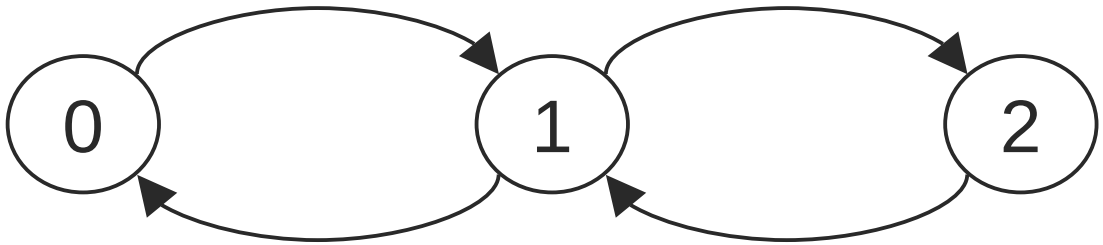
Randomized algorithm

Tutorial 7
Hint for Assignment 5

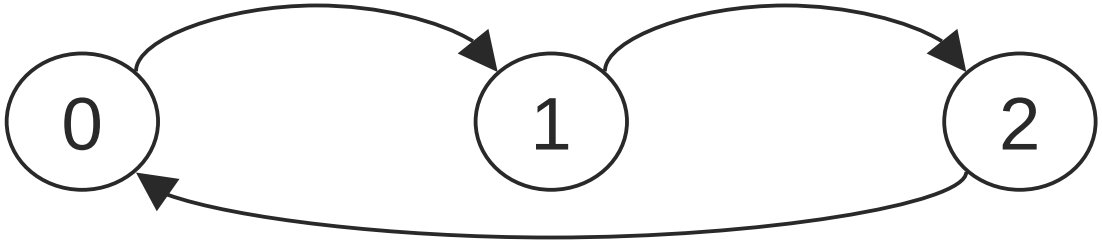
Introduction

- Irreducible
  - Every state *j* can reach every state *k*.



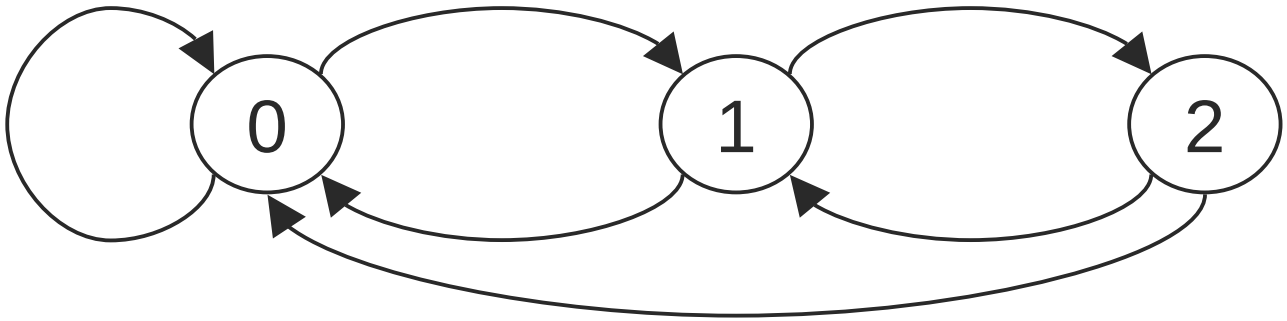
Introduction

- Periodic
  - Once we start at state *j*, we can only return to *j* after a multiple of *d* steps



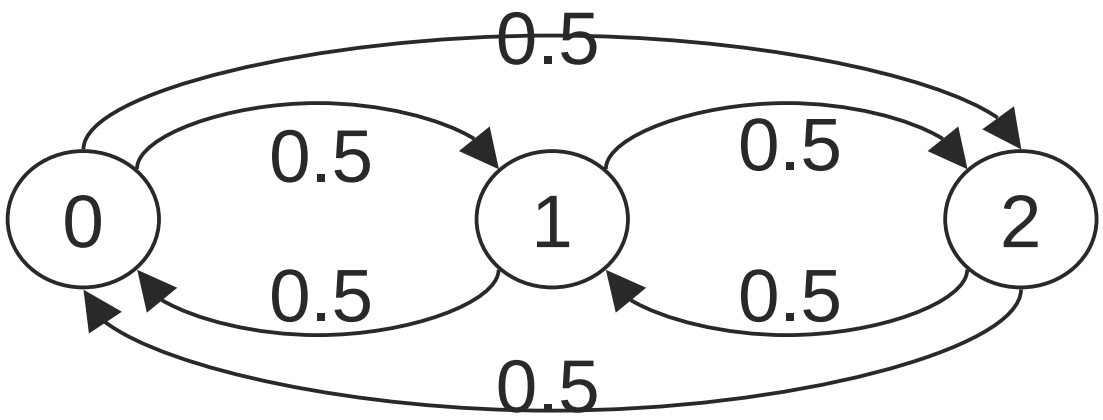
Introduction

- Aperiodic
  - A Markov Chain is aperiodic if it is not periodic.



Introduction

- Stationary distribution
  - A probability distribution that $p(n)$ remains a certain distribution when $n>t$.



$p(t)=\{1/3, 1/3, 1/3\}$

Introduction

- Fact : If a Markov chain is irreducible and aperiodic, its stationary distribution is unique

Exercise

a) Argue that this is aperiodic and irreducible.

b) Find the stationary probability.