THE UNIVERSITY OF AUCKLAND

FIRST SEMESTER, 2012
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	9	
2	10	
3	6	
4	10	
5	8	
6	5	
7	6	
8	6	
TOTAL	**60**	

Name:	UPI:	ID:

1. Usability evaluation

a) We classify human errors as either slips or mistakes. Describe the characteristics of slips and mistakes.

[2 marks]

1 mark each

Slip: understand system and goal, correctly formulate action, but make incorrect action
Mistake: May not have the right goal

b) Fixing a mistake often requires a better understanding of the system. Describe two ways we can increase our understanding of the system.

[4 marks]

Could be any of a large number of approaches, 2 marks for short description of any of the following:
- Usability studies – or more specific, e.g., think aloud
- Heuristic evaluation
- Prototypes – or more specific, e.g., lo-fi

c) Looking at the screens below suggest some measures we could record to understand the full extent of errors that users might make with the system.
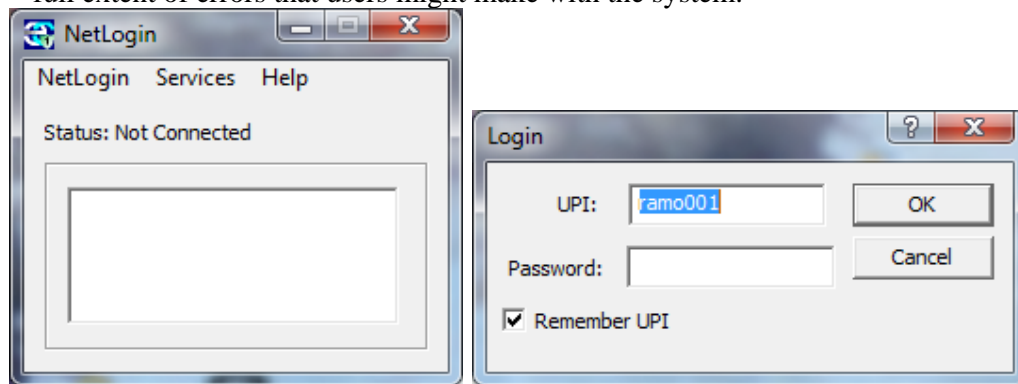
[3 marks]

1 mark will be specifying % of incorrect logins, but looking for them to identify that just a one-dimensional measure is not particularly useful, so could also consider time to error, # who fail twice in a row, etc.

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2.   Scenarios

In Assignment 2 you developed scenarios for the *project manager* functions of the application. Consider the functions required by the **tradespeople** and detail a scenario (including PACT analysis) for locating a new snag (e.g., a leaky faucet) and navigating to where the snag is located. This is a scenario which will be assigned to a tradesperson (e.g., a plumber) who is on site.

[10 marks]

Scenario should have a structure as below, 1 mark for an understandable name and each item that is correct in PACT analysis. Up to 5 marks for the description.

Name: Locating and navigating to a snag

People: Tradesperson
Activities: Using smartphone application to find and the tradesperson guide towards a snag
Context: On site as an independent activity
Technology: Smartphone

Description:
Expect some context to the start of the scenario, location, and what is currently happening in the project. Should describe a process of running application to find new snag(s) assigned to be worked upon, identifying a snag that the tradesperson wishes to get to, and how they navigate through to that snag as the completion of the process/scenario.

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3.   Understanding stakeholders

Both guest lecturers (Telecom and Orion Health) discussed approaches to gaining stakeholder engagement in the development of their products. Select two approaches mentioned by the guest lecturers for collecting information from stakeholders. Describe briefly what occurs in each information collection approach. Then describe the strengths and weaknesses of each of these two approaches.

[6 marks]

There were four approaches mentioned by the guest lecturers:
Prototyping in an agile process
Interviews
Master/apprentice
Observation

I'd give 1 mark for identifying one of these approaches, 1 mark for a short description of the approach and 1 mark for a couple of strengths and weaknesses.

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4.   Heuristic evaluation

Imagine you are visiting Hoyts' site to see what new movies will open next week for your planned birthday bash. The entry screen of the Hoyts site is as below. Perform a heuristic-based evaluation of the usability of this entry page for this function (based on Nielsen's 10 Usability Heuristics).

[10 marks]

_____
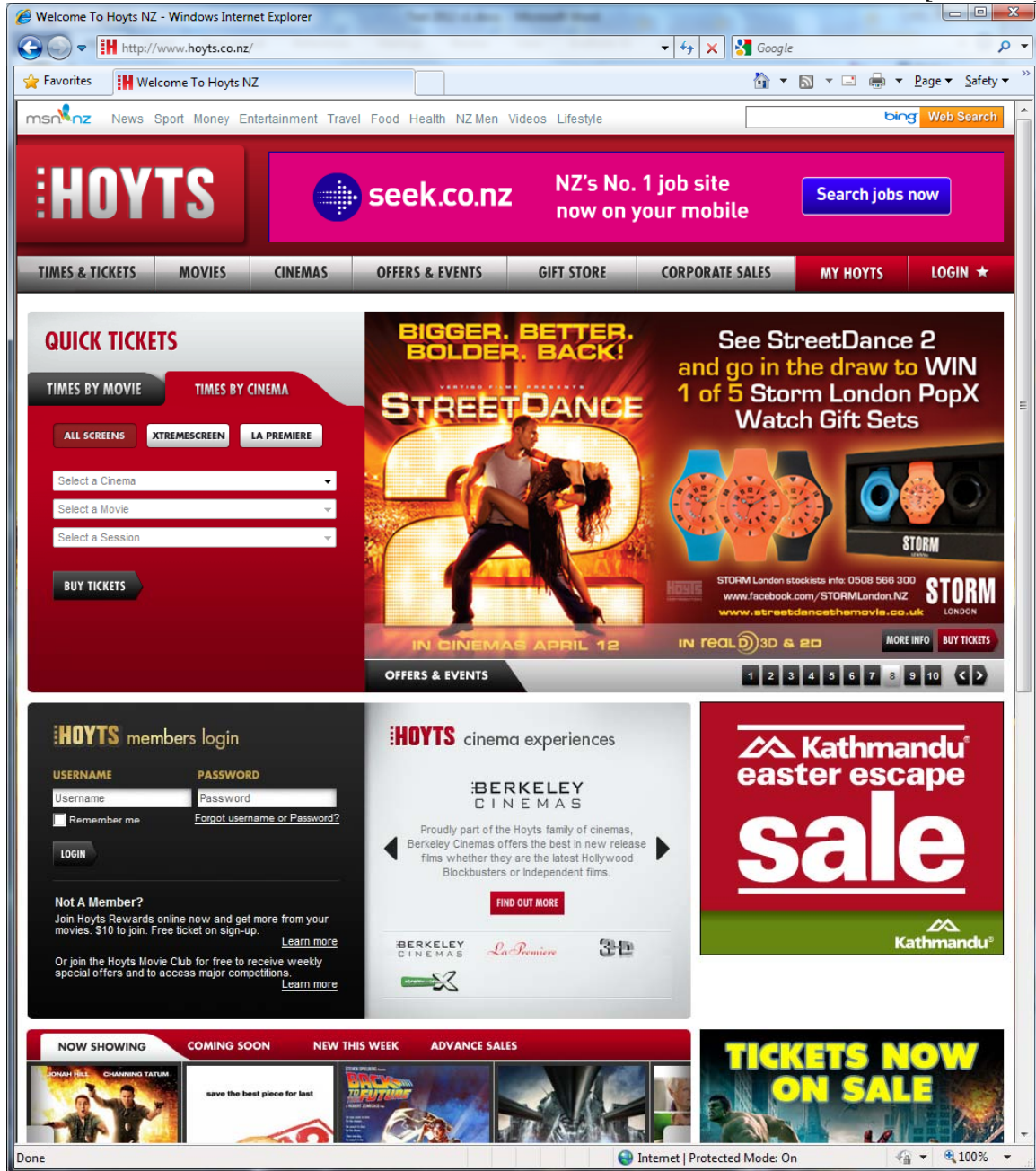
Visibility of system status: Not really seen in this screen apart from everything loaded and browser saying Done at the end of the screen.

Match between system and real world: Language used in screen is generally suitable for the audience, screen laid out in a natural order. Use of some unusual terms 'Xtremescreen' and 'La Premiere'.

User control and freedom: Only navigation supported.

Consistency and standards: Using standard link conventions, tab placement and conventions being followed, buttons and arrows all fairly standard. Search box is not in a standard place.

Error prevention: Pretty controlled input to manage errors (all pull-down lists)

Recognition rather than recall: Functions pretty much all visible and named, so very little recall required.

Flexibility and efficiency of use: Not really seen in this screen. Login may indicate that personalised interaction is supported to some extent.

Aesthetic and minimalist design: A rather cluttered screen with competing information. It also requires more than one screen to view all the information on the page.

Help users recognise, diagnose, and recover from errors: Not seen in this screen.

Help and documentation: Links to 'More info' and 'learn more', but no 'Help' link visible.

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5. Design principles

Look at the webpage below which is taken from the Telecom website. Indicate which design principles are being used in the webpage and where these are evident in the webpage.

[8 marks]

2 marks for each/any of the principles below with a short explanation, up to a max of 8 marks.

Comprehensible, increased by using simple/single word commands for major functions
Learnability, eased by making majority of functionality visible
Effective/useful utility, increased by making majority of functionality visible on this page
Effective/useful safety, increased by utilising navigation for majority of functions
Effective/useful flexible, pervasive search as well as navigation
Efficient/usable constraints, using navigation for most functionality

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Efficient/usable conventions/symbols, recognisable symbols used beside command/function names, use of standard icons for other applications (twitter, etc)

Efficient/usable predictability, use of consistent colour for active functions

Efficient/usable consistent, active functions in same colour throughout page

Efficient/usable familiarity, standard page layout for web, conventions for menus, tabs, etc followed

Efficient/usable location, standard location for major functions, company home/logo, search, tabs, support links at bottom, etc

Efficient/usable visibility, majority of functionality visible in this page

Stimulus intensity, use of bold colours in lines to draw attention to menus/tabs/etc

Proportion, use of larger and smaller text to indicate importance of test on page

Screen complexity, fairly high, but use of common horizontal and vertical alignment to help reduce complexity

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6.   Identifying stakeholders

For the following website from the Steel Construction Institute list the stakeholders for the site in each of the four categories discussed in lectures.

[5 marks]

1 mark each except for secondary where there can be 2 marks if they identify more than one secondary stakeholder.

Primary: Steel construction sector
Secondary: Advisory desk; Consultants; Journalists
Facilitator: IT support; Design team
Indirect: SCI management

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7. Interface style advantages

Imagine that you want to order a pizza using a smartphone-based application. Discuss the advantages of a Natural Language interface (e.g., voice recognition) versus a Form Fill-in interface for this task.

[6 marks]

Natural Language interface (3 marks for at least 2 advantages)
Can be used in almost any lighting condition (e.g., poor lighting doesn't affect the interface)
Easy to learn to use for general population/beginners
Can provide a flexible process for ordering (not a fixed pathway to the order placement)
Doesn't require much screen acreage
Can be used in hands-free mode (voice interface), for example when driving a car and ordering

Form Fill-in interface (3 marks for at least 2 advantages)
Linear navigation through ordering process
Can control input to be valid values
Require a small amount of memory/processing to generate
A well understood metaphor for making an order
Collects a lot of information in a small space

8. Interface style affordances

Consider the affordances of Question and Answer interfaces (e.g., a Wizard) versus Menu-based interfaces. Specify environments and tasks which would be better suited for each of these interface styles.

[6 marks]

Question and Answer interface (3 marks for at least 2 advantages)
Tasks which have a prescribed/linear pathway to the result
Tasks which need to gather information from users to determine the result
Environments which are to be used by novice users/beginners
Environments where there is limited memory

Menu-based interface (3 marks for at least 2 advantages)
Tasks where set of choices is small and constrained
Tasks which are accessed infrequently, so can reduce need to memorise/recall
Tasks which are self explanatory and/or a single pathway through the task
Environments where there is limited screen acreage and/or memory
Environments which are to be used by beginners as high affordance of menu-based interface

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