

Programming fundamentals with Python

Modules and packages

Pepe García jgarciah@faculty.ie.edu

2020-11-10

Plan for today

- pip

Plan for today

- pip
- PYPI

Plan for today

- pip
- PYPI
- Downloading & using Python libraries

pip is a package manager for Python. We will use it through the command line, with one of these two flavours:

- pip3

pip is a package manager for Python. We will use it through the command line, with one of these two flavours:

- `pip3`
- `python3 -m pip`

pip is a package manager for Python. We will use it through the command line, with one of these two flavours:

- pip3
- **python3 -m pip** I'll be using this one through today's session.

pip is a package manager for Python. We will use it through the command line, with one of these two flavours:

- `pip3`
- `python3 -m pip` I'll be using this one through today's session.

Hint

Whenever we use `python3 -m whatever` we're telling python to execute the `whatever` module, `pip` in our case.

There are a lot of commands available from pip

There are a lot of commands available from pip

- search packages **pip search whatever**

There are a lot of commands available from pip

- search packages **pip search whatever**
- install packages **pip install whatever**

There are a lot of commands available from pip

- search packages **pip search whatever**
- install packages **pip install whatever**
- uninstall packages **pip uninstall whatever**

There are a lot of commands available from pip

- search packages **pip search whatever**
- install packages **pip install whatever**
- uninstall packages **pip uninstall whatever**

There are a lot of commands available from pip

- search packages **pip search whatever**
- install packages **pip install whatever**
- uninstall packages **pip uninstall whatever**

And... what can this **whatever** be? Anything we want to search a library for.

Imagine we want to use mergesort but we don't want to implement it, we would do something like:

```
$ python3 -m pip search mergesort
mergesort (0.0.1)  - merge sort module.
sort-merge (0.0.1) - Sorting a list of numbers with mergesort
```

Imagine we want to use mergesort but we don't want to implement it, we would do something like:

```
$ python3 -m pip search mergesort
mergesort (0.0.1) - merge sort module.
sort-merge (0.0.1) - Sorting a list of numbers with mergesort
```

Remember

blocks of code like this, starting with a dollar sign, mean that command was run in the console


```
$ python3 -m pip install mergesort
Collecting mergesort
  Downloading mergesort-0.0.1.tar.gz (779 bytes)
Building wheels for collected packages: mergesort
  Running setup.py clean for mergesort
Failed to build mergesort
Installing collected packages: mergesort
  Running setup.py install for mergesort ... done
Successfully installed mergesort-0.0.1
```

Where is python installed in your computer?

- Mac: `/Users/youruser/opt/anaconda3/bin/python`
- Windows: `C:\Users\youruser\Anaconda3\python.exe`

Troubleshooting (cont..)

It's possible that on your windows computer python is not behaving as you expect. This tutorial is handy for these cases.

<https://www.datacamp.com/community/tutorials/installing-anaconda-windows>

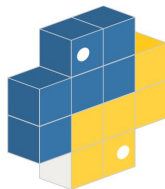
Installing libraries with pip

In order to install libraries using pip we will first need to know which library to install. To make this search easier, the Python community maintains Pypi, the Python Package Index, a website with all the available libraries and instructions to install them.

<https://pypi.org>

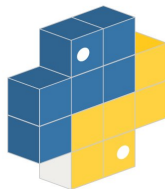
Python Package Index

The Python Package Index is a great place to find libraries you may be interested in.



Python Package Index

The Python Package Index is a great place to find libraries you may be interested in.



Searching in the Python Package Index

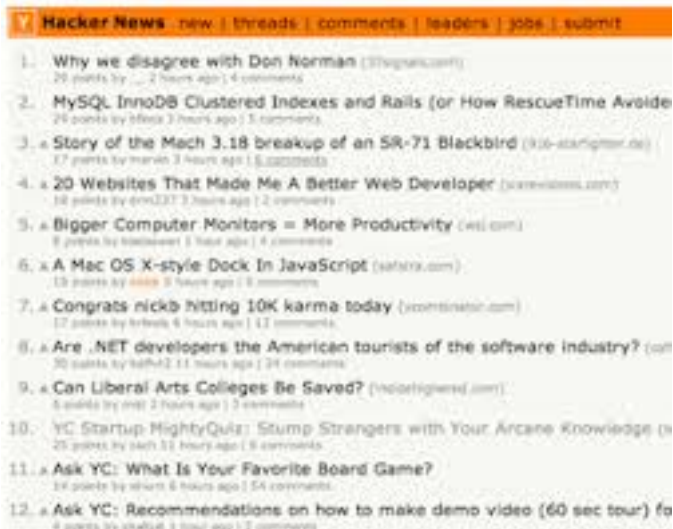
Let's search for some libraries in the Python Package Index...

Using libraries

Once we've found the library we want to use in our project, it's time to see how it's used. Normally libraries will have some documentation explaining how to use them.

The place where this doc should be is in the homepage of the library.

Using libraries



The screenshot shows the Hacker News website interface. At the top is an orange navigation bar with the text "Hacker News" and links for "new", "threads", "comments", "leaders", "jobs", and "submit". Below this is a list of 12 articles, each with a rank number, a title, a score, the author, and the time since posting. The articles are as follows:

1. Why we disagree with Don Norman (37signals.com) 29 points by ... 2 hours ago | 4 comments
2. MySQL InnoDB Clustered Indexes and Rails (or How RescueTime Avoided MySQL) (rescuetime.com) 29 points by ... 3 hours ago | 3 comments
3. A Story of the Mach 3.18 breakup of an SR-71 Blackbird (916-starfighter.de) 17 points by ... 3 hours ago | 5 comments
4. A 20 Websites That Made Me A Better Web Developer (scrawls.com) 16 points by ... 3 hours ago | 2 comments
5. A Bigger Computer Monitors = More Productivity (cwi.com) 9 points by ... 3 hours ago | 4 comments
6. A Mac OS X-style Dock in JavaScript (safari.com) 13 points by ... 3 hours ago | 8 comments
7. A Congrats nickb hitting 10K karma today (xcombinator.com) 12 points by ... 4 hours ago | 11 comments
8. A Are .NET developers the American tourists of the software industry? (com) 30 points by ... 11 hours ago | 34 comments
9. A Can Liberal Arts Colleges Be Saved? (indiehighered.com) 6 points by ... 2 hours ago | 3 comments
10. YC Startup-HighlyQuiz: Stump Strangers with Your Arcane Knowledge (n) 25 points by ... 11 hours ago | 9 comments
11. A Ask YC: What Is Your Favorite Board Game? 14 points by ... 6 hours ago | 54 comments
12. A Ask YC: Recommendations on how to make demo video (60 sec tour) for ... 4 points by ... 1 hour ago | 7 comments

Using libraries

`hackernews-client` is a library for getting HackerNews (<http://news.ycombinator.com>) data programatically.

Using libraries - HN

```
$ python3 -m pip install hackernews-client
```

```
Collecting hackernews-client
```

```
  Using cached hackernews-client-0.1.2b1.tar.gz (8.1 kB)
```

```
Building wheels for collected packages: hackernews-client
```

```
  Building wheel for hackernews-client (setup.py) ... error
```

```
    Running setup.py clean for hackernews-client
```

```
Failed to build hackernews-client
```

```
Installing collected packages: hackernews-client
```

```
  Running setup.py install for hackernews-client ... done
```

```
Successfully installed hackernews-client-0.1.2b1
```

Using libraries - HN

```
from hackernews import hn # import the hn module from hackernews package
```

Using libraries - HN

```
from hackernews import hn  
  
client = hn.NewsClient() # create a client
```

Using libraries - HN

```
from hackernews import hn

client = hn.NewsClient()

for story in client.get_best_story(10): # get 10 high score stories
    print(story.title)
```

Recap

- pip

Recap

- pip
- Python package index

Recap

- pip
- Python package index
- installing software for pip