The thesis deals with the algorithms for two-stage stochastic programs. The first chapter considers the basic properties and theory. Specifically, we introduce the properites of the feasibility region and the objective function. Further, optimality conditions are discussed. In the second chapter we present algoritms which can be used to solve two-stage linear programs with fixed recourse. In the first section the basic L-shaped method is described in detail. The second section provides an explanation of the Stochastic Decomposition algorithm with the inclusion of a regularization term. The last chapter presents computational results. Three practical examples are provided both with a brief description of the problem and solutions by the studied algorithms.