sO rAnDoM

Libraries in Python

In Python, libraries (or *modules*) are collections of variables and functions that perform similar tasks.

The reason that they aren't included in Python at base is because they usually have more niche applications, and including all of them consumes extra space and runtime for our code when it runs.

When we have a specific functionality that needs to be performed, we can usually find a library to accomplish that task - people are developing libraries for all kinds of different applications all the time.

That's great and all, but how are they used?

In order to access a Library, we must first **import** it.

We can do this by using the **import** keyword with the name of the desired Library.

For example:

```
import random
```

This should be done at the very top of your program, before you do anything else.

Actual Random

If we want to generate *actually* random numbers in our programs… we can't.

The `random` library in Python uses a mathematical process to generate its random values, so it isn't *truly* random. It's **pseudo**-random!

To all appearances, though, especially to our eyes, the "random" values produced by the `random` library might as well be random.

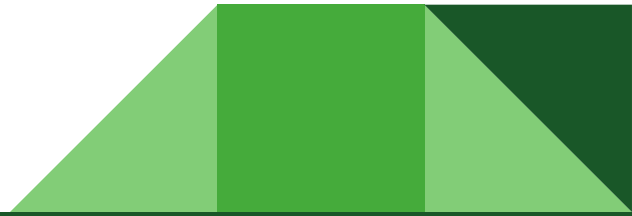
Which functions can we use?

Once we've `import`ed the `random` library, there are 3 main functions we have available to us:

```
random.randint()
```

```
random.choice()
```

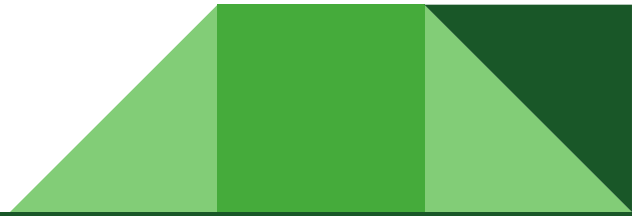
```
random.random()
```



random.randint()

The `randint()` function is used to generate a **rand**om **int**eger value from a specified range of values.

```
import random
die_roll = random.randint(1, 6)
print("You rolled a " + str(die_roll))
```



random.randint()

The `randint()` function is used to generate a **rand**om **int**eger value from a specified range of values.

```
import random
die_roll = random.randint(1, 6)
print("You rolled a " + str(die_roll))
```

Unlike the `range()` function we just learned about for `for` loops, `randint()` is **inclusive** of both numbers - both the start and end values are possible results.

random.choice()

The `choice()` function allows us to select an element at random from a `list`. `Lists` are sequences of values held within square brackets `[]`, where each value (or *element*) is separated by a comma. We'll learn more about them in the future.

```
import random
flipped_heads = random.choice( [ True, False ] )
if flipped_heads:
    print("You flipped heads!")
else:
    print("You flipped tails!")
```

random.random()

Finally, the `random()` function is used to generate a random float value in the range 0 <= value < 1.

This can be used to generate a random number by performing multiplication, though in Python it's generally simpler to just use `randint()`.

```
import random
my_num = random.random()
print("My random decimal: " + str(my_num))
```