THE UNIVERSITY OF AUCKLAND

FIRST SEMESTER, 2018
Campus: City

COMPUTER SCIENCE
Human Computer Interaction

TEST
(Time Allowed: FIFTY minutes)

- The use of calculators is NOT permitted.
- Compare the test version number on the Teleform sheet supplied with the version number above. If they do not match, ask the test supervisor for a new sheet.
- Enter your name and student ID on the Teleform sheet. Your name should be entered left aligned. If your name is longer than the number of boxes provided, truncate it.
- Answer ALL multiple-choice questions on the Teleform answer sheet provided.
- Use a dark pencil to mark your answers in the multiple choice answer boxes on the Teleform sheet. Check that the question number on the sheet corresponds to the question number in this question/answer book. If you spoil your sheet, ask the supervisor for a replacement.
- This test is marked out of 25 marks and counts for 20% of your final grade.
- Each question is expected to have exactly 1 (one) correct answer. If you believe that a question has either NO or MULTIPLE correct answers, select the ONE you believe is most likely to be the intended answer.
- Two appendices plus pages for working are included at the end of the question/answer book. You may separate these pages if you wish.
- At the end of the test, you must hand in your Teleform sheet. You may keep your question/answer book at the end of the test if you wish.
MULTIPLE CHOICE QUESTIONS

For each question, choose the best answer according to the information presented in lectures. Select your preferred answer on the Teleform answer sheet by shading in the appropriate box in pencil.

Context 1: The Magical Parks app
The Magical Parks app by Geo AR Games was introduced by Melanie Langlotz in her guest lecture. This Augmented Reality app augments a park with a variety of virtual structures and creatures. Children are able to interact in real time with the creatures provided through the app, for example by chasing them around the park.

Question 1
You are working to identify the stakeholders for the app. Who is the most prominent secondary stakeholder amongst the choices below:

(a) The designer of the creatures populating the park
(b) The marketing manager analyzing usage statistics
(c) The client who pays for their park to be augmented
(d) The parents of the children using the app


Question 2
To understand the requirements of the primary stakeholders for an updated version of the Magical Parks app the most effective approach to gain information would be from:

- (a) Direct observation
- (b) GPS tracking of where the users went in the augmented park
- (c) Using Hierarchical Task Analysis to better understand the flow in the app
- (d) A questionnaire of the users

Question 3
You are interested in the primary stakeholders’ ease of learning when using the app. The most effective way to determine this would be:

- (a) A heuristic evaluation focusing on the Match between System and Real World heuristic
- (b) A usability study with open-ended play
- (c) A usability study with a scripted scenario
- (d) A heuristic evaluation focusing on the User Control and Freedom heuristic

Question 4
You are having the instructions for the app assessed using Nielsen’s Match between System and Real World heuristic. For this heuristic, which sentence is least likely to trigger an issue from the usability expert:

- (a) Find all the creatures in the park
- (b) Identify all the types of cats we’ve placed in the app
- (c) The felines are on the loose, catch them if you can
- (d) Have fun with the kittens

Question 5
The incorporation of the large Exit button is an example of the application of:

- (a) Flexibility and Efficiency of Use
- (b) Fitts’ Law
- (c) The Hawthorne effect
- (d) Error Prevention
**Context 2: A persona**
Consider the persona for Kim that has been created for the University of Auckland’s website re-design (see Appendix A).

**Question 6**
The design team are linking personas to the suite of scenarios they have developed. The most suitable scenario for Kim would be:

- (a) Finding the entry requirement for a BSc(Computer Science)
- (b) Navigating the website in Mandarin
- (c) Identifying career pathways from the Masters degree
- (d) News from student clubs

**Question 7**
The websites and brands section of the persona is most useful to:

- (a) Source the correct mobile device for role playing the Kim persona
- (b) Make Kim’s persona seem more real and lifelike
- (c) Modify Kim’s site behavior to be age appropriate
- (d) Search for ancillary information when role-playing the Kim persona

**Question 8**
It is expected that the Kim persona incorporates:

- (a) The average characteristics from stakeholder profiles that were collected
- (b) Demographic information drawn from Statistics NZ census information
- (c) Select characteristics of Asian members of the development team
- (d) Select characteristics of Asian students interviewed when gathering user requirements

**Question 9**
In which of the following processes would it be LEAST useful to use the Kim persona?

- (a) Composing instructions for users for a pilot test of the website test plan
- (b) Performing a heuristic evaluation on the finding alumni stories section of the website
- (c) Interpreting videoed evidence of usability issues on the finding alumni stories section of the website
- (d) Refining the website for the scenario on finding alumni stories
Question 10
When undertaking the PACT analysis for a scenario investigating information about living in Auckland, the context which would best suit Kim is:

(a) Seated at a backpackers free Wi-Fi lounge in Auckland
(b) Seated at an Internet café in Shanghai, China
(c) Seated with her family at home in Shanghai, China
(d) Seated in an airport lounge before flying to New Zealand
Context 3: Screenshot from the Identify New Zealand animals website
In Assignment 1, you assessed the Identify New Zealand animals website. The following questions are related to that website (shown in Appendix B) for identifying an animal in a sequence of pictures.

Question 11
The selection box on the right of the screen, used for identifying animals, is a good example of Nielsen’s heuristic:

- (a) Aesthetic and minimalist design
- (b) Visibility of system status
- (c) Recognition rather than recall
- (d) Help and documentation

Question 12
When you perform a heuristic evaluation of the Identify New Zealand animals webpage shown in the appendix, you would identify the following heuristic as being the biggest issue:

- (a) Error prevention
- (b) Help and documentation
- (c) Recognition rather than recall
- (d) Visibility of system status

Question 13
An outcome from running your usability test with users of the system is that users often make a slip when trying to select the animal from the selection box (as shown in the appendix). The best approach to modifying the interface to fix this would be to:

- (a) Provide a drop down list of animals instead of buttons for each animal
- (b) Remove the text beside the animal icon
- (c) Increase the size of the animal button
- (d) Introduce a confirmation dialogue before going to the detail screen for the animal

Question 14
The Wizard of Oz technique would not be useful for testing an early prototype of this website in most part because:

- (a) Simulating the sequence of pictures would be time consuming
- (b) There is no sophisticated functionality to simulate
- (c) The cost would be prohibitive
- (d) There are too many options that the user could select
**Question 15**
The Hick-Hyman Law tells us that choosing an animal from the selection box on the right of the screen will:

- (a) Take log time due to their ordering
- (b) Be optimal due to the closeness of the animal buttons to each other
- (c) Take linear time due to their ordering
- (d) Be dependent upon recognition rather than recall
**Context 4: A revised paint program**
The toolbar shown below is from Microsoft’s Paint program. You are looking to develop a more efficient program in your company and are using this tool as a comparison to your design.

![Paint toolbar image]

**Question 16**
One of the most complex shapes offered by paint is the multi-sided polygon. The process for creating this shape is to click and drag the first line, and then to click the location for each subsequent line until a double-click signifies the completion and closing of the polygon. You believe that you can create a more efficient process by using a click for each line location and a double click to signify completion, rather than the initial click and drag for the first line.

Draw the State Transition Network for both approaches to drawing the multi-sided polygon. Your analysis of the two STNs is that:

(a) Your new process has the same number of states as the original process
(b) Your new process has fewer states than the original process
(c) Your new process has more states than the original process
(d) The number of transitions is equivalent in both processes

**Question 17**
You evaluate users working with your new tool to understand the *error frequency and severity*. What is of most interest from this analysis is:

(a) The profile of the distribution of errors by users
(b) The percentage of users with more than 10 errors per hour
(c) The average number of errors per hour
(d) The mode of number of errors per hour

**Question 18**
To help ensure that the new program has good memorability of functions we can:

(a) Implement strong error prevention processes
(b) Have pervasive help and documentation
(c) Ensure a strong match between the system functions and real world analogues
(d) Focus on aesthetic and minimalist design
**Question 19**
When developing the test plan for your new program you decide to undertake a pilot test first. This helps give you confidence that:

(a) The research ethics are appropriate for the test plan  
(b) The heuristic evaluation is in line with the usability testing  
(c) The subjective satisfaction with the system will be high  
✗ (d) The usability testing will deliver valid results

**Question 20**
After the initial round of testing you wish to understand the subjective satisfaction of the many test subjects. The simplest way to collect this information is through:

(a) Key-stroke logging of each test user  
(b) Individual interviews of each test user  
✗ (c) A questionnaire administered to each test user  
(d) Recording the think-aloud thoughts of each test user
**Context 5: No Worries Commercial Cleaners**
You’re part of an Auckland based consultant UI design firm. Your firm has been hired to develop an information system for a major provider of commercial cleaning services, called No Worries Commercial Cleaners (NWCC). NWCC has a large team of staff that provide services such as carpet cleaning, office rubbish bin collection and window cleaning to over 100 Auckland area clients including a major University, a large shopping mall and several large office buildings in the CBD. NWCC employs site managers who go out with teams of cleaners to client sites and direct the cleaning, or if the cleaners are already familiar with the job may just provide reminders to the cleaners and periodically visit sites to inspect the work. The new system you’re designing will focus on operational data such as which specific services to provide on which specific buildings (or rooms within buildings) and on what schedule. At present, key data about services agreed with clients is kept as notes by site managers. The quality of these notes is quite variable, and in any case when a site manager quits it can be difficult to provide a smooth transition for the client since key service information (just what to clean and when) may be lost or difficult to interpret. The new system will provide templates for site manager notes and support access and review of the notes by NWCC central management to ensure quality and availability.

**Question 21**
After extensive analysis (particularly interviews with site managers and reviews of their notes) and some conceptual design work, several of your design team members are spending a couple hours devising the general layout of some screens of the new application. A good technique to use in this situation is:

- (a) Whiteboard prototyping
- (b) Cognitive walkthrough
- (c) Creating personas
- (d) Questionnaires

**Question 22**
Your team wants to get feedback on your design from several experienced site managers, each of whom can spare about an hour to meet with your designers at NWCC headquarters. The most effective technique to use in this situation is:

- (a) Cognitive walkthrough
- (b) Review of scenarios against digital wireframes
- (c) Card sort
- (d) Wizard of Oz operation of a paper prototype
Question 23
Which of the following is the least appropriate component for a paper prototype of your design?

- (a) A printout of a menu bar you designed in a drawing application
- (b) A series of neatly hand-drawn and hand-lettered boxes representing a menu
- (c) A series of wavy lines holding the place of site manager notes on a carpet cleaning task
- (d) A post-it note representing a pop-up dialog window

Question 24
Your design includes a screen that has two major modes that can be selected by the user: Edit and Recall. In Edit mode the user can annotate a map with services and schedules (e.g. to designate the carpet in an area for monthly steam cleaning). In Recall mode the user can see the map and easily review the service and schedule information. The efficacy of this design could be criticized in terms of:

- (a) Stability
- (b) Predictability
- (c) Simplicity
- (d) Flexibility

Question 25
Your team has completed a prototype system. Your graphic designer created a top banner for the main screen that includes iconic representations of cleaning tasks: a vacuum, a window cleaning squeegee, and an office waste bin. In user testing some of the site managers attempted to click on these non-functional graphical elements, expecting them to provide access to relevant information such as carpet or window cleaning schedules. The problem here is:

- (a) Affordance confusion
- (b) A failure to provide safety
- (c) Failure to recognize a metaphor
- (d) Poor utility
Appendix A: Persona

Kim
The Confidence Seeker

Kim Needs:
Belonging | Certainty | Courage

Kim comes from a traditional Chinese family, and she has decided to follow in her grandfather’s footsteps as a financial investor. Kim has inherited many of her grandfather’s conservative qualities in her day-to-day life, from financial savviness to fully investigating high-involvement decisions. For this reason, Kim wants to be sure that she will get the most out of her postgrad experience and choose the right University for her needs, both academically and culturally. She has a lot of pressure from her parents to succeed, as they will be supporting her education, and they want to be convinced that the University will provide the best ROI. While global ranking is most important to her, Kim does access the University website to check out activities and videos covering noteworthy accomplishments and alumni success stories. As an international student, she’s also interested in current student stories and information about living in Auckland.

“I want to feel like I’m doing the right thing. Authenticity is key in helping me feel positive and secure.”

Site Behaviours:

Approach to Information
Open | Focused

Relationship with Content
Consume | Share/Promote

Visits the University site
Infrequently | Often

Goals:
- Kim’s primary goal is to validate that she is making the right decisions.
- Kim sees the website as a source of truth and informative, rich content from which she can draw conclusions.

Tech Confidence:

Tech Usage:

Phone | Laptop | Tablet | Watch

Websites & Brands:

Apple | Forbes | Fendi | LG | Tencent | sina

Kim Loves:
Current events, financial news & stocks, fashion and beauty, nail art, dining out with friends, playing with her pomeranian.
Appendix B: Identify New Zealand animals
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You may use it for working, and it will not be assessed