1. Dataset ‘blood.xlsx’ (X1 = systolic blood pressure (dependent variable), X2 = patient's age in years, X3 = weight in pounds (two independent variables)):

- Build a ridge regression model for X1 as a function of X2 and X3. Use the functions cv.plot and bias.plot to find the parameter k.

- Check for multicollinearity of the data.

- Check the significance of the constructed regression equation.

- Carry out comparative analysis of the obtained model with the linear regression model (when estimates are found by MLS).

2. Dataset ‘Kuiper.xls’ (price - dependent variable, mileage, liter, cruise, sound, leather - independent variables):

- Construct quantile regression for different values of parameters ‘tau’, Y = price - dependent variable, mileage, liter, cruise, sound, leather leather - independent variables).

- Graph the results.

- Construct a linear regression model and compare this model with the median regression model.

3. Dataset ‘cigarettes.txt’: (column variables: carbon monoxide, tar, nicotine, weight):

- Build several nonlinear (quadratic and cubic) regression models with dependent variable y=carbon monoxide, and independent variables: x1=tar, x2=nicotine, x3=weight.

- Construct a linear regression model and compare this model with non-linear regression models.