[How to use the Random Module in Python](http://www.pythonforbeginners.com/systems-programming/how-to-use-the-random-module-in-python/)***2***

24 Dec 2012   | [System & OS](http://www.pythonforbeginners.com/category/systems-programming/)

Tags: [Modules](http://www.pythonforbeginners.com/tag/modules/) · [Random](http://www.pythonforbeginners.com/tag/random/)

Overview

In this post, I would like to describe the usage of the random module in Python.

The random module provides access to functions that support many operations.

Perhaps the most important thing is that it allows you to generate random numbers.

When to use it?

We want the computer to pick a random number in a given range

Pick a random element from a list, pick a random card from a deck, flip a coin

etc.

When making your password database more secure or powering a random page feature

of your website.

Random functions

The Random module contains some very useful functions

Randint

If we wanted a random integer, we can use the randint function

Randint accepts two parameters: a lowest and a highest number.

Generate integers between 1,5. The first value should be less than the second.

|  |  |
| --- | --- |
| 1  2 | import random  print random.randint(0, 5) |

This will output either 1, 2, 3, 4 or 5.

Random

If you want a larger number, you can multiply it.

For example, a random number between 0 and 100:

|  |  |
| --- | --- |
| 1  2 | import random  random.random() \* 100 |

Choice

Generate a random value from the sequence sequence.

random.choice( ['red', 'black', 'green'] ).

The choice function can often be used for choosing a random element from a list.

|  |  |
| --- | --- |
| 1  2  3 | import random  myList = [2, 109, False, 10, "Lorem", 482, "Ipsum"]  random.choice(myList) |

Shuffle

The shuffle function, shuffles the elements in list in place, so they are in a

random order.

random.shuffle(list)

Example taken from this post on [Stackoverflow](http://stackoverflow.com/questions/976882/shuffling-a-list-of-objects-in-python)

|  |  |
| --- | --- |
| 1  2  3 | from random import shuffle  x = [[i] for i in range(10)]  shuffle(x) |

Output:

# print x gives [[9], [2], [7], [0], [4], [5], [3], [1], [8], [6]]

# of course your results will vary

Randrange

Generate a randomly selected element from range(start, stop, step)

random.randrange(start, stop[, step])

|  |  |
| --- | --- |
| 1  2  3 | import random  for i in range(3):      print random.randrange(0, 101, 5) |

Code Example

Let’s see this example (copied from [Doug Hellmann PYMOTW](http://www.doughellmann.com/PyMOTW/random/))

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9  10  11  12  13 | import random  import itertools    outcomes = { 'heads':0,               'tails':0,               }  sides = outcomes.keys()    for i in range(10000):      outcomes[ random.choice(sides) ] += 1    print 'Heads:', outcomes['heads']  print 'Tails:', outcomes['tails'] |

There are only two outcomes allowed, so rather than use numbers and convert them,

the words “heads” and “tails” are used with choice().

The results are tabulated in a dictionary using the outcome names as keys.

|  |  |
| --- | --- |
| 1  2  3  4 | $ python random\_choice.py    Heads: 4984  Tails: 5016 |

More information

<http://en.wikibooks.org/wiki/Choose_Your_Own_Pyventure/Random_and_PRNGs>

<http://docs.python.org/2/library/random.html>

<http://www.cs.swarthmore.edu/~adanner/cs21/f09/randomlib.php>