

1994 Paper 9 Question 6

Designing Interactive Applications

Define in one sentence the rôle of requirements in system design. Explain the difference in purpose between performance requirements and functional requirements for interactive systems. [2 marks]

The rules enforced in the City for dealings in equities require that deals (buying and selling stock) are to be recorded within 60 seconds of agreeing each deal. In one particular bank this is currently done by having the dealer write the details of the deal on a paper “ticket” and place it in a pot for collection by a deal-input clerk who enters the deal into an on-line system. Six items of information must be written on the ticket (average lengths shown in parentheses):

1. the customer’s account number (four digits)
2. the name of the buyer/seller (six characters)
3. the name of the stock (six characters)
4. the number of shares bought or sold (four digits)
5. the price agreed (five characters; for example, 72 3/8 or 167.5)
6. whether this is a buy or a sell

Each dealer handles only a limited range of stocks, at most thirty (i.e., thirty companies such as ICI, Wellcome, Hanson, etc.). During busy periods, dealers may make deals every 30 seconds.

It is proposed that, in the future, dealers input their deals themselves.

- (a) Using the Keystroke-level model, calculate how long it would take dealers to record deals by typing the details on an alphanumeric keyboard. [4 marks]
- (b) Suppose all of the names of stocks were displayed on the dealer’s interactive workstation, together with their current prices. Sketch out a design to allow the dealer to input some of the details of the deal graphically with a mouse and some with the keyboard. Again using the Keystroke-level model, calculate the speed of entry of deals. Using this result and the result from (a), write a performance requirement for a system to support dealers in entering deals. [8 marks]

Use the following times in seconds for operators: **K** (key-press) = 0.30, **P** (point at target) = 1.10, **H** (home hands to another device) = 0.40, **M** (mentally prepare) = 1.35.

- (c) Discuss the benefits of these two alternatives to the current method, and the feasibility of meeting the performance requirements derived in (b) by using other styles of interaction. [6 marks]