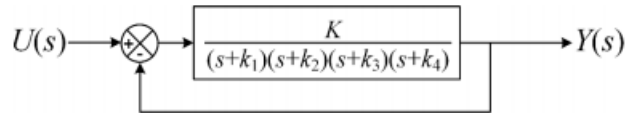
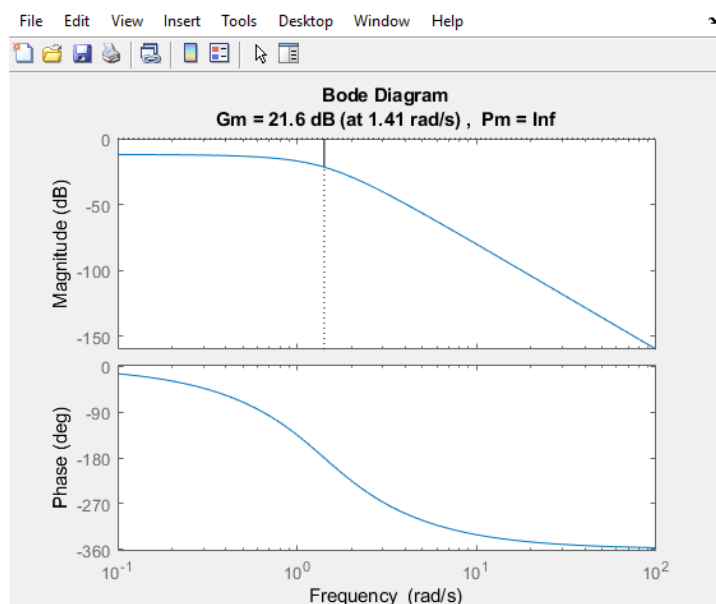
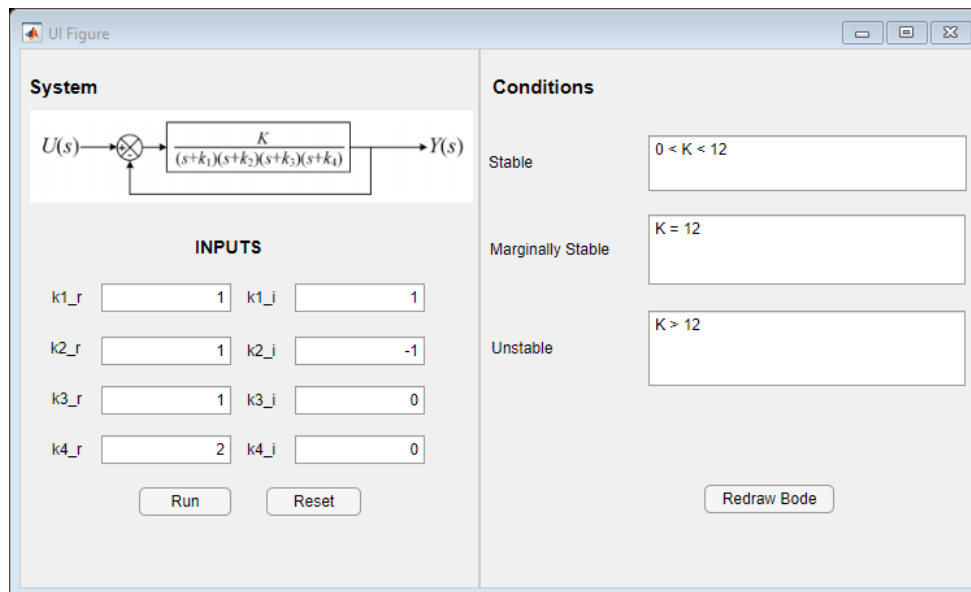


# Demonstration: EE 302 Group 3

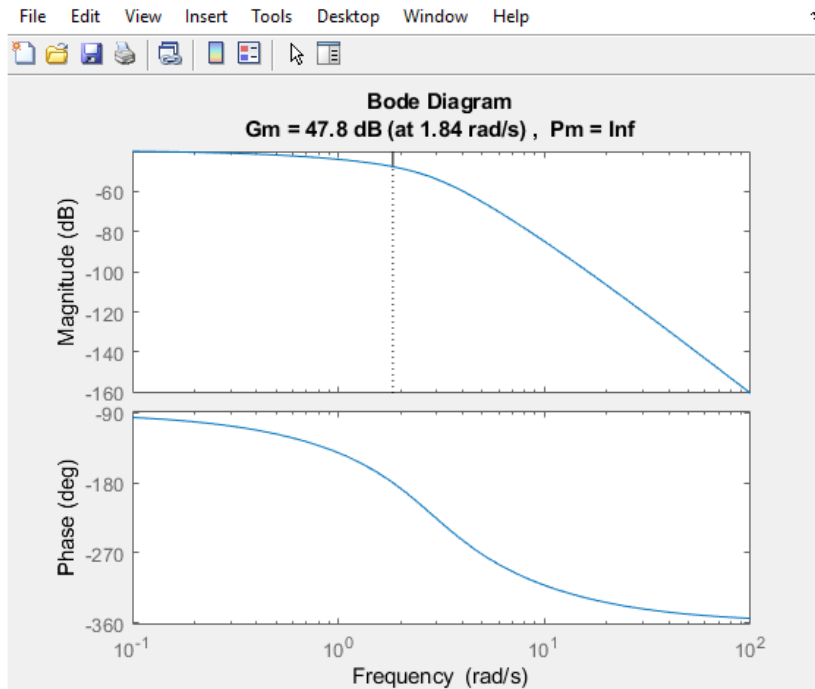
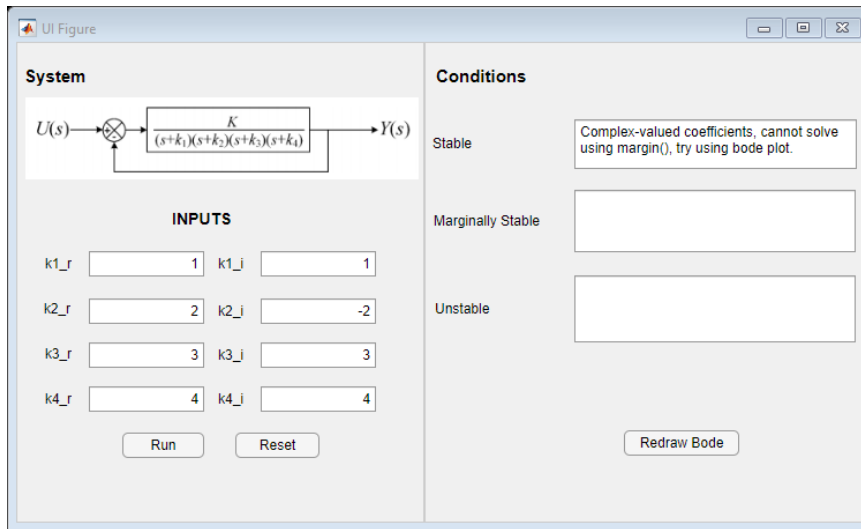
**Group 3:** Create a GUI based system that determines the range of gain,  $K$ , for the system shown below that will cause the system to be stable, unstable, and marginally stable. The parameter values  $k_1, k_2, k_3, k_4$  will be provided from user-end. Assume  $K > 0$ .



Example 1:

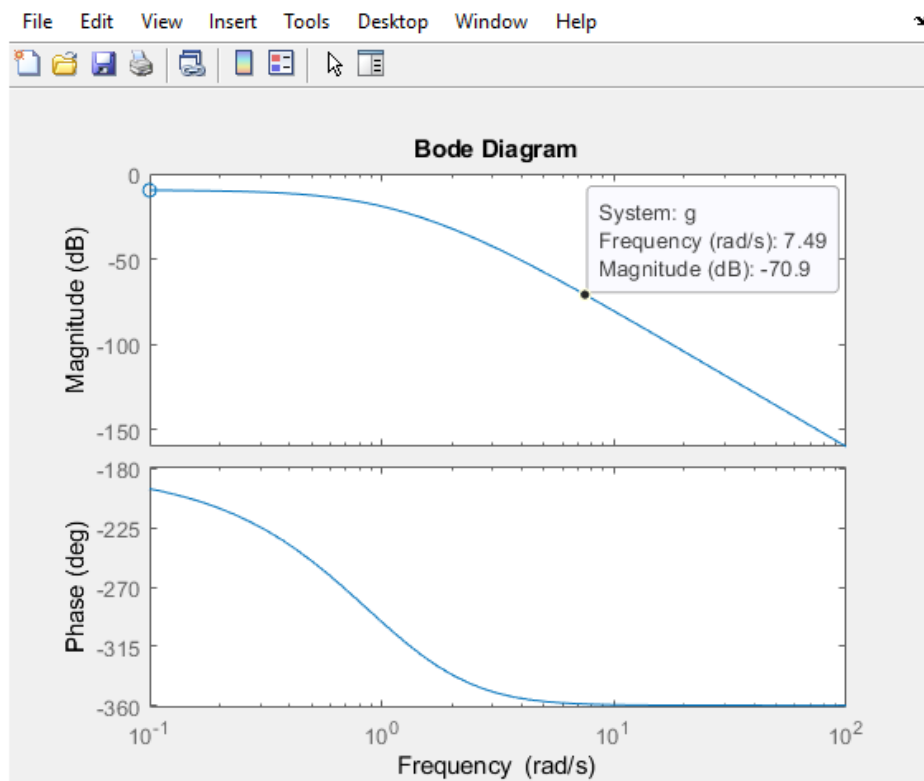
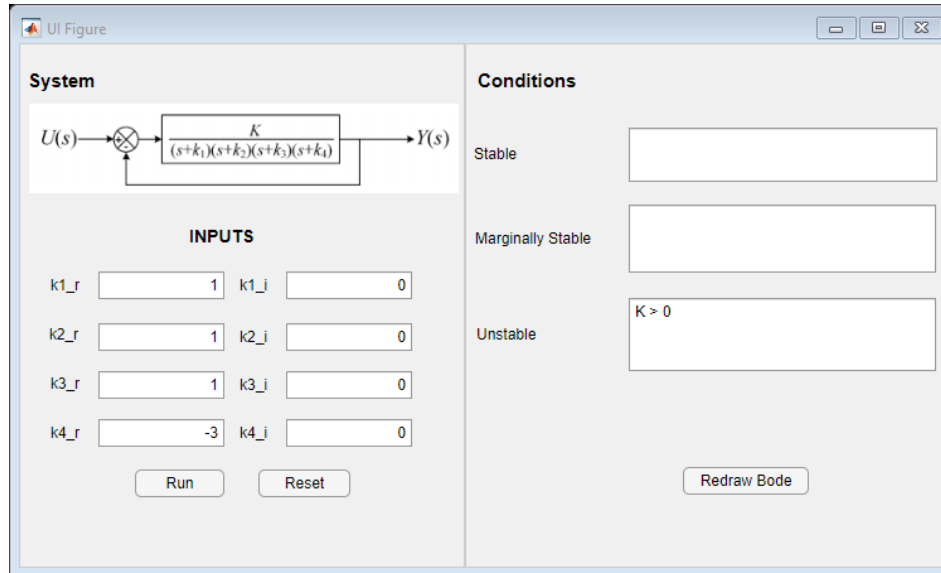


## Example 2:



MATLAB limitation of using margin() function. Although we still get a plot from where we can see for K less than 47.8 dB (K = 245.47 in magnitude) system shall remain stable. Marginally stable at 245.47 and Unstable after that.

### Example 3:



Clearly Phase margin is always negative. System is not stable for any applied gain.