Automated grading of student-designed GUI programs

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ABSTRACT: In this article, the authors introduce an automated grader for Java™ programs, called GUI_Grader, which allows students a degree of flexibility in graphical user interface (GUI) design. A previously published solution limits student programs to a single window and forces instructors to make virtually all GUI design decisions. GUI_Grader allows students to build multi-window Java applications, choose among alternative GUI components, and decide how to order, position and label the components. Compared with other automated graders, this approach can be used further into the curriculum and supports important GUI design learning objectives. The data-driven approach also helps to maintain consistency between program specifications and test plans. Testing GUI_Grader on programming assignments from second-term courses confirms the usability of the approach.