THE UNIVERSITY OF AUCKLAND

FIRST SEMESTER, 2013
Campus: City

COMPUTER SCIENCE
&
SOFTWARE ENGINEERING

Human Computer Interaction

(Time allowed: 50 minutes)

NOTE: Answer ALL questions.

This test contributes 15% to your final grade.

Write your answers **legibly** on this paper.

Overflow space is available at the end of the test paper, indicate at the end of the original question if you are using overflow space.

Question	Out of	Marks
1	10	
2	7	
3	9	
4	9	
TOTAL	**35**	

Name:	UPI:	ID:

1. Short Answers

[10 marks]

Fill in the blanks with one or two words each.

a) The type of error where the user understands the system and goal, and correctly formulates their action, but makes an incorrect action anyway is called a ____slip_____; these types of errors indicate that you should redesign the interface to make the task easier to execute.

b) A proportion that occurs in nature, has been applied in architecture and is widely thought to be inherently pleasing is called the ___golden mean____.

c) In a practical way of measuring screen complexity, the number of horizontal alignment points and the number of vertical alignment points each add ___equally_____ to the screen complexity score.

d) The Framework for Design Principles dictates that users need to get through the _Learnability___ barrier to achieve effectiveness and usefulness from the user interface.

e) Key principles of Interaction Design for efficiency and usability are __simplicity____, memorability, predictability and visibility.

f) In Donald Norman's Action Cycle, he describes the difficulty in comparing what happened in the 'world' to what we wanted to happen as the Gulf of __Evaluation_____.

g) Anyone familiar with an automobile is likely to perceive that a steering wheel has an ___affordance____ as a control for turning.

h) In a hierarchical task decomposition, ___plans___ indicate the order and conditions for proceeding with the sub-tasks

i) In Conceptual Design, __personas____ are archetypes of actual users, defined by the user's goals and attributes.

j) The ACM Special Interest Group on Computer-Human Interaction defines *Human-Computer Interaction* as the discipline concerned with the design, _evaluation__ and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.

_____

2. **Design**

(a) Brainstorming is a great activity, particularly early in the Conceptual Design stage of a project. Briefly describe two key helpful points about using brainstorming as a design method.

[2 marks]

(i) ___Minimize critical thinking (any idea is good enough to write down)_____

(ii) ___Make use of storyboarding (comic strip or any sort of diagramming)____

(b) Card sorting is a useful Conceptual Design method for discovering user-centred groupings.

[2 marks]

(i) Describe one key use of card sorting:

__Define groupings for menus (and/or controls or Web page content)_____

(ii) Describe one potential disadvantage of card sorting:

__Only involves elements written on the cards (i.e. what you've already thought of)__

(c) Low-fidelity prototypes, especially paper prototypes, are a great way to initiate Physical Design of the user interface. What are 3 main criteria for a successful low-fidelity prototype?

[3 marks]

(i) __Easy and inexpensive to make_____

(ii) __Flexible enough to be changed and rearranged_____

(iii) __Complete enough to yield useful feedback_____

_____

3.   Usability heuristics

Consider three of your favourite of Nielsen's 10 heuristics for user interface design. In the context of an exercise tracking application like Endomondo, discuss how each of these heuristics can be relevant for identifying usability issues. You don't need to name specific usability problems of Endomondo or any similar application, just describe for each heuristic some of the sorts of functions where problems relevant to it might arise and the sorts of problems you'd be looking out for. Describe two potential function/problem pairs for each heuristic.

[9 marks]

Heuristic 1: ____Visibility of System Status_____

    Function/Problem 1: ____Logging a run / not able to see that entry was accepted__

    __after pressing submit/OK button_____

    _____

    Function/Problem 2 If a search retrieves no results (e.g. all your runs over 20km

    and there were none) then show 'No logged runs matched this search' – not just blank

    _____

Heuristic 2: ____Match between system and real world_____

    Function/Problem 1: _____Use of unfamiliar jargon for display reviewing___

    _logged exercises (e.g. saying 'BMR' without explanation in calorie graph)_____

    _____

    Function/Problem 2: _____Lack of convenient function for plotting progress in

    running distance and speed (i.e. a feature that's likely to be popular)_____

    _____

Heuristic 3: ___Error prevention_____

    Function/Problem 1: _____Can enter invalid dates when logging a run_____

    _____

    _____

    Function/Problem 2: _____Can omit required fields when submitting a run log entry

    E.g. could leave off run distance (of course, not making it required would be

    another way to prevent the error!)_____

                              _____

4. Discovery Phase

A university is going to redevelop their in-house software to improve the user experience over the current version for students doing online enrolment. You've been contracted to support analysis of the problem domain to discover HCI issues and requirements. (Note: this is *not* a university where you yourself have studied – i.e. you're not yourself already familiar with how the system works or what the students would want.)

(d) Who do you anticipate to be some of the key stakeholders?

[3 marks]

(i) Primary: ____Students_____

(ii) Secondary: __Staff, Administrators_____

(iii) Indirect: ____Heads of Departments, Senior Admin_____

(e) Briefly describe the approach you will take to collecting information by:

[6 marks]

(i) Direct Observation: __Watch students attempting to use current system (ethnography)_____

_____

(ii) Direct Elicitation: __Interviews and/or focus groups with students _

_____

_____

(iii) Indirect Elicitation: __Write and circulate a questionnaire about key features desired in new system, review the procedure manual and ask a set of _____ _students to keep a log of their system usage experiences_____

END OF TEST QUESTIONS – OVERFLOW PAGE FOLLOWS

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OVERFLOW PAGE

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