2006 Paper 1 Question 9

Programming in Java

For *each* of the following Java language features, give an example of a place in a large Java library where you might expect it to be used. Explain exactly what the feature achieves, why that is a benefit in the context you describe, and what risk or inconvenience might arise if the feature were not deployed.

(*a*) Methods that have been declared as `protected`. [4 marks]

(*b*) Classes that are labelled as `final`. [4 marks]

(*c*) Generic methods – that is, ones where the types of their arguments and results involve other types enclosed in angle brackets, as in `ClassName<AnotherClassName>`. [4 marks]

(*d*) Fields within a class that are marked as `private`. [4 marks]

(*e*) Parts of the library defined as an `interface` rather than as a `class`. [4 marks]

In some cases you may refer to a concrete example present in the existing Java libraries. You may also propose uses that current libraries do not exploit. Marking will pay attention to the extent to which you cover the topics you have been explicitly asked to explain: ill-structured general discussions of the Java features concerned will attract little credit.