Unison Live: Automated Feedback, Grading, and Analytics LTI Application

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ABSTRACT

As the enrollments in CS courses continue to increase, the need to grade students' submissions and provide effective feedback promptly at scale is a growing challenge for CS educators. Many autograding solutions have been introduced to address this issue. However, there are multiple barriers to adopting these solutions, including requiring significant changes in a course's workflow, setup processes requiring extensive IT support, and, more importantly, the learning curve for instructors. These inhibit instructors' ability to use autograding solutions effectively. In this demo, we present Unison Live, an automated feedback and grading web application that integrates with LTI (learning-tools-interoperability) compliant learning management systems (LMSs) like Canvas. With its use, instructors can enable autograding instructions on their existing assignments in their CS1/2 courses through an intuitive user interface without changing course specifications. Students submit their program files on the LMS and receive instant feedback and grade reports. Unison Live currently supports programming languages like Python, C++, and MATLAB. After the submission deadline, instructors receive auto-generated code similarity reports and aggregate behavioral analytics on student submissions. We believe that an app like this will not only address the logistical issues related to grading but also pedagogically support the integration of formative & optional programming assignments that students can practice at their own pace and receive feedback. More details on Unison Live are available on https://www.unisonlive.io/

KEYWORDS

automated feedback, assessment, autograder, CS1/2, LTI, plagiarism, analytics

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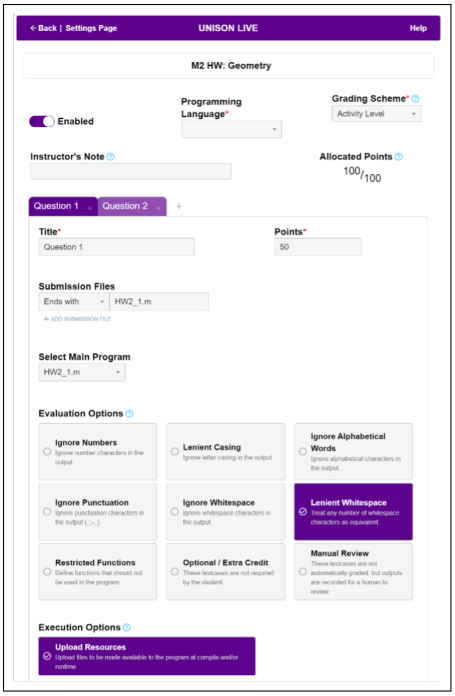

Figure 1: The UI to enable the autograding settings

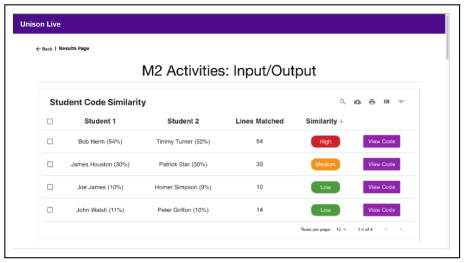

Figure 2: Code similarity checker

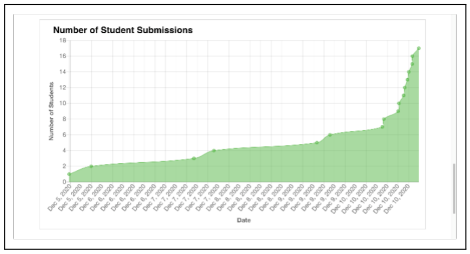

Figure 3: Analytics on number of submissions over time