Software Engineering test - May 8, 2012

10 p by default

1. Analyzing the SimpleWatch use case diagram below, it is easy to notice that some usual relationships were not specified in this diagram. Please includes both these relationships and the expected relationship between the two actors.

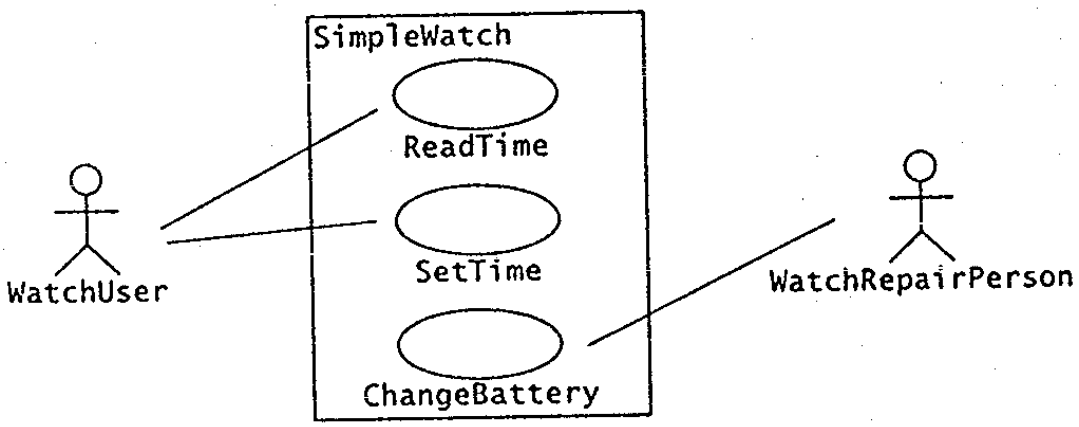

Figure 1 - An incomplete SimpleWatch use case diagram

Which are the type of requirements you know, and which of these are specified in a use case diagram? 20 p

2. The figure below represents an activity diagram describing how an incident is managed after a dispatcher receives an incident report from a field officer. Please describe in English the semantics of this diagram and name each modeling concepts represented. 20 p

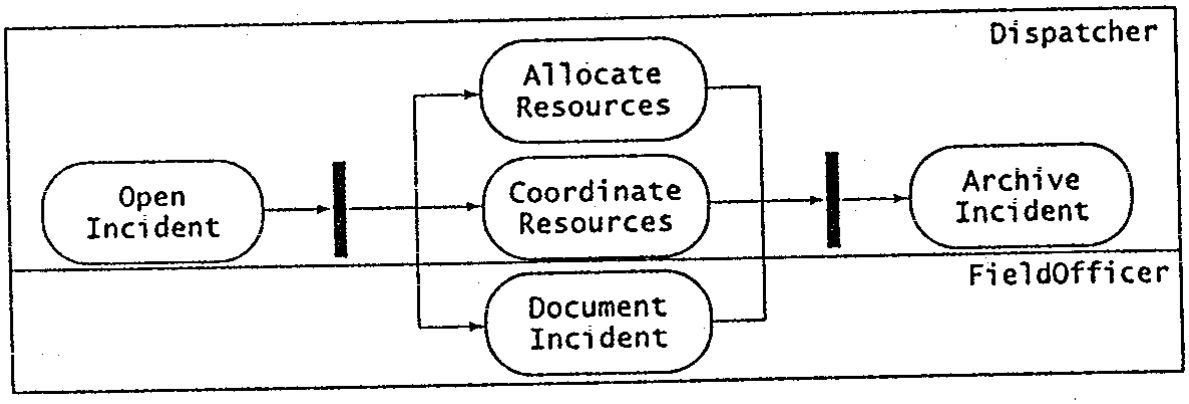

Figure 2 - Activity Diagram "Manage incident"

3. In computers, the persistency of information is attained by using files grouped in folders (directories). Each element of the file system is characterized by name. In a namespace the

uniqueness of element'names is mandatory. File system elements are hierarchicaly organized. Each file system element is contained in only one folder. Using UML, please specify the structure of a file system complying with the above informal specification. Using OCL please specify an invariant used to check the above mentioned constraint. In order to support the quote "It is better to prevent than cure.", please specify the same constraint as a precondition of the operation addFile(fileName: String, size:Integer) that is implemented in the Folder namespace. Each file has a size measured in bytes. Please specify another precondition for the operation addFile(fileName: String, size:Integer) that checks that adding the size of the new file to the sum of size for all the files stored in the file system, the file system capacity is not exceeded. 40 p

4. The Figure 3 describe the structure of main modeling concepts in UML 1.5. For each element of the model proposed at question 3, please mention the metaclass whose instance is, if the metaclass is represented in Figure 3. 10 p

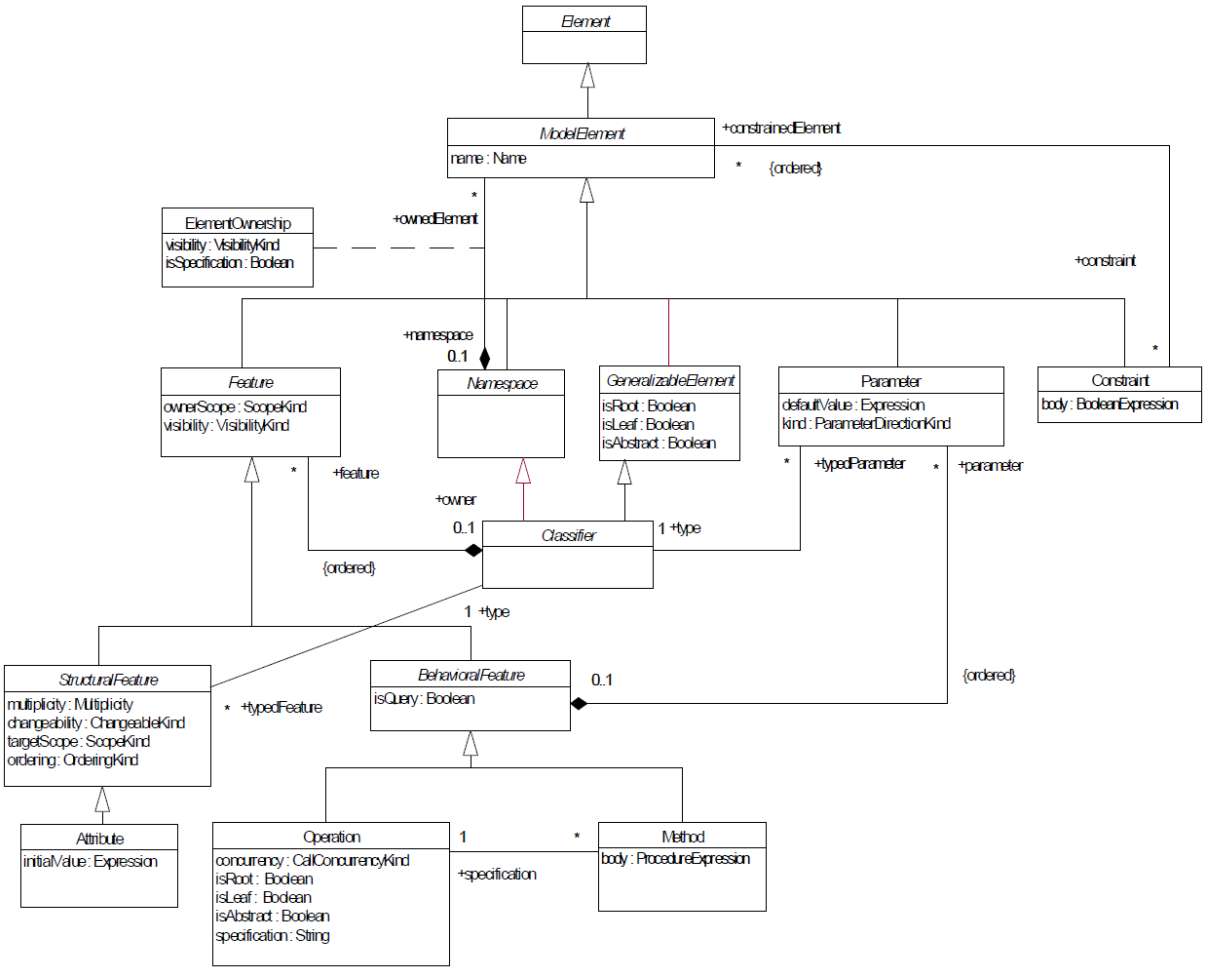

Figure 3 - UML 1.5 Core Package - Backbone