JOENSUUN YLIOPISTO
Tietojenkäsittelytieteen laitos
Usability Engineering / Käytettävyystekniikat

EXERCISES 4, Week 6

10, 11: **X task: TAP analysis**

Think aloud protocol analysis

Last week you transcribed a short section of think aloud protocol. If you don't have now all sentences with a proper timestamp, process your data so. Aim at having short sentences per each row.

a. Create a protocol capturing your multiplication of 57683 x 57683 in the school way:

```
      57683
      57683
      -------
     173049
    461464
 …… and so on.
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3 327 328 489
```

The protocol would then start, (only as an example):
0: 00 I begin with the last digit
0: 03 3 times 3 is 9, 3 times 8 is 24
0: 08 I write 4 and carry 2,
0: 13 3 x 6 is 18 and 2 is 20, I write 0 ……..
0: 18 ….

….till you obtain the final result. You can obtain the timing by recording yourself on a microphone (mobile phone, e.g.), and replaying it back.

b. To perform the coding and analysis of the data, for both protocols (yours and **Arthur Benjamin's**), count the number of times of: *addition*, *multiplication*, *carry*, *writing down a number* (four categories). Using a spreadsheet program, Matlab, SPSS, or other tool or hand:
    1. Create a timeline showing when each operation appears (e.g. a scatter plot, X coordinate time, Y coordinate category), for each of the two protocols
    2. Create a bar graph showing the proportions of the operations in the protocols. You can obtain the proportions by dividing the number of each of the operations by the sum of all (e.g. "number of carry = 10"/"number of all operations found in the protocol=100" => 10%).
    3. Compare the two protocols using the information in the charts.

In order to complete the exercise, you have to email your answers by midnight before the demos to Roman Bednarik (firstname.lastname@cs.joensuu.fi), subject: UE demo 4. Take a hard copy of your answers with you to the demo, too.

12: normal task

Read the following short paper from Donald A. Norman: There's an Automobile in HCI's Future. ACM interactions, Volume 12, Issue 6, 2005. http://doi.acm.org/10.1145/1096554.1096584 (you need to use JoY computers)

Why does Norman think that there is HCI in automobile future? Where else do you think shall HCI be involved in the future?

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Read the following short paper from Donald A. Norman: Trapped in a Lufthansa airline seat. ACM interactions, Volume 13, Issue 2, 2006. http://doi.acm.org/10.1145/1116715.1116745 (you need to use JoY computers)

Is there HCI in the future of the usability of flying? Why? Would you like to fly in such a business class seat? Why?