

Starting with PyMTL3

1 Installing Anaconda (Python)

Are you familiar with Anaconda?

When not, download the Python 3.7 Version (<https://www.anaconda.com/distribution/>)

In your download folder you should find a file called `Anaconda3-20XX.YY-Linux-x86_64.sh`, where `XX.YY` depends on your downloaded version.

Before you can install it, because it's a shell script, you have to change the permission, so that it's executable. Therefore change to the download folder and change the permission rights of the downloaded file:

```
chmod +x Anaconda3-2019.07-Linux-x86_64.sh
```

After that, you can install it:

```
./Anaconda3-2019.07-Linux-x86_64.sh
```

You should see, that the anaconda `base` environment is active:

```
(base) wolfgang@wolfgang-MacBookPro:~/Install#
```

2 Working with Environments

Before starting coding in python, you should think about working with Conda environments, because it makes your life a lot easier. If you have several python projects which needs different versions of packages, than you can handle this by using different environments.

If you don't know what environments are and how to use them, read:

(<https://docs.conda.io/projects/conda/en/latest/user-guide/tasks/manage-environments.html#removing-an-environment>)

Create one for pymtl3, e.g.:

```
conda create --name pymtl3-env python=3.7
```

If something went wrong, you can remove the environment with:

```
conda env remove --name pymtl3-env
```

After creating an environment you have to activate the environment:

```
conda activate pymtl3-env
```

Your prompt should change to something like this:

```
(pymtl3-env) wolfgang@wolfgang-MacBookPro: $
```

Now you can start the python interpreter:

```
python
Python 3.7.4 (default, Aug 13 2019, 20:35:49)
[GCC 7.3.0] :: Anaconda, Inc. on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Leaving the python interpreter is possible with `ctrl-d` or `exit()`.

Note before installing new/further packages, you should look if you are in the right environment!

3 Installing required packages

Next step is installing all the required packages for pymtl3:

```
conda install -c conda-forge -y pip zipp apipkg more-itertools importlib-metadata pluggy
atomicwrites pytest pytest-forked pycparser hypothesis
pytest-xdist ruamel.yaml ruamel.yaml.clib cffi greenlet
pyparsing python-graphviz autoflake flake8 future isort
pytest-cov pyupgrade codecov
```

4 Installing PyMTL3

Last step is installing PyMTL3. Therefore you have to download pymtl3 as zip file from here:

```
https://github.com/cornell-brg/pymtl3
```

and install it with:

```
pip install pymtl3
```

Now you can check if python finds the pymtl3 library. Therefore start python

```
(pymtl3-env) wolfgang@wolfgang-MacBookPro: $ python
Python 3.7.4 (default, Aug 13 2019, 20:35:49)
[GCC 7.3.0] :: Anaconda, Inc. on linux
Type "help", "copyright", "credits" or "license" for more information.
```

and write the following:

```
>>> from pymtl3 import *
>>> a=Bits(16,37)
>>> a
Bits16( 0x0025 )
>>> type(a)
<class 'pymtl3.datatypes.PythonBits.Bits'>
>>>
```
