Computer-Adaptive Student Evaluation System

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Class: CS 194 Research Seminar
Main idea for project: Professor Amit Sahai
Duration of research: 3 quarters
Student Evaluation System

- Accurately assesses the level of students’ understanding
- Teachers will be able to better meet the needs of their students.
- Needs to accurately identify the topics that are not understood from just a few test questions.
Approach

Previous approaches:
- Computer-Adaptive Testing (tailored testing)

My approach:
- Traversal through a directed graph of subtopics
- Calculate the student’s level of mastery, as well as its confidence in that estimate.
Challenges

Things that might prove to be hard:

– Figuring out the best and most effective way to evaluate student answers
– How to test students without asking too many questions
– Applying for approval and testing actual test subjects
Fall back plan / Testing

- Subject testing: has to go through OPRS for approval.

- Possible ways to conduct testing:
  - high school or middle school students
  - Using college students
  - internet survey

- Current plan includes applying for all three possibilities
Methodology, Milestones & Deliverables

By end of Fall quarter:
1) Create initial version of directed graph
2) Begin amassing data base of questions and problems
3) Create a working algorithm that can create a test and evaluate answers.
4) Apply for approval from UCLA Office for Protection of Research Subjects

By end of Winter quarter:
5) Refine both directed graph and algorithm
6) Begin testing part of research: get some feedback from test subjects

By end of Spring quarter:
7) Conduct more tests
8) Analyze experimental results
9) Write final project thesis
Conclusion

This research is cool because
- It hasn’t been done before
- America doesn’t focus enough on education
- This could help and make education more effective