HW6
MAE 595-Fall 2018
Due on 12/08/18 (11:59 PM)-submission via UBLearn

Note: For this HW, you only need to submit the solution to the EXTRA PROBLEMS**.**

Suggested Textbook Problems: Self-Study Problems 2, 5, 11 and 18 from Chapter 7 of the book.

Extra Problem 1-Consider the Markov Chain with the following Transition Matrix. The initial probability distribution is equal to [0.25 0.25 0.5].

$$P = \begin{bmatrix} 1/2 & 1/4 & 1/4 \\ 1/3 & 0 & 2/3 \\ 1/2 & 1/2 & 0 \end{bmatrix}$$

- Draw the state transition diagram.
- Find P(X1=3, X2=2, X3=1)
- Find P(X3=2)
- Find the steady state probability distribution

Extra Problem 2-Consider the Markov chain shown in the following Figure. Assume X0=1, and let R be the first time that the chain returns to state 1. Find E[R|X0=1] that is the mean return time to State 1.