기계학습

Jupyter notebook & JupyterLab

정보시스템공학과
안규황


jupyter

Project Jupyter exists to develop open-source software, open-standards, and services for interactive computing across dozens of programming languages.

Installing Jupyter

Get up and running with the Jupyter Notebook on your computer within minutes!

Prerequisite: Python

While Jupyter runs code in many programming languages, **Python** is a requirement (Python 3.3 or greater, or Python 2.7) for installing the Jupyter Notebook itself.

Installing Jupyter using Anaconda

We **strongly recommend** installing Python and Jupyter using the Anaconda Distribution, which includes Python, the Jupyter Notebook, and other commonly used packages for scientific computing and data science.

First, download Anaconda. We recommend downloading Anaconda's latest Python 3 version.

Second, install the version of Anaconda which you downloaded, following the instructions on the download page.

Congratulations, you have installed Jupyter Notebook! To run the notebook, run the following command at the Terminal (Mac/Linux) or Command Prompt (Windows):

```
jupyter notebook
```

See Running the Notebook for more details.

Easily install 1,000+ data science packages

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Windows macOS Linux

Anaconda 5.1 For Windows Installer

Python 3.6 version *

Download

64-Bit Graphical Installer (537 MB)
32-Bit Graphical Installer (436 MB)

Python 2.7 version *

Download

64-Bit Graphical Installer (523 MB)
32-Bit Graphical Installer (420 MB)

Behind a firewall?
*How to get Python 3.5 or other Python versions
How to Install ANACONDA

Get Started

Anaconda Documentation

How to Use Anaconda Navigator

Packages Included in Anaconda

Difference of Python 2.7 and 3.6

print

파이썬 3 버전은 출력할 문자열에 괄호를 필요로 한다.

파이썬 3 버전의 예

```
print ("Hello Python")
```

파이썬 2.7 버전의 예

```
print "Hello Python"
```

파이썬 2.7 버전인 경우 파이썬 3 버전처럼 괄호를 사용해도 동일하게 동작한다. (단, 2.7 버전 이하의 파이썬 구버전에서는 오류가 발생할 수 있다.)

줄바꿈 방지

print 문 실행 시 항상 문자열 마지막에 `\n` 문자가 출력되어 줄바꿈이 일어나게 된다. 이렇게 마지막 문자인 `\n` 을 생략할 수 있는 방법이 있는데 이것또한 파이썬 3 버전과 파이썬 2.7 버전이 서로 다르다.

파이썬 3 버전의 예

```
print ("No new line", end=" ");print ("ok?")
```

파이썬 3 버전의 경우 줄바꿈 문자를 제거하기 위해서 위와 같이 끝 문자를 지정할 수 있는 end 파라미터를 설정하면 된다. 지정하지 않으면 디폴트로 `\n` 문자가 세팅된다.

파이썬 2.7 버전의 예

```
print "No new line",;print "ok?"
```

파이썬 2.7 버전의 경우 줄바꿈 문자를 제거하기 위해서 문자열의 끝에 콤마(`,`)를 덧붙이면 된다.

Difference of python 2.7 and 3.6

자동 형 변환

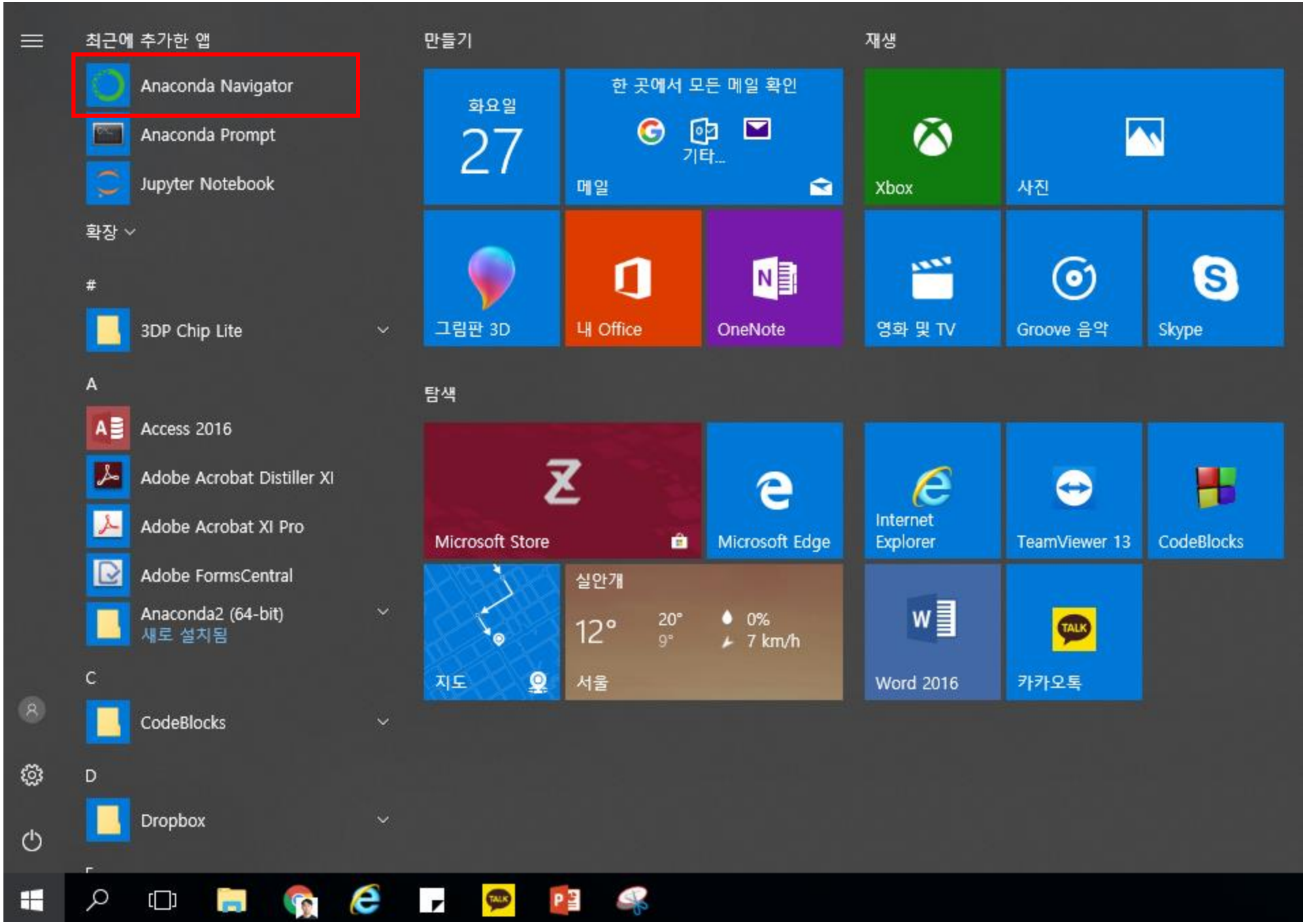
파이썬 3의 경우 숫자연산 시 자동으로 형 변환이 된다.

파이썬 3 버전의 예

```
>>> 3 / 4
0.75
```

파이썬 2.7 버전의 예

```
>>> 3 / 4
0
>>> 3 / 4.0
0.75
```


최근에 추가한 앱
Anaconda Navigator
Anaconda Prompt
Jupyter Notebook
확장
#
3DP Chip Lite
A
Access 2016
Adobe Acrobat Distiller XI
Adobe Acrobat XI Pro
Adobe FormsCentral
Anaconda2 (64-bit)
새로 설치됨
C
CodeBlocks
D
Dropbox
만들기
화요일
27
한 곳에서 모든 메일 확인
기타...
메일
그림판 3D
내 Office
OneNote
재생
Xbox
사진
영화 및 TV
Groove 음악
Skype
탐색
Microsoft Store
Microsoft Edge
Internet Explorer
TeamViewer 13
CodeBlocks
지도
실안개
12°
20°
9°
0%
7 km/h
서울
Word 2016
카카오톡

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0.31.4
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch

notebook
5.4.0
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch

qtconsole
4.3.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch

spyder
3.2.6
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch

glueviz
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Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install

orange3
3.4.1
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
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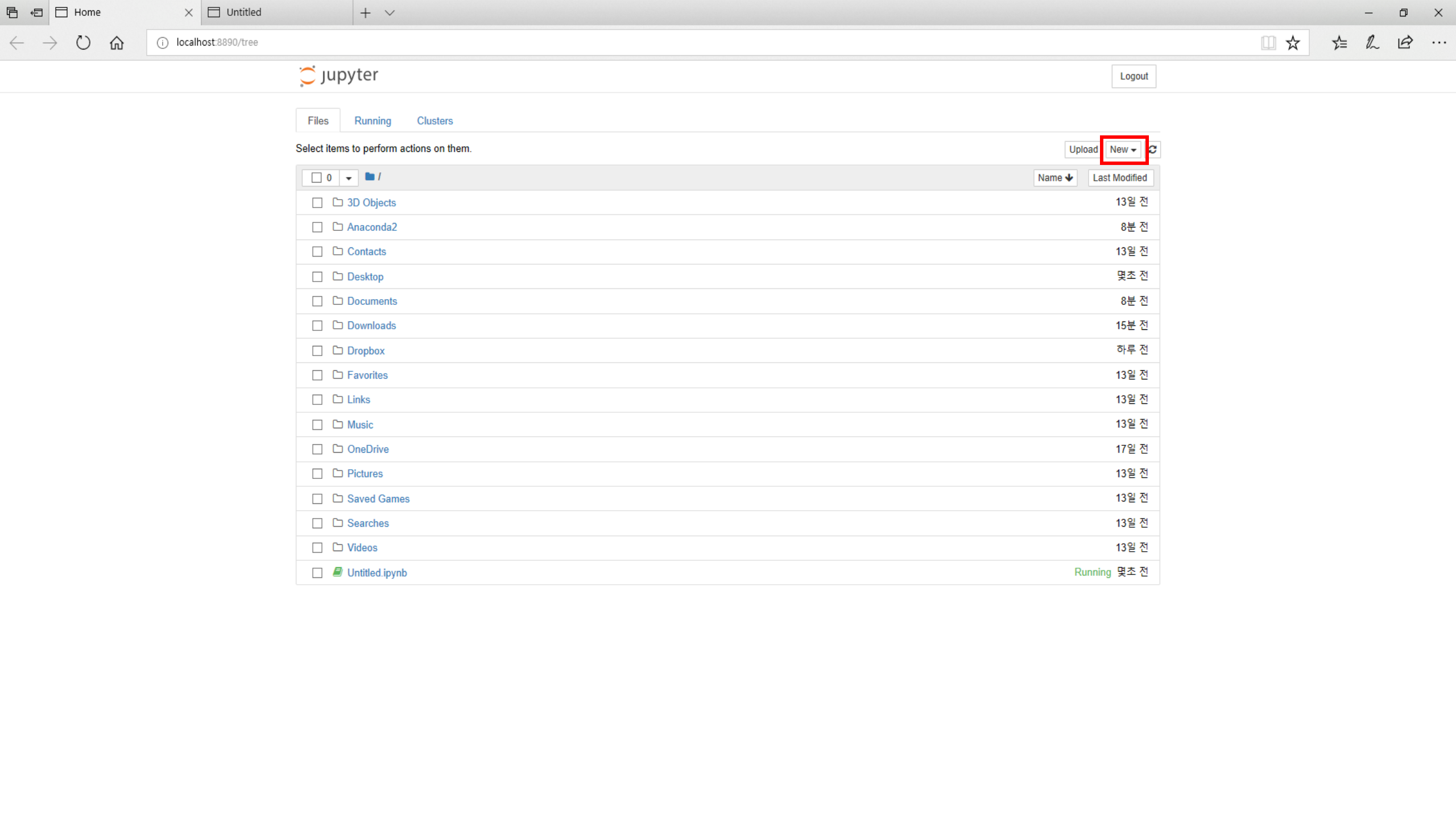
rstudio
1.1.383
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.
Install

vscode
1.21.1
Streamlined code editor with support for development operations like debugging, task running and version control.
Install

Documentation

Developer Blog

Feedback


Home
Untitled
localhost:8890/tree
jupyter
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
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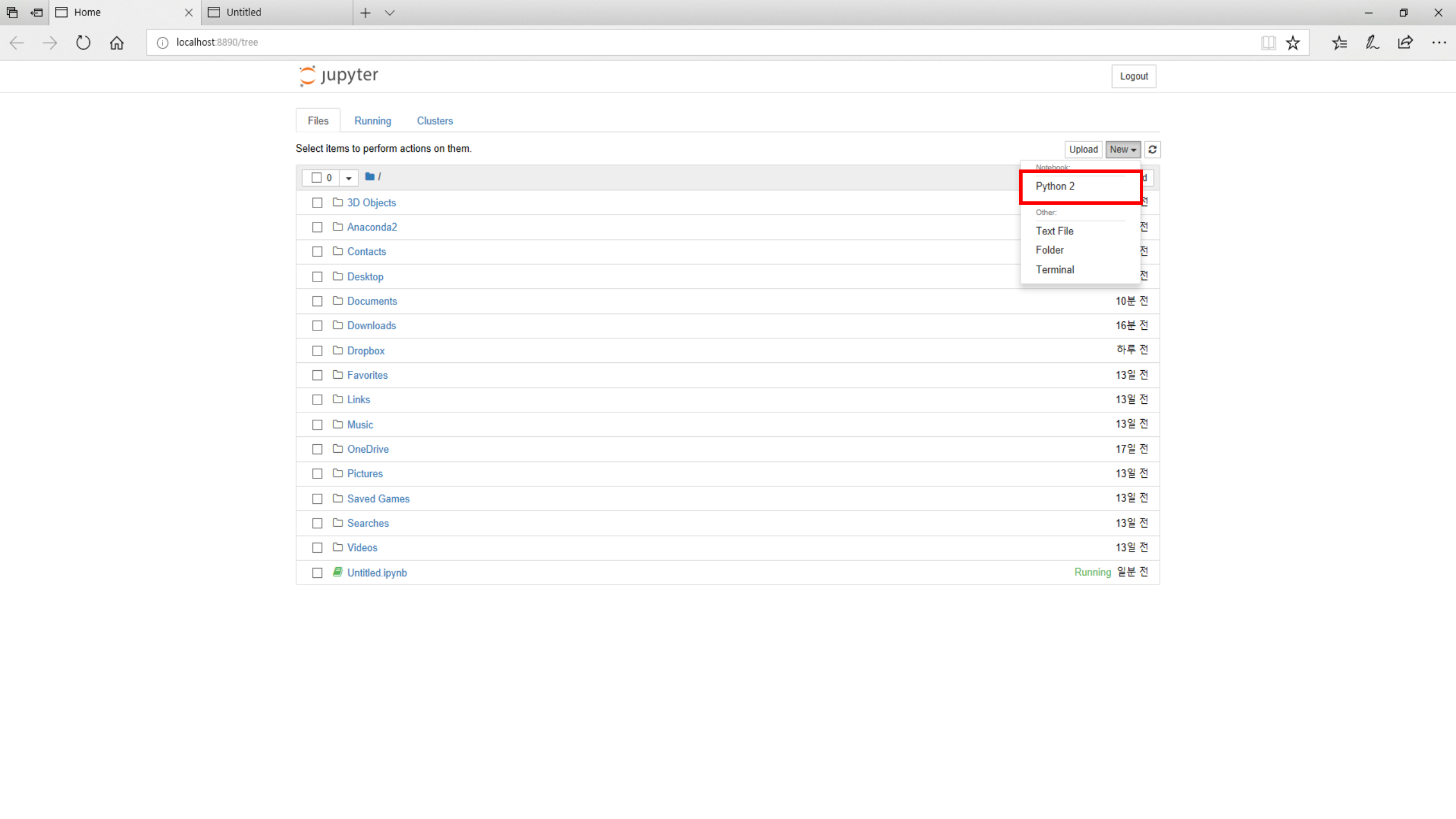
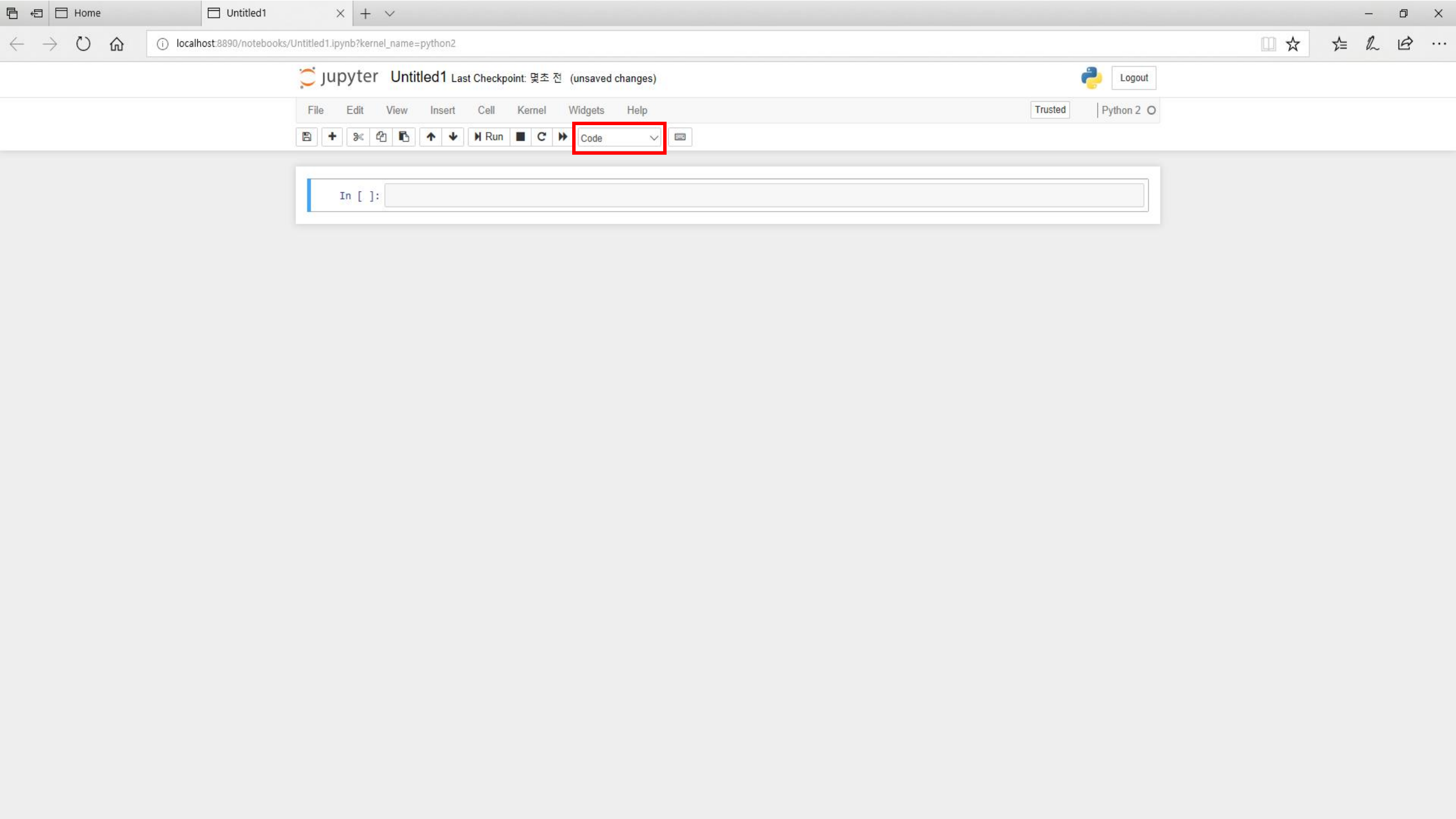
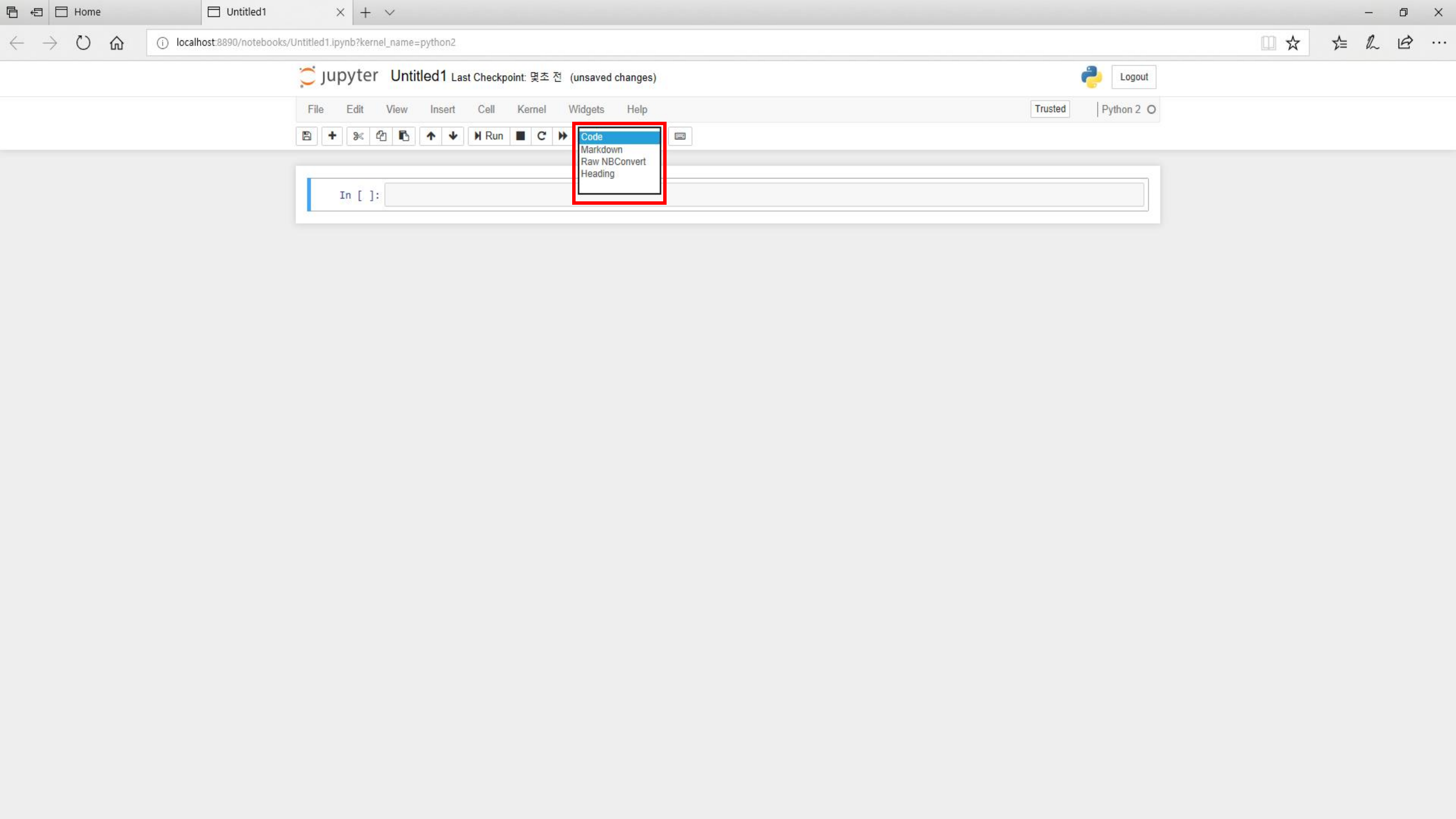
Name
Last Modified
3D Objects 13일 전
Anaconda2 8분 전
Contacts 13일 전
Desktop 몇초 전
Documents 8분 전
Downloads 15분 전
Dropbox 하루 전
Favorites 13일 전
Links 13일 전
Music 13일 전
OneDrive 17일 전
Pictures 13일 전
Saved Games 13일 전
Searches 13일 전
Videos 13일 전
Untitled.ipynb Running 몇초 전


Home
Untitled
localhost:8890/tree
jupyter
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
Notebook:
Python 2
Other:
Text File
Folder
Terminal
0
/
3D Objects
Anaconda2
Contacts
Desktop
Documents 10분 전
Downloads 16분 전
Dropbox 하루 전
Favorites 13일 전
Links 13일 전
Music 13일 전
OneDrive 17일 전
Pictures 13일 전
Saved Games 13일 전
Searches 13일 전
Videos 13일 전
Untitled.ipynb Running 일분 전


Home
Untitled1
localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2
jupyter Untitled1 Last Checkpoint: 몇초 전 (unsaved changes)
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 2
Run
Code
In [ ]: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localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2
jupyter Untitled1 Last Checkpoint: 몇초 전 (unsaved changes)
Logout
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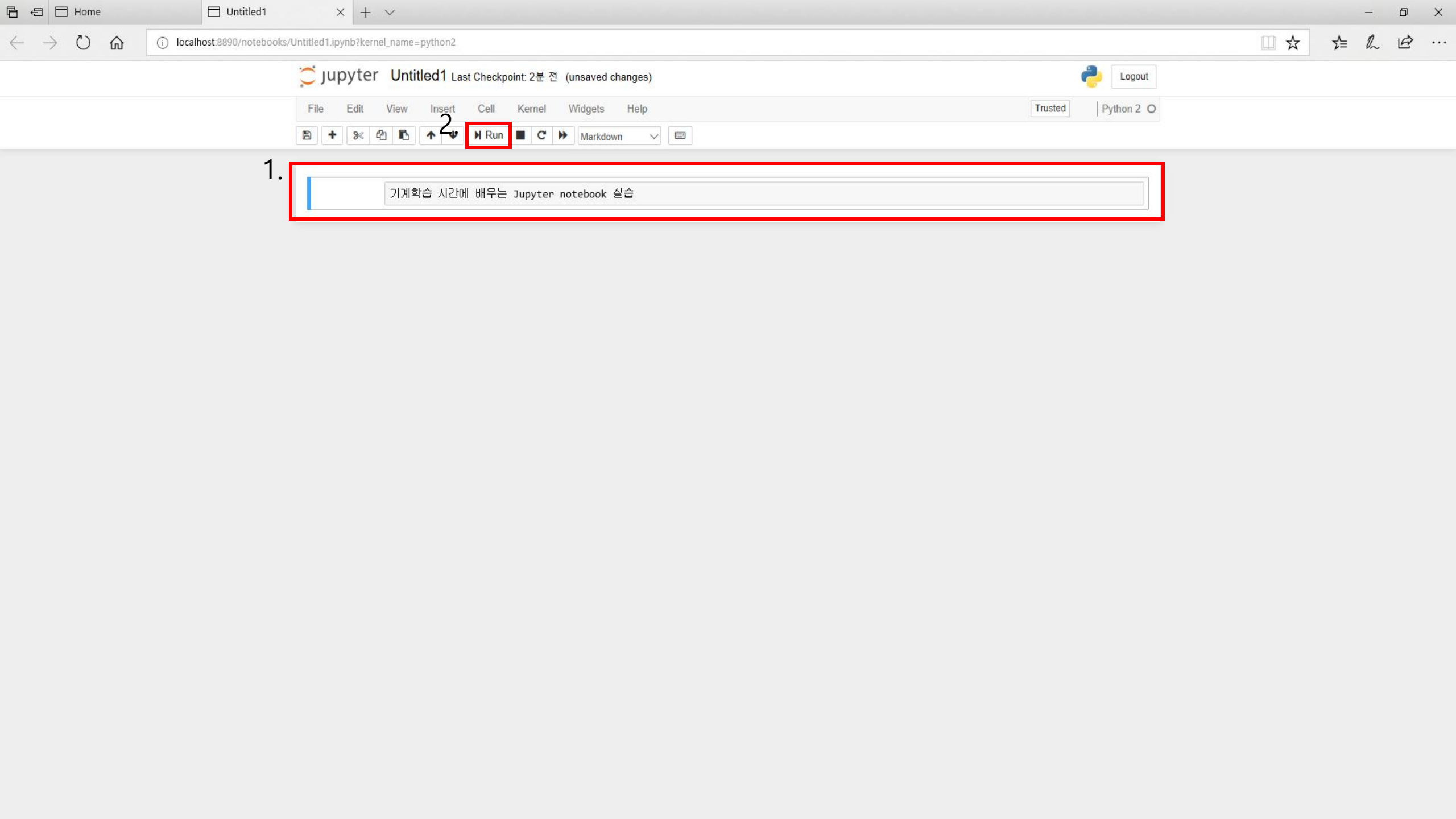
Trusted
Python 2
Run
Code
Markdown
Raw NBConvert
Heading
In [ ]: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Python 2
2.
Run
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1.
기계학습 시간에 배우는 Jupyter notebook 실습

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localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2

jupyter Untitled1 Last Checkpoint: 3분 전 (unsaved changes)

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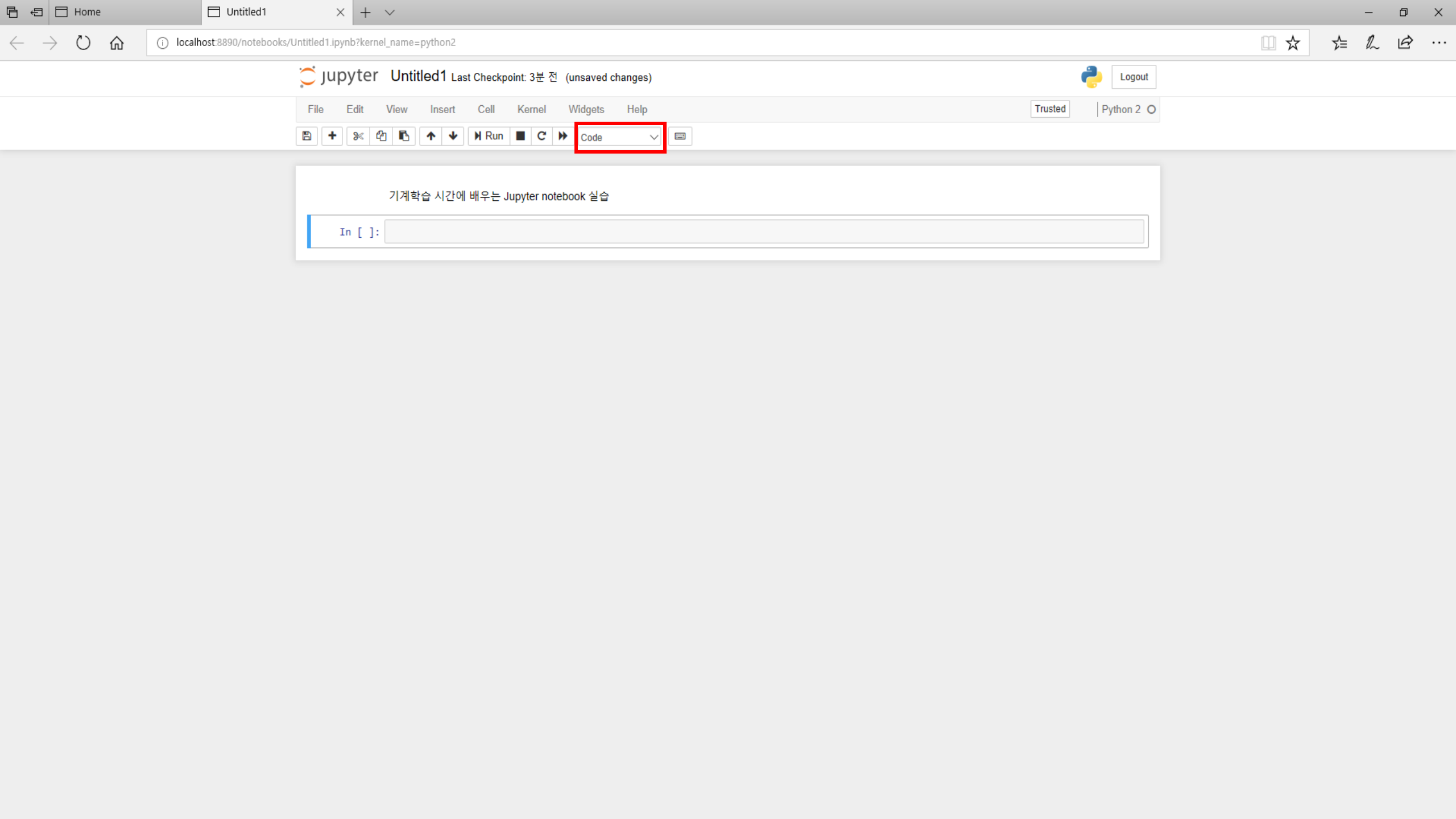
Trusted Python 2

Run Code

기계학습 시간에 배우는 Jupyter notebook 실습

In [ ]: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localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2
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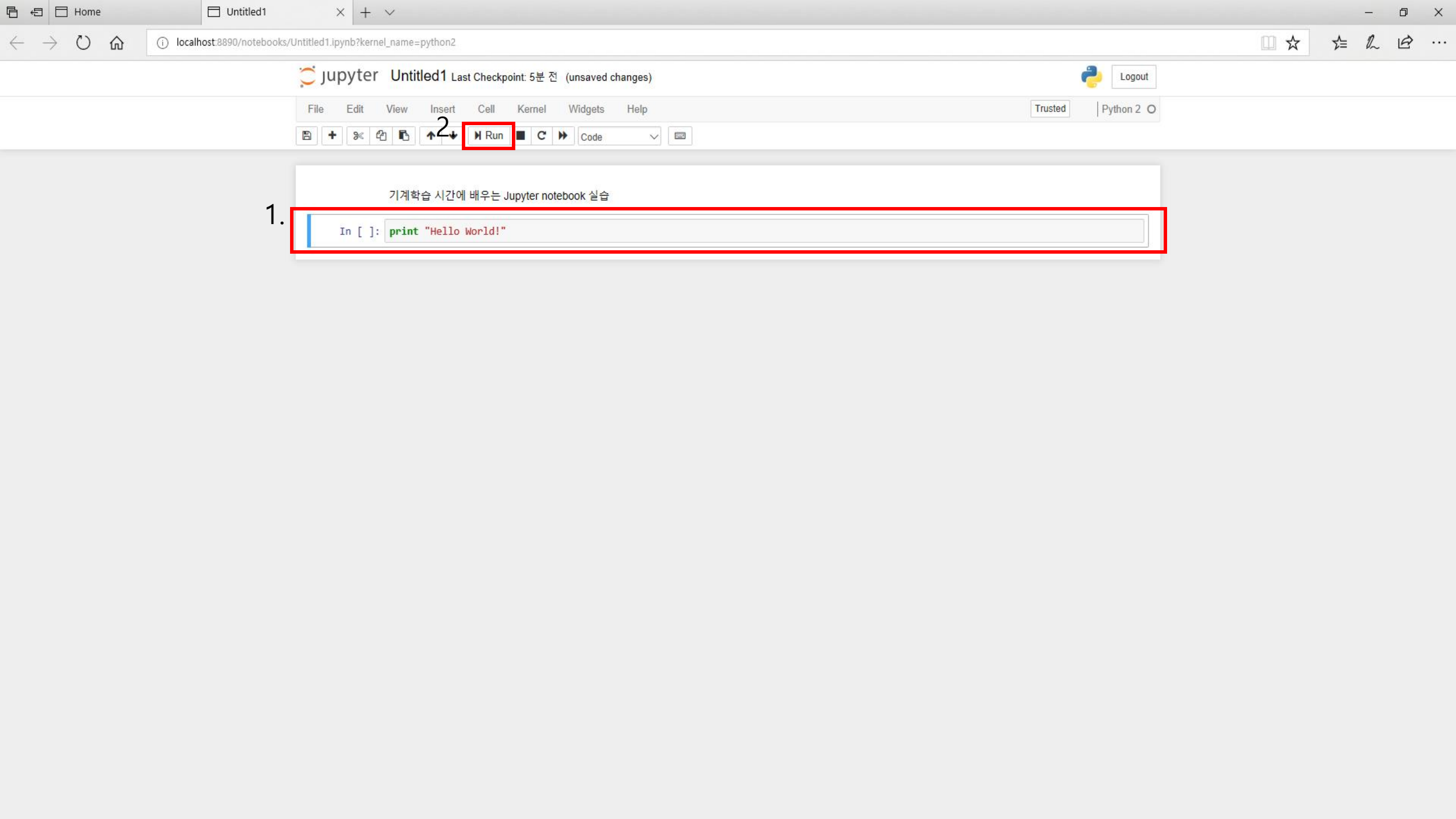
Trusted
Python 2
Run
Code
기계학습 시간에 배우는 Jupyter notebook 실습
In [ ]: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Untitled1
localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2
jupyter Untitled1 Last Checkpoint: 5분 전 (unsaved changes)
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 2
2
Run
Code
기계학습 시간에 배우는 Jupyter notebook 실습
1.
In [ ]: print "Hello World!"

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localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2

jupyter Untitled1 Last Checkpoint: 6분 전 (unsaved changes)

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Trusted | Python 2

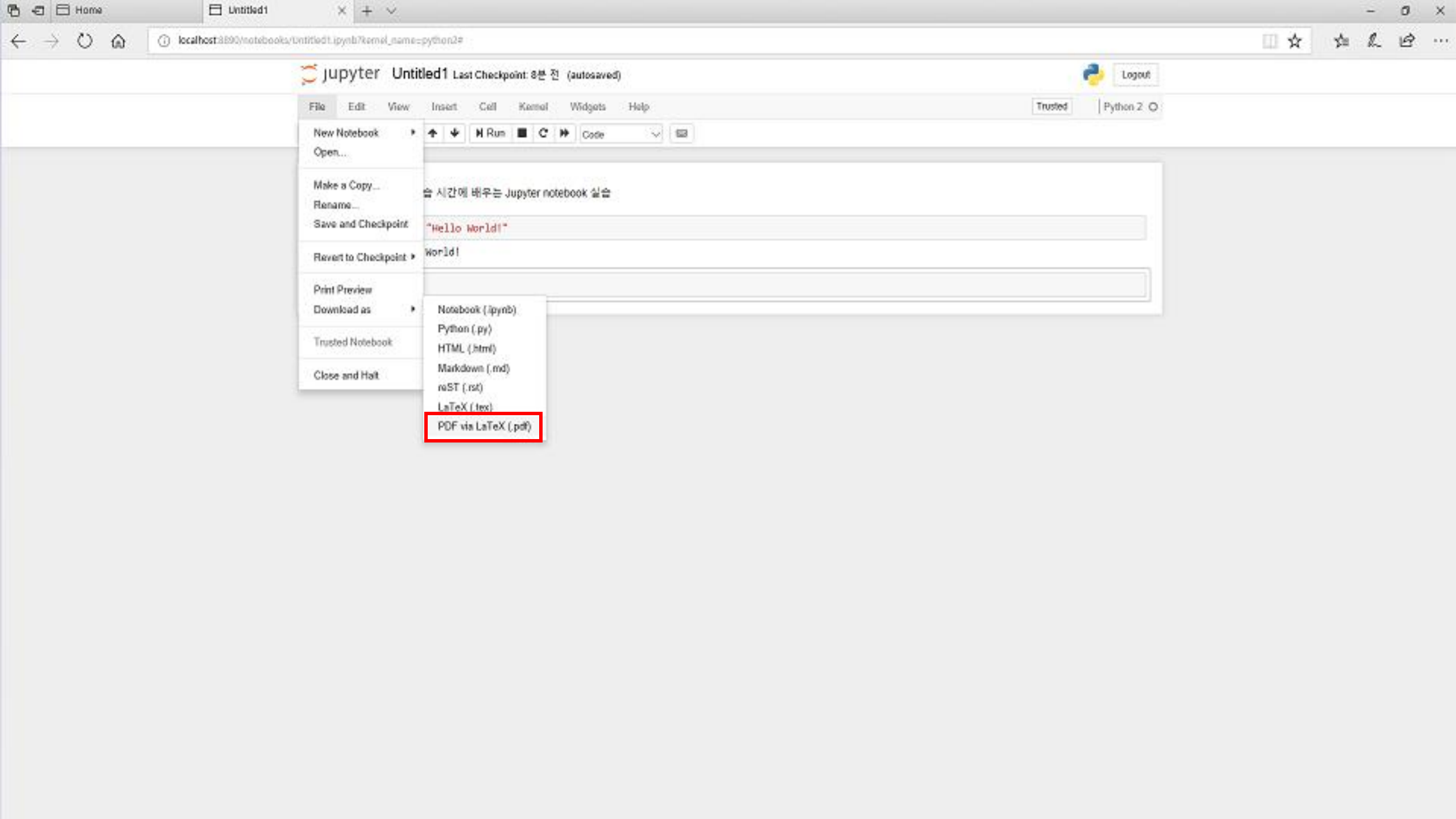
Run | Code

기계학습 시간에 배우는 Jupyter notebook 실습

In [1]:
```
print "Hello World!"
```

```
Hello World!
```

In [ ]: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Untitled1
localhost:8890/notebooks/Untitled1.ipynb?kernel_name=python2#
jupyter Untitled1 Last Checkpoint: 8분 전 (autosaved)
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 2
New Notebook
Open...
Make a Copy...
Rename...
Save and Checkpoint
Revert to Checkpoint
Print Preview
Download as
Trusted Notebook
Close and Halt
Run
Code
시간에 배우는 Jupyter notebook 실습
"Hello World!"
World!
Notebook (.ipynb)
Python (.py)
HTML (.html)
Markdown (.md)
reST (.rst)
LaTeX (.tex)
PDF via LaTeX (.pdf)

Untitled1

March 27, 2018

Jupyter notebook

```
In [1]: print "Hello World!"
```

```
Hello World!
```

기계학습 시간에 배우는 Jupyter notebook 실습

In [1]:
```
print "Hello World!"
```

```
Hello World!
```

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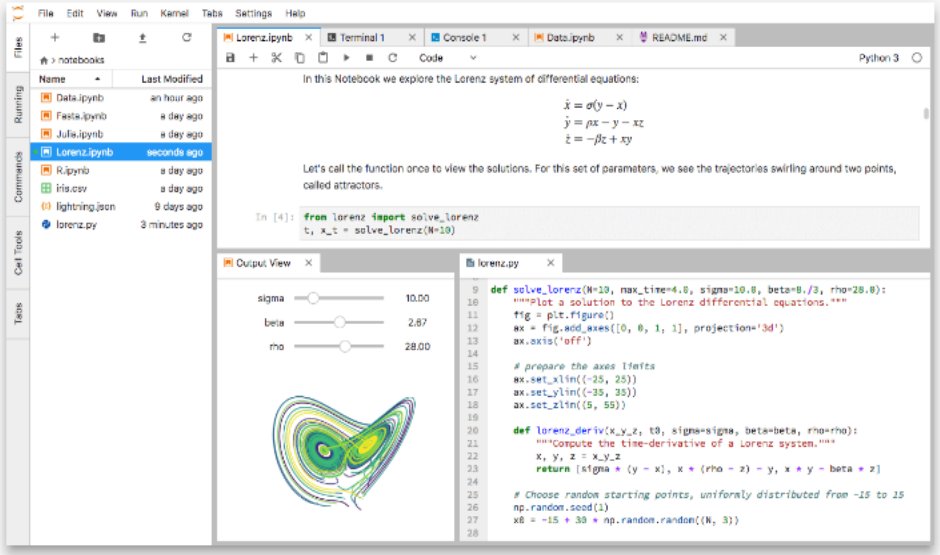
JupyterLab Documentation

JupyterLab is the next-generation web-based user interface for Project Jupyter. Try it on Binder.

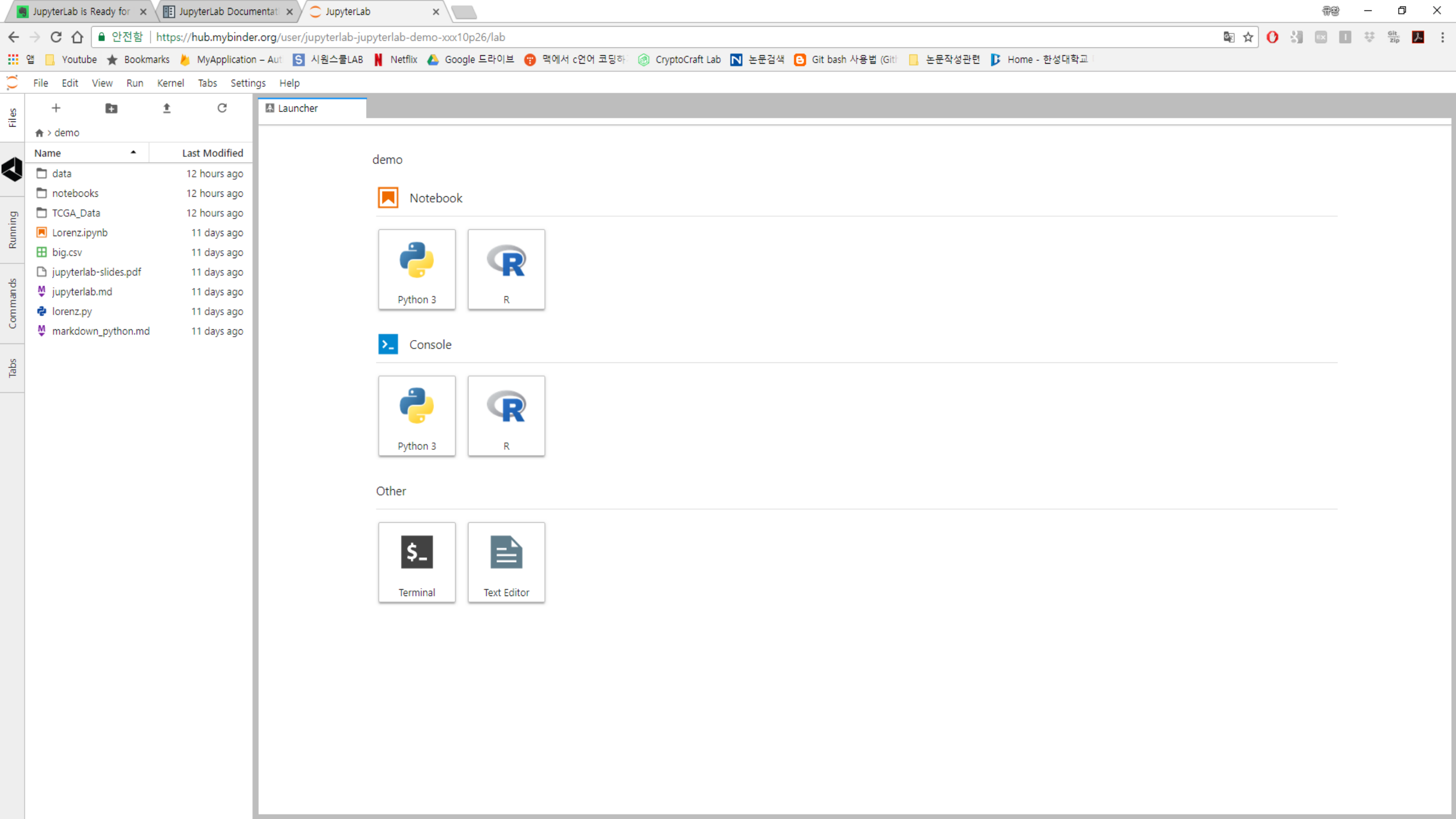


Getting Started

- Overview
- Installation
- Starting JupyterLab

User Guide

- The JupyterLab Interface
- Working with Files
- Text Editor
- Notebooks
- Code Consoles


JupyterLab is Ready for
JupyterLab Documentat
JupyterLab
안전함 | https://hub.mybinder.org/user/jupyterlab-jupyterlab-demo-xxx10p26/lab
앱 Youtube Bookmarks MyApplication – Aut 시원스쿨LAB Netflix Google 드라이브 맥에서 c언어 코딩하 CryptoCraft Lab 논문검색 Git bash 사용법 (Gitl 논문작성관련 Home - 한성대학교
File Edit View Run Kernel Tabs Settings Help
Files
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Tabs
demo
Name
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data 12 hours ago
notebooks 12 hours ago
TCGA_Data 12 hours ago
Lorenz.ipynb 11 days ago
big.csv 11 days ago
jupyterlab-slides.pdf 11 days ago
jupyterlab.md 11 days ago
lorenz.py 11 days ago
markdown_python.md 11 days ago
Launcher
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Files Running Commands Cell Tools Tabs

demo › notebooks

Name	Last Modified
bqplot.ipynb	11 days ago
Data.ipynb	11 days ago
Fasta.ipynb	11 days ago
Lorenz.ipynb	11 days ago
pandas.ipynb	11 days ago
R.ipynb	11 days ago
lorenz.py	11 days ago

Untitled.ipynb

Code

Python 3

test

In [3]:
```
print ("hello!")
```

hello!

In [ ]:

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demo > notebooks

Name	Last Modified
bqplot.ipynb	11 days ago
Data.ipynb	11 days ago
Fasta.ipynb	11 days ago
Lorenz.ipynb	11 days ago
pandas.ipynb	11 days ago
R.ipynb	11 days ago
lorenz.py	11 days ago

Untitled.ipynb | lorenz.py | R.ipynb

Code

R

In [1]:
```
head(iris)
```

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa

In [2]:
```
library(ggplot2)
```

In [3]:
```
ggplot(data=iris, aes(x=Sepal.Length, y=Sepal.Width)) + geom_point()
```