Markov Property - A property of a **stochastic process** that states that they're **memoryless**

- ***Memorylessness -*** *The waiting time until an event doesn't depend on how much time has passed already*
- Markov Models have to **constantly forget their state** as the probabilities would not be influenced by the history
- **Strong Markov Property -**

Markov Model - Stochastic model that models **pseudo-randomly changing systems**

- **Markov Assumption -** Assumed by Markov Models - *a model where the **Markov Property** holds*
- A model predicting the likelihood of **future outcomes**, modelled by **random variables** that only depend on relevant information about the **current time**, not the past
- We can use Markov models to model processes if the **conditional probability distribution** of future states depends solely on the present state, not the previous states

Hidden Markov Models (HMM) - A **Markov Model** where **some states are unknown/hidden/unobtainable**

- A **model** often used for sequential or temporal data
- Simple enough to efficiently do inference
- Rich enough to handle real world application
- Go to for **sequential data**

Markov Random Field - extends Markov property in multiple dimensions for interconnected networks

- **Ising Model -**

Markov Processes

Markov Chain - a **discrete-time stochastic process** that satisfies the Markov Property

- A well known Markov Process

Brownian Motion -

Examples

- Radioactive Decay
- Opening random safes with random combinations