Seminar 12

Linear Regression Model

1. Use the dataset `GoldSilver.csv`.

   (a) Create a linear model of the `silver price` dependent on the `time` variable.

   (b) Check the assumptions using the diagnostic graphs.

   (c) Visualise the result: plot your data tohether with the regression line.

   (d) Asses the quality of your model: compute adjusted R^2 and AIC.

   (e) Predict the price of silver on `25.04.2013`.

   (f) Asses the estimate of parameters beta. Compute (by built-in function) confidence intervals of parameters beta. What does it tell You?

2. Do the same as in the Task 1 for logarithm of silver price and for gold prices.

3. Use the dataset `Computers.csv` from seminar 2. Create a linear regression model of the dependence of the `price` variable on the rest of the variables.

   - Consider `ram`, `screen`, `cd`, `multi` and `premium` as categorical variables.
   - Consider `speed`, `hd`, `trend` as numerical variables.

   (a) Create a linear model for the `price` variable dependent on the variables `speed` and `ram`.

   (b) Create a full linear regression model considering all the variables.

   (c) Select the best model of `price` based on your data. Use `step()` function for both backward stepwise procedure (from the full model B) and forward stepwise procedure (from model A).

   (d) Compare the quality of your models using the adjusted R-squared and AIC.