Anti-plagiarism assignment submission system using Google Classroom API

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Overview

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Motivation

- Students 'take help' from each other, and submit assignments, and hence circumvent their incumbent work.

- Also, Google Classroom has developed an awesome platform where all the classwork, projects, and quizzes/assignments can be managed very easily by the Professors, and can be easily accessed by the students.

- However, obviously, plagiarism still pervades on this platform.

- Our goal is to ensure that the degree of 'infringement of copyright' is reduced, and so, we propose to add an extra layer of security to implement the same.

Introduction

- Follow-up assignment, based on the concepts tested in the main assignment, is given to be solved (posted on the Classroom) as soon as the deadline of the main assignment passes?

Some issues that have to tacked by the faculty are:
1) Would the set of questions asked in the follow-up test be the same for all students?
2) The time-limit should be set considering the type of questions being asked.
3) How would the combo-grading policy be?

- The honest students would obviously have to spend extra time 'proving' their integrity, but there seems to be no other way out.

Software technologies used

a) Google Classroom API:

b) Google Form API:

c) Spring MVC (Model-View-Controller) framework:
Thus, overall, the MVC framework provides a modularised, easy-to-integrate milieu for UI/UX, development code, and other API services.

d) GitHub & Visual Studio Team Services:
Collation, versioning, integration of work.

e) Jetty & Maven:
Eclipse Jetty is a Java HTTP (Web) server and Java Servlet container which we used to host our software. Maven is the repository which has the necessary packages to manage the network and machine-to-machine communication for our software.

Control flow and UML diagram

PLEASE REFER TO THE DOCUMENTATION FOR THE CONTROL FLOW GRAPH, AND ITS EXPLANATION

THE DOCUMENTATION ALSO HAS THE UML DIAGRAM

Authentication process

- Authentication of a Google user through our software.

- PlagoD overriding Google Classroom, and hence it takes a toll on Google's API security.

- So, we had to store the cookies of the previous sessions, and then perform all the further actions like posting an assignment, etc. using the authentication saved in the cookie.

Possible extension

- Different sets of follow-up assignments.

- There is no option in the Classroom API for uploading an assignment yet. All the links to relevant PDFs, and other material have to be put in the description.

- Google Classroom has started providing the 'schedule the time you want the assignment to be posted' option in the latest update, and so its incorporation has not yet been done in the API.

THANK YOU!