We formulate examples of partial differential equations which can be solved through their discretization and subsequent solution of derived algebraic system. A brief summary of Discontinuous Galerkin Discretization is given as well as definitions of algebraic and discretization errors. We derive the Newton method, which solves nonlinear algebraic systems by solving a sequence of linear problems, we modify the method and examine implementation options. We define stopping criteria for the Newton-like method using aforementioned errors and we explain how to keep accuracy of the solution of derived algebraic system and the original partial differential equation in balance. We present numerical experiments to illustrate theoretical background and mention several basic properties of the Newton-like method.