Automated Support for Flexible Extensions

Jordan Schwartz
University of California Berkeley
Berkeley, CA, USA
jordanschwartz@berkeley.edu

Madison Bohannan
University of California Berkeley
Berkeley, CA, USA
mkcb@berkeley.edu

Jacob Yim
University of California Berkeley
Berkeley, CA, USA
jacobyim@berkeley.edu

Yuerou Tang
University of California Berkeley
Berkeley, CA, USA
yuerou.tang@berkeley.edu

Dana Benedicto
University of California Berkeley
Berkeley, CA, USA
dbenedicto@berkeley.edu

Charisse Liu
University of California Berkeley
Berkeley, CA, USA
charisseliu@berkeley.edu

Armando Fox
University of California Berkeley
Berkeley, CA, USA
fox@berkeley.edu

Lisa Yan
University of California Berkeley
Berkeley, CA, USA
yanlisa@berkeley.edu

Narges Norouzi
University of California Berkeley
Berkeley, CA, USA
norouzi@berkeley.edu

ABSTRACT

In this work, we present the development of an automated extension tool that supports flexible extension policies. Students interact with a wide range of extension policies in similar ways; in particular, some students repeatedly request multi-day long extensions. When scaled to courses with hundreds or potentially thousands of students, course staff time is the limiting resource preventing adequate student support. We present a tool to help automate a range of extension processes. The use of this tool should reduce staff load while increasing individualized student support, through email communication and consequent recovery of student agency.

Our early research questions are: **RQ1:** Does the extension tool reduce barriers and stigma around asking for assistance? **RQ2:** Does the tool lessen the wait time between requesting and receiving an extension, and how does the tool improve students' learning experience in the course? These questions will help inform us about how an automated tool for flexible extensions helps support growing course sizes and students who may not otherwise receive the support they need for their success and well-being in the course.

KEYWORDS

Accessibility, Equitable and inclusive teaching, Instructional technologies

ACM Reference Format:
Jordan Schwartz, Madison Bohannan, Jacob Yim, Yuerou Tang, Dana Benedicto, Charisse Liu, Armando Fox, Lisa Yan, and Narges Norouzi. 2024. Automated Support for Flexible Extensions. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024), March 20–23, 2024, Portland, OR, USA.* ACM, New York, NY, USA, 2 pages. https://doi.org/10.1145/3626253.3635628

SIGCSE 2024, March 20–23, 2024, Portland, OR, USA

ACM ISBN 979-8-4007-0424-6/24/03.
https://doi.org/10.1145/3626253.3635628

1 INTRODUCTION

In response to the growing size of CS courses in colleges and universities [4], the conventional approach of rigid due dates no longer meets the diverse learning needs of students [1, 3]. The rise in mental health issues and global crises has increased the number of students facing exceptional circumstances while pursuing higher education [5]. However, the simultaneous surge in course enrollment and demand for personalized support has created a significant challenge in providing the necessary assistance for students to excel academically and maintain their well-being. Professors, instructors, or teaching assistants (TAs) handle this need for individualized support, resulting in inconsistencies in the treatment of students and their accommodations. This also places an emotional burden on course staff from students' often traumatic experiences. This has the potential to take a significant emotional toll on educators, who often deeply care for their students. Furthermore, in larger courses, students are increasingly expected to advocate for themselves, in addition to coping with their existing challenges.

Courses have adapted to accommodate the growing number of students requiring support. Historically, many courses employ a system of slip days, granting each student a fixed number of days to submit assignments late throughout the course. However, anecdotally this system leads to student decision fatigue and stress—they must weigh using their slip days for a minor task or stockpiling them for a more significant assignment. However, more recently, policies have shifted towards a more individualized and equitable approach to extensions [1, 2]. In this work, we present an early version of the latter; an extensions tool[1] that standardizes and automates the process of requesting extensions, determines who should receive them, sends out emails, and handles extension processing within grading systems. This lightweight tool supports thousands of computer science and data science students each semester.

2 OVERVIEW

This extensions tool (Figure 1) consists of a student-facing Google Form for extension requests, a staff-facing Google Sheet to process requests, and an automation that emails students their extension

[1] https://github.com/berkeley-eecs/extensions

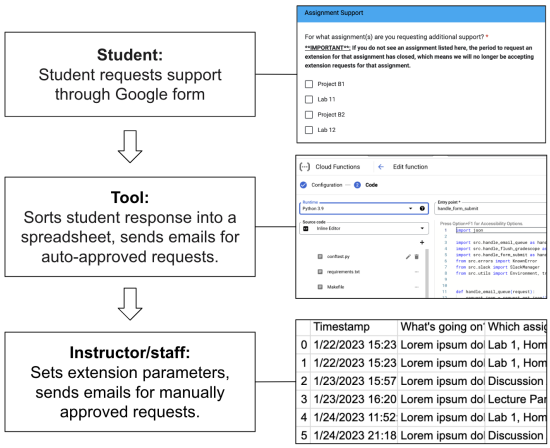

Figure 1: Workflow of the extensions tool backend.

#	Question
1	What is your student ID?
2	What is your name?
3	Are you registered with the campus accessibility program?
4	Which assignment would you like an extension on?
5	How many days would you like an extension for?
6	Why do you need this extension?
7	Are you working with a partner?
8	What is your partner's email and student ID?

Figure 2: Student-facing Google Form questions.

request's status and, if applicable, creates an extension for the corresponding assignment(s) in Gradescope. Gradescope is an assignment grading submission system that manages student deadlines and staff grading.

2.1 Google Form For Extension Requests

To request extensions throughout the semester, students fill out a single Google Form that is regularly updated with the current list of assignments that allow extensions. The form questions (Figure 2) are tailored to fit the needs of the flexible extension policies enacted so far, but are editable and interchangeable as needed per course. These questions have been honed to reduce the load on students and require minimal effort and time to request help without sharing detailed accounts of their personal situations.

2.2 Google Sheet for Extension Approvals

The Google Sheet "backend" is the primary interface for course staff to review extension requests, once Figure 1's workflow is established. In large courses, extension requests are reviewed in part by TAs; lists of TAs with such access are made transparent to students. The backend has five sheets that receive, parse, and interact with data. Data collected from the Google Form is parsed into a "roster" sheet, which records per-student the extension duration per assignment, timestamp, campus accessibility program status (if registered), and the most recent reason for an extension request. Additionally, it indicates the extension request status (automatic, pending approval, or manual) and email status (automatic, pending approval, in queue, or manual). This user-friendly interface streamlines the process for staff, eliminating both the need to field individual extension request emails by student and the overhead of cross-checking campus accessibility program databases.

3 FUTURE CONTRIBUTIONS

The tool currently enables students to easily request extensions and receive prompt responses. The setup involves some computer science knowledge, such as configuring a Google Sheets app script. A walkthrough setup video and a more user-friendly UI that maintains flexibility while minimizing common user errors is in progress. This tool was designed to meet the needs of one course but has expanded to meet demand across a whole department. The tool's adoption across numerous courses at a US public university with a selective CS program has reduced the stigma of seeking help, evidenced by a surge in extension requests with mental health often being cited as the reason why [6]. As the tool scales up to meet greater demand, we anticipate the need for better error support. Our current efforts are focused on an FAQ page to address common issues. In the future, we envision setting up a Google Form or specific email to field requests, potentially for the FAQ page. Since this tool was designed for one course that uses Gradescope for student submissions, it is less efficient with different assignment submission platforms. While the tool can still be used for email automation, updating assignment extensions automatically in a different grading platform is not yet possible, resulting in a time burden on course staff to do so. We next aim to integrate the backend with Canvas. In its current form, the tool is explicitly tailored to the policy of the course for which it was initially created. One side effect is that the tool provides no infrastructure to reject extensions. Courses with different policies may find having to manually inform students of extension rejections a burden. Some courses have attempted to rectify this issue by manually updating the student's request and including a note that the request was not approved. We plan to adapt the tool to allow more flexibility in its email templates, decreasing the burden on courses with different extension policies. Utilizing this tool in as many courses as possible will facilitate the spread of flexible extension policies and support students' success throughout their academic careers. It is our hope that this tool can meet the needs of even larger courses as class sizes continue to scale up.

REFERENCES

[1] Andrew Berns, J Philip East, and J Ben Schafer. 2021. Grading for Equity: A Curriculum Development and Grading Process to Enhance Instruction. In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. 1351–1351.
[2] Huanyi Chen and Paul AS Ward. 2023. The Value of Time Extensions in Identifying Students Abilities. In *Proceedings of the 2023 Conference on Innovation and Technology in Computer Science Education V. 1*. 512–518.
[3] Dan Garcia, Connor McMahon, Yuan Garcia, Matthew West, and Craig Zilles. 2022. Achieving" A's for All (as Time and Interest Allow)". In *Proceedings of the Ninth ACM Conference on Learning@ Scale*. 255–258.
[4] Cormac LaLiberte. 2023. Data science, computer science majors show biggest increase in student enrollment. *The Daily Cardinal* (2023).
[5] Xiaomei Wang, Sudeep Hegde, Changwon Son, Bruce Keller, Alec Smith, and Farzan Sasangohar. 2020. Investigating Mental Health of US College Students During the COVID-19 Pandemic: Cross-Sectional Survey Study. *Journal of Medical Internet Research* (2020).
[6] Jacob Yim, Yuerou Tang, Jordan Schwartz, Madison Bohannan, Dana Benedicto, Charisse Liu, Armando Fox, Lisa Yan, and Narges Norouzi. 2024. Supporting Mastery Learning with Flexible Extensions. (2024).