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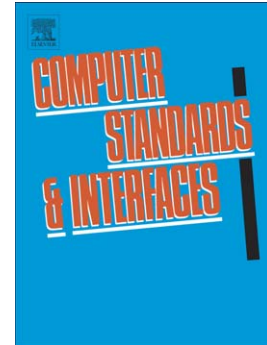
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VGPM: Using Business Process Modeling for Videogame Modeling and Code Generation in Multiple Platforms

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Abstract

During the last few years the use of mobile applications in Smartphones has grown considerably. One of the most popular types of applications nowadays is videogames, situation that has contributed to making smartphone videogame development a growing sector. As classic videogame development is a costly process several editors and tools to make this process quicker and easier have appeared, including tools that allow users with little programming background to create their videogames. Although these editors allow the definition of a great number of aspects of the videogame they do not include, in general, capabilities for modeling, in a simple way, the logic of the game loop, a very relevant aspect of a videogame. In this research we propose VGPM (VideoGame Process Modeling), which is a specific notation based in the BPMN approach to define several important characteristics of the game logic, trying to reduce the cost of traditional videogame development and allowing both technical and non-technical developers to define, with a sufficient level of detail, the business logic behind the game loop. The proposal allows the fast creation of models based on BPMN standards that can be transformed in functional code.

Keywords: Business Process Modeling, modeling tools, code generation, videogames.

1. Introduction

The requirements engineering phase of a software project is the first task of the software development process. As it states the needs and constraints of the program that is going to be created, it is a very important part of the development cycle. However, the ambiguous nature of the natural language and the ignorance of the problem's domain shown by the computer experts make this task error prone [1]. As the cost of the errors that appear during this initial phase of the software development process is really high, the Object Management Group (OMG) contributed to the creation of the Business Process Management Initiative (BPMI), which promoted the use of graphical notations that lie between the problem's domain and technical knowledge.

During the last few years several languages or notations for business process modeling have been defined. The most widely known is BPMN [13][38], which is the standard notation proposed by the OMG and has currently more than 70 implementations. Despite the initial objectives [2], the standardization process that BPMN is involved in makes the notation grow in size and complexity to the point where non-technical computer experts may need to undergo training programs to use the notation correctly [8]. Due to this circumstance several simplifications of the standard notation have been appearing, like jPDL, UML Activity Diagrams [4] and SBPMN [6][14] for example. These simplifications try to reduce the difficulties shown by the experts when using BPMN and, thus, reduce the number of errors found in the process models. Despite these technical difficulties, business process modeling

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