7.1

$$\left(\begin{array}{c|c|c} L_{00} & 0 & 0 \\ \hline \lambda_{10} e_L^T & 1 & v_{12} e_F^T \\ \hline 0 & 0 & U_{22} \end{array}\right)^T * \begin{pmatrix} x_0 \\ x_1 \\ x_2 \end{pmatrix}$$

$$= \begin{pmatrix} L_{00}^T x_0 \\ \hline x_2 v_{12} e_F^T + \lambda_{10} e_L^T x_0 + x_1 \\ \hline U_{22} x_2 \end{pmatrix}$$

$$\underbrace{\qquad\qquad}_{\begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}}$$

$x = \begin{pmatrix} x_0 \\ x_1 \\ x_2 \end{pmatrix} \neq 0$ vector here.

So, $L_{00}^T x_0 = 0$.

$v_{12} e_F^T x_2 + \lambda_{10} e_L^T x_0 + x_1 = 1$

$U_{22} x_2 = 0$

By solving the linear equation (1st degree)

we see → $x_0 = 0$, $x_2 = 0$, $X_1 = 1$.

$L_{00}^T x_0$, $U_{22} x_2$ = matrix vector. ⇒ cost ≈ $(2 \times 2mn) \div 2$ as they are upper or Lower triangles.

$x_2 v_{12} e_F^T$ = vector - vector ≈ cost $2m$

$\lambda_{10} e_L^T x_0$ = scalar vetor ≈ cost m

Total cost ≈ $O(n^2)$