SSIE 660: Stochastic Systems

Homework assignment 6

Oct. 24th, 2016
Due: Oct. 31st, 2016, Before class starts

1. The demand per day of a certain item obeys the following probability distribution.

Demand	Probability
0	0.3
1	0.3
2	0.2
3	0.1
4	0.1

The ordering policy is as follows. 1) If the inventory at the end of the day is 0, order 4; 2) If the inventory at the end of the day is 1, order 3; 3) Otherwise, do not order. Assuming that the replenishment is immediate (will be fulfilled at the beginning of the next day), find the transition probability matrix.

Follow the same steps as in the example solved in class but with different ordering policy.

2. Solve Chapter 4. Problem 1.

It is suggested that you create a table like the one shown below, and think about all possible cases.

state	urn 1	urn 2	ball from urn 1	prob.	ball from urn 2	prob.	urn 1	to state	prob.
0	BBB	WWW	B	1	W	1	WBB	1	1
1	WBB	BWW	B	2/3	B	1/3	WBB	1	2/9

3. Solve Chapter 4. Problem 2 and 3

A similar problem was solved in class. Think about how to define states.

4. Solve Chapter 4. Problem 5.

Unconditional probability. See the note.

5. Solve Chapter 4. Problem 7.