A Poisson process is a stochastic (random) process that represents the occurrence of events in continuous time. It is named after the French mathematician Siméon Denis Poisson. The key characteristic of a Poisson process is that events happen at a constant rate, and the number of events in non-overlapping intervals follows a Poisson distribution.

**Properties of a Poisson Process:**

1. **Constant Rate (�*λ*):** The events occur at a constant rate �*λ* per unit time.
2. **Independence:** The occurrence of events is independent of previous events. The process has no memory; the probability of an event occurring in a small time interval is constant.
3. **Poisson Distribution:** The number of events �(�)*N*(*t*) in a time interval of length �*t* follows a Poisson distribution with mean ��*λt*.

�(�(�)=�)=(��)��−���!*P*(*N*(*t*)=*k*)=*k*!(*λt*)*ke*−*λt*​

In this simulation, events are generated randomly over time according to a Poisson process. The resulting histogram shows the density of events at different time points, demonstrating the characteristics of a Poisson process with a constant rate.

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