Canvas Download Project Document

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Preface: First thing we did was to study Canvas API and learn how to use it, since we never use similar API, it took us long time to learn how to make the right call. What we did is to get curl and manually hit the server, to test if we can access it and get data using the Canvas API. Few weeks later, we could download grades of each student and information. Assignment was a big challenge, but finally we got it.

Goal: Connect and download data from Canvas, such as grade and assignments.

System Function:

The main function of this system is specific. Using Canvas API to download submissions of students’ assignments and grades.

Canvas API

User

Canvas

server

API: assignment

Assignment download address, Grades, etc. (JSON format)

()

Students Information

Name, id, Student id, mail address, etc.

(JSON format)

API: students

Figure 1 Function Diagram

The Canvas API:

Canvas uses OAuth2 for authentication and authorization of the Canvas API. It is a protocol designed to let third-party applications authenticate to perform actions as a user, without getting the user's password. And before implement the API, we have to manually generate an access token in our user’s profile, so that we can hit the server.

curl –H “Authorization: Bearer <ACCESS-TOKEN>” “https://canvas.instructure.com/api/v1/course”

With the access token, now we can find a way to perform as a user in our program without user’s password.

Entities:

We designed three major classes to handle different works.

First class is “[DownloadStu\_info.java](https://github.com/StevensECE/CPE810J_2016F_Canvas/blob/master/src/edu/stevens/canvas/download/DownloadStu_info.java)” , this class can get the information of all students in DOV DEV and save them to File ”stu\_info.dat”. The information includes, id, name, mail address, sis\_id(Students) and so on. In this project, we need this information because we need to use them to make the API call (e.g. We uses id of student to download their grades.). So, we run this class and save this file first. Then we move to next step.

Second class is ”[DownloadGrade.java](https://github.com/StevensECE/CPE810J_2016F_Canvas/blob/master/src/edu/stevens/canvas/download/DownloadGrade.java)”. We have id of all students, Canvas gives this API to download grades for single student:

*GET /api/v1/courses/analytics/users/assignments*

By changing the “users” block with different id of students we already have, we can get grades for everyone.

Third class is “[DownloadAssignment.java](https://github.com/StevensECE/CPE810J_2016F_Canvas/blob/master/src/edu/stevens/canvas/download/DownloadAssignment.java)“. This class download one submission of student assignment from Canvas via API, and save it as specific file name. User needs to provide assignments Id and student Id and the java will automatically download files and save it to folder.

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