Let's warm up your knowledge about Python Packages!

random package

```
import random
```

Random Int

> hint: use `random.randint()` or `random.randrange()`

Task: Generate a random positive integer less than 10.

```
i = random.randint(1, 9)
print(i)
```

```
6
```

Task: Generate a random integer within 0 (inclusive) and 100 (inclusive)

```
i = random.randint(0, 100)
print(i)
```

```
16
```

Task: Generate a random integer within a and b, where a and b are user entered integers and a <= b

```
a = int(input('Please enter a: '))
b = int(input('Please enter b: '))
if a > b:
  a, b = b, a
i = random.randint(a, b)
print(i)
```

```
Please enter a: 1
Please enter b: 100
20
```

Random Float

> hint: use `random.random()`, `random.uniform()`, or `random.gauss()`

Task: Generate a random float number between 0 and 1

```
f = random.random()
print(f)
```

Task: Generate a random float number between 0 and 10.

```
f = random.uniform(0, 10)
print(f)
```

Task: Generate a random float number between 5 and 10

```
f = random.uniform(5, 10)
print(f)
```

Task: Generate a random float number based on the Gaussian distribution

```
f = random.gauss(0, 1)
print(f)
```

Random Datasets

Genearte a list of 10 random floats within 0 and 1.

```
l = []
for i in range(10):
  l.append(random.random())
l
```

```
[0.1299985004255959,
 0.977176979830017,
 0.6652971793861331,
 0.37447442984241863,
 0.5241902074288097,
 0.26371217776021805,
 0.5770224254012861,
 0.22799489506794324,
 0.21989806307045578,
 0.15203890746620807]
```

Generate a list of 10 random integers within 0 and 10.

```
l = []
for i in range(10):
  l.append(random.randint(0, 10))
l
```

```
[9, 10, 5, 9, 10, 6, 3, 7, 7, 5]
```

Generate a list of 10 numbers following normal distribution with 10 as mean, and 1 as standard derivation.

```
l = []
for i in range(10):
  l.append(random.gauss(10, 1))
l
```

```
[10.903213144199938,
 11.682509244714963,
 10.608098749534166,
 10.573112420952233,
 8.95732351464167,
 8.219417334810357,
 11.286207470174519,
 9.644265672440271,
 9.293735922609708,
 9.113748495501321]
```

math module

```
import math
```

Task: return the ceiling, floor, absolute value of a user entered float

```
x = float(input('Enter a number'))
print('x is', x, 'ceiling is', math.ceil(x), 'floor is', math.floor(x), 'abs is', m
```

```
Enter a number-3.5
x is -3.5 ceiling is  -3 floor is -4 abs is 3.5
```

Task: return the factorial of a user entered positive integer

```
x = int(input('Enter a number'))
print('x is', x, 'x! is', math.factorial(x))
```

```
Enter a number5
x is 5 x! is  120
```

Task: return the square root, log, log_2, log_{10} of a user entered positive float

```
x = float(input('Enter a number'))
print('x is', x, 'sqrt(x) is', math.sqrt(x), 'logx is', math.log(x), 'log2x is', ma
```

```
Enter a number2
x is 2.0 sqrt(x) is 1.4142135623730951 logx is 0.6931471805599453 log2x is 1.(
```