Software Engineering for Information Systems

UML Design

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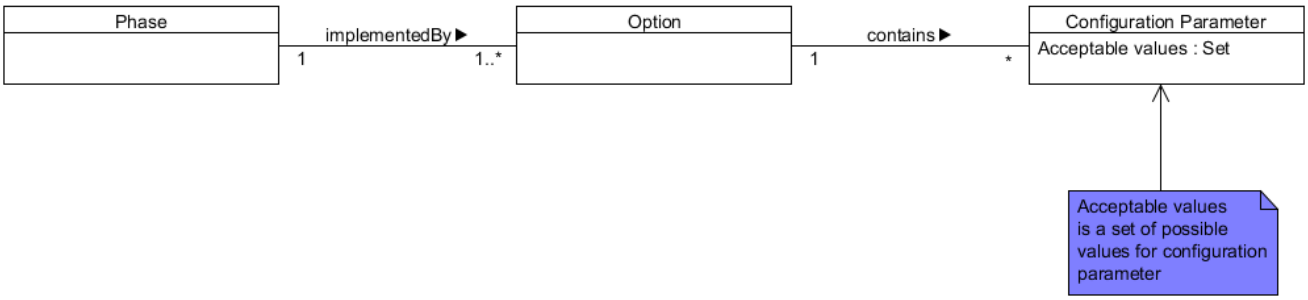
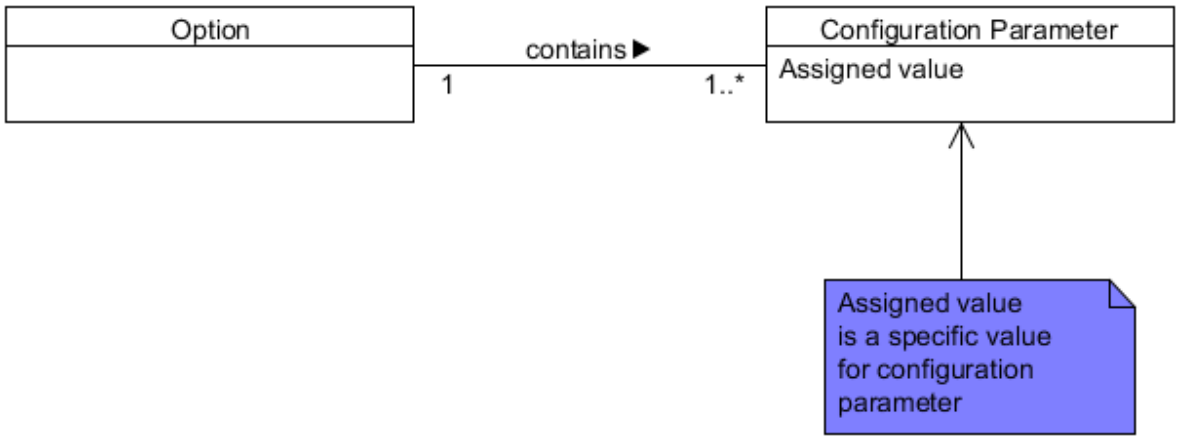
Task 1.1 Domain diagram for IntelligentInformationSystem

"An IntelligentInformationSystem is composed of a sequence of data processing operations or phases. Each phase accepts certain data types as input and produces certain data types as output. Each phase can be implemented by any number of algorithms or options. Each option is implemented by a specific Java class. Each option may have any number of configuration parameters; each configuration parameter has some set of acceptable values." Draw a UML Domain Diagram to represent the domain concepts, associations (with multiplicities) and attributes expressed in the description above.



Task 1.2 Domain diagram for AnalysisEngine

"An AnalysisEngine is composed of a sequence of algorithms or options. Each option accepts certain data types as input and produces certain data types as output. Each option is implemented by a specific Java class. Each option has some number of configuration parameters; each configuration parameter has a specific assigned value." Draw a UML Domain Diagram to represent the domain concepts, associations (with multiplicities) and attributes expressed in the description above.



Task 1.3 Sequence Diagram

There is a one-to-many relationship between IntelligentInformationSystem and AnalysisEngine. Assume that an IntelligentInformationSystem has the responsibility to produce a set of AnalysisEngines that represent all of the possible data flows in the IntelligentInformationSystem. Design a method with this signature:
ArrayList<CollectionProcessingEngine> instantiateEngines (IntelligentInformationSystem iis);
Draw a UML Sequence Diagram to show the sequence of messages required to a) read the information from the IntelligentInformationSystem instance, b) instantiate the corresponding AnalysisEngine instances, and c) store the AnalysisEngine instances in a List, which is the final output of the program. The message and return value for this use case are illustrated below.