National University of Science and Technology Politehnica Bucharest
Advanced Analytics for Business
Predictive Modeling

Name:
Master:

Practice 1. Logistic Regression

In this practice, you continue to use the **PVA** data set. You build a logistic regression model to classify those customers who donated.

1. Launch Visual Analytics or start a new report. Then select and open the **PVA** data source.
2. Add a **Logistic regression** to the canvas.
3. If you did not do so already, in the Measure column, edit **Target Gift Flag**. Select **Category** to create a binary target variable for donations.
4. Add **Target Gift Flag** as the response.
5. Add the following columns to the roles for the logistic regression:
    - Add **Gender**, **Home Owner**, and **Status Category 96NK** as classification effects.
    - Add all 23 variables as continuous effects ***except*** **Target Gift Amount**, **Target Gift Amount with Zero**, and **Median Home Value Region**. (You add 20 columns.)
6. In the Options pane, select the **Fast Backward** variable selection method. Keep the significance level at **.01**.
7. Create the logistic model.

    a. What is the values of the **R-square** statistics? In a short sentence asses the quality of the model based on the R-square.
    a. Examine the **Fit Summary** panel. How many of the 23 input variables are not included in this model?
    b. In this model, are any of the insignificant variables that are not included classification effects?
    c. Explain the **Assement charts** and indetify the best cutoff treshold. Explain how the adjustment of the cutoff treshold affects the model.
2. Compute the **Sensivity** and the **Specifity** of the designed model (*! Hint – look an the Confusion Matrix. !)*

Important:

- Answare the question is this practice either in 1-2 paragraphs or by addding a screeshot that proves that you have accomplished the asigment correct;
- Convert the obtained file to a PDF file and upload it to Moodle.

Asignment due date: 27.03.2025 on Moodle.