the finite element method is a way to approximately solve boundary value problems(BVP). The general form of boundary value problems is made up of an ordinary differential equation (ODE) or partial differential equation (PDE) and a set of boundary conditions. The use of the finite element method for geotechnical engineering began in 1966, when Clough and Woodward used it to determine stresses and movements in embankments and reyes and deer in 1966 described its application to analysis of underground openings in rock. Many research studies and practical applications have taken place in the intervening 40 years. Numerical methods, such as the finite element method, are only feasible if computers are utilized over the past thirty years the cost of computers has diminished considerably causing widespread use of these devices also application of numerical methods. The finite element method has been applied to a wide variety of geotechnical engineering problems where stresses, movements, pore water pressures and groundwater flow were of interests.

This research is the first step to build a finite element program in Fayoum University, Faculty of Engineering, and Civil Department. Although this program deals with simple linear and nonlinear, plane strain, axisymmetric problems, however, this program allows the modifications such as introducing different models, mesh generator, types of elements, input and output method.