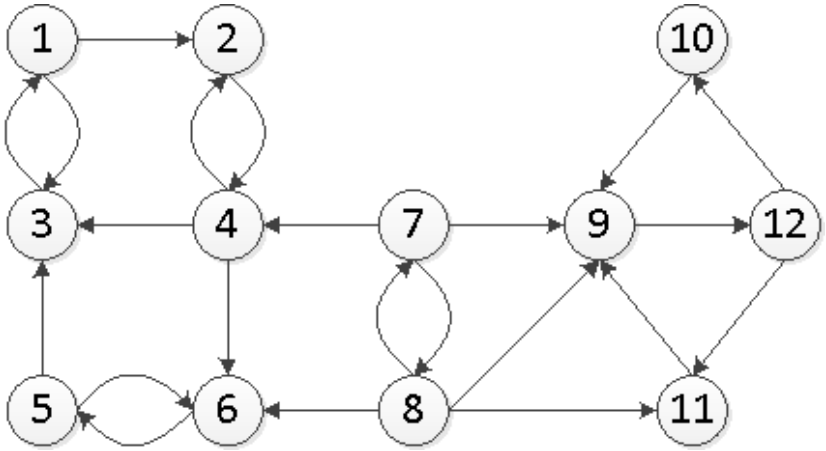
Exercise: Periodic states

(4/4 points)

Consider a Markov chain with the following transition probability graph:



1. How many recurrent classes are there?

2 ▾ ✔ **Answer:** 2

2. How many periodic recurrent classes are there?

2 ✔ **Answer:** 2

3. What is the smallest period among these?

2 ✔ **Answer:** 2

4. What is the largest period among these?

3 ✔ **Answer:** 3

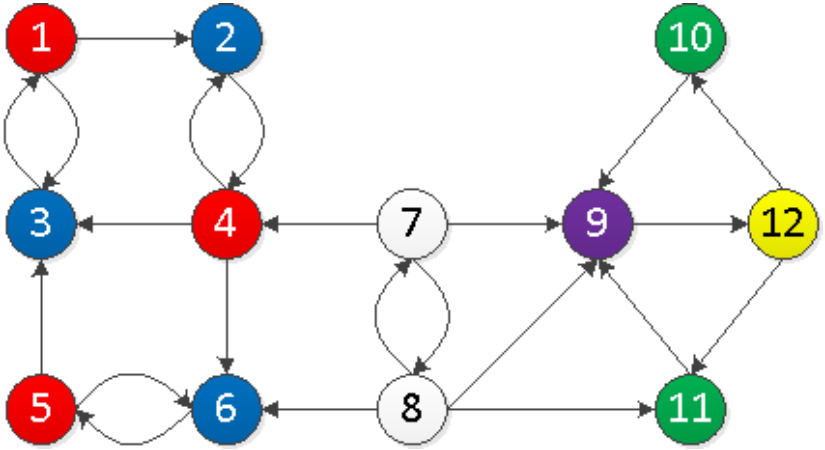
Answer:

1. There are two recurrent classes: $\{1, 2, 3, 4, 5, 6\}$ and $\{9, 10, 11, 12\}$.
2. Both of the recurrent classes are periodic.
3. The recurrent class $\{1, 2, 3, 4, 5, 6\}$ has a period of 2. In the figure below, the state within this recurrent class alternates between a red state and a blue state.
4. The recurrent class $\{9, 10, 11, 12\}$ has a period of 3. In the figure below, the state within this recurrent class cycles from a purple state, to a yellow state, to a green state, and back to a purple state.

Lec. 26: Absorption probabilities and expected time to absorption
Exercises 26 due May 18, 2016 at 23:59 UTC

Solved problems

Problem Set 10
Problem Set 10 due May 18, 2016 at 23:59 UTC



You have used 1 of 2 submissions