

MEdit4CEP-Gam: A MODEL-DRIVEN APPROACH FOR USER-FRIENDLY GAMIFICATION DESIGN, MONITORING AND CODE GENERATION IN CEP-BASED SYSTEMS

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Resumen(Abstract). Gamification has been proven to increase engagement and motivation in multiple and different non-game contexts such as healthcare, education, workplace, and marketing, among others. However, many of these applications fail to achieve the desired benefits of gamification, mainly because of a poor design. This paper explores the conceptualization, implementation and monitoring phases of meaningful gamification strategies and proposes a solution for strategy experts that hides the implementation details and helps them focus only on what is crucial for the success of the strategy. The solution makes use of Model-Driven Engineering (MDE) and Complex Event Processing (CEP) technology. An easy-to-use graphical editor is used to provide the high-level models that represent the design of the gamification strategy and its deployment and monitoring. These models contain the event pattern definitions to be automatically transformed into code. This code is then deployed both in a CEP engine to detect the conditions expressed in such patterns and in an enterprise service bus to execute the corresponding pattern actions. The paper reports on the use of both a graphical modelling editor for gamification domain definition and a graphical modelling editor for gamification strategy design, monitoring and code generation in event-based systems. It also shows how the proposal can be used to design and automate the implementation and monitoring of a gamification strategy in an educational domain supported by a well-known Learning Management System (LMS) such as Moodle. It can be concluded that this unprecedented model-driven approach leveraging gamification and CEP technology provides strategy experts with the ability to graphically define gamification strategies, which can be directly transformed into code executable by event-based systems. Therefore, this is a novel solution for bringing CEP closer to any strategy expert, positively influencing the gamification strategy design, implementation and real-time monitoring processes.