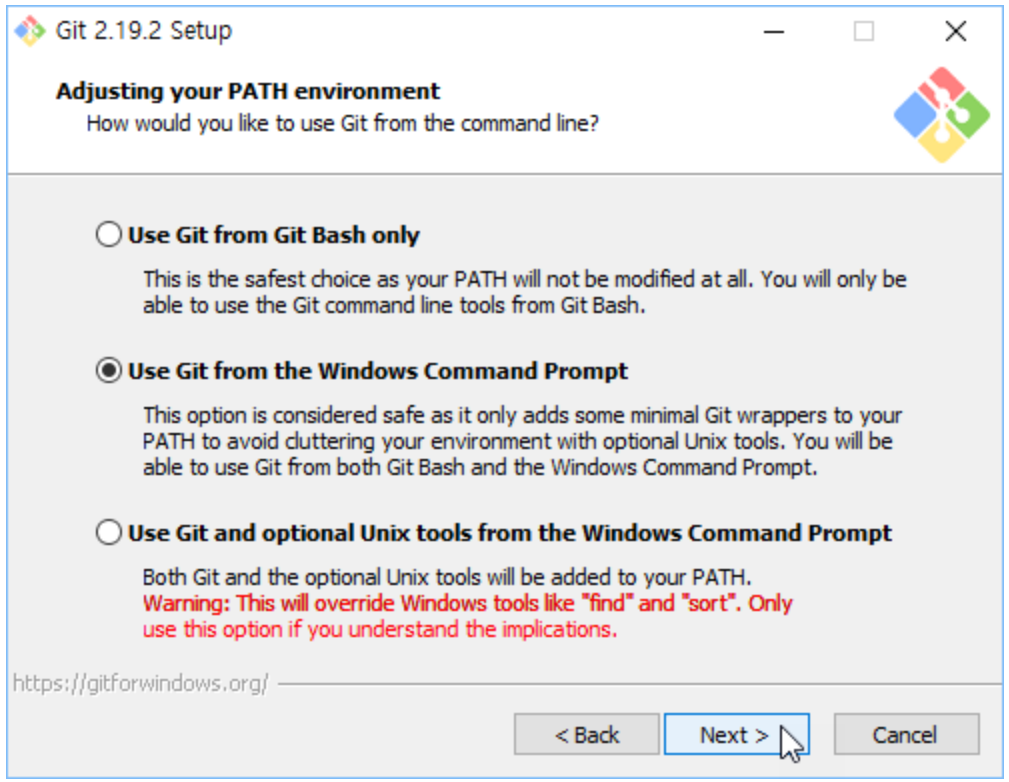
The current source code release is version **2.19.2**. If you want the newer version, you can build it from the source code.

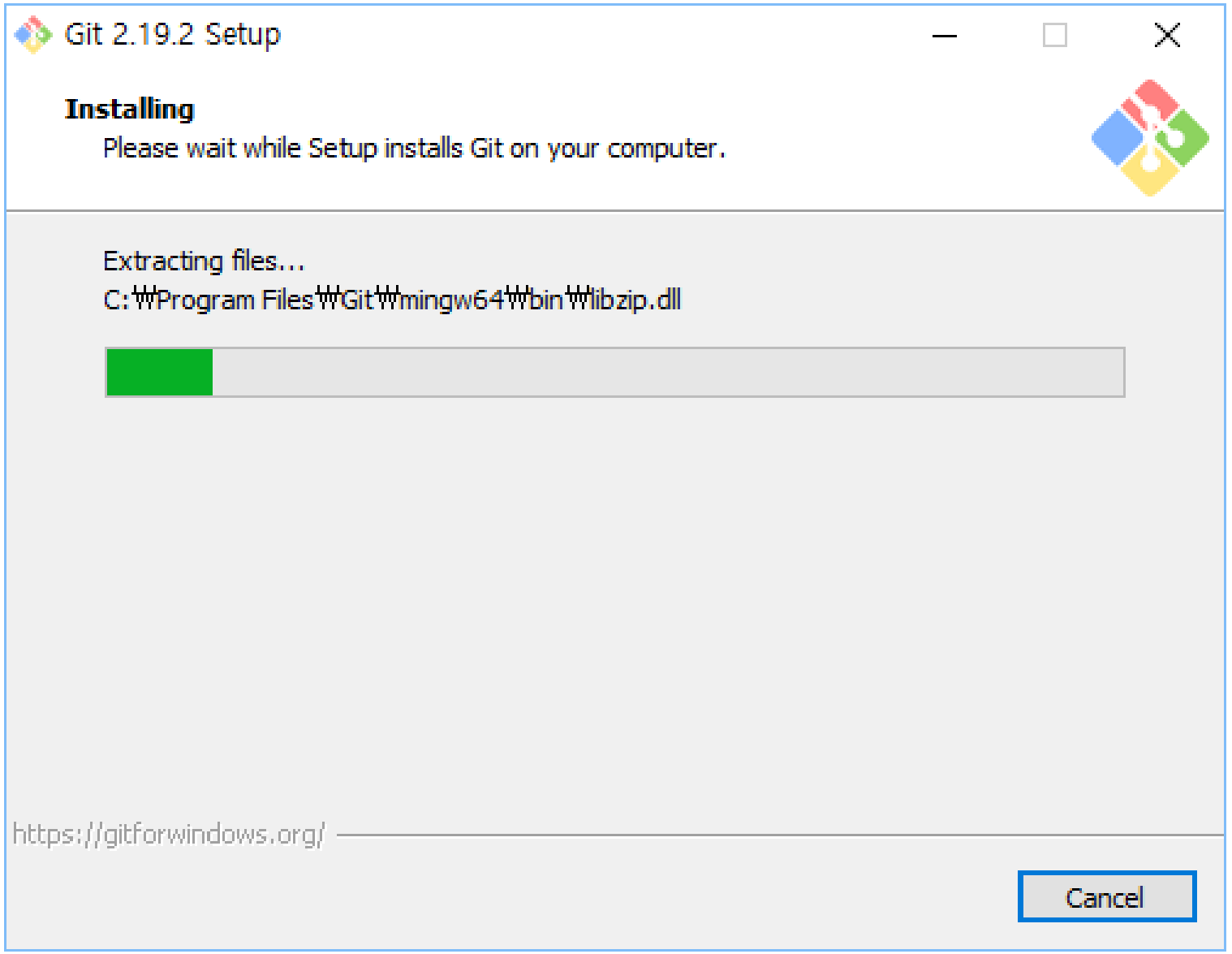

...ub-production-release-asset-2e65be.s3.amazonaws.com의 Git-2.19.2-64-bit.exe(42.0MB)을(를) 실행하거나 저장하시겠습니까?
실행(R)
저장(S)
취소(C)

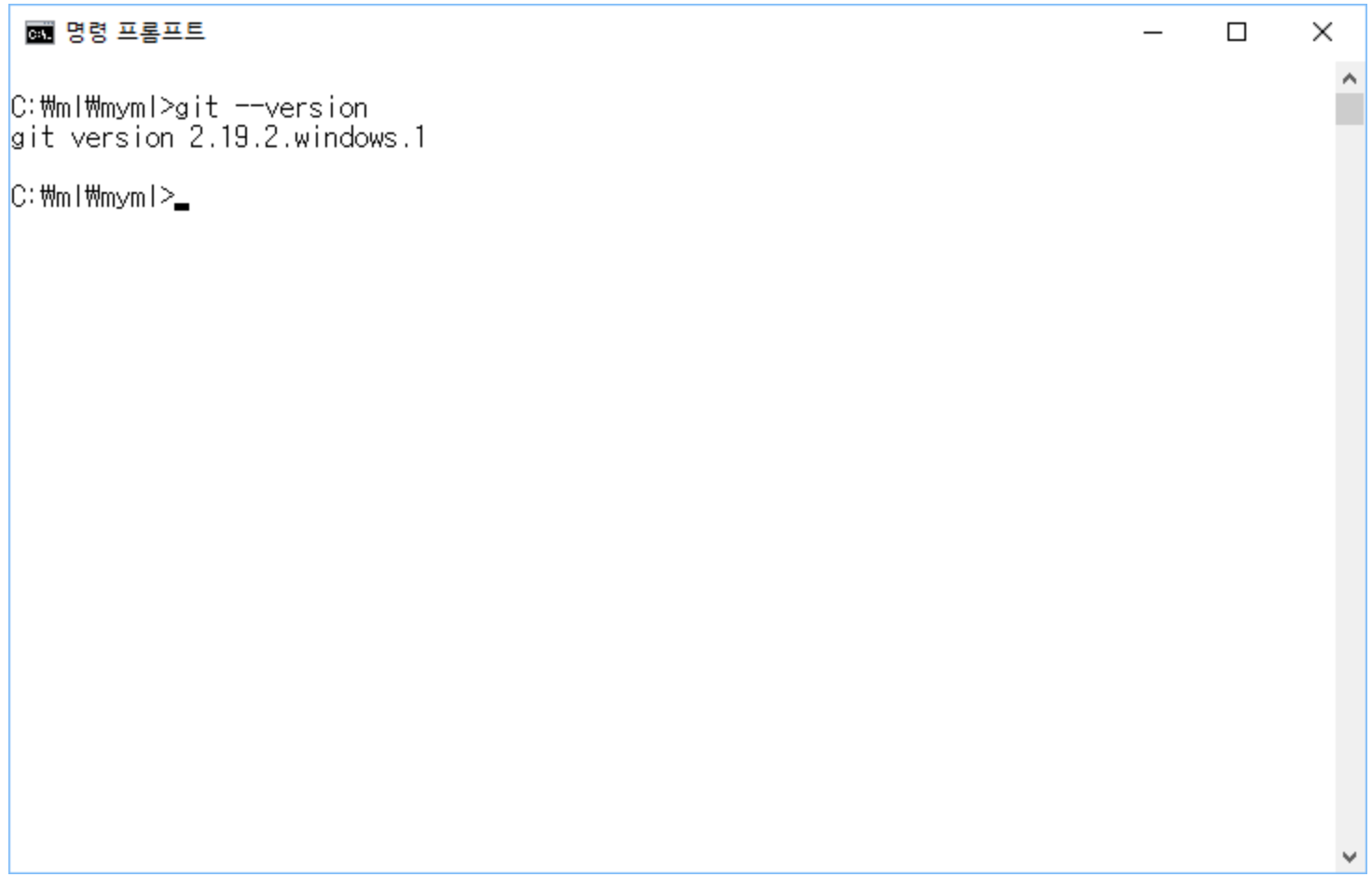

Git 2.19.2 Setup
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
GNU General Public License
Version 2, June 1991
Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA 02111-1307, USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.
Preamble
The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
https://gitforwindows.org/
Next >
Cancel


Git 2.19.2 Setup
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
Additional icons
On the Desktop
Windows Explorer integration
Git Bash Here
Git GUI Here
Git LFS (Large File Support)
Associate .git* configuration files with the default text editor
Associate .sh files to be run with Bash
Use a TrueType font in all console windows
Check daily for Git for Windows updates
Current selection requires at least 238.7 MB of disk space.
https://gitforwindows.org/
< Back
Next >
Cancel


Git 2.19.2 Setup
Choosing the default editor used by Git
Which editor would you like Git to use?
Use Vim (the ubiquitous text editor) as Git's default editor
The Vim editor, while powerful, can be hard to use. Its user interface is unintuitive and its key bindings are awkward.
Note: Vim is the default editor of Git for Windows only for historical reasons, and it is highly recommended to switch to a modern GUI editor instead.
Note: This will leave the 'core.editor' option unset, which will make Git fall back to the 'EDITOR' environment variable. The default editor is Vim - but you may set it to some other editor of your choice.
https://gitforwindows.org/
< Back
Next >
Cancel


Git 2.19.2 Setup
Adjusting your PATH environment
How would you like to use Git from the command line?
Use Git from Git Bash only
This is the safest choice as your PATH will not be modified at all. You will only be able to use the Git command line tools from Git Bash.
Use Git from the Windows Command Prompt
This option is considered safe as it only adds some minimal Git wrappers to your PATH to avoid cluttering your environment with optional Unix tools. You will be able to use Git from both Git Bash and the Windows Command Prompt.
Use Git and optional Unix tools from the Windows Command Prompt
Both Git and the optional Unix tools will be added to your PATH.
Warning: This will override Windows tools like "find" and "sort". Only use this option if you understand the implications.
https://gitforwindows.org/
< Back
Next >
Cancel


Git 2.19.2 Setup
Installing
Please wait while Setup installs Git on your computer.
Extracting files...
C:₩Program Files₩Git₩mingw64₩bin₩libzip.dll
https://gitforwindows.org/
Cancel


명령 프롬프트
C:₩ml₩myml>git --version
git version 2.19.2.windows.1
C:₩ml₩myml>

(7) 소스 프로그램 다운로드

- 원하는 폴더를 만듦(가령, c:₩>myml)
- 도스 창에서 원하는 폴더로 이동

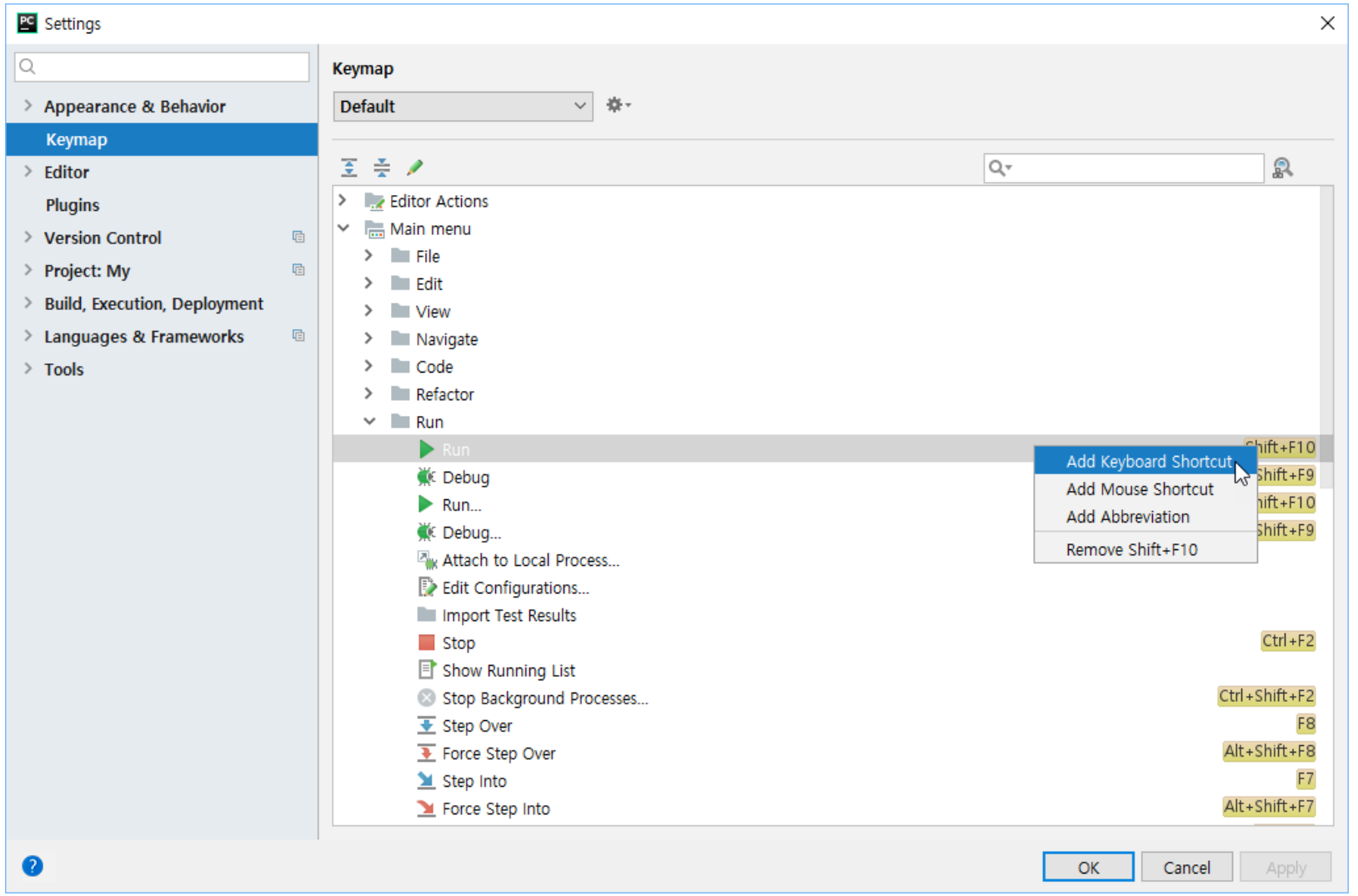
> git clone https://github.com/yungbyun/myml

(8) 강의자료 다운로드

- 강의자료 다운로드
- 도스 창에서 원하는 폴더로 이동

> git clone https://github.com/yungbyun/mllecture

(9) 단축키 설정


Settings
Keymap
Appearance & Behavior
Keymap
Editor
Plugins
Version Control
Project: My
Build, Execution, Deployment
Languages & Frameworks
Tools
Default
Editor Actions
Main menu
File
Edit
View
Navigate
Code
Refactor
Run
Run
Debug
Run...
Debug...
Attach to Local Process...
Edit Configurations...
Import Test Results
Stop
Show Running List
Stop Background Processes...
Step Over
Force Step Over
Step Into
Force Step Into
Add Keyboard Shortcut
Add Mouse Shortcut
Add Abbreviation
Remove Shift+F10
Ctrl+F2
Ctrl+Shift+F2
F8
Alt+Shift+F8
F7
Alt+Shift+F7
OK
Cancel
Apply

(10) PyCharm 기본 단축키

- 이전 혹은 다음 작업 하던 곳으로 빠르게 이동
  - Alt + ←, Alt + →
- 선언/정의 부분으로 빠르게 가기
  - Ctrl + B
- 변수/함수 이름 일괄적으로 바꾸기
  - Shift + F6

이번 학습에서는

- 텐서플로우 실행 환경을 설치할 수 있다.
- 자료를 다운로드하고 이를 이용할 수 있다.
- 텐서플로우 코드를 실행할 수 있다.