From Modeling to Code Generation: An Enhanced and Integrated Approach

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Abstract

Information system drives every aspect of human endeavor, and it is a major stakeholder in human existence. Systems with poor modeling suffer a lot from poor implementation down to poor performance due to lack of critical subjection and testing. Software modeling is, therefore, of paramount importance in order to achieve a reliable system. There has been a lot of works done in software modeling, and eventually, the Universal Modeling Language was formulated to create a standard for software modeling. Although there have been some development or modeling tools that can be used to model a software system and the design then converted to software codes that can then be perfected, none of these tools has considered security and integrated as a single tool. Therefore, this paper focuses on building an integrated system (all-encompassing system) for building UMLsec-based modeled systems that will convert UML diagrams to code. The system integrates Eclipse Mars incorporated with Papyrus modeling plug-ins and Eclipse Kepler with Java EE incorporated with CARiSMA plug-ins. These four tools were integrated together by an executable application built with NetBeans. The system was tested by modeling an e-government system from the class diagram to analysis and code generation.

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