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

Interaction Technology and Techniques
Assignment 6: Text Input

Summer semester 2016

Submission due: Monday, 30. May 2016, 23:55

Hand in in groups of max. two.

Draft! - further details for 6.3/6.4 will be discussed in the session on 24.5.2016

Goals of this assignment

- get an overview of the state of the art in pointing / text entry research
- learn more about QT signals and slots
- get some more experience with PyQt and graphical applications
- learn how to design a novel interaction technique
- perform a small experiment

6.1: Get an overview of current research in text entry / pointing

a) Read MacKenzie, I. S., & Soukoreff, R. W. (2002). Text entry for mobile computing: Models and methods, theory and practice. Human-Computer Interaction, 17, 147-198.[1] and provide a short summary (1000-2000 characters) of the paper, focusing on practically relevant topics.

b) The CHI conference is the most important annual scientific conference in the area of human-computer interaction. Watch the CHI 2016 showreel[2] and find three examples of research on novel interfaces or interaction techniques for text entry or pointing. Find the papers online and provide a short summary of each (max. 5 lines) in your own words.

Hand in the following files:

mobile-text-entry.txt: a plain text file containing a summary of the MacKenzie & Soukoreff paper.

chi-2016-research.txt: a plain text file containing short summaries of three papers from CHI 2016.

Points

- **1** Files have been submitted and are not empty
- **3** good, interesting summary of the MacKenzie & Soukoreff paper.
- **3** good, concise summaries of the CHI papers

[1] http://www.yorku.ca/mack/hci3.html
[2] https://www.youtube.com/watch?v=dUDHQNuCKWQ

6.2: Design an implement a tool for measuring text entry speed

Implement a tool that allows for measuring and logging typing speed (i.e., a window with an editable textbox).

- download the example file textedit.py and adjust it.
- test data should be logged to stdout (not to a file) in CSV format (see http://www.cse.yorku.ca/~stevenc/tema/ for best practices of logging such data).
- the application should measure how long it takes to write a sentence (delimited at the end with a newline) and each individual word. Find out how to best define *beginning/end of word/sentence* (and when to start/stop measuring the time).
- you do not need to log typing errors for this assignment
- log appropriate data for the following events (indicate which event you are logging as the first field in the log data):
  - key pressed
  - word typed
  - sentence typed
  - test finished (all sentences typed)
- informally test whether your tool works as expected

Hand in the following file:

text_entry_speed_test.py: a Python/PyQt script implementing a typing speed test.

Points

- **2** Script conforms to PEP8, is well structured and includes comments
- **2** Script works as expected
- **2** Script outputs sensible and valid CSV data

6.3: Design and implement a method for chording input

Extend the tool from assignment 6.2 to enable a novel input method: if the user simultaneously[3] presses multiple keys, they act as a *chord* and produce a single word (or multiple).

- chords should be available for the most common German or English words (choose one language)[4].
- find sensible associations *chord -> word* and discuss trade-offs (e.g., which chords to use for "das" vs. "dass")
- implement the input method as a separate, exchangeable module (e.g., as a QT input method - see next session)

Hand in the following file:

chord_demo_test.py: a Python/PyQt script implementing the aforementioned input method.

Points

TODO

6.4: Evaluate and document your input method

Conduct a user study comparing the performance of your novel input method to unenhanced keyboard input. Create a short presentation (PDF, ~10 slides) describing your input method and its evaluation. Prepare to present your results in the session on 31.5.2016.

[3] i.e., multiple keys are pressed at the same time

[4] see e.g., https://de.wikipedia.org/wiki/Liste_der_häufigsten_Wörter_der_deutschen_Sprache

Hand in the following file:

chord_input.pdf: a slide set containing a thorough description of your input method, including design decisions and limitations, technical implementation, and results of your evaluation.

Points

TODO

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!