The continuous that denotes the interval length between the occurrence of events is called exponential random variable. The associated probability function is known as the expnenetial probability function, which is defined as follows -

$$f(x) = \frac{1}{\mu}\, e^{-\frac{x}{\mu}}; \quad \text{for } x \geq 0$$

where μ = expected value or mean

Some real life example of exponential random variable:

- Insurers use it to determine the risk of client gettting in an accident.
- To find out the interval between earthquakes.
- To determine the life of electrical devices.
- To determine the interval of getting mails.

Difference between poisson and exponential variable:

POISSON	**EXPONENTIAL**
1. Discreate in nature and define in integers $x = [0, \infty]$	1. Continuous in nature and defined on $x = [0, \infty]$
2. Deals with the number of occurences in a fixed period of time.	wow