2011 Paper 7 Question 7

Human–Computer Interaction

This question is concerned with the usability of software development tools. You are asked to compare tools based on UML diagrams with those based on the Java language. Consider in particular the definition of data structures using UML class diagrams, in contrast to equivalent class declarations in Java.

(a) Compare the purely graphical properties of these two notations, and the ways in which the graphical properties of each display correspond to the information structure being defined. Describe **three** ways in which the graphical correspondences are different. [2 marks each]

(b) What analytic approach could be used to compare the usability implications that arise from considerations such as those in part (a)? [1 mark]

(c) On the basis of the approach in part (b), suggest **three** specific usability issues relevant to the design of programming environments, in each case contrasting the implications for programming in UML and Java. [3 marks each]

(d) Describe an empirical approach that could be used to evaluate the usability of a new environment, with respect to one or more of the issues identified in part (c). Consider both the collection and analysis of data. [4 marks]