Student modeling for Java using Bayesian Networks

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1- Introduction:

•What is an intelligent tutoring system (ITS)?

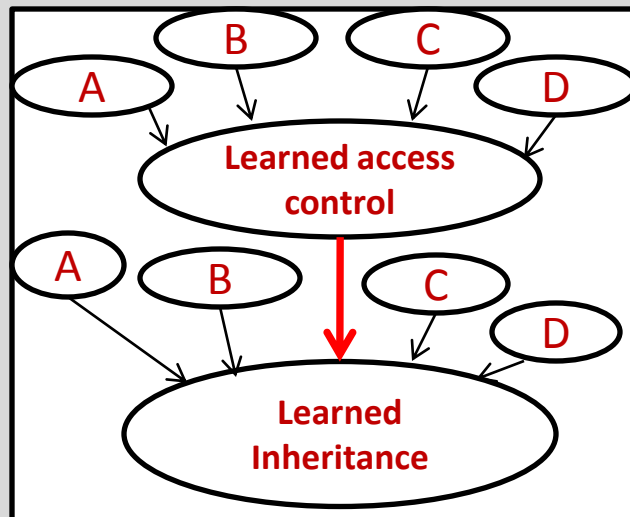•ITS for Java certification

2 - Scope:

• Student modeling

3 - Research idea:

User model:

Based on : time spent on a topic(A), level of detail of the topic(B), number of right(C) and wrong answers(D)

Knowledge base:

Learned Access Control	= True	=False
A = More, B=High, C=True, D=False	0.6	0.4
A = Less, B=High, C=True, D=False	0.5	0.5
A = Less, B=Low, C=True, D=False	0.9	0.1

Decisions:

•**Repeat the topic:** Time spent=MORE, wrong answers = TRUE, Level = LOW → Reduce the degree of belief for Learned topic = True

•**Suggest a review:** Learned related topic > 0.75, Wrong answers=TRUE, Time spent =LESS → Review your answers

• **Increase the level of detail:** Learned current and related topic = >0.75, Correct answers=TRUE, Level = LOW → Questions on same topic where level=HIGH
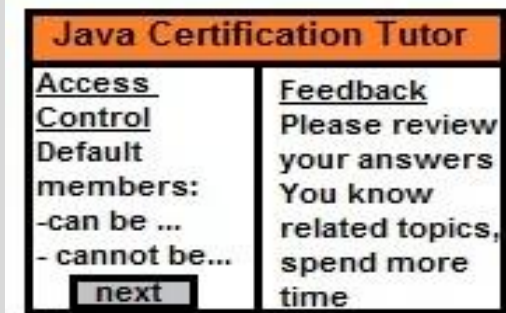
•**Decrease the level of detail :** Wrong answer=TRUE, Time spent =MORE, LEVEL = HIGH → Select level=low

•**Restart from the basics:** If wrong answers =TRUE for all topics

• *Feedback*:

The decision made is shown as feedback with reasons for supporting that decision

4 – UI design

5 – Related research

•Diagnostic module for Java

•Medical applications

6 – Future work

Incorporate the diagnostic module

7 – References

"Qualitative Evaluation of the Java Intelligent Tutoring System"-Edward Skyes

"DESIGNING INTELLIGENT TUTORING SYSTEMS: A BAYESIAN APPROACH" -Hugo Gamboa