ABSTRACT

A computer program is developed for the analysis of elastic frames with geometric nonlinearity, where the relationship between load and displacement is nonlinear. The principle of this geometric nonlinear analysis is to divide the applied loads into small incremental loads. Then, these incremental loads are used in analysis of the structure by the incremental iteration method, whose process includes the calculations of the accumulation of the load increments and the displacement increments, as well as the updating of the geometry, the stiffness matrix and the geometric stiffness matrix of the structure. This computer program is written and developed with Visual Basic, it is able to analyze frames with large deflections, and frames affected by axial forces. This program is used to analyze a number of problems and the results turned out to be in close agreement with the results given by past researches.