Fancy Indexing

Summary: in this tutorial, you'll learn about the fancy indexing technique to select elements of a numpy array.

Introduction to fancy indexing

In the previous tutorial, you learned how to select elements from a numpy array using indexing (https://www.pythontutorial.net/python-numpy/numpy-array-indexing/) and slicing (https://www.pythontutorial.net/python-numpy/numpy-array-slicing/) techniques.

Besides using indexing & slicing, NumPy provides you with a convenient way to index an array called *fancy indexing*.

Fancy indexing allows you to index a numpy array using the following:

- Another numpy array
- A Python list (https://www.pythontutorial.net/python-basics/python-list/)
- A sequence (https://www.pythontutorial.net/advanced-python/python-sequences/) of integers

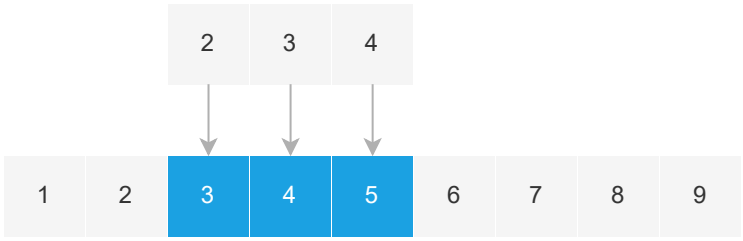
Let's see the following example:

```
import numpy as np

a = np.arange(1, 10)
print(a)

indices = np.array([2, 3, 4])
print(a[indices])
```

Output:

```
[1 2 3 4 5 6 7 8 9]
[3 4 5]
```

How it works.



First, use the arange() (https://www.pythontutorial.net/python-numpy/numpy-arange/) function to create a numpy array that includes numbers from 1 to 9:

```
[1 2 3 4 5 6 7 8 9]
```

Second, create a second numpy array for indexing:

```
indices = np.array([2, 3, 4])
```

Third, use the `indices` array for indexing the `a` array:

```
print(a[indices])
```

Summary

- Fancy indexing allows you to index an array using another array, a list, or a sequence of integers.