

Object Oriented Modeling And Design With Uml Solution 183.pdf

# Assessment System For UML Class Diagram Using Notations Extraction

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#### Summary

The extraction is the process of removing or obtaining something from something else; whether with force or difficulty, or chemically. It is a one of separation technique used in most science researches. In our research focusing, extraction process is the process of converting captured notation information into data. Our proposed approach for notation extraction will play an important role in assessment process later. Notations differ in their extraction depending on their keyword and text structure in Rational Rose petal files. An ideal notation extraction process can digest target Rational Rose file that are visible only as petal file pages, and create a local replica of those tables as a result. Proper notation extraction also requires solid data validation and error recovery to handle data extraction failures. Extraction process should be as accunte and reliable as possible because its results will be used as a base to develop an Assessment system for UML Class Diagram. This paper discusses the extraction process from Rational Rose petal file that represents the structure for each notation of UML class diagram as a text form. The UML class diagram of notations have involved are class object notation, inheritance notation and relationship notation such as Association, Association class. generalization, aggregation and composition. Each notation which is extracted will keep as a data in a few tables. All these tables will be accessed in assessment process later to implement the UML Class Diagram Assessment System that proposed in our main research.

#### Keywords :

Object-oriented Modeling, UML Class Diagram, Rational Rose and Petal File.

### 1. Introduction

Model is crucial in engineering discipline and it was used by the engineers to describe the shapes or actions of any construction that they want to build or develop. Normally, graphic symbols, relation and explanation in texts will be used to visualize the model. Some of the benefits of this model are it can clarify on requirements, functions, designs and performance of a construction or system. This model is used to get the prediction of cost or budget and time requirement to finish a system. However, the model cannot describe the accurate solution for the system, instead it has to be constantly reorganized and customized according to the changes in system requirements and specifications. The main objective in software engineering discipline is to determine a method that can support system complexity and reduce the error in software development processes. Thus, studies on complex concepts, languages, techniques or tools to fulfill this requirement have started long ago. Until now, the attention has been given to the acceptance of this approach in software engineering that can be used and applied in model process for system development [1].

Rational Rose tool has been widely used to produce a model of system design, which is based on UML model. Rational Rose is a set of operation tool that applies UML to cover semantic domain and strong architecture/design. The goal of UML, as stated by designers is to model system using object-oriented concepts. Models are used to describe something and to communicate the results with the use of a method. A model is expressed in a modeling language. A modeling language consists of notations - the symbols used in the models - and a set of rules directing how to use it. The rules are syntactic, semantic and pragmatic. UML notations can be identified graphically via diagrams such as class diagram, activity diagram and sequence diagram [2]. These diagrams can be drawn by Rational Rose tool easier and produce a petal file. Our research focuses more on UML class diagram. The class diagram includes all information about the system structure such as class object and relations between those classes. This paper discusses the extraction process from this petal file that review in detail the format of structure as a text form for each notation of UML class diagram. We also discuss how the system handles automatic assessment and the way data is stored. Extraction process is a process to extract a small item from the original item. This paper will discuss in detail the flow of the extraction process. List of notations involved in this process are class object notation, inheritance notation, relationship notation such as Association, Association class, generalization, aggregation and composition. Extracted notation will be kept as data in appropriate tables. These tables will be used to implement the assessment process in UML Class Diagram Assessment System that was proposed in our main research.

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