Normal Continuous Random Variables

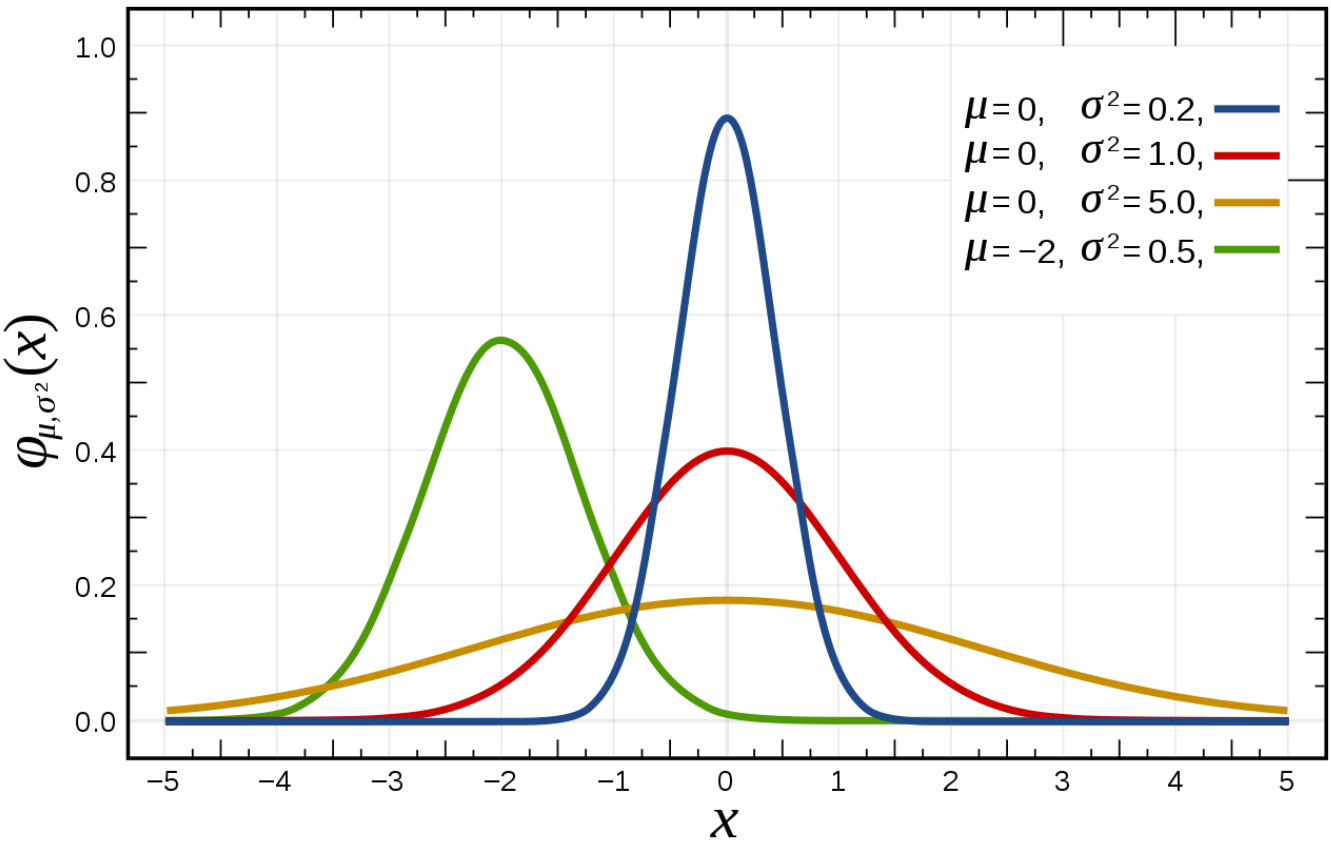
In this lesson, we will learn about normal distribution.

WE'LL COVER THE FOLLOWING

- Normal distribution

Normal distribution

The most common probability distribution is probably the Normal distribution. Random numbers from a Normal distribution may be generated with the `normal` function in the `random` subpackage of `numpy`, where the keyword `loc` is the mean (default is 0) and `scale` is the standard deviation (default is 1).



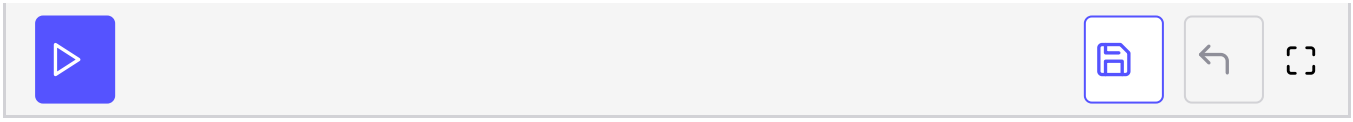
μ is mean and σ is the standard deviation

Courtesy: Wikipedia

The mean and standard deviation of a dataset can be computed with the functions `mean` and `std` of the numpy package.

```
import numpy as np
import matplotlib.pyplot as plt
import numpy.random as rnd

data = rnd.normal(loc=4, scale=2, size=100)  # Array with 100 values
print('mean of data: ', np.mean(data))
print('standard deviation of data: ', np.std(data))
```



Note that the mean and standard deviation of the 100 numbers drawn from a normal distribution with mean 4 and standard deviation 2 is not exactly equal to 4 and 2, respectively. These are only estimates of the true underlying mean and standard deviation.

These estimates are called the sample mean and sample standard deviation of 100 numbers drawn from a Normal distribution.

Run the above code several times. Each time, a new set of 100 random numbers is drawn, with a slightly different mean and standard deviation.

> 💡 You can learn about various other random distributions in Python over here.

In the next lesson, we will learn about histograms.