Using Python Packages

This lesson gives a brief overview of Python packages.

WE'LL COVER THE FOLLOWING

Importing packages

Python allows developers to group related functions into hierarchical namespaces like packages, modules, etc.

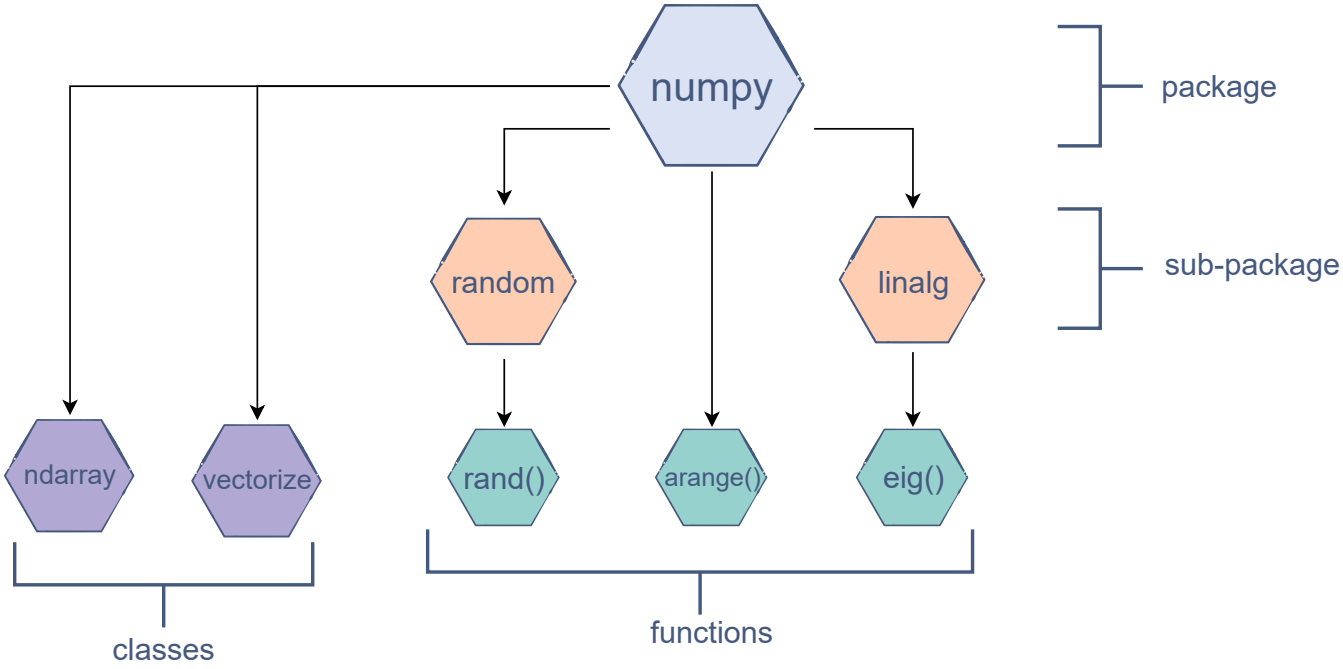
When we want to use a module, class, or function from a package, we need to import it. There are many different ways to import packages. The most basic syntax is:

```
import numpy
```

after which any relevant module, class or function in that package inside `numpy` can be called as `numpy.function()`.

Some packages also have sub-packages with specialized functions. For example, the `numpy` package has a subpackage called `random`, which has a bunch of functions that deal with random variables.

`numpy` also has a sub-package `linalg`, which has a bunch of functions for linear algebra.



Python package hierarchy

Aliasing

If you don't like the name of the package, for example, because it is long, you can change the name. The `numpy` package is renamed to `np` by typing

```
import numpy as np
```

after which all functions in `numpy` can be called as `np.function()`.

If the `numpy` package is imported with `import numpy as np`, functions in the random subpackage can be called as `np.random.function()`.

Importing specific functions

If you only need one specific function, you don't have to import the entire package. For example, if you only want the cosine function of the `numpy` package, you may import it as:

```
from numpy import cos
```

after which you can simply call the cosine function as cos(). You can even rename functions of the package when you import them using the `as` alias pointing to that function. For example, after:

```
from numpy import cos as newname
```

you can call the function `newname()` to compute the cosine.

> 💡 In this course we always import `numpy` and call it `np` and import `matplotlib.pyplot` and call it `plt` since both are standard names in the Python community.

We will learn more about packages in Python as we progress along this course.

Let's test your knowledge with a quiz in the next lesson.