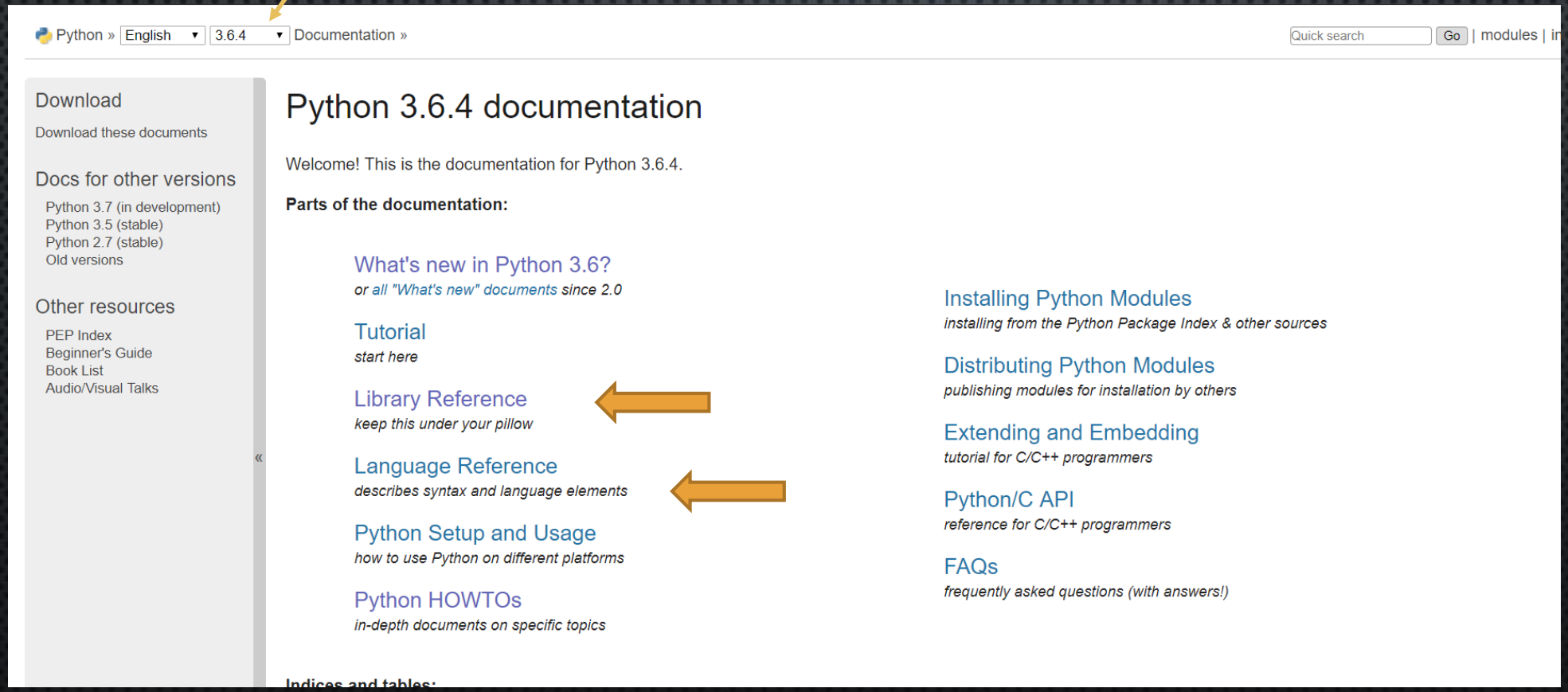
ADDITIONAL RESOURCES

The Python documentation

That should be your top bookmark for Python `https://docs.python.org`

Don't forget to make sure you are looking at your version of Python. 3.6 or above please!



PEP – Python Enhancement Proposals

These are a fantastic resource to understand how certain things work in Python,
and why they were implemented in a certain way..

Not all PEPs actually make it into Python. Some are rejected, deferred or even withdrawn.

Reading the PEPs that have not been accepted also provides a lot of insight!
A lot of thought by many people go into these PEPs, whether they make it or not.

PEP 274 -- Dict Comprehensions

PEP:	274
Title:	Dict Comprehensions
Author:	Barry Warsaw <barry at python.org>
Status:	Final
Type:	Standards Track
Created:	25-Oct-2001
Python-Version:	2.7, 3.0 (originally 2.3)
Post-History:	29-Oct-2001

Some PEPs are for language features

some are informational only

Index page `https://www.python.org/dev/peps/` search on that page

But sometimes a web search such as: `Python PEP Style Guide` is more practical

PEP – Some Notable Ones

PEP 8 – Style Guide and Idiomatic Python

PEP 20 – Zen of Python or just type `import this` in a Python console/Jupyter

PEP 484 – Type Hints

PEP 468 – Python 3.6 Release Schedule
PEP 537 – Python 3.7 Release Schedule or whatever release your interested in at the time
they provide links to other PEPs relevant to the release

And many many more, depending on what topic you're interested in

Wikipedia

Great resource for explanations of general computer science concepts

WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Wikipedia store

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact page

Tools
What links here
Related changes
Upload file
Special pages
Permanent link
Page information
Wikidata item
Cite this page

Print/export
Create a book
Download as PDF
Printable version

In other projects
Wikimedia Commons

Hash table

From Wikipedia, the free encyclopedia

Not to be confused with Hash list or Hash tree.
"Rehash" redirects here. For the South Park *episode, see Rehash (South Park). For the IRC command, see List of Internet Relay Chat commands § REHASH.*

In computing, a **hash table** (**hash map**) is a data structure which implements an associative array abstract data type, a structure that can map keys to values. A hash table uses a hash function to compute an *index* into an array of *buckets* or *slots*, from which the desired value can be found.

Ideally, the hash function will assign each key to a unique bucket, but most hash table designs employ an imperfect hash function, which might cause hash *collisions* where the hash function generates the same index for more than one key. Such collisions must be accommodated in some way.

In a well-dimensioned hash table, the average cost (number of instructions) for each lookup is independent of the number of elements stored in the table. Many hash table designs also allow arbitrary insertions and deletions of key-value pairs, at (amortized[2]) constant average cost per operation.[3][4]

In many situations, hash tables turn out to be more efficient than search trees or any other table lookup structure. For this reason, they are widely used in many kinds of computer software, particularly for associative arrays, database indexing, caches, and sets.

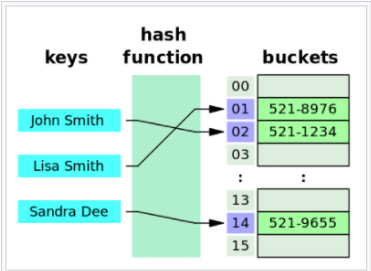
Hash table

Type	Unordered associative array
Invented	1953

Time complexity in big O notation

Algorithm	Average	Worst case
Space	$O(n)$[1]	$O(n)$
Search	$O(1)$	$O(n)$
Insert	$O(1)$	$O(n)$
Delete	$O(1)$	$O(n)$

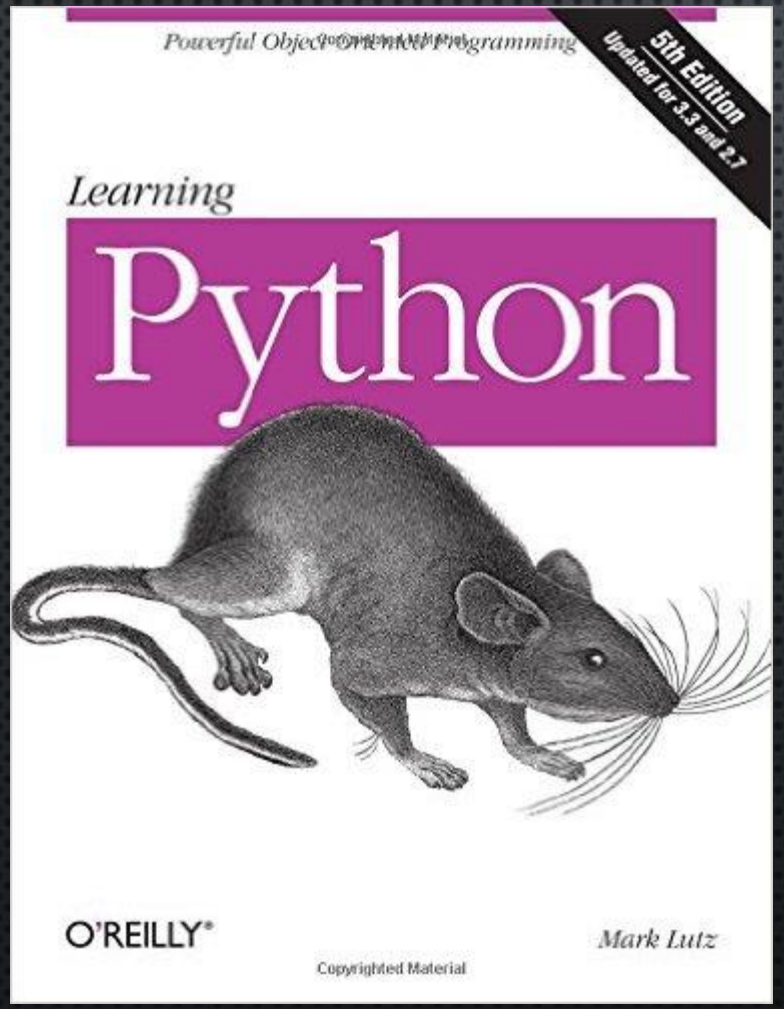
Contents [hide]



A small phone book as a hash table

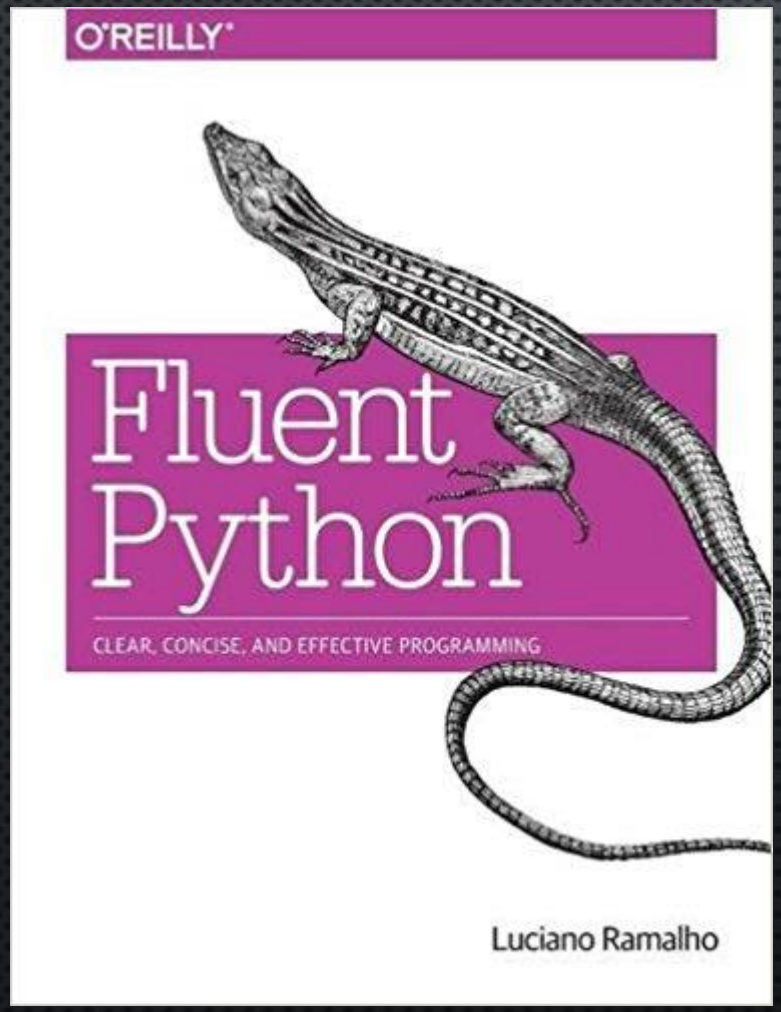
Books

These are my favorite Python specific go to books not in any particular order of importance!



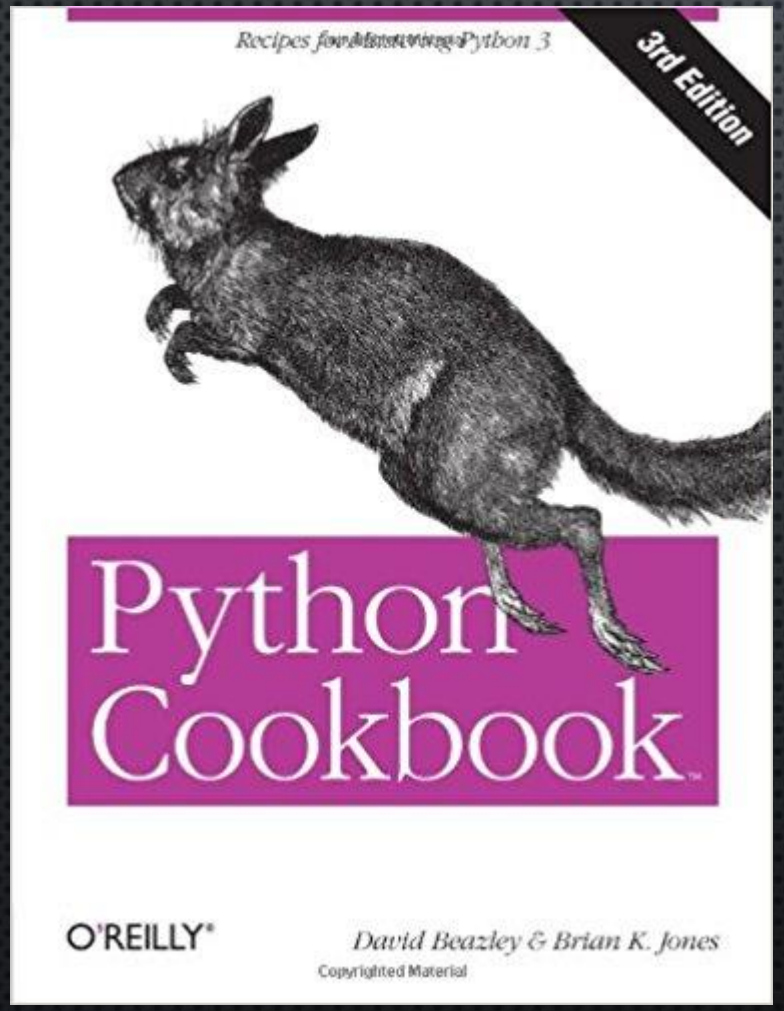
Learning Python
Mark Lutz

Books



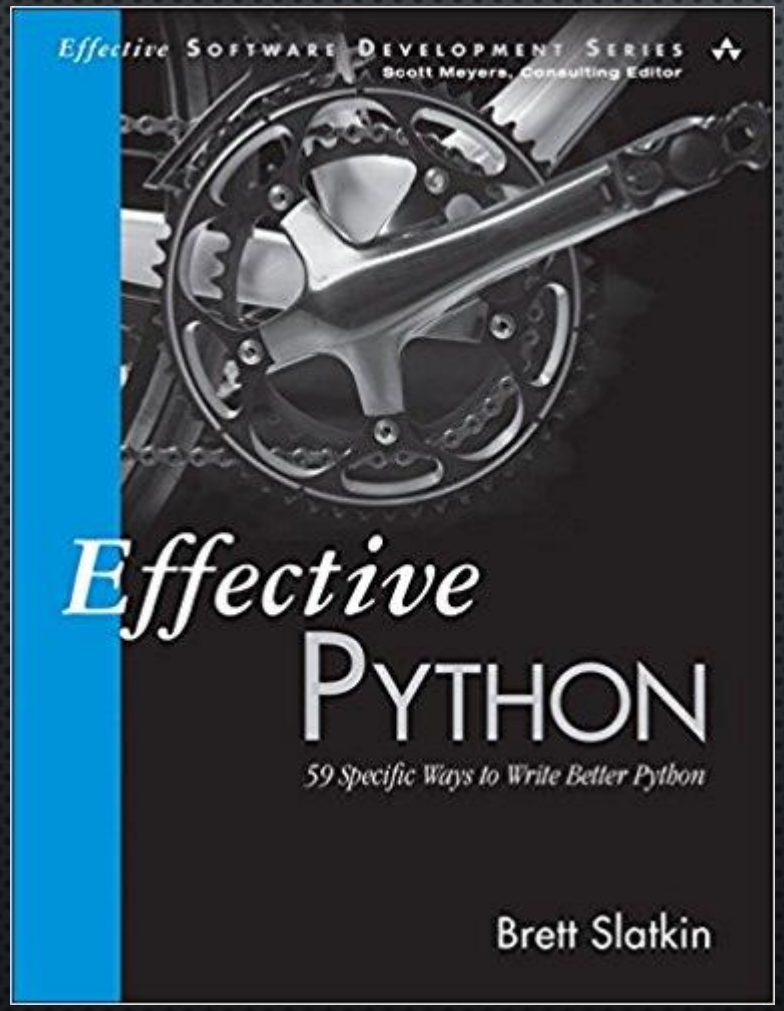
Fluent Python
Luciano Ramalho

Books



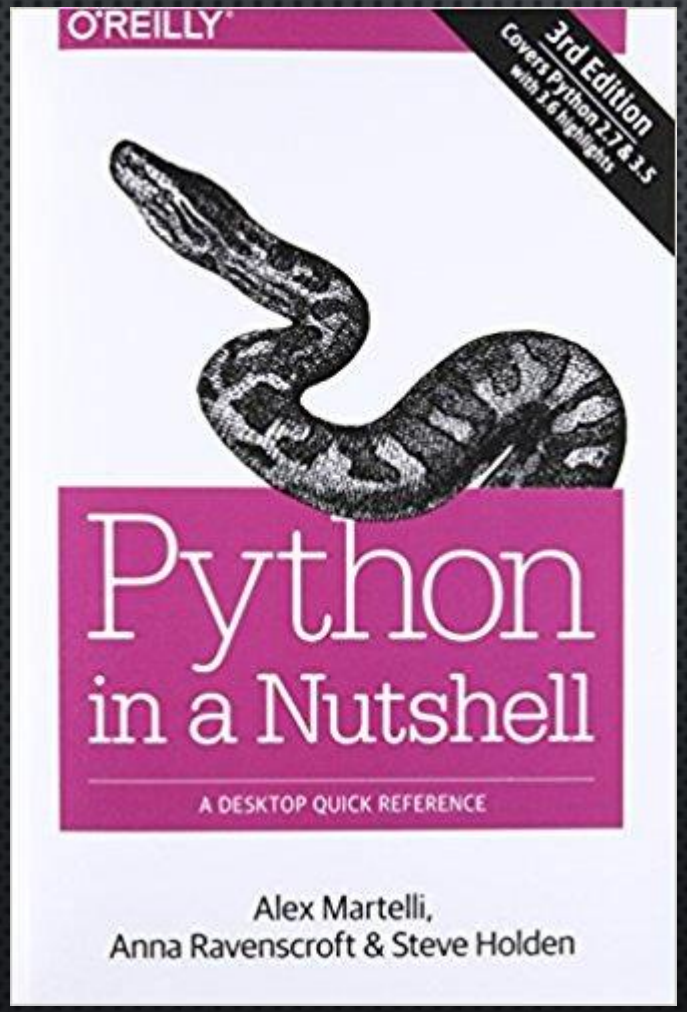
Python Cookbook
David Beazley & Brian K. Jones

Books



Effective Python: 59 Specific Ways to Write Better Python
Brett Slatkin

Books



Python in a Nutshell

Alex Martelli, Anna Ravenscroft & Steve Holden

Other Online Resources I Regularly Use

Raymond Hettinger's Twitter Feed `@raymondh` just awesome!

example: #python tip: zip() with star-arguments is great for transposing 2-D data:

```
m = [(1, 2, 3), (4, 5, 6)]
list(zip(*m))
[(1, 4), (2, 5), (3, 6)]
```

YouTube

Lots of great videos on Python.
Look out for PyCon videos – these are fantastic!
Anything by GvR, Raymond Hettinger, Alex Martelli…
And many more, including any library you're interested in

Planet Python Blog `http://planetpython.org/`

Google Searches!

Stack Overflow `https://stackoverflow.com/`