**1.** From the data set "data" extract information you need and save it as "gapdata":

- you need only data of 2007 and all the continents except "Oceania" (instead of the including "==" operator that can help to select continents you need, you can choose the excluding"!=" operator that is opposite, when you don't want to include "Oceania" only).

- you need only columns “continent” and “lifeExp”.

**2.** Formulate your research question and null hypothesis, what would you like to test there?

**3.** Check the size of your sample. Is it large enough?

**4.** Check normality of the numerical variable. Use both analytical and graphical ways.

Do you meet the normality assumption?

**5.** Check normality of each group in the categorical variable.

Do you meet the normality assumption?

**6.** We failed the normality assumption. Which test should you perform instead of ANOVA?

Which assumption is needed to be met? Check this assumption.

**7.** Perform the test. What conclusion can you make? Do you reject or accept the null hypothesis?

**8.** You want to check between which groups this difference is significant using a Post-hoc test. Which test should you perform to check it?

Perform the test. Build the box plot. Does the box plot demonstrate the Dunn's test output?

**9.** If you have time, perform all the steps but instead of life expectancy choose the population ("pop") variable.

Check list

|  |  |
| --- | --- |
| Null and alternative hypothesis  (H0 and H1) |  |
| **Assumptions for ANOVA/ Kruskal-Wallis Test:** | |
| Independence of observations | yes |
| Sample size |  |
| Normality of the whole numerical variable |  |
| Normality of each group |  |
| Similar variance between the groups  (for ANOVA) |  |
| Similar distributions between the groups (for Kruskal-Wallis) |  |
| Test to perform: |  |
| Post-hoc test to perform: |  |
| Conclusion: |  |