Domain-Specific Languages Evaluation: A Literature Review and Experience Report

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Abstract : In this abstract paper, the Domain-Specific Languages (DSL) evaluation will be presented based on existing literature and years of experience developing DSLs for several domains. The domains we worked on ranged from AI, business applications, and finances/accounting to health. In general, DSLs have been utilised in many domains to provide tailored and efficient solutions to address specific problems. Although they are a reputable method among highly technical circles and have also been used by non-technical experts with success, according to our knowledge, there isn't a commonly accepted method for evaluating them. There are some methods that define criteria that are adaptations from the general software engineering quality criteria. Other literature focuses on the DSL usability aspect of evaluation and applies methods such as Human-Computer Interaction (HCI) and goal modeling. All these approaches are either hard to introduce, such as the goal modeling, or seem to ignore the domain-specific focus of the DSLs. From our experience, the DSLs have domain-specificity in their core, and consequently, the methods to evaluate them should also include domain-specific criteria in their core. The domain-specific criteria would require synergy between the domain experts and the DSL developers in the same way that DSLs cannot be developed without domain-experts involvement. Methods from agile and other software engineering practices, such as co-creation workshops, should be further emphasised and explored to facilitate this direction. Concluding, our latest experience and plans for DSLs evaluation will be presented and open for discussion.
Keywords : domain-specific languages, DSL evaluation, DSL usability, DSL quality metrics
Conference Title : ICDSLM 2023 : International Conference on Domain-Specific Languages and Modeling
Conference Location : Athens, Greece
Conference Dates : October 16-17, 2023