Xday, XX May 2004.

9.30 am - 11.15am

University of Glasgow

DEGREES OF BEng, BSc, MA, MA (SOCIAL SCIENCES).

DEGREES OF Beng, BSc, MA, MA (Social Sciences)

INTERACTIVE SYSTEMS 3:

USABILITY OF WEB-BASED SYSTEMS

(Answer one question from Section A and one question from Section B).

Section A

1.

a) Briefly explain why many Internet users continue to become lost within the pages of a website.

[5 marks]

b) Yahoo uses a fee-based approach to directory listing while MSN uses a mixed approach in which client's sites are promoted about pages that are indexed for free.   Briefly discuss the factors that should be considered in order to ensure the visibility of an ecommerce web site.

[10 marks]

c) You have been asked to help in the design of an e-commerce web site that will be selling cars to members of the general public.   What are the main issues that should be considered when assessing the usability of a sitemap for this e-commerce website?   How would you measure the success of such an interface feature?

[12 marks]

2.

a) Explain the way in which Cascading Style Sheets can support the **external** consistency of a website.

[4 marks]

b) Internal consistency can help users to transfer expertise gained in one part of a site to other areas.   There are, however, situations in which this form of consistency can impair the usability of a web site.   Briefly explain this apparent paradox.

[6 marks]

c) In evaluating the usability of a website, it is important not simply to consider the design of the content that is provided by a server.   It is also important to consider the characteristics and capabilities of the users Internet infrastructure.   Briefly explain why these factors have an impact on usability and explain how designers can consider these effects during the evaluation of a website that is intended to support e-government, for instance through the provision of information about a national health service.

[15 marks]

Section B

 [end]

Sample Solutions
Section A

1.

a) Briefly explain why many Internet users continue to become lost within the pages of a website.

[5 marks]

There are many solutions to this question. Users can become lost in a website through inexperience. This can apply at the most fundamental level in terms of their knowledge of the web and of, for example, URLs.

[Seen problem] They may not know about the support offered by sitemaps and search engines. Inexperience can also affect interaction with the browser or the site itself. If they are unfamiliar with the history functions on the browser then they may find it difficult to get back to a starting point.   Similarly, they may be unfamiliar with the purpose, layout and design of even a well-designed site.   A second class of problems relates less to the user and more to the development of the site itself.   A user may know how to use a site map but may be simply unable to locate the map among the plethora of other links included on a page.   A site may also have an elaborate or confusing architecture in terms of the links between sections and pages etc.

b) Yahoo uses a fee-based approach to directory listing while MSN uses a mixed approach in which client's sites are promoted about pages that are indexed for free.   Briefly discuss the factors that should be considered in order to ensure the visibility of an ecommerce web site.

[10 marks]

[Seen/Unseen problem] There is a range of factors to be considered.   If we look at fee-based services, it is important to consider market share. For instance, in March 2002 the rankings were: 37.0% MSN; 34% Yahoo; 28.9% Google etc.   It is also important to consider whether the indexing service that you pay for is used to drive other search engines.   For instance, in November 2002 Google powered Yahoo (main); AOL; AskJeeves; Netscape etc.   Overture powered a similar rival consortium. Hence by registered with the underlying indexing service it may also be possible to promote the site across a host of other providers. Services such as MSN will also link the position of your listing to the amount that you pay.   In such circumstances, it may not simply be sufficient to list with a provider to ensure that your link will be prominently displayed.   It may also be more cost effective to use a service with a referral charging mechanism.   If you choose to go for a free indexing service then it may still be important to submit your site and also to ensure that you use appropriate design strategies to support indexing. Dynamic page creation may cause problems also the use of META tags is essential…

c) You have been asked to help in the design of an e-commerce web site that will be selling cars to members of the general public.   What are the main issues that should be considered when assessing the usability of a sitemap for this e-commerce website?   How would you measure the success of such an interface feature?

[12 marks]

[Unseen problem]   There is a range of issues to be considered here.   One is the Norman-Nielsen's observation that only 27% of users in their studies even seemed to use a sitemap.   If the sitemap is to play a significant role in improving the usability of the ecommerce site then it must firstly be visible to those accessing the site.   A raw measure of the success of this approach would be to look at the site logs and link the frequency of use of the site map pages to the number of visits.   Further analysis could be done using IP addresses to determine whether access to this page was a significant factor in identifying those customers who went onto make a purchase using the site.   Assuming that users can find the sitemap then a number of further issues arise.   It is important that the terms or other visible features used in the map have some meaning to the user.   In other words, it must be possible for them to use the map to move to their desired area of the site. Success in this could be assessed again with reference to the logs by looking at the number of abandoned or reversed requests each time a user accesses a page from the site map.   The interpretation of this information is more complicated than it might seem if the users browser simply presents a cached version of the site map after the user realises that they have been directed to the wrong page.   A host of other techniques could be mentioned in the answer to this question, for instance, it might be argued that cooperative evaluation or formal lab based studies could be used to assess sitemap usability by giving users particular navigation tasks.   Again, however, it would be important not simply to assume that every user will automatically know how to or want to navigate via the sitemap.   I would hope that some consideration would be given to this particular application domain. Cars are unlikely to be impulse purchases and so the users are likely to spend some time on the site reviewing the products and prices.   Hence, particular techniques might be used to group items in the site map. For example, card sorting can be used.

2.

a) Explain the way in which Cascading Style Sheets can support the **external** consistency of a website.

[4 marks]

[Bookwork, unseen problem] Cascading style sheets help to separate presentation from content. This is important because by changing the style sheet it is possible to radically affect the appearance of a website without going in and editing the detailed content. Normally, we would argue that this supports internal consistency because the style sheets enforce a look and feel within a site. Here there is a slight trick in the question by focussing on external consistency but the answer is easy. You can change the look and feel of the site relatively simply to reflect the techniques being used in other sites. You can even allow multiple formats for the same site hence it is easier to reflect other similar sites.

b) Internal consistency can help users to transfer expertise gained in one part of a site to other areas. There are, however, situations in which this form of consistency can impair the usability of a web site. Briefly explain this apparent paradox.

[6 marks]

[Unseen problem] Internal consistency relates to a common look and feel within an interface. Hence if you know how to operate one area of a site, you can transfer your knowledge of that area to help you learn how to interact in other areas. For example, if the home page icon is internally consistent you will always be able to find it on the page to go back to the home page of the site wherever you are within the site. Problems arise because consistency can be a bad thing. There may be areas of a site where it is important to do things in a slightly different manner. A crude example would be to increase the size of a home page icon or move its location to a more prominent position in areas of a web site where many users lose their way. Alternatively, it may be important to alter the appearance of a site to reflect different user groups. This is appropriate when companies appeal to very different audiences. The style of a record companies page might be altered radically between classical and rock sections. This need not simply be regarded as a marketing gimmick. Greater familiarity with web-based interaction might be assumed in the latter class of users than the former although this would need to be confirmed through observation. Elements of the argument in Grudin's Case Against Consistency could be brought in here.

c) In evaluating the usability of a website, it is important not simply to consider the design of the content that is provided by a server. It is also important to consider the characteristics and capabilities of the users Internet infrastructure. Briefly explain why these factors have an impact on usability and explain how designers can consider these effects during the evaluation of a website that is intended to support e-government, for instance through the provision of information about a national health service.

[15 marks]

[Unseen problem but seen statistics] The users infrastructure plays a critical impact on usability. The most significant issue for an e-government web site would be whether or not users have an Internet link in the first place, either at home, work or in another social setting such as a library. In the US, the last census identified that the proportion of families with 'easy access' was only just passing 50%. Accessibility issues also come into play here. The ability to access the Internet does not imply that users will all be able to access information in the same format. Screen readers etc must be considered in the development of information sources for blind users. Similarly, the difficulties of selection can present significant barriers for other disabled users. A further class of usability problems stem from the network characteristics of the user population. The statistics for US subscribers in 2000 was that 93% of home users have dial-up connections (56.6 kbps) while only 7% have high-speed connections (ISDN equiv.). During the 2nd qtr 2000 14.5 million new subscribers acquired dial up access while only 0.7 million acquired ISDN equivalent services. The key point here is not to assume that all users will have the latest technology hence in network terms this may lead to abandoned requests for large resources or to increasing download times. Similar issues effect the presentation of information. The US statistics for 2002 were that 45% of users had resolutions of 1024x768 or better, 50% had 800x600 and 2% 640x480. I would not expect answers to

include all of these detailed statistics but I would expect a broad understanding of the situation that they reflect.   There is too much hype about the penetration of web access – it is still patchy in the UK and economically stratified to an extent that make e-government a useful edition to convention information sources but probably not a valid substitute.