

さくらインターネット Python3.6 インストール記録 2020-03-29

Python2.7のサポートが終了すること、またPython3でのアプリが多いことから、さくらインターネットにPython3をインストールすることにした。

ネット検索すると、5年前に比べずいぶんさくらインターネットへのインストール記事も多い。

その中でもっともわかりやすい下記の記事を参考にさせていただき、自分のローカルフォルダーにインストールした。

参考URL : <https://ricom-techno.com/65/>

インストール手順 :

■Pythonのアーカイブファイルをダウンロード

テンポラリな作業ディレクトリworkspaceを作成

そのディレクトリにPythonのアーカイブ圧縮ファイルをダウンロードし展開する

```
% mkdir -p ~/workspace/  
% cd ~/workspace/  
% wget --no-check-certificate  
https://www.python.org/ftp/python/3.6.8/Python-3.6.8.tgz  
% tar -zxvf ./Python-3.6.8.tgz
```

```
% wget --no-check-certificate  
https://www.python.org/ftp/python/3.7.7/Python-3.7.7.tgz  
% tar -zxvf ./Python-3.7.7.tgz
```

Pythonのアーカイブファイルはこちらを参照

<https://www.python.org/ftp/python/>

■Python3.6.8 (3.7.7)をインストール

作業ディレクトリに展開されたPython-3.6.8ディレクトリに入り、

.configure ---> make ---> make installの順でインストールする

①% cd ./Python-3.6.8 (% cd ./Python-3.7.7)

②.configure命令でmake fileを作成する。

```
% ./configure CPPFLAGS="-I/usr/local/ssl/include" LDFLAGS="-L/usr/local/ssl/lib"  
--prefix=$HOME/.local/python3 --with-ensurepip
```

.configureのオプションについて

##1 CPPFLAGS、LDFLAGS

オプションでOpenSSL関連ファイルの場所を指定してコンパイル。

この指定がないと古いOpenSSLを参照してしまい、pipインストールができなくなる。

さくらインターネットの最新opensslのdirectoryとVersionは下記の通り。

OpenSSL 1.0.2o 27 Mar 2018 from /usr/bin/openssl

一方、Python2.7.6のopensslのVersionは、OpenSSK0.9.8zf 19 mar 2015で古い。

そこで、最新版opensslを使うように、CPPFLAGSとLDFLAGSのPathを指定する。

/usr/bin/opensslを調べると、下記のDirectoryにssymbolic linkされている。

```
lrwxr-xr-x 1 root wheel 26 Feb 24 2016 openssl ->
```

/usr/local/ssl/bin/openssl

また、usr/local/sslはさらに下記のDirectoryにssymbolic linkされている。
lrwxr-xr-x 1 root wheel 12 Feb 24 2016 ssl -> /home/rs/ssl

それで、CPPFLAGSとLDFLAGSのPathを、CPPFLAGS="-I/usr/local/ssl/include"
LDFLAGS="-L/usr/local/ssl/lib"と指定する。

LDFLAGS: linker flags, e.g. -L<lib dir> if you have libraries in a nonstandard directory <lib dir>
CPPFLAGS: (Objective) C/C++ preprocessor flags, e.g. -I<include dir> if you have headers in a nonstandard directory <include dir>

##2 --prefix=\$HOME/python3
python3の本体…bin, lib, include, shareプログラムのインストール先の指定
この場合、 /home/miyasan/python3の下に上記のDirectoryが作られインストールされる。

##3 --with-ensurepip
pipも同時にインストールされるように、--with-ensurepip オプションを指定しておく。

③% make

④% make install

■\$HOME/python3にインストールしたので、.cshrcを編集してパスを通す

% vi ~/.cshrc ファイル属性644

以下を追加 2020-03-29 for python3.6

```
set path = ($path $HOME/python3/bin)
setenv PYTHON $HOME/python3/lib
setenv PYTHONPATH $HOME/python3/lib/python3.6/site-packages
setenv LD_LIBRARY_PATH $HOME/python3/lib
```

###

■変更した設定を反映

```
% source ~/.cshrc
% rehash
```

■環境変数PATHの設定が反映されたことと、バージョンを確認

```
% which python3
/home/miyasan/python3/bin/python3
% python3 --version
Python 3.6.8
% python --version
Python 2.7.6
```

■pipもアップグレードしておきます

```
% pip3 install --upgrade pip
```

```
% pip3 -V
```

```
pip 20.0.2 from /home/miyasan/python3/lib/python3.6/site-packages/pip (python 3.6)
```

```
% which pip3
```

```
/home/miyasan/python3/bin/pip3
```

■実行してみます

```
% python3
```

```
Python 3.6.8 (default, Mar 30 2020, 13:23:47)
```

```
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import sys
```

```
>>> sys.path
```

```
['', '/home/miyasan/python3/lib/python3.6/site-packages',  
'/home/miyasan/python3/lib/python36.zip', '/home/miyasan/python3/lib/python3.6',  
'/home/miyasan/python3/lib/python3.6/lib-dynload',  
'/home/miyasan/.local/lib/python3.6/site-packages']
```

```
>>>
```

■最後に作業用ディレクトリを削除します

```
% rm -rf ~/workspace
```

以上

■補足：インストール中、下記の2つのエラーに遭遇

```
% make install
```

make install後、下記のエラー表示

```
/usr/bin/install -c python-config
```

```
/home/miyasan/local/python/bin/python3.6m-config
```

```
./python -E ./setup.py install --prefix=/home/miyasan/local/python
```

```
--install-scripts=/home/miyasan/local/python/bin
```

```
--install-platlib=/home/miyasan/local/python/lib/python3.6/lib-dynload --root=  
running install
```

```
error: can't combine user with prefix, exec_prefix/home, or install_(plat)base
```

```
*** [sharedinstall] Error code 1
```

```
Stop in /home/miyasan/workspace/python3/Python-3.6.8.
```

```
" can't combine user with prefix, exec_prefix/home, or install_(plat)base"
```

→このエラーメッセージの意味は何か？

インストール先を指定しているprefixのDirectoryがまずい可能性がある。

そこで、Python3本体のインストール先を、"/home/miyasan/local/python" から、
"/home/miyasan/python3"あるいは"/home/miyasan/local"に変更したところ、どちらも無事にインストールされた。

```
% pip3 install --upgrade pip
```

.configure命令で、CPPFLAGS="-I/usr/local/ssl/include"

LDFLAGS="-L/usr/local/ssl/lib"を指定しないと、opensslが古いバージョンを参照する
ようで、pip3が動かなかった。

.pydistutils.cfg

2015年、Python2.7のモジュールがインストールできなかったので、下記の参考URLにしたがって、このファイルを作成し、Homeディレクトリにおいてあるが、旧いので不要と考え、Python3のインストール時は、このファイルを削除しおいた。このファイルが悪さをするか否か不明のままである。

<https://emptypage.jp/notes/sakura-python.html>

setup.py を実行するときに --user を付けるのを忘れないように、これをデフォルトの設定にすることができます。ホームディレクトリに .pydistutils.cfg という名前で以下のような内容のファイルを用意します。

```
[install]
user=1
```

これで、python setup.py install を実行したときの規定の動作が --user オプションを付けたときと同じになります。

その後 pipが機能しない。さくらのvar/tmpにフォルダーを作るが\$HOME/にインストールできずに止まっている

```
##### ERROR 対応
```

```
/var: write failed, user disk limit reached
ERROR: Could not install packages due to an EnvironmentError: [Errno 69] Disc
quota exceeded
```

/var/tmpにmiyasanのpipの痕跡があり、これをすべて消した。

site.USER_SITE

Python 実行時のユーザの site-packages へのパスです。
getusersitepackages() がまだ呼び出されていなければ None かもしれません。
デフォルト値は UNIX と frameworkなしの Mac OS X ビルドでは
~/.local/lib/pythonX.Y/site-packages
このディレクトリは site ディレクトリなので、ここにいる .pth ファイルが処理されます。

site.USER_BASE

ユーザの site-packages のベースとなるディレクトリへのパスです。
getuserbase() がまだ呼び出されていなければ None かもしれません。
デフォルト値は UNIX と frameworkなしの Mac OS X ビルドでは ~/.local
この値は Distutils が、スクリプト、データファイル、Python モジュールなどのインストール先のディレクトリを user installation scheme で計算するのに使われます。
PYTHONUSERBASE も参照してください。

```
$ python3 -m site --user-site
/home/user/.local/lib/python3.3/site-packages
```

引数なしで呼び出された場合、sys.pathの中身を表示し、続けて USER_BASE とそのディレクトリが存在するかどうか、USER_SITE とそのディレクトリが存在するかどうか、最後に ENABLE_USER_SITE の値を、標準出力に出力します。

```
--user-base
ユーザのベースディレクトリを表示します。
```

```
--user-site
ユーザの site-packages ディレクトリを表示します。
```

```
% python3 -m site --user-site
/home/miyasan/.local/lib/python3.6/site-packages
% python3 -m site --user-base
/home/miyasan/.local
```

```
% python -m site --user-site
/home/miyasan/.local/lib/python2.7/site-packages
% python -m site --user-base
/home/miyasan/.local
```

```
=====
2020-04-08
Python3.7でも同様のメッセージ
/home/miyasan/.local/python3にインストールしたがNG
=====
```

```
/usr/bin/install -c ./install-sh
/home/miyasan/.local/python3/lib/python3.7/config-3.7m/install-sh
/usr/bin/install -c python-config.py
/home/miyasan/.local/python3/lib/python3.7/config-3.7m/python-config.py
/usr/bin/install -c python-config
/home/miyasan/.local/python3/bin/python3.7m-config
./python -E ./setup.py install --prefix=/home/miyasan/.local/python3
--install-scripts=/home/miyasan/.local/python3/bin
--install-platlib=/home/miyasan/.local/python3/lib/python3.7/lib-dynload
--root=/
running install
error: can't combine user with prefix, exec_prefix/home, or install_(plat)base
*** [sharedinstall] Error code 1
```

Stop in /home/miyasan/workspace/Python-3.7.7.

%Python3では動作しないが、python3.7は立ち上がる。

```
=====
2020-04-09
=====
```

昨日は ~/.local下へのインストールに失敗した。

```
% python3.7
Could not find platform dependent libraries <exec_prefix>
Consider setting $PYTHONHOME to <prefix>[:<exec_prefix>]
Python 3.7.7 (default, Apr 8 2020, 08:42:34)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
```

```
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

```
Could not find platform dependent libraries <exec_prefix>
Consider setting $PYTHONHOME to <prefix>[:<exec_prefix>]
が問題であることは明らか！！
```

今度は下記URLを参考にmake でなく make altinstallを試みる。
<https://doitu.info/blog/5c45e5ec8dbc7a001af33ce8>

これは先にいちどやったことあったと思うが、再度その顛末をメモする。
昨日、Python3.7.7をダウンロードしているので、そこからスタート

まず~/local/Python3を削除

■Python3.7.7をインストール

①% cd ^workspace//Python-3.7.7

②. configure命令でmake fileを作成する。
今回は\$HOME/local/pythonにインストールしてみる。
また、.pydistutils.cfgはHomeから外しておく

```
% ./configure CPPFLAGS="-I/usr/local/ssl/include" LDFLAGS="-L/usr/local/ssl/lib"
--prefix=$HOME/local/python --with-ensurepip
```

```
% make
% make altinstall
```

~~~~~

```
running install_scripts
copying build/scripts-3.7/idle3.7 -> /home/miyasan/local/python/bin
copying build/scripts-3.7/pyvenv-3.7 -> /home/miyasan/local/python/bin
copying build/scripts-3.7/pydoc3.7 -> /home/miyasan/local/python/bin
copying build/scripts-3.7/2to3-3.7 -> /home/miyasan/local/python/bin
changing mode of /home/miyasan/local/python/bin/idle3.7 to 755
changing mode of /home/miyasan/local/python/bin/pyvenv-3.7 to 755
changing mode of /home/miyasan/local/python/bin/pydoc3.7 to 755
changing mode of /home/miyasan/local/python/bin/2to3-3.7 to 755
rm
/home/miyasan/local/python/lib/python3.7/lib-dynload/_sysconfigdata_m_freebsd9_
py
rm -r /home/miyasan/local/python/lib/python3.7/lib-dynload/__pycache__
Creating directory /home/miyasan/local/python/share/man
Creating directory /home/miyasan/local/python/share/man/man1
/usr/bin/install -c -m 644 ./Misc/python.man
/home/miyasan/local/python/share/man/man1/python3.7.1
if test "xupgrade" != "xno" ; then case upgrade in upgrade)
ensurepip="--altinstall --upgrade" ;; install*) ensurepip="--altinstall" ;;
esac; ./python -E -m ensurepip $ensurepip --root=/ ; fi
Looking in links: /tmp/tmpkiib3uqo
Collecting setuptools
Collecting pip
Installing collected packages: setuptools, pip
Successfully installed pip-19.2.3 setuptools-41.2.0
```

⇒~/local/pythonの下にPkgがインストールされた。

■\$HOME/local/pythonにインストールしたので、.cshrcを編集してパスを通す

ファイル属性644

```
### 以下を追加 2020-04-09 for python3.7
||
set path = ($path $HOME/local/python/bin)
setenv PYTHON $HOME/local/python/lib
setenv PYTHONPATH $HOME/local/python/lib/python3.7/site-packages
setenv LD_LIBRARY_PATH $HOME/local/python/lib
```

■変更した設定を反映

```
% source ~/.cshrc
% rehash
```

しかしながらPython3は機能しない。Python3.7はOK  
pipもinstallされたのに動かない???

```
% python3
python3: Command not found.
%
% python3.7
Python 3.7.7 (default, Apr 9 2020, 08:59:14)
[GCC 4.2.1_20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>>
%
% pip3
pip3: Command not found.
% pip
pip: Command not found.

% pip3.7 -V
pip 20.0.2 from /home/miyasan/local/python/lib/python3.7/site-packages/pip
(python 3.7)
```

make altinstallのせいなのか???  
振り出しに戻ってしまった。

=====  
2020-04-08 今度はmakeでインストールしてみる

make後の表示に\_ctype がビルドできなかったコメントあり。

```
Python build finished successfully!
The necessary bits to build these optional modules were not found:
_tkinter          spwd
To find the necessary bits, look in setup.py in detect_modules() for the
module's name.
```

```
The following modules found by detect_modules() in setup.py, have been
built by the Makefile instead, as configured by the Setup files:
_abc              atexit          pwd
time
```

Failed to build these modules:

\_ctypes

running build\_scripts

creating build/scripts-3.7

copying and adjusting

/home/miyasan/workspace/Python-3.7.7/Tools/scripts/pydoc3 -> build/scripts-3.7

copying and adjusting

/home/miyasan/workspace/Python-3.7.7/Tools/scripts/idle3 -> build/scripts-3.7

copying and adjusting

/home/miyasan/workspace/Python-3.7.7/Tools/scripts/2to3 -> build/scripts-3.7

copying and adjusting

/home/miyasan/workspace/Python-3.7.7/Tools/scripts/pyvenv -> build/scripts-3.7

changing mode of build/scripts-3.7/pydoc3 from 644 to 755

changing mode of build/scripts-3.7/idle3 from 644 to 755

changing mode of build/scripts-3.7/2to3 from 644 to 755

changing mode of build/scripts-3.7/pyvenv from 644 to 755

renaming build/scripts-3.7/pydoc3 to build/scripts-3.7/pydoc3.7

renaming build/scripts-3.7/idle3 to build/scripts-3.7/idle3.7

renaming build/scripts-3.7/2to3 to build/scripts-3.7/2to3-3.7

renaming build/scripts-3.7/pyvenv to build/scripts-3.7/pyvenv-3.7

/usr/bin/install -c -m 644 ./Tools/gdb/libpython.py python-gdb.py

gcc -pthread -c -fno-strict-aliasing -Wsign-compare -DNDEBUG -g -fwrapv

-O3 -Wall -O2 -pipe -std=c99 -Wextra -Wno-unused-parameter

-Wno-missing-field-initializers -Werror=implicit-function-declaration -I.

-I./Include -I/usr/local/ssl/include -DPy\_BUILD\_CORE -o Programs/\_testembed.o

./Programs/\_testembed.c

gcc -pthread -L/usr/local/ssl/lib -Wl,--export-dynamic -o

Programs/\_testembed Programs/\_testembed.o libpython3.7m.a -lcrypt -lutil -lm

sed -e "s,@EXENAME@,/home/miyasan/local/python/bin/python3.7m," <

./Misc/python-config.in >python-config.py

LC\_ALL=C sed -e 's,¥\$(¥([A-Za-z0-9\_]\*¥)),¥\$¥{¥1¥},g' <

Misc/python-config.sh >python-config

これをネット検索すると、Python3.7ではこの問題があるとのこと??

[https://www.everkb.com/article/ja/failed-to-build-these-modules-\\_ctypes-when-installing-python-3-on-centos-7](https://www.everkb.com/article/ja/failed-to-build-these-modules-_ctypes-when-installing-python-3-on-centos-7)

解決策は、

解決策：パラメータを使用した構成ステートメント。./configure

--enable-shared

./configure --enable-shared

ちょっとやってみるか。。。。

./configure CPPFLAGS="-I/usr/local/ssl/include" LDFLAGS="-L/usr/local/ssl/lib"  
--prefix=\$HOME/local/python --with-ensurepip --enable-shared

./configure --enable-sharedコマンドを使っても全然治らないのですが。。。

とりあえず make install

make altinstallではなければ、Python3、Pythonコマンド、pip3コマンドを受け付ける

しかしpip3では

ERROR: Command errored out with exit status 1: python setup.py egg\_info  
Check the logs for full command output. エラーが出る。

ネット検索すると、  
C

PythonのctypesはCで書かれたライブラリをPythonから利用するためのモジュールであり、libffiに依存しています。  
ソースからPythonをビルドする際、libffiが見つからない場合はctypesのビルドはスキップされます。  
ctypesがビルドされていないPythonからctypesを利用しようとすると、以下のよう  
に当該エラーが発生します。

とのこと。対策は、libffi をインストールすると良いようです。

理由は公式ドキュメントに載ってました。今回から必要だよって感じの事を言っ  
てます。

[docs.python.org](https://docs.python.org)

A full copy of libffi is no longer bundled for use when building the  
ctypes module on non-OSX UNIX platforms.  
An installed copy of libffi is now required when building ctypes on such  
platforms. (Contributed by Zachary Ware in bpo-27979.)

さらにPython3.7からは 下記からOpenSSLのバージョンが古すぎてもダメそうで  
す。

The ssl module requires OpenSSL 1.0.2 or 1.1 compatible libssl.  
OpenSSL 1.0.1 has reached end of lifetime on 2016-12-31 and is no longer  
supported.  
LibreSSL is temporarily not supported as well.  
LibreSSL releases up to version 2.6.4 are missing required OpenSSL 1.0.2  
APIs.

<http://saruhei1989.hatenablog.com/entry/2019/04/06/090000>

どうもSecurityの関係から、Python3.7以降はこれまでのモジュールが使えなくなってい  
る感じ。

仕方ないので、Python3.6を入れてみることにする。

同様の悩みの記事参考：

<https://michaeluno.sakura.ne.jp/technotes/%e3%81%95%e3%81%8f%e3%82%89%e3%83%ac%e3%83%b3%e3%82%bf%e3%83%ab%e3%82%b5%e3%83%bc%e3%83%90%e3%81%a7-pyhton-3-6-5-%e3%82%92%e3%82%a4%e3%83%b3%e3%82%b9%e3%83%88%e3%83%bc%e3%83%ab/>

=====  
=====  
Python3.6を入れてみることにする  
=====  
=====

Pythonのアーカイブファイルはこちらを参照  
<https://www.python.org/ftp/python/>

```
% wget https://www.python.org/ftp/python/3.6.5/Python-3.6.5.tgz  
% tar xvf Python-3.6.5.tgz  
% cd Python-3.6.5
```

configure命令でmake fileを作成する。

```
% ./configure CPPFLAGS="-I/usr/local/ssl/include" LDFLAGS="-L/usr/local/ssl/lib"
--prefix=$HOME/local/python --with-ensurepip --enable-shared
```

make後のメッセージ : ctypeエラーなし (make所要時間 : 2分17秒)

```
Python build finished successfully!
```

```
The necessary bits to build these optional modules were not found:
```

```
_tkinter          spwd
```

```
To find the necessary bits, look in setup.py in detect_modules() for the
module's name.
```

```
The following modules found by detect_modules() in setup.py, have been
built by the Makefile instead, as configured by the Setup files:
```

```
atexit            pwd              time
```

```
running build_scripts
```

```
creating build/scripts-3.6
```

```
copying and adjusting
```

```
/home/miyasan/workspace/Python-3.6.5/Tools/scripts/pydoc3 -> build/scripts-3.6
```

```
copying and adjusting
```

```
/home/miyasan/workspace/Python-3.6.5/Tools/scripts/idle3 -> build/scripts-3.6
```

```
copying and adjusting
```

```
/home/miyasan/workspace/Python-3.6.5/Tools/scripts/2to3 -> build/scripts-3.6
```

```
copying and adjusting
```

```
/home/miyasan/workspace/Python-3.6.5/Tools/scripts/pyvenv -> build/scripts-3.6
```

```
changing mode of build/scripts-3.6/pydoc3 from 644 to 755
```

```
changing mode of build/scripts-3.6/idle3 from 644 to 755
```

```
changing mode of build/scripts-3.6/2to3 from 644 to 755
```

```
changing mode of build/scripts-3.6/pyvenv from 644 to 755
```

```
renaming build/scripts-3.6/pydoc3 to build/scripts-3.6/pydoc3.6
```

```
renaming build/scripts-3.6/idle3 to build/scripts-3.6/idle3.6
```

```
renaming build/scripts-3.6/2to3 to build/scripts-3.6/2to3-3.6
```

```
renaming build/scripts-3.6/pyvenv to build/scripts-3.6/pyvenv-3.6
```

```
/usr/bin/install -c -m 644 ./Tools/gdb/libpython.py python-gdb.py
```

```
gcc -pthread -c -fno-strict-aliasing -Wsign-compare -DNDEBUG -g -fwrapv
```

```
-O3 -Wall -Wstrict-prototypes -O2 -pipe -std=c99 -Wextra
```

```
-Wno-unused-parameter -Wno-missing-field-initializers -I. -I./Include
```

```
-I/usr/local/ssl/include -DPy_BUILD_CORE -o Programs/_testembed.o
```

```
./Programs/_testembed.c
```

```
gcc -pthread -L/usr/local/ssl/lib -Wl,--export-dynamic -o
```

```
Programs/_testembed Programs/_testembed.o libpython3.6m.a -lutil -lm
```

```
# Substitution happens here, as the completely-expanded BINDIR
```

```
# is not available in configure
```

```
sed -e "s,@EXENAME@,/home/miyasan/local/python/bin/python3.6m," <
```

```
./Misc/python-config.in >python-config.py
```

```
# Replace makefile compat. variable references with shell script compat.
```

```
ones; ->
```

```
LC_ALL=C sed -e 's,¥$(¥([A-Za-z0-9_]*¥)),¥$¥{¥1¥},g' <
```

```
Misc/python-config.sh >python-config
```

```
# On Darwin, always use the python version of the script, the shell
```

```
# version doesn't use the compiler customizations that are provided
```

```
# in python (_osx_support.py).
```

```
if test `uname -s` = Darwin; then cp python-config.py python-config;
```

```
fi
```

make installして設定を反映

```
% source ~/.cshrc
```

```
% rehash
```

Pythonバージョン確認 OKOK！！

```
% python --version
Python 2.7.6
% python3 --version
Python 3.6.5
```

```
(python 3.6)
% pip --version
pip: Command not found.
% pip3 --version
pip 9.0.3 from /home/miyasan/local/python/lib/python3.6/site-packages
% pip2 --version
pip 9.0.1 from /home/miyasan/.local/lib/python2.7/site-packages (python
2.7)
```

```
% pip3 install numpyを試したところ、
ModuleNotFoundError: No module named 'Cython'
...
RuntimeError: Running cythonize failed!
```

そこで、cythonをインストール

```
% pip3 install cython
Collecting cython
  Cache entry deserialization failed, entry ignored
  Cache entry deserialization failed, entry ignored
  Downloading
https://files.pythonhosted.org/packages/d4/ad/9ebf6d2edcf9678c2ff6b7eaae6ff2edc0
b11a4f484417ed604ee9bb7e92/Cython-0.29.16-py2.py3-none-any.whl (970kB)
  100% |#####| 972kB 1.2MB/s
Installing collected packages: cython
Successfully installed cython-0.29.16
You are using pip version 9.0.3, however version 20.0.2 is available.
You should consider upgrading via the 'pip install --upgrade pip'
command.
```

続いて、numpyをインストールしたとこと、えらく時間を費やして無事インストールできた。

```
% pip3 install numpy
Collecting numpy
  Using cached
https://files.pythonhosted.org/packages/84/1e/ff467ac56bfeaea51d4a2e72d315c1fe44
0b20192fea7e460f0f248acac8/numpy-1.18.2.zip
Installing collected packages: numpy
  Running setup.py install for numpy ... done
Successfully installed numpy-1.18.2
You are using pip version 9.0.3, however version 20.0.2 is available.
You should consider upgrading via the 'pip install --upgrade pip'
command.
```

しかしpandasがインストールできない

```
% pip3 install pandas
Collecting pandas
  Using cached pandas-1.0.3.tar.gz (5.0 MB)
  Installing build dependencies ... done
  Getting requirements to build wheel ... error
```

```
ERROR: Command errored out with exit status 1:
  command: /home/miyasan/local/python/bin/python3.6
/home/miyasan/local/python/lib/python3.6/site-packages/pip/_vendor/pep517/_in_p
rocess.py get_requires_for_build_wheel /tmp/tmp7yjt7_z1
  cwd: /var/tmp/pip-install-l5f9u78q/pandas
Complete output (57 lines):
Traceback (most recent call last):
  File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/pkg_resourc
es/__init__.py", line 360, in get_provider
    module = sys.modules[moduleOrReq]
KeyError: 'numpy'
```

During handling of the above exception, another exception occurred:

```
Traceback (most recent call last):
  File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/numpy/core/
__init__.py", line 16, in <module>
    from . import multiarray
ImportError: Cannot execute objects on /var
```

During handling of the above exception, another exception occurred:

```
Traceback (most recent call last):
  File
"/home/miyasan/local/python/lib/python3.6/site-packages/pip/_vendor/pep517/_in_p
rocess.py", line 257, in <module>
    main()
  File
"/home/miyasan/local/python/lib/python3.6/site-packages/pip/_vendor/pep517/_in_p
rocess.py", line 240, in main
    json_out['return_val'] = hook(**hook_input['kwargs'])
  File
"/home/miyasan/local/python/lib/python3.6/site-packages/pip/_vendor/pep517/_in_p
rocess.py", line 91, in get_requires_for_build_wheel
    return hook(config_settings)
  File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/setuptools/
build_meta.py", line 148, in get_requires_for_build_wheel
    config_settings, requirements=['wheel'])
  File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/setuptools/
build_meta.py", line 128, in _get_build_requires
    self.run_setup()
  File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/setuptools/
build_meta.py", line 250, in run_setup
    self).run_setup(setup_script=setup_script)
  File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/setuptools/
build_meta.py", line 143, in run_setup
    exec(compile(code, __file__, 'exec'), locals())
  File "setup.py", line 757, in <module>
    ext_modules=maybe_cythonize(extensions,
compiler_directives=directives),
  File "setup.py", line 517, in maybe_cythonize
```

```

numpy_incl = pkg_resources.resource_filename("numpy",
"core/include")
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/pkg_resourc
es/__init__.py", line 1145, in resource_filename
return get_provider(package_or_requirement).get_resource_filename(
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/pkg_resourc
es/__init__.py", line 362, in get_provider
__import__(moduleOrReq)
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/numpy/__ini
t__.py", line 142, in <module>
from . import add_newdocs
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/numpy/add_n
ewdocs.py", line 13, in <module>
from numpy.lib import add_newdoc
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/numpy/lib/_
__init__.py", line 8, in <module>
from .type_check import *
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/numpy/lib/t
ype_check.py", line 11, in <module>
import numpy.core.numeric as _nx
File
"/var/tmp/pip-build-env-1fsn42y2/overlay/lib/python3.6/site-packages/numpy/core/
__init__.py", line 26, in <module>
raise ImportError(msg)
ImportError:
Importing the multiarray numpy extension module failed. Most
likely you are trying to import a failed build of numpy.
If you're working with a numpy git repo, try `git clean -xdf` (removes
all
files not under version control). Otherwise reinstall numpy.

Original error was: Cannot execute objects on /var

```

```

-----
ERROR: Command errored out with exit status 1:
/home/miyasan/local/python/bin/python3.6
/home/miyasan/local/python/lib/python3.6/site-packages/pip/_vendor/pep517/_in_pr
ocess.py get_requires_for_build_wheel /tmp/tmp7yjt7_z1 Check the logs for full
command output.

```

そこで再度Numpyを入れ直し（PandasははじめにNumpyが必要）、前回のKasaさんサイトの時と同様、Pandasのバージョンを落としてインストールするとOKとなった。

```

% pip3 uninstall numpy
Found existing installation: numpy 1.18.2
Uninstalling numpy-1.18.2:
Would remove:
/home/miyasan/local/python/bin/f2py
/home/miyasan/local/python/bin/f2py3
/home/miyasan/local/python/bin/f2py3.6

```

```

/home/miyasan/local/python/lib/python3.6/site-packages/numpy-1.18.2-py3.6.egg-in

```

fo

```
/home/miyasan/local/python/lib/python3.6/site-packages/numpy/*
Proceed (y/n)? y
Successfully uninstalled numpy-1.18.2
% pip3 install numpy
Collecting numpy
  Using cached numpy-1.18.2.zip (5.4 MB)
  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing wheel metadata ... done
Building wheels for collected packages: numpy
  Building wheel for numpy (PEP 517) ... done
  Created wheel for numpy:
filename=numpy-1.18.2-cp36-cp36m-freebsd_9_1_RELEASE_p24_amd64.whl size=11524026
sha256=7bcfbbf6dd153eff0ca85af003bf2f1ad410aabc2198b5cbc6e7279cd20904d1
  Stored in directory:
/home/miyasan/.cache/pip/wheels/62/bd/22/c981b5c80cfa51f94130a8ff4f651efcf727e1b
8ec57591d9b
Successfully built numpy
Installing collected packages: numpy
Successfully installed numpy-1.18.2
% python3 -m pip install pandas==0.16.0
Collecting pandas==0.16.0
  Downloading pandas-0.16.0.tar.gz (4.8 MB)
#####| 4.8 MB 19.4 MB/s
Collecting python-dateutil>=2
  Using cached python_dateutil-2.8.1-py2.py3-none-any.whl (227 kB)
Collecting pytz>=2011k
  Downloading pytz-2019.3-py2.py3-none-any.whl (509 kB)
#####| 509 kB 7.5 MB/s
Requirement already satisfied: numpy>=1.7.0 in
./local/python/lib/python3.6/site-packages (from pandas==0.16.0) (1.18.2)
Requirement already satisfied: six>=1.5 in
./local/python/lib/python3.6/site-packages (from
python-dateutil>=2->pandas==0.16.0) (1.14.0)
Installing collected packages: python-dateutil, pytz, pandas
  Running setup.py install for pandas ... done
Successfully installed pandas-0.16.0 python-dateutil-2.8.1 pytz-2019.3
% pip3 list
Package            Version
-----
backcall           0.1.0
beautifulsoup4    4.9.0
bs4                0.0.1
cyclor             0.10.0
Cython             0.29.16
decorator          4.4.2
ipython            7.13.0
ipython-genutils  0.2.0
jedi               0.16.0
lxml               4.5.0
numpy              1.18.2
pandas             0.16.0
parso              0.6.2
pexpect           4.8.0
pickleshare       0.7.5
pip                20.0.2
prompt-toolkit    3.0.5
```

```

ptyprocess      0.6.0
Pygments        2.6.1
python-dateutil 2.8.1
pytz            2019.3
setuptools      46.1.3
six             1.14.0
soupsieve       2.0
traitlets       4.3.3
uWSGI           2.0.18
wcwidth         0.1.9

```

なぜこうなるのだろうか？

ではmatplotlibはどうか？

これも同様に古いバージョンでトライする。

```

% pip3 install matplotlib==1.4.3
Collecting matplotlib==1.4.3
  Downloading matplotlib-1.4.3.tar.gz (50.4 MB)
    |#####| 50.4 MB 28 kB/s
Requirement already satisfied: numpy>=1.6 in
./local/python/lib/python3.6/site-packages (from matplotlib==1.4.3) (1.18.2)
Requirement already satisfied: six>=1.4 in
./local/python/lib/python3.6/site-packages (from matplotlib==1.4.3) (1.14.0)
Requirement already satisfied: python-dateutil in
./local/python/lib/python3.6/site-packages (from matplotlib==1.4.3) (2.8.1)
Requirement already satisfied: pytz in
./local/python/lib/python3.6/site-packages (from matplotlib==1.4.3) (2019.3)
Collecting pyparsing!=2.0.0, >=1.5.6
  Using cached pyparsing-2.4.7-py2.py3-none-any.whl (67 kB)
Collecting nose>=0.11.1
  Downloading nose-1.3.7-py3-none-any.whl (154 kB)
    |#####| 154 kB 23.2 MB/s
Installing collected packages: pyparsing, nose, matplotlib
  Running setup.py install for matplotlib ... done
Successfully installed matplotlib-1.4.3 nose-1.3.7 pyparsing-2.4.7

```

なんということだ！！ 古いバージョンはインストールできる。  
なぜなのか不明だが、とりあえずimportできるかチェックする。

```

% python3
Python 3.6.5 (default, Apr 9 2020, 13:42:39)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
>>> import numpy
>>> import matplotlib
>>>

```

できました。

あとはなぜ最新版がインストールできないかを調査する必要あり。

=====

最新版はPython3.6ではNGではないかと考え、2018.5リリースの0.23.4のインストールを試みると、長いコンパイル時間を経てOKだった。

```

pandas      0.16.0  1.0.3  sdist

```

```
% pip3 install pandas==0.23.4
Collecting pandas==0.23.4
  Downloading pandas-0.23.4.tar.gz (10.5 MB)
    |#####| 10.5 MB 12.7 MB/s
Requirement already satisfied: python-dateutil>=2.5.0 in
./local/python/lib/python3.6/site-packages (from pandas==0.23.4) (2.8.1)
Requirement already satisfied: pytz>=2011k in
./local/python/lib/python3.6/site-packages (from pandas==0.23.4) (2019.3)
Requirement already satisfied: numpy>=1.9.0 in
./local/python/lib/python3.6/site-packages (from pandas==0.23.4) (1.18.2)
Requirement already satisfied: six>=1.5 in
./local/python/lib/python3.6/site-packages (from
python-dateutil>=2.5.0->pandas==0.23.4) (1.14.0)
Installing collected packages: pandas
  Attempting uninstall: pandas
    Found existing installation: pandas 0.16.0
    Uninstalling pandas-0.16.0:
      Successfully uninstalled pandas-0.16.0
  Running setup.py install for pandas ... done
Successfully installed pandas-0.23.4
```

ではMatplotlibはどうか？ Versin2.2はNGだったが、2.0はOKだった。

```
% pip3 install matplotlib==2.0
Collecting matplotlib==2.0
  Downloading matplotlib-2.0.0.tar.gz (53.2 MB)
    |#####| 53.2 MB 15.6 MB/s
Requirement already satisfied: numpy>=1.7.1 in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (1.18.2)
Requirement already satisfied: six>=1.10 in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (1.14.0)
Requirement already satisfied: python-dateutil in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (2.8.1)
Requirement already satisfied: pytz in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (2019.3)
Requirement already satisfied: cyclor>=0.10 in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (0.10.0)
Requirement already satisfied: pyparsing!=2.0.4, !=2.1.2, !=2.1.6, >=1.5.6 in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (2.4.7)
Installing collected packages: matplotlib
  Attempting uninstall: matplotlib
    Found existing installation: matplotlib 1.4.3
    Uninstalling matplotlib-1.4.3:
      Successfully uninstalled matplotlib-1.4.3
  Running setup.py install for matplotlib ... done
Successfully installed matplotlib-2.0.0
```

```
#####
#####
```

これでうまくいったとおもったら、今度はPython2.7のpandasなどが動かなくなった。  
.cshrcに

```
### 以下を追加 2020-04-08 for python3.6
setenv C_INCLUDE_PATH $HOME/local/python/include
setenv CPLUS_INCLUDE_PATH $HOME/local/python/include
setenv LIBRARY_PATH $HOME/local/python/lib
```

を追加したためだろうか??

そこで.cshrcを

```
set path = (/sbin /bin /usr/sbin /usr/bin /usr/local/sbin /usr/local/bin
$HOME/bin $HOME/.local/bin)
### 以下を追加 2020-04-08 for python3.6
set path = ($path $HOME/local/python/bin)
```

のみにして、再度pipをeasy\_install.pyで ./localの下にインストールすると、

```
% easy_install --prefix=~/.local pip

% which pip
/home/miyasan/.local/bin/pip
% pip --version
pip 9.0.1 from /home/miyasan/.local/lib/python2.7/site-packages (python
2.7)
```

```
% python
Python 2.7.6 (default, May 21 2014, 16:52:04)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
>>> import matplotlib
>>> import sys
>>> sys.path
['',
'/home/miyasan/.local/lib/python2.7/site-packages/setuptools-26.1.1-py2.7.egg',
'/usr/local/lib/python27.zip',
'/usr/local/lib/python2.7',
'/usr/local/lib/python2.7/plat-freebsd9',
'/usr/local/lib/python2.7/lib-tk',
'/usr/local/lib/python2.7/lib-old',
'/usr/local/lib/python2.7/lib-dynload',
'/home/miyasan/.local/lib/python2.7/site-packages',
'/usr/local/lib/python2.7/site-packages']
>>>
```

```
%
% python -m pip list
DEPRECATION: The default format will switch to columns in the future.
You can use --format=(legacy|columns) (or define a
format=(legacy|columns)
in your pip.conf under the [list] section) to disable this warning.
-sqlite3 (0.0.0)
BeautifulSoup (3.2.1)
beautifulsoup4 (4.5.1)
Django (1.10.1)
fail2ban (0.9.0)
html (1.16)
html5lib (0.999999999)
image (1.5.4)
ipython (3.1.0)
jsm (0.19)
matplotlib (1.4.3)
mock (1.0.1)
MySQL-python (1.2.3)
nose (1.3.6)
```

```
numpy (1.9.2)
pandas (0.16.0)
Pillow (3.3.1)
pip (9.0.1)
pyparsing (2.0.3)
python-dateutil (2.6.0)
pytz (2017.2)
requests (2.11.1)
setuptools (26.1.1)
six (1.10.0)
sympy (0.7.6)
urllib3 (1.16)
webencodings (0.5)
```

```
/home/miyasan/.local/lib/python2.7/site-packages/pip/_vendor/requests/packages/urllib3/util/ssl_.py:318: SNIMissingWarning: An HTTPS request has been made, but the SNI (Subject Name Indication) extension to TLS is not available on this platform. This may cause the server to present an incorrect TLS certificate, which can cause validation failures. You can upgrade to a newer version of Python to solve this. For more information, see https://urllib3.readthedocs.io/en/latest/security.html#snimissingwarning.
  SNIMissingWarning
```

```
/home/miyasan/.local/lib/python2.7/site-packages/pip/_vendor/requests/packages/urllib3/util/ssl_.py:122: InsecurePlatformWarning: A true SSLContext object is not available. This prevents urllib3 from configuring SSL appropriately and may cause certain SSL connections to fail. You can upgrade to a newer version of Python to solve this. For more information, see https://urllib3.readthedocs.io/en/latest/security.html#insecureplatformwarning.
  InsecurePlatformWarning
```

原点に戻った感じ。ただし2018年のpip listに比べてモジュールが少ない。なぜか？

一方Python3は、

```
% python3
Python 3.6.5 (default, Apr 9 2020, 13:42:39)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import sys
>>> sys.path
['', '/home/miyasan/local/python/lib/python36.zip',
 '/home/miyasan/local/python/lib/python3.6',
 '/home/miyasan/local/python/lib/python3.6/lib-dynload',
 '/home/miyasan/local/python/lib/python3.6/site-packages']
>>>
```

/home/miyasan/local/python/にPathが通っているようだ。

またpip3は、下記のように、local/python/lib/python3.6/site-packagesのPathが効いていない。

```
% pip3 --version
pip 9.0.1 from /home/miyasan/.local/lib/python2.7/site-packages (python
2.7)
```

ipythonは、

```
% ipython
```

```
Python 3.6.5 (default, Apr 9 2020, 13:42:39)
Type 'copyright', 'credits' or 'license' for more information
IPython 7.13.0 -- An enhanced Interactive Python. Type '?' for help.
```

In [1]:

```
% ipython2
Python 2.7.6 (default, May 21 2014, 16:52:04)
Type "copyright", "credits" or "license" for more information.

IPython 3.1.0 -- An enhanced Interactive Python.
?          -> Introduction and overview of IPython's features.
%quickref  -> Quick reference.
help       -> Python's own help system.
object?    -> Details about 'object', use 'object??' for extra details.
```

In [1]:

pipがPython3.6から消えてしまったので、再度Python3.6をinstallし直す必要があるだろうか??  
仕方がないので、もう一度やってみよう。

その前に、cshrcをPython3.6インストール時に戻してみる。すなわち

```
### 以下を追加 2020-04-08 for python3.6
set path = ($path $HOME/local/python/bin)
setenv PYTHON $HOME/local/python/lib
setenv PYTHONPATH $HOME/local/python/lib/python3.6/site-packages
setenv LD_LIBRARY_PATH $HOME/local/python/lib
```

を追加して再読み込みしてみる。

```
2.7) % pip3 --version
pip 9.0.1 from /home/miyasan/.local/lib/python2.7/site-packages (python
```

```
% python
Python 2.7.6 (default, May 21 2014, 16:52:04)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
  File
"/home/miyasan/local/python/lib/python3.6/site-packages/pandas/__init__.py",
line 23, in <module>
    ImportError: No module named compat.numpy
>>>
```

結局だめだ!!

```
#####
##
2020-04-09 22:00 再度Python3.6をinstallし直すことにする。
```

install後確認画面

```

% python
Python 2.7.6 (default, May 21 2014, 16:52:04)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
>>> import numpy
>>> import sys
>>> sys.path
['',
 '/home/miyasan/.local/lib/python2.7/site-packages/setuptools-26.1.1-py2.7.egg',
 '/usr/local/lib/python27.zip', '/usr/local/lib/python2.7',
 '/usr/local/lib/python2.7/plat-freebsd9', '/usr/local/lib/python2.7/lib-tk',
 '/usr/local/lib/python2.7/lib-old', '/usr/local/lib/python2.7/lib-dynload',
 '/home/miyasan/.local/lib/python2.7/site-packages',
 '/usr/local/lib/python2.7/site-packages']
>>>

```

```

% python3
Python 3.6.5 (default, Apr 9 2020, 22:09:43)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import sys
>>> sys.path
['', '/home/miyasan/local/python/lib/python36.zip',
 '/home/miyasan/local/python/lib/python3.6',
 '/home/miyasan/local/python/lib/python3.6/lib-dynload',
 '/home/miyasan/local/python/lib/python3.6/site-packages']
>>>

```

pip3はpip3.6のコマンドで最新版を得ることができた。

```

% pip3.6 -V
pip 20.0.2 from /home/miyasan/local/python/lib/python3.6/site-packages/pip
(python 3.6)

```

尚この時の.cshrcは、

```

set path = (/sbin /bin /usr/sbin /usr/bin /usr/local/sbin /usr/local/bin
$HOME/bin $HOME/.local/bin)
set path = ($path $HOME/local/python/bin)

```

のみ。

この状態で、pandasをインストールする。  
pandasもipythonもそれぞれで機能するようになった！！

```

% pip3.6 install pandas==0.16.0
Collecting pandas==0.16.0
  Using cached pandas-0.16.0.tar.gz (4.8 MB)
Collecting python-dateutil>=2
  Using cached python_dateutil-2.8.1-py2.py3-none-any.whl (227 kB)
Collecting pytz>=2011k
  Using cached pytz-2019.3-py2.py3-none-any.whl (509 kB)
Requirement already satisfied: numpy>=1.7.0 in
./local/python/lib/python3.6/site-packages (from pandas==0.16.0) (1.18.2)
Requirement already satisfied: six>=1.5 in
./local/python/lib/python3.6/site-packages (from
python-dateutil>=2->pandas==0.16.0) (1.14.0)
Installing collected packages: python-dateutil, pytz, pandas

```

```

Running setup.py install for pandas ... done
Successfully installed pandas-0.16.0 python-dateutil-2.8.1 pytz-2019.3
% python
Python 2.7.6 (default, May 21 2014, 16:52:04)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
>>> import numpy
>>>
%
% python3
Python 3.6.5 (default, Apr 9 2020, 22:09:43)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import numpy
>>> import pandas
>>>
% ipython2
Python 2.7.6 (default, May 21 2014, 16:52:04)
Type "copyright", "credits" or "license" for more information.

IPython 3.1.0 -- An enhanced Interactive Python.
?          -> Introduction and overview of IPython's features.
%quickref  -> Quick reference.
help       -> Python's own help system.
object?    -> Details about 'object', use 'object??' for extra details.

```

In [1]:

```

% ipython3
Python 3.6.5 (default, Apr 9 2020, 22:09:43)
Type 'copyright', 'credits' or 'license' for more information
IPython 7.13.0 -- An enhanced Interactive Python. Type '?' for help.

```

In [1]:

では、バージョンあげてインストールは可能か??

```

pip3.6 install pandas==0.23.4

```

```

% pip3.6 install pandas==0.23.4
Collecting pandas==0.23.4
  Using cached pandas-0.23.4.tar.gz (10.5 MB)
Requirement already satisfied: python-dateutil>=2.5.0 in
./local/python/lib/python3.6/site-packages (from pandas==0.23.4) (2.8.1)
Requirement already satisfied: pytz>=2011k in
./local/python/lib/python3.6/site-packages (from pandas==0.23.4) (2019.3)
Requirement already satisfied: numpy>=1.9.0 in
./local/python/lib/python3.6/site-packages (from pandas==0.23.4) (1.18.2)
Requirement already satisfied: six>=1.5 in
./local/python/lib/python3.6/site-packages (from
python-dateutil>=2.5.0->pandas==0.23.4) (1.14.0)
Installing collected packages: pandas
  Attempting uninstall: pandas
    Found existing installation: pandas 0.16.0
    Uninstalling pandas-0.16.0:
      Successfully uninstalled pandas-0.16.0

```

```
Running setup.py install for pandas ... done
Successfully installed pandas-0.23.4
```

```
%
% python
Python 2.7.6 (default, May 21 2014, 16:52:04)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import pandas
>>> import numpy
>>> import sys
>>> sys.path
```

```
['',
 '/home/miyasan/.local/lib/python2.7/site-packages/setuptools-26.1.1-py2.7.egg',
 '/usr/local/lib/python27.zip', '/usr/local/lib/python2.7',
 '/usr/local/lib/python2.7/plat-freebsd9', '/usr/local/lib/python2.7/lib-tk',
 '/usr/local/lib/python2.7/lib-old', '/usr/local/lib/python2.7/lib-dynload',
 '/home/miyasan/.local/lib/python2.7/site-packages',
 '/usr/local/lib/python2.7/site-packages']
```

```
>>>
% python3
Python 3.6.5 (default, Apr 9 2020, 22:09:43)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
```

```
>>>
OKだった。
```

```
% pip3.6 install matplotlib==2.0
Collecting matplotlib==2.0
  Using cached matplotlib-2.0.0.tar.gz (53.2 MB)
Requirement already satisfied: numpy>=1.7.1 in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (1.18.2)
Requirement already satisfied: six>=1.10 in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (1.14.0)
Requirement already satisfied: python-dateutil in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (2.8.1)
Requirement already satisfied: pytz in
./local/python/lib/python3.6/site-packages (from matplotlib==2.0) (2019.3)
Collecting cycler>=0.10
  Using cached cycler-0.10.0-py2.py3-none-any.whl (6.5 kB)
Collecting pyparsing!=2.0.0,!=2.0.4,!=2.1.2,!=2.1.6,>=1.5.6
  Using cached pyparsing-2.4.7-py2.py3-none-any.whl (67 kB)
Installing collected packages: cycler, pyparsing, matplotlib
Running setup.py install for matplotlib ... done
Successfully installed cycler-0.10.0 matplotlib-2.0.0 pyparsing-2.4.7
```

```
% python
Python 2.7.6 (default, May 21 2014, 16:52:04)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import matplotlib
>>>
```

```
% python3
Python 3.6.5 (default, Apr 9 2020, 22:09:43)
[GCC 4.2.1 20070831 patched [FreeBSD]] on freebsd9
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import matplotlib
>>>
```

OKだった。  
やっとできた!!!

```
#####  
2020-04-10
```

しかし、pipコマンドとpipバージョンがうまくかみ合わない。  
pip3とタイプすれば、pip20が起動してほしいが、python2.7のパッケージを読み込んでしまう。

Python2.7、3.6の説明は下記の通り。

(<https://docs.python.org/ja/2.7/installing/index.html#work-with-multiple-versions-of-python-installed-in-parallel>)

(<https://docs.python.org/ja/3.6/installing/index.html#work-with-multiple-versions-of-python-installed-in-parallel>)

... インストールされた複数のバージョンの Python を平行して使うには?  
Linux や Mac OS X その他の POSIX システムでは、バージョン番号付きの Python コマンドと -m スイッチを組み合わせることで、適切なバージョンの pip を実行してください。

```
python2 -m pip install SomePackage # default Python 2  
python2.7 -m pip install SomePackage # specifically Python 2.7  
python3 -m pip install SomePackage # default Python 3  
python3.4 -m pip install SomePackage # specifically Python 3.4
```

StackOverflowの質問コーナーでも同じ悩みあり!!

<https://stackoverflow.com/questions/31407208/pip3-4-v-refers-to-python2-7-installation>

その回答でもっともよいのは、

```
% python3 -m pip -V  
pip 20.0.2 from  
/home/miyasan/local/python/lib/python3.6/site-packages/pip (python 3.6)  
% python -m pip -V  
pip 9.0.1 from /home/miyasan/.local/lib/python2.7/site-packages (python  
2.7)
```

なるほど、Python.org自体もこのコマンドを使うことを推奨している。

pip3がPython3をポイントしないことは気持ち悪いが、この環境をいじっていても時間がかかるばかりなので、とりあえずこれでよしとしよう。。。

最後にipython3でプログラムを走らせる。

```
% ipython3  
Python 3.6.5 (default, Apr 9 2020, 22:09:43)  
Type 'copyright', 'credits' or 'license' for more information  
IPython 7.13.0 -- An enhanced Interactive Python. Type '?' for help.
```

```
In [1]: import smtplib, ssl  
...: from email.mime.text import MIMEText
```

```
In [2]: gmail_account = "jidaagri21@gmail.com"  
...: gmail_password = "*****"
```

```
In [3]: mail_to = "iidaagri21@gmail.com"
```

```
In [4]: subject = "??????28?????"
```

```
...: body =
"??????28?????????UR:http://miyasan.sakura.ne.jp/wordpress/minabara-farm/agri-s
ensor-data/
...: -sensor-data/"
...: msg = MIMEText(body, "html")
...: msg["Subject"] = subject
...: msg["To"] = mail_to
...: msg["From"] = gmail_account
```

```
In [5]: server = smtplib.SMTP_SSL("smtp.gmail.com", 465,
...: context=ssl.create_default_context())
...: server.login(gmail_account, gmail_password)
...: server.send_message(msg) # ??????
...: print("ok.")
```

ok.

subjectもbodyも日本語ダイレクトに入れても読んでくれた。  
これはらくちん

#####  
まとめ:

さくらインターネットにPython3をインストールする際の注意点

- ・ Python3.7では\_ctypeエラーが発生し、うまくインストールできなかった。  
(Python3.6.5をインストールした)
- ・ pipモジュールはPython3.6ではついてくるが、インストールしたいモジュールの最新版はインストールできないことがある。

例) pandas, matplotlib

この場合は、バージョンを下げて(おそらくPython本体のバージョンがリリースされた  
時期以前のバージョン)をインストールする

```
python3 -m pip <package_name>==version#
```

- ・ 複数のPythonバージョンが存在する場合、pipはバージョンごとに使い分ける

```
% python3 -m pip -V
```

```
pip 20.0.2 from
```

```
/home/miyasan/local/python/lib/python3.6/site-packages/pip (python 3.6)
```

```
% python -m pip -V
```

```
pip 9.0.1 from /home/miyasan/.local/lib/python2.7/site-packages (python
```

2.7)

・