**STAT 250 – PROJECT GUIDELINE**

In this project, you are expected to apply techniques that you have learned in this course. To do so, you can work on one, two or three different data sets. Please make sure that the datasets are about similar topics, such as two or three datasets from the field of chemistry or medicine.

**About Groups and Datasets:**

1. Construct your project teams of 2 or at most 4 people. Please, pick one of your team members as a corresponding member. That corresponding person will be responsible for the communication between team members and us. However, all other works of the project should be done by all members of the team with equal contribution. The corresponding person should send the names, surnames, and numbers of the team members of your group to Pelin by email (pelinerk@metu.edu.tr) by the deadline.

**Deadline: March 1 at 5 p.m.**

***If you don't have any groups, please email pelinerk@metu.edu.tr. Then, we will assign you to a group.***

1. You can use some real-life datasets that can be found in the literature. However, please make sure that the analyses should be conducted from your side. Do not copy and paste the existing analyses from known literature data. This will be checked through the TURNITIN program.
2. Your data should have at least five (5) continuous variables together with some categorical and discrete variables. The data should have at least 50 observations. If the data set is very big, you can use a randomly chosen subset of it.

**About Analysis:**

Start to work on the data set.

1. Perform exploratory data analysis (use some descriptive statistics, and visualization tools)
2. Apply the necessary statistical methods and approaches for inference based on your data set.

* Write research questions and propose statistical methods that you will use to answer these questions. Please check all assumptions of the proposed method. If all assumptions are satisfied, then perform the analyses by using the proposed methods.
* If the assumptions are not met then propose a solution and implement your solution proposal.
* **Interpret all results of all analyses in detail.**

1. All the analyses you need to think about and apply in this project are as follows.
   1. *INFERENCES ABOUT MEAN (One sample hypothesis testing)*
   2. *COMPARISONS OF MEANS (Two-sample hypothesis testing)*
   3. *INFERENCES ABOUT PROPORTIONS (One sample hypothesis testing)*
   4. *COMPARISONS OF PROPORTIONS (Two-sample hypothesis testing)*
   5. *SIMPLE AND MULTIPLE LINEAR REGRESSION*
   6. *ONE-WAY or TWO-WAY ANOVA AND MULTIPLE COMPARISONS*

**About Report:**

For this project, you will prepare a report. The steps you need to do consist of the following parts:

**To submit this project,**

1. Aggregate all of your woks in a report according to **“Stat 250 Project Report”** (It is in the **“Stat 250 Project”** file in ODTÜClass). This report should include everything, cover page, introduction, analysis, results, conclusion, comments in details and more if you want. ***Please DON’T add R/Python codes into the report directly or as an appendix****.*
2. Save this report as a pdf file which you complete it. The corresponding **person should upload it to ODTÜClass, other members don’t need to upload any file!** **Please change the name of the file to “Stat 250 Project Report Group X”, instead of “X” write your group number. After your groups are announced, your group numbers will be sent to you.**
3. Please check your similarity index which you will get after submitting your report to ODTÜClass. Your similarity index should be ≤ 20%.
4. **PLEASE DON’T SEND ANY OF THESE FILES AS AN E-MAIL!**
5. **Add all the references you used for this project. Do NOT forget to add your data sources, as well.**

**Important note 1:** Please note that, while writing project reports, articles, proposals, thesis etc., it is not OK to directly copy-paste a material even if you provide a reference. If you are using more than 3 consecutive words from a source, you need to give it in quotes (“ ”) and provide the reference.

**Important note 2:** Follow the report guidelines given to write your report.

**DEADLINE:**

**The project report should be uploaded to ODTÜClass until June 14 at 5 p.m.**

**Do your best!**