HW6:

1) $n_0(t) = 0.1n_0(t-1) + 1.2n_1(t-1) + 0.9n_2(t-1) + 0.1n_3(t-1)$

$n_1(t) = 0.95n_0(t-1)$

$n_2(t) = 0.97n_1(t-1)$

$n_3(t) = 0.9n_2(t-1)$

$n_1(t-1) = 0.95n_0(t-2)$

$n_0(t) = 0.1n_0(t-1) + 1.2(0.95n_0(t-2)) + 0.9n_2(t-1) + 0.1n_3(t-1)$

$n_2(t) = 0.97(0.95n_0(t-2))$ $\quad n_3(t) = 0.9(0.97(0.95n_0(t-3)))$

$= n_2(t-1) = 0.97(0.95n_0(t-3))$ $\quad n_3(t-1) = 0.829n_0(t-4)$

$$\boxed{n_0(t) = 0.1n_0(t-1) + 1.14n_0(t-2) + 0.829n_0(t-3) + 0.0829n_0(t-4)}$$

$$\boxed{\text{REC} = [0.1,\ 1.14,\ 0.829,\ 0.0829]}$$

2)

$$L = \begin{bmatrix} 0.1 & 1.2 & 0.9 & 0.1 \\ 0.95 & 0 & 0 & 0 \\ 0 & 0.97 & 0 & 0 \\ 0 & 0 & 0.9 & 0 \end{bmatrix}$$

3)

Transition $=$

	1	2	3	4
1	0.5	0.167	0.167	0.167
2	0.2	0.4	0.2	0.2
3	0.23	0.23	0.3	0.23
4	0.267	0.267	0.267	0.2