Exercise Session 2.1

We will use the sound, prices and machines data to familiarize with the basics of a data analysis in SPSS through obtaining the results from the second theory session.

Before we start, download the data files (sound.txt, prices.txt, machines.txt) to your hard drive.

Open R and the R script. Follow the instructions in the script.

Exercise Session 2.2

The radiation leakage of a wireless device is measured under different operational conditions. The radiation is measured when the device operates on different transmission frequencies, the radiation is measured from different angles and from different distance with respect to the device. If the device is well designed, the operation frequency nor the angle should significantly influence the radiation readings. The radiation should drop if the distance increases.

Perform a preliminary analysis on the dataset radiation.txt. The main goal is to define a proximity perimeter where the device leaks radiation.

1. Show that angle (variable name Angleo) has no significant effect on the radiation (variable name MeasuredSignalmV). Repeat for frequency (variable name FrequencyMHz).
2. Reveal that radiation decreases as a function of the distance (variable name Distancemm).
3. Determine based on the distance a perimeter from which the amount of radiation is considered safe.
4. Which assumptions do you make regarding the conditions of the ANOVA?
5. **Extra**. Use the TBAD data to solve the following exercises.

* Do a one-way ANOVA to compare the years of experience of all specialties.
* Do a multi-way ANOVA to compare the years of experience of all specialties and gender.

1. **Extra**. The Flemish Institute for Healthy Living (Vlaams Instituut Gezond Leven - VIGL) formulates a number of health recommendations and tips for youth, adults and the elderly. For example, the VIGL recommends that adults aged 18 to 64 do at least 150 minutes of aerobic exercise of moderate intensity every week. A survey is carried out to determine whether the Fleming complies with this and where there are any differences between certain population groups. The survey examines age, gender (female, male), bmi (low, normal, high), profession (none, sitting, standing) and children (none, "one or more"). Data can be found in health.txt. Explore several two-way anova models with interaction, and multi-way anova models (with pairwise interactions).