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# A Critical Analysis and Treatment of Important UML Diagrams Enhancing Modeling Power

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### ABSTRACT
Requirements analysis and design specification are serious issues in systems development because of the semantics involved in transformation of real world problems to computer software systems. Although unified modeling language (UML) is now accepted as a de facto standard for design and specification of object oriented systems but its structures have various disadvantages. For example, it lacks of defining semantics of the systems to be developed. Formal me-thods are proved powerful, particularly, at requirement specification and design level. To address and realize the bene-fits of UML and formal methods our project on " formalization of UML diagrams using Z notation" is under progress. This paper is continuation of the same project in which some important diagrams namely use case, class and sequence diagrams are selected for critical analysis. Merits and demerits of the diagrams are addressed after a brief introduction. Applications of the diagrams are observed reducing complexity and proposing a good design of a system. Finally, a treatment to link diagrams with appropriate approaches is suggested to enhance modeling power of UML for facilitating the systems development.

### KEYWORDS
UML; Critical Analysis; Use Cases; Sequence Diagrams; Class Diagrams

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