Lehrstuhl für Medieninformatik
Institut für Information und Medien, Sprache und Kultur
Universität Regensburg

Interaction Technology and Techniques
Assignment 3: Analyzing and Visualizing Experiments

Summer semester 2016

Submission due: Wednesday, 11. May 2016, 23:55

Hand in in groups of max. two.

Note: As this assignment is significantly less work than the previous and following ones, you will only receive nine points for it (i.e., its weight in the final grade is lower).

Goals of this assignment

- get more comfortable with Python, the iPython Notebook, numpy and matplotlib
- fix limitations in your initial study design and code, and collect a new dataset
- conduct analysis of your experimental data and document the results

3.1: Adapt and re-conduct the experiment from the previous assignment

Improve on your previous study design, change the code of the experiment software where necessary and conduct the same study again (see previous assignment for details).

Hand in the following file:

changes.txt: a very short documentation of the changes you made compared to the previous study, including a reason for each change.

Points

- **1** The report has been submitted.
- **2** The report shows that and how you improved on your previous design.

3.2: Analyze your experimental data

Have a look at the code examples in GRIPS. Create an iPython Notebook that contains the complete analysis and visualization process for your experimental data.

In particular, your notebook should contain the following parts:

- a title (markdown cell) "Reaction Time Analysis"
- a brief description of your experiment, containing the most important details about setup and participants (for an example of how and what to document about your study, see the paper linked in GRIPS).
- code which imports the raw data from a CSV file and extracts the relevant data for further processing (the CSV file should be in the same directory)

- sensible headings that describe what happens in the following lines
- scatterplots showing reaction times for each of the conditions and for all conditions combined (color-coded).
- boxplots and t-test results
- a brief discussion of the most noteworthy results

Hand in a file **reaction_time_experiment.ipynb** and one or more CSV files (**data.csv or data1.csv … dataN.csv**) which must be in the same directory as the iPython notebook.

Points

- **1** The iPython notebook has been submitted, is not empty, and does not print out error messages.
- **2** The notebook correctly reads the data from the file(s) and outputs the required visualizations
- **1** Visualizations are self-explaining and easy to read.
- **1** The notebook is well-structured and generally follows the Python style guide (PEP 8).
- **1** The results are discussed in sufficient detail and clarity.

Submission

Submit via GRIPS until the deadline

All files should use UTF-8 encoding and Unix line breaks. Python files should use spaces instead of tabs.

Have Fun!