The deadline for this project is **June 15th 2021**, 11.30pm

You will upload in the MS Teams Assignment **only one pdf** file (the written document + the code added at the end). Do not send it to my email. The pdf will be verified with Turnitin.

Please include your name in the file name.

If you have questions, my email is cidota@fmi.unibuc.ro

You are required to solve two subjects. Each subject will be graded and the project's grade will be the arithmetic average of the two:

1. Describe an experiment (not the ones from the course or Lab6) where two-way ANOVA (with two between-subjects factors) can be used for data analysis. Data can be generated by you or it can be real data. Specify the factors, the levels and interpret the results obtained by applying two-way ANOVA.
   Perform the post-hoc analysis using the appropriate t-tests (this analysis must be performed, even if the result of ANOVA indicates no differences in your data, just for the sake of practice). For two of the groups in your data, perform in addition a permutation test and comment on the result (compared to the t-test).

2. Linear regression model for **at least 2 causes**:
   – choose a dataset (**any real data**, except for Longley and house_sales.csv presented in Lab 6-7).
   – build the model and analyze it (ANOVA, goodness-of-fit – analysis of the residuals).

The project will consist of two parts:

1. implementation (preferably in R, but Python is also allowed). **Attention:** you should not insert any comments that explain your code;
2. a written document, where you mention the steps that you follow: describe the datasets, interpret the results returned by different functions that you use, argue for the steps that you follow; for linear regression – the ANOVA analysis, the goodness of fit analysis etc. (between 2-10 pages).

Attention: you must indicate the source of the datasets. Also, all the resources (on internet, books) that you consult for the project must be cited (including for the code).

You must work individually for the project.

You must present your project in order to be evaluated. The planning for the presentations will be available on Moodle and MS Teams after June 15th (30 minutes for each student).

Marina Cidota

26.05.2021