Information Systems Analysis & Design (M8748)

<u>Tutorial 16 Answer</u>

1. Think of a computerized information system that you use regularly. This could be a library system, an automated teller machine (ATM) that you use to get cash, a database that you use in your work or any other system that you are familiar with. Write down which elements of the interface support the five tasks listed at the start of Section 16.2.1.

    Obviously the examples will vary. A possible ATM solution is as follows.

    Read and interpret information

    Information is displayed on a screen. There are also labels on the machine, for example next to the card slot, showing which way round the card should be when it is inserted.

    Issue commands to the system

    Keys alongside the screen to select options that are displayed on the screen, e.g. Cash with receipt, Mini-statement.

    Enter words and numbers into the system

    Numeric keypad to enter PIN and amount. No need to enter words. Special cancel and enter keys.

    Read and interpret the results

    Some information is displayed on the screen, some is printed out. The ATM may beep to indicate each keypress and to let the user know when their card has been returned, money issued and record printed.

    Respond to and correct errors

    Keypad and buttons allow the user to re-enter PIN or amount or choose another option if one is unavailable.

2. For each of the elements of the interface that you have listed in Question 1, write down your ideas about how they could be improved.

    Obviously the examples will vary. A possible ATM solution is as follows.

    Read and interpret information

    Clarity of wording. One kind of ATM asks the user to enter the amount they want in multiples of £10. One of the authors is often caught out by this and puts in a number like 5, because that's how many multiples of £10 he wants.

    In bright sunlight it is often difficult to read the screen.

    Issue commands to the system

    Keys alongside the screen are often not aligned clearly to the wording on the screen. Depending on how tall you are, some keys may look as though they are aligned with the wrong commands.

Enter words and numbers into the system

Inconsistency. Some machines expect the user to press a key after they enter their PIN, others do not. Needs a standard.

Read and interpret the results

Some machines will take the money back in if you do not take it quickly enough.   So if you fumble to put away your card, your money could disappear.   No warning of this is given. No information is displayed on screen to explain what has happened and what to do next. This kind of information could be provided.

Respond to and correct errors

Some machines return the card straightaway if you cancel a transaction. It is better if, like others, they offer you the chance of another type of transaction.

3.   What is the difference between the dialogue and direct manipulation metaphors?

Dialogue metaphor describes interaction in terms of conversation between user and system involving different kinds of communication. Direct manipulation metaphor represents objects of interest to the user as objects on the screen that they can manipulate through the use of the mouse. Dialogue follows sequence determined by system. Direct manipulation is event-driven, and user can determine sequence of events.

4.   Make a list of direct manipulation metaphors that are used in a GUI that you are familiar with. Are there any metaphors that do not work as you might expect?

Buttons (some stay pressed, some do not—can you tell which is which before you press it?)

Menus (not like the kind of menu most people are familiar with—similar in concept but not in how they are manipulated)

Windows (that lie around on the desktop!)

Scrollbars (some scrollbars in X-Windows behave quite differently from Microsoft Windows and the Mac interface)

Drag and drop (in Microsoft Windows it is not always obvious whether dragging a file will move it, copy it or create a shortcut to it)

The Start button in Windows (what button do you press to stop your computer?)

5.   What are the four characteristics of good dialogues described in Section 16.2.4

Consistency, appropriate user support, adequate feedback from the system and minimal user input.

6.   The figure shows the Yes button in a dialogue highlighted. What do you think is the risk associated with making this the active button by default?
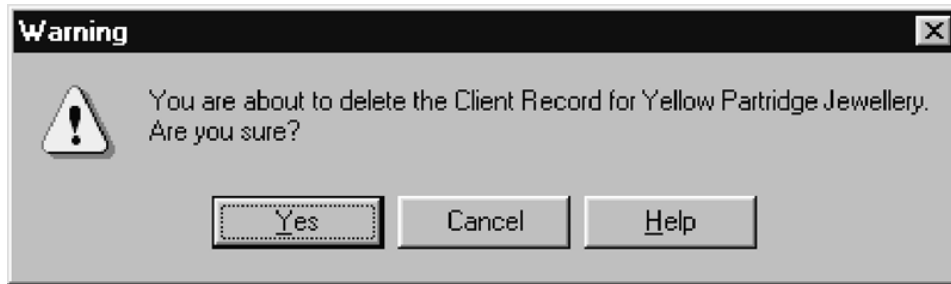
User may hit Return key without thinking and delete the Client in error.

7. For the system that you wrote about in Question 1, note down information relevant to the design factors in the following figure.
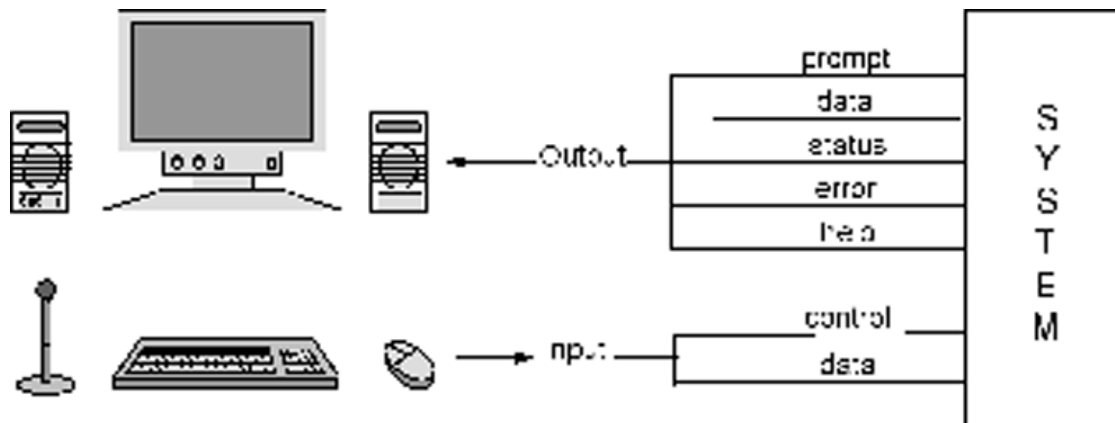
Obviously the examples will vary.   A possible ATM solution is as follows.

Nature of the task

Routine; closed solution; limited options.

Type of user

Could be anyone; levels of experience vary from first time user to experienced user; some users may always use the same kind of machine; some may use machines belonging to different financial institutions that have different interfaces; some users may be foreigners; some users may have physical disabilities that affect whether they can reach, see or hear the interface.

Amount of training

Almost certainly no training.

Frequency of use

Could be every few days.

Hardware and software architecture

Small screen, keys at side of screen, numeric keypad with special keys; dedicated software.

8. List as many differences as you can think of between structured, ethnographic and scenario- based approaches.

Structured—emphasizes clearly defined tasks, in a specific sequence and with

diagramming   and other tools to support these tasks, unlike less structured ethnographic and scenario-based approaches; includes quantitative measures unlike ethnographic approaches which are qualitative.

Ethnographic—qualitative rather than quantitative; emphasizes involvement in the situation rather than studying the task that is carried out; could produce materials in a range of media that require somewhat subjective analysis; may involve the users extensively.

Scenario-based—produces textual material as output that is both record and analysis of the task, does not use diagrams like structured or other media like ethnographic methods; has a single underlying model – the scenario – that is used for different purposes, recording existing system, planning new system, testing system.

9.   Make your own list of what you think the advantages and disadvantages could be of structured, ethnographic and scenario-based approaches.

Possible advantages: structured—aid management of projects, apply standards that aid communication, force consideration of all aspects of HCI design; ethnographic—analyst gets detailed understanding of context of system, active user involvement, social and political factors taken into account; scenario-based—help to think through possible alternative routes in use cases, can be used to justify design decisions, valuable for testing programs. Possible disadvantages: structured—can be bureaucratic; ethnographic—can be time-consuming; scenario-based—generates large volume of documentation.