This thesis deals with stock modelling using ARCH and GARCH time series. Important aspect of stock modelling is to capture volatility correctly. Volatility in finance is usually defined as a standard deviation of asset returns. Many different models, which are summarized in the first part of this thesis, are used to model volatility. This thesis focus on multivariate volatility models including multivariate GARCH models. An approach to constructing a conditional maximum likelihood estimate to these methods is given. Discussed theory is applied on real financial data. In numeric application there is a construction of a volatility estimates for two specific stocks using models described in the first part of this thesis. Using the same financial data various bivariate models are compared. Based on comparison using maximum likelihood a specific model for these stocks is recommended.