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Providing Opportunities to Demonstrate Mastery Rather Than Memory: Testing Programming Skills in a Programming Environemnt

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ABSTRACT

First year programming units are commonly assessed by paper-based programming examinations. This component forms a large proportion of the assessment of the unit, and students report that they find both the preparation process and the environment highly stressful. Studying for a closed book, paper-based examination encourages surface learning, rather than understanding. This method of assessment tests a student's ability to perform at only the lower levels of the Cognitive Domain of Bloom's Taxonomy of Learning and does not effectively test performance at the higher levels of Synthesis and Evaluation. Often what is really being tested is a student's ability to memorise information and to perform under examination conditions. The question of whether or not a student has achieved the learning outcomes of a programming unit may be better answered by assessing a student's ability to design, code and test a solution to a real programming problem in a real programming environment.
This paper describes a situation in which students undertaking a first year programming unit are assessed using a programming examination, in a programming environment and focuses on the logistics management and security issues raised by this kind of examination. Preliminary results are analysed, and feedback from the students is documented.