→ DFT (Discrete Fourier transform)

The DFT is a mathematical algo that transform a discrete time sequence of N complex number (or Sample) into Equivalent length sequence of Complex numbers representing the frequency spectrum of original sequence

$$x(k) = \sum_{n=0}^{N-1} x(n) e^{-j2\pi kn/N}$$

DFT convert the time domain signal into frequency domain by decomposing the signal into a sum of complex exponential function with different frequencies.

The result of the DFT is a sequence of complex number that represent the amplitude and phase of each frequency component in the original signal

We compute DFT using `numpy.fft.fft` in Python

* Inverse DFT

The inverse DFT is process of converting a frequency-domain representation of a signal back to its time domain representation

$$f(n) = \frac{1}{N} \sum_{k=0}^{N-1} F(k)\, e^{+j2\pi nk/N}$$

Where N = Length of DFT

We Compute IDFT of DFT using

`inp.fft.ifft(dft)` in Python