Abstract: In this bachelor thesis we describe binary logistic regression model and estimation of model’s parameters by maximum likelihood method. Then we propose algorithm for the least squares method. In the goodness-of-fit criteria part we define Lorenz curve, Gini coefficient, C-statistics, Kolmogorov-Smirnov statistics and coefficient of determination $R^2$. We derive their relation to different sample coefficients of correlation. We derive typical relation between Gini coefficient, Kolmogorov-Smirnov statistics and newly also coefficient of determination $R^2$ via model of normally distributed score of bad and good clients. These derived theoretical results are verified on three real data sets.

Keywords: Binary logistic regression, maximum likelihood, ordinary least squares, Gini coefficient, coefficient of determination.