The overall structure of our program follows the general strategy of solving the stiffness equation by first defining the local-level stiffness matrix, transforming it into global level stiffness matrix, assembling it and then solving for the un-known variables in our equations. In this program, we have followed the generalized naming conventions that are mostly used for structural analysis purposes. We have prepared the functions with complete code modularity, such as the functions **MD_estiff, MD_compute_memberFEFs, MD_estiff, MD_etran, MD_memberID** etc. that are called into the main function **ud_3d1el.m.** We have also demonstrated the member-force distribution in each member in the post processing part, and have validated against the in-built MASTAN2 GUI output. The control flows between each of the functions has been shown in the flow chart. In our program, we have also taken into consideration the special case of mixed-structures that are frames, that can have any member with moments released at the ends. Besides, the conditions of support settlements can also be prescribed in the structure while defining in the MASTAN2 GUI, and we also validated the results for those verification problem cases as well.