ECE 6397 Computer Assignment # 5

Perform the following sampled data estimations for a system with interval I/O. The results should be clearly presented in the body of the code. present the results.

Given a difference equation:
$$y(k) + d_1 y(k-1) + d_2 y(k-2) + d_3 y(k-3) + n_0 u(k) + n_1 u(k-1) + n_2 u(k-2) = 0,$$
where the I/O table is

k	y(k)	u(k)
0	[1, 2]	[1, 3]
1	[2, 3]	[2, 3]
2	[2, 3.5]	[3, 4]
3	[2.25, 4]	[4, 6]
4	[2, 3.5]	[4, 5]
5	[1.25, 2]	[4, 4.5]
6	[1.5, 2]	[5, 5.5]
7	[2, 2.25]	[5, 6]

Find:

    A. Using all of the measurements, calculate the parameters d_i and n_j.

    B. Using the parameters from [A] calculate $\hat{b}$.

    C. Determine if $b \subseteq \hat{b}$ or $\hat{b} \subseteq b$