TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

EXAMINATIONS — 2005

END OF YEAR

COMP311

User Interface Design

Time Allowed: 3 hours

Instructions: There are two parts to this exam.

You must answer all questions in both parts.

Use separate answer booklets for each of the two parts, and clearly label answer booklets either Part 1 or Part 2.

Total marks are 180.

You should use the number of marks allocated to a question as a guide for how many minutes to spend answering the question.

Calculators are not permitted. Paper dictionaries for translating between English and a foreign language are permitted.

The marks allocated for each question are:

Part 1

Question	Description	Marks Allocated
1	Usability	35
2	Personas	15
3	Use Cases	40

Part 2

Question	Description	Marks Allocated
4	Visual and Interaction Design	35
5	Evaluation Without Users	15
6	Evaluation With Users	40

PART 1

Answer parts 1 and 2 in separate answer-books.

Question 1. General aspects of usability

[35 marks]

(a) [5 marks] Compare and contrast **efficiency** with **learnability**.

(b) [5 marks] Describe what **user satisfaction** means as a principle of usability.

(c) [5 marks] Discuss this usability slogan: *Less is More.*

(d) [10 marks] In the lectures we identified four important facets of help. Compare and contrast a **physical user manual** with **tooltips** using the four facets.

(e) [10 marks] One usability slogan is **Help doesn't**. If help doesn't, then why is **help and documentation** a heuristic used in Neilson's heuristic evaluation? Discuss.

Question 2. Personas

[15 marks]

John Carroll and Alan Cooper have proposed *Personas* — concrete descriptions of imaginary users — that are used as alternatives to User Roles. For example, a Persona could begin:

> *Tama is a 64 year old Tongan man. He grew up in Tonga and moved to New Zealand when he was 40. He is currently retired, but used to be a mechanic...*

Compare and contrast Personas with User Roles? What are the advantages and disadvantages of using Personas instead of User Roles for user-interface and user-interaction design.

Question 3. Usage Centred Design [40 marks]

You have been employed as a high-priced consultant to assist a failing software project. The project is attempting to apply Usage-Centred Design to an electronic voting project.

The software project team members have produced the essential use cases, content model, and navigation map shown below. We have combined the navigation map and the content model to save space — and to avoid putting post-it notes in your exam.

(a) [5 marks] List **five** significant problems with the use cases the team has produced.

(b) [15 marks] Fix and rewrite the essential use cases. You can create and delete use cases as necessary.

(c) [5 marks] List **five** significant problems with the navigation map and content model.

(d) [15 marks] Redraw the navigation map and content model.

You do not need to use post-it notes for the content model — you can write separate navigation map and content model or you can combine the two. Use whichever method you feel the most comfortable with.

Vote for candidate

User Intention	System Responsibility
	show main menu
Select candidate	
	If candidate is the one programmed to win then record vote. Otherwise administer electric shock

Make Appointment

User Intention	System Responsibility
	Show Doctors
Select Doctor	
	Show Free Time
	Select Slot

Vote in Referendum

User Intention	System Responsibility
	Show main menu
Select "Other"	
	Show list of referendum
Select referendum and type "yes" or "no".	
	Print out receipt

Vote for party

User Intention	System Responsibility
	Show main menu on 17" touchscreen display
Select "authenticate myself"	
	Ask user to put finger on fingerprint reader
Put finger on fingerprint reader	
	Verify fingerprint. If person is not eligible to vote then administer electric shock.
Type party into text box and press "submit"	
	Print out receipt

Show current results

User Intention	System Responsibility
Select "Who should I vote for"	
	Show the current results
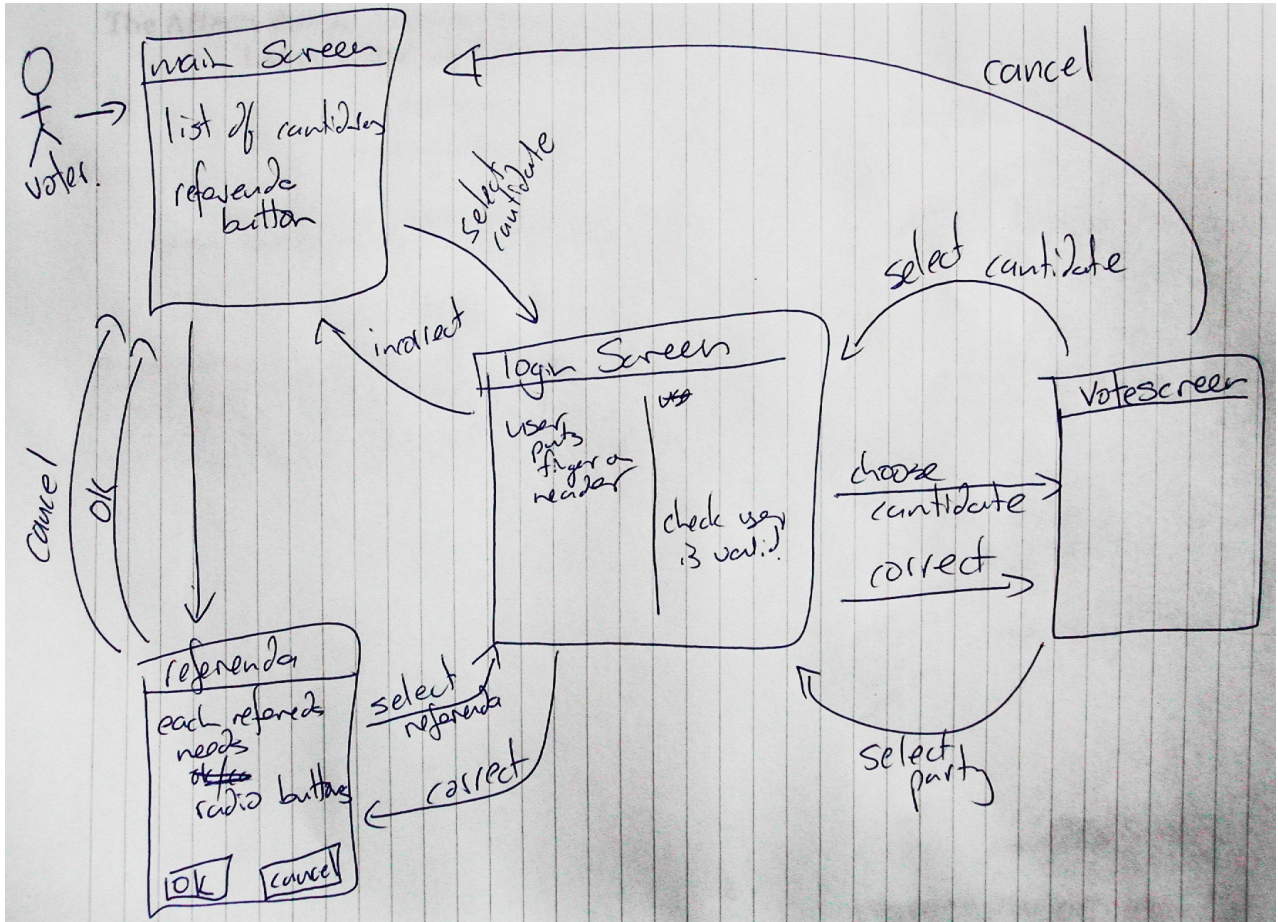
PART 2

Answer parts 1 and 2 in separate answer-books.

Question 4. Visual and Interaction Design

[35 marks]

(a) [5 marks] Define the term *user-interface mode*.

(b) [5 marks] How do modes relate to the use of dialog boxes in handheld computers (PDAs) to indicate errors.

(c) [10 marks] Imagine designing an application for a call centre for a company that supplies home electronics and electrical components (e.g. Richard Smith Electronics Ltd). The application must support call centre employees taking phone orders and arranging deliveries by courier. According to Richard Smith Electronics Ltd, taking an order involves:

1. taking the caller's name, customer ID, and credit card details,

2. determining the items ordered and then the quantities of each item,

3. verification of the delivery address.

Discuss how you should use user interface modes and/or the navigation between screens to structure this interaction.

(d) [8 marks] List and describe Robin Williams' four visual design principles.

(e) [7 marks] Describe how the following interface design follows (or does not follow) each of the four visual design principles.
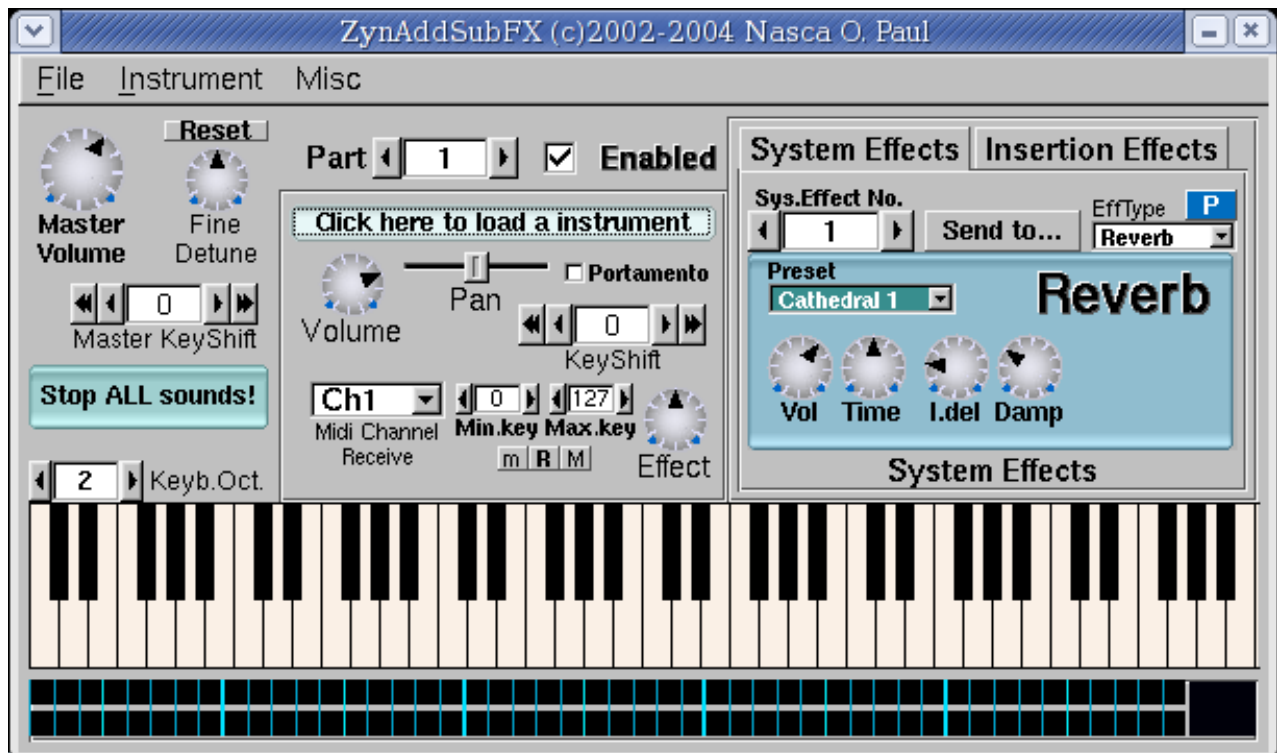
Question 5. Evaluation without users [15 marks]

Two interface metrics are **Visual Coherence** and **Task Concordance**. For each metric, describe the metric and discuss why or why not the metric is useful.

Question 6. Evaluation with users [40 marks]

(a) [10 marks] Compare and contrast evaluation techniques that incorporate users with evaluation techniques that do not incorporate users.

(b) [15 marks] Mela Juice is a small retail and wholesale juice company based near Wellington. They have an existing computer system in their factory that they are having trouble with. Unfortunately, they are too busy to explain what the problems are.

In this course we examined various types of interface evaluations that include users. These were: **ethnographic evaluations**, **field studies**, **usability studies**, and **empirical evaluations**. One of these techniques will help the owner of Mela Juice identify usability problems in their computer system.

Describe each technique to the owner of Mela Juice, and include in your description the advantages and disadvantages of using that technique in the context of Mela Juice. The owner has no technical background.

(c) [15 marks] Recommend one technique to help Mela Juice solve their problem. Describe your rationale for the recommendation and plan the evaluation for Mela Juice.

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