INTISARI

MODEL SEMI-OTOMATIS UNTUK REKAYASA KEBUTUHAN PERANGKAT LUNAK

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Rekayasa kebutuhan/*requirements engineering* (RE) merupakan tahapan awal yang penting dalam proses rekayasa perangkat lunak. RE secara bertahap dan berulang mulai dari elisitasi, analisis, spesifikasi, validasi dan manajemen kebutuhan. RE merupakan proses yang membutuhkan waktu dan *effort* yang besar terutama dari analis sistem/perekayasa kebutuhan. Untuk meningkatkan efisiensi dibutuhkan model yang mampu mengotomisasi proses pada RE. Pada penelitian ini dikembangkan model semi-otomatis untuk rekayasa kebutuhan. Model diberi nama Semi-Automatic Requirement Engineering Model (SAREM).

Model yang dikembangkan bersifat semi-otomatis untuk elisitasi kebutuhan dan sepenuhnya otomatis untuk ekstraksi kebutuhan, analisis, spesifikasi, dan validitasi model. Untuk elisitasi kebutuhan masih melibatkan analis sistem untuk mendefinisikan dokumen masukan pada model. Pengembangan model mengintegrasikan tujuh pendekatan yaitu *Goal-oriented requirements engineering, rule-based, text processing, intelligence agent, wieghted product, similarity algorithm, dan K-means clustering*.

Penelitian ini memberikan kontribusi dalam pengembangan standar dokumen masukan untuk pendekatan GORE, pengembangan metode CombineTF untuk menguji similaritas data kebutuhan, dan proses otomatisasi pada sebagian besar tahapan RE. Hasil dari model berupa spesifikasi kebutuhan yang meliputi *goal graph/tree*, *use case diagram*, *class diagram*, dan *sequence diagram*. Untuk mengukur efektifitas model dilakukan uji validitas model dengan indikator konsistensi dan kelengkapan/*completeness*.

Berdasarkan hasil eksperimen pada tahap validasi didapatkan kesimpulan bahwa model mampu melakukan rekayasa kebutuhan otomatis secara efektif dengan nilai *completeness* 1, rata-rata nilai konsistensi 0,854 dan model mampu mengefisienkan proses RE sebesar 52,6%.

Kata kunci : Rekayasa perangkat lunak, *Requirements Engineering*, GORE, *Goal-Oriented*, *Information extraction*, *Intelligence agent*, RE otomatis

ABSTRACT

SEMI-AUTOMATIC MODEL FOR SOFTWARE REQUIREMENTS ENGINEERING

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Requirements engineering (RE) is an important initial stage in the software engineering process. RE has some stages and has iterative processes ranging from elicitation, analysis, specification, validation and requirements management. RE is a process that requires a lot of time and effort, particularly from systems analyst/requirements engineer. To increase its efficiency, it is necessary to have a model which is capable of automating processes on the RE. In this research a semi-automatic model for requirements engineering is developed. The model named Semi-Automatic Requirements Engineering Model (SAREM).

The developed model is semi-automatic for requirements elicitation and fully automated for requirements extraction, analysis, specification and validation model. Requirement elicitation still involves systems analysts to define the input document on the model. Model development integrates seven approaches, such as Goal-oriented requirements engineering, rule-based, text processing, intelligence agent, weighted product, similarity algorithm, and K-means clustering.

This research contributes to the development of document standards input for the GORE approach, the development of the CombineTF method for testing the similarity of the requirements data, and the automation process for most of the RE stage. The results of the model are in the form of requirements specifications which include goals graph/tree, use case diagrams, class diagrams, and sequence diagrams. To measure the effectiveness of the model, the validity of the model is tested with indicators consistency and completeness.

Based on the experimental results at the validation stage, it was concluded that the model is able to perform automated requirements engineering effectively with value completeness 1, the average consistency value is 0,854 and the model is able to streamline RE process by 52,6%.

Keywords: software engineering, Requirements Engineering, GORE, Goal-Oriented, Information extraction, Intelligence agent, Automatic RE