



View the Lagunita project source:
<https://github.com/Stanford-Online/edx-platform/>

BULK UPDATE UTILITY FOR OPEN EDX

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ABSTRACT

On Lagunita, instructors need an intuitive and time efficient method of mass updating problem settings in their courses after problems are created. We implement a bulk update utility feature, which allows instructors to input settings through a form UI, then updates all problems asynchronously and notifies instructors on completion.

BACKGROUND

The Stanford Online (VPTL) team develops on Lagunita, Stanford’s instance of the open-source MOOC platform, Open edX. Course instructors and teaching assistants create and maintain courses inside Studio, with the help of the VPTL CourseOps team. Courses are then published to the learning management system.

USER STORY

User Need

Course instructors need to update problem settings in their courses after problems are created: before or after course start date, and when importing from past courses. This is currently a time consuming operation accomplished with the help of teaching assistants and CourseOps. Instructors need the ability to bulk update settings in an intuitive and time efficient manner.

Use Cases: Real World Examples

MedStats MOOC

Needed ShowAnswer value set to “closed” so anyone can still view explanations for problems past the due date

From a Student’s Experience

Two weeks into a course, the instructor changed all MaxAttempts from 1 to 2, because many students had been confused by the problem wording.

Dawn Zimmaro, OLI

“This would be an important feature to add ...because [instructors] have to manually update each problem (about 500) in their course if they want something other than the default number of attempts.”

MVP Requirements

For our MVP, we would like to bulk update the following settings:

- MaxAttempts: number of attempts students are allowed for a problem.
- ShowAnswer: determines when/if the option to show answer will appear to students.

In the general use case, instructors would like all future problems to be created with these defaults as well.

USER FLOW

EdX Test1

Bulk Update MaxAttempts

Content

Settings

Tools

Tools / Course Utilities

Bulk Update

Problem Settings

Warning: Any changes applied here will also modify the defaults for future problems in Advanced Settings.

Warning: Public problems will automatically be republished. Please verify any drafts for public problems are ready to be published: [Course Outline](#)

☒ Max Attempts

☐ Show Answer

Apply checked settings

Clear display

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Bulk Update Status

Applying

Applying your new settings

Validating

Validating your new settings

Updating Advanced Settings

Setting as default for future problems in Advanced Settings

Updating and Republishing Problems

Applying update to all problems. Republishing published problems. This process might take longer with larger courses. You will receive an email when your update has completed.



ARCHITECTURE

We integrate our feature into the existing Django framework and build the UI out of HTML with Mako, CSS with SASS, and JavaScript plus jQuery. We pass the asynchronous bulk update task to Celery through RabbitMQ, where we alter the course settings stored in MongoDB.

PERFORMANCE

We conducted an informal test of how long it currently takes CourseOps to update 10 problems and estimate the operation times for comparison. Note as well that the Celery task is performed server-side without additional interaction from the user.

Course Name	Course Size (# of Problems)	Estimated Manual Operation Time (s)	Celery Task Runtime (s)
Tiny Test Course	11	1980	0.29
Biodesign Innovation	100	18000	1.83
Essential Mathematics for Research in Life and Social Sciences	104	18720	1.51
Quantum Mechanics for Scientists and Engineers 2	587	105660	14.53
Probability and Statistics	649	116820	17.26
Psychological Statistics	1173	211140	33.75

CONCLUSION

Impact

This project touches on the issue of course scalability in the face of a limited number of course staff for maintaining a large course. With the bulk update utility, instructors can implement course improvements with fewer operational size constraints. This results in quicker course development iterations, thus allowing instructors to harness more of the massive student feedback and performance data that MOOCs provide. Additionally, the Stanford CourseOps team is able to reduce the amount of time spent on these requests.

Future Directions

Moving forward, we hope to move beyond our MVP to update all component settings, including those with more intricate dependencies, e.g. due dates which would require checking release dates and course timelines.

The bulk update utility is also currently developed for Lagunita; future work could address merging this feature upstream into the open-source platform.

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