

S

EXPLORE

TRACKS

MY COURSES

EDPRESSO

REFER A FRIEND

educative

From Python to Numpy

0% COMPLETED

Search Course

Introduction

What is NumPy?

Creation in NumPy

Reshaping in NumPy

Indexing in NumPy

Broadcasting in NumPy

NumPy Vectorization

Readability vs. Speed

Anatomy of an Array

Introduction

Memory layout

Views and Copies

Coding Example: How to find if one vector is view of the other?

# Readability vs. Speed

This lesson discusses a potential problem that arises when you use NumPy library.

Before heading to the next chapter, I would like to warn you about a potential problem you may encounter once you'll have become familiar with NumPy.

It is a very powerful library and you can make wonders with it but, most of the time, this comes at the price of readability. If you don't comment your code at the time of writing, you won't be able to tell what a function is doing after a few weeks (or possibly days).

For example, can you tell what the two functions below are doing? Probably, you can tell for the first one, but unlikely for the second.

```
1 # More readability, less speed
2 def function_1(seq, sub):
3     return [i for i in range(len(seq) - len(sub) + 1) if seq[i:i+len(sub)] == sub]
4
5 # More speed, less readability
6 def function_2(seq, sub):
7     target = np.dot(sub, sub)
8     candidates = np.where(np.correlate(seq, sub, mode='valid') == target)[0]
9     check = candidates[:, np.newaxis] + np.arange(len(sub))
10    mask = np.all((np.take(seq, check) == sub), axis=-1)
11    return candidates[mask]
12
13 seq="Python to NumPy"
14 sub="NumPy"
15 print("Function 1:",function_1(seq,sub))
16 print("Function 2:",function_1(seq,sub))
```

RUN

SAVE

RESET

Output

0.487s

Function 1: [10]  
Function 2: [10]

Here in this code, both the functions return the index of the substring in the string. The string is “Python to NumPy” and the substring is “NumPy”. The index of the substring in the string is 10. As you may have guessed, the second function is the vectorized-optimized-faster-NumPy version of the first function. It is 10 times faster than the pure Python version, but it is hardly readable.

Solve this quiz!

1

The code written in Numpy module is vectorized. Is this statement True or False?

A) True

B) False

COMPLETED 0%

1 of 2

<

>

Now that we have a bit introduction to NumPy, let's move on to the next chapter “Anatomy of an Array”.