A Personalized Learning System with Adaptive Content Presentation and Affective Evaluation Facilities

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Authors:
Rejaul Karim Barbhuiya
Khurram Mustafa
Suraiya Jabin

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Abstract

An Intelligent Tutoring System (ITS) should be able to select appropriate chunks of learning materials as well as evaluate learning outcomes while keeping in mind learner's various meta-cognitive and meta-affective factors. But literature review suggests that such systems are rare as they are complex and time consuming to develop. We have designed an adaptive intelligent tutoring system which is being implemented as a rules-based-expert-system for the dual purpose of - i) adaptive content selection and ii) evaluation of learning gain along with remedial actions. The system is in implementation stage and through this work, we inform in details about the developmental strategies adopted, e. g. , use of Java Expert System Shell (JESS) for rules and fact base, Apache Tomcat- server for Java implementation. This work also highlights the rule based implementation of domain and affective planner along with details about the rules in textual formats. Our student model is able to recognize learner's guessing (gaming) behavior, interest, independence, and confidence level. It can also differentiate - a learner's incorrect answer due to a guess from that due to lack of sufficient domain knowledge. This framework can be used as a guiding principle to build a more robust tutoring system by incorporating other student modeling attributes.
References


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Index Terms

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Learning Objective