CSCE 685 DIRECTED STUDIES Fall 2020

Instructor: Dr. Hank Walker

Report on

PhD Review System Application

Submitted By:

NAME: Pinaki Shaw

UIN: 930001837

Email ID: dolapinaki@tamu.edu

Introduction:

Client: Ms. Karrie Bourquin, Program Specialist I, Department of Computer Science and Engineering, Texas A&M University, College Station

Stakeholders: Ms. Karrie Bourquin, Dr. Walker, PhD students and Faculty of the Department of Computer Science and Engineering

In Spring 2020, a team worked on developing an application for facilitating reviews of PhD students in the Department of Computer Science and Engineering. The application was developed using Google Apps Script. The system uses TAMU Google Drive as the database to comply with FERPA laws. Records are stored in Google Spreadsheets. In the current version of the project some features have been added to the existing app and some major bugs have been fixed. The report gives an overview of the entire app to facilitate easier understanding for the next developer on the project.

Project Requirements:

- 1. Make application accessible to PhD Students, Faculty of the CSE Department and to the Program Specialists and Graduate Advisor.
- 2. Login using TAMU NetID and password
- 3. Students need to be able to do the following:
 - Enter basic information (first name, last name, UIN, start semester, status of Qual Exam, no. of attempts completed, advisor, co-advisor, status of degree plan filing, prelim date, proposal date, final defense date)
 - Upload CV (common across all review years)
 - View CV
 - For a particular review year do the following:
 - Upload and View Report
 - Upload and View Improvement Plan
 - View Department Letter
 - View Comments from Advisor and Department
- 4. Faculty should be able to do the following:
 - Search for a student using first name, last name or UIN
 - For each student be able to do the following:
 - View CV
 - View Report, Improvement Plan and Department Letter
 - View basic information
 - View all reviews and reviews for a particular year
 - Add a review
- 5. Admin (Program Specialists and Grad Advisor) should be able to do the following:
 - Have access to all students' personal data, review data, authorized user's data and review year information

- Add a review year
- Begin/End a review year
- Search for a student using first name, last name or UIN
- For each student be able to do the following:
 - View CV
 - View Report, Improvement Plan
 - Add and View Department Letter
 - View basic information
 - View all reviews and reviews for a particular year
 - Add a review and department letter
 - Remove student from PhD program
- Add a new student to the program

Technologies Used:

- 1. Google Apps Script
- 2. Google Drive API
- 3. Google Sheets API
- 4. jQuery
- 5. Javascript
- 6. HTML
- 7. CSS
- 8. Materialize
- 9. SlickGrid
- 10. GitHub

Getting Started:

- 1. The first requirement is to have a Google account in order to be able to access all G Suite applications mainly Sheets, Form, Drive, Calendar for this application. For hosting this application, the Google Drive of the CSE Dept. is needed.
- 2. For Chrome, one option is to use this <u>plugin</u> to manage Google Apps Script (GAS) code with Github. For other browsers, Clasp can be used for code management.
- 3. In a folder dedicated for the application, create a new Google Apps Script.
- 4. After saving the created app with a valid name, Login to your Github account. Please visit this link for detailed setup steps related to usage of the GAS Github Assistant plugin.
- 5. Fork the repo https://github.com/pinakishaw/phd-review-system
- 6. After successful forking, the forked repo should be available in the Repo dropdown in the Script window.
- 7. It is suggested that new branches be created in Github first and then selected in the GAS Github assistant's Branch dropdown. While trying it the other way around (branch creation using the plugin itself), many times the newly created branch failed to reflect in the repo.

- 8. Click on the 'Pull' arrow to pull code from the specified branch from the specified repo of the SCM.
- 9. All the files should now appear in the file directory on the left-hand pane of the Script editor.
- 10. Click on 'Publish' -> Deploy as web app -> Mention project version -> Update
- 11. The app will be available on the link provided in the pop-up that appears now.

TL; DR: For navigating the current version of the app, please visit PhD Review System Preview

Note: Credential must be present in the <u>Account Sheet</u> in order to validate login.

Understanding what goes where:

We have the following 4 Google Spreadsheets containing all the information the application is handling:

1. Account Sheet

- Contains email IDs and Names of the Faculty, Administrators and Students, who can access the PhD Review System, organized across three different sheets
- Faculty/Admin data has to be manually entered
- Data pertaining to a student is automatically updated in the Student sheet when the student is added by the Admin through the web app

2. Review Year Information Sheet

- Sheet1 contains all Review Years for which the system is enabled. This sheet is indicative of the active review year ('Active' is 1 for current review year, 0 otherwise)
- Sheet2 contains links to the student report, improvement plan and department letter for every year a student is reviewed

3. Student Info Sheet

- Contains basic information pertaining to every PhD student. Following are the most important fields:
 - first and last name
 - UIN
 - Email
 - start semester (Fall/Spring/Summer Year)
 - current status ('0' for not current student, '1' otherwise)
 - advisor
 - co-advisor
 - degree plan status (N/A, Pass, Fail)
 - qual exam status (N/A, Pass, Fail)
 - no. of qual exams attempted (N/A, 1, 2, 3)

- link to student's CV
- prelim date
- proposal date
- final defense date

4. Student Review Sheet

- Contains the following information for each year a student is reviewed in the PhD program:
 - UIN
 - Review year
 - Name of faculty who provided the review either advisor name or 'Department' for summary review
 - Rating (Needs Improvement(N), Not Rated(X), Satisfactory(S), Unsatisfactory(U))
 - Comments for the student
 - Flags (0 or 1) for the following notes:
 - Needs to improve grade
 - No student report available
 - Misconduct
 - Needs to pass qual
 - Needs to find advisor
 - Needs to file degree plan
 - Needs to appear for prelim
 - Needs to submit proposal
 - Needs to finish soon

Implementation Details:

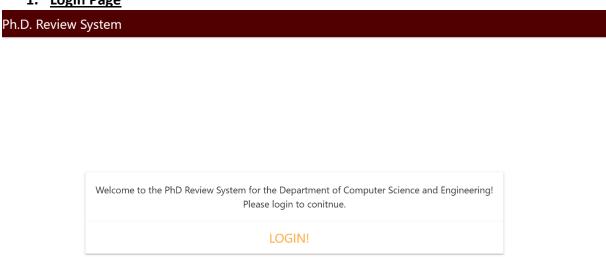
The codebase comprises of the following types of files:

- **Script files:** Contains all server-side code for the application. These files contain the functions which utilize the Google Spreadsheet and Drive APIs to interact with the aforementioned Google sheets and Drive where review files are stored.
 - Code.gs contains code pertaining to credential authorization, view rendering, files upload, URL handling etc.
 - advisor_review.gs contains code for fetching information from the spreadsheets
 and updating information in the spreadsheets
- **HTML files:** Contains client-side code for the application. The files with naming convention fileName.html contain the HTML code for the pages. The files with naming convention fileName_js.html or fileName_javascript.html contain the JavaScript code for the corresponding page.

Views:

The next few pages illustrate the various views/features within the application. The html file names pertaining to the view are also specified for easier access and understanding.

1. Login Page

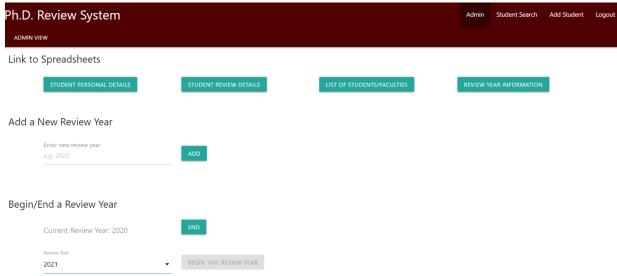


The function doGet(e) in Code.gs is invoked. If the session is new, userClickedLogin() is invoked. This function will search for the email ID used for authentication in the Accounts Sheet and render the corresponding view – Admin, Faculty or Student View

Associated Files:

Index.html

2. Admin View - Landing Page

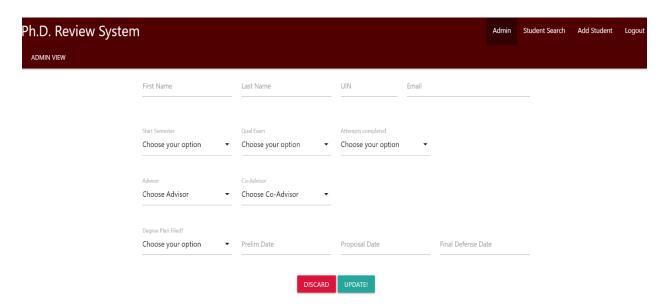


The Admin will be able to access the 4 spreadsheets from this page. Admin can add a new review year, end the current review year and begin a new review year. This information is updated in the <u>Review Year Information Sheet</u>. This page also has links for navigating to the other features of adding and searching a student.

Associated Files:

- admin.html
- admin_js.html

3. Admin View - Add Student

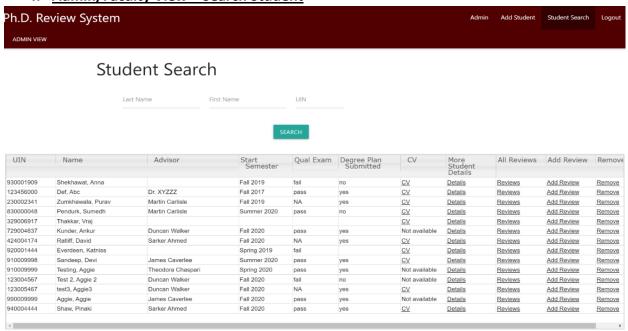


The admin can add a new student to the PhD program through this view. The details entered in this page are updated in the <u>Student Info Sheet</u>.

Associated Files:

- add_student.html
- add_student_js.html

4. Admin/Faculty View - Search Student

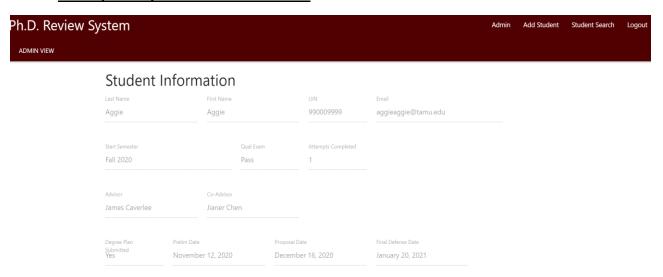


Admin can search for students using first name, last name or UIN. The page otherwise displays the list of all current students in the PhD program. For each student, the admin can view the CV (if available), view student details and reviews, add review for a particular review year (Department Review) and remove the student from the program.

Associated Files:

- student search.html
- student_serach_js.html
- student search css.html

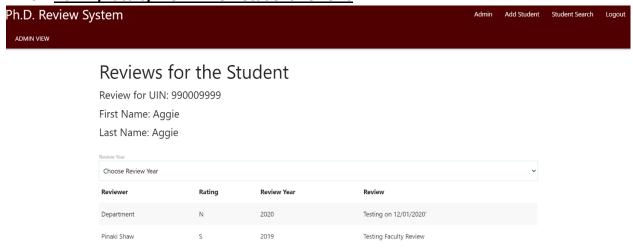
5. Admin/Faculty View - Student Details



This view, containing a student's basic information, is available to admin and faculty.

Associated files:

- student_details.html
- 6. Admin/Faculty View View Student Reviews

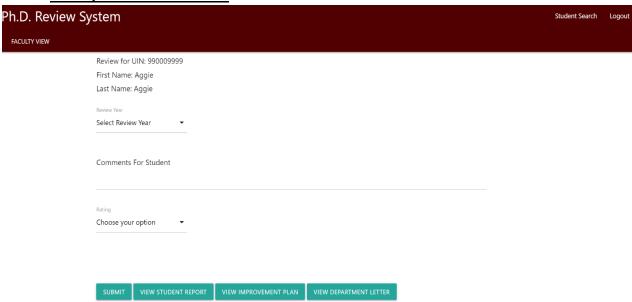


This page displays all the reviews for the student to a faculty or admin. The option of viewing reviews for a particular year has also been provided.

Associated files:

see_reviews.html

7. Faculty View - Add Review

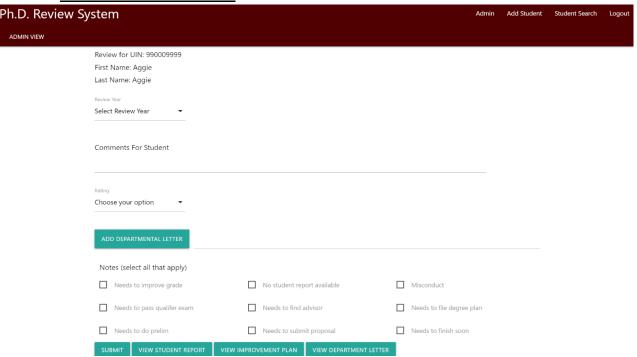


This page lets a faculty (which will usually be the advisor) add a review for a student. The data entered here is updated in the <u>Student Review Sheet</u>.

Associated files:

- add student review.html
- add student review js.html

8. Admin View - Add Review



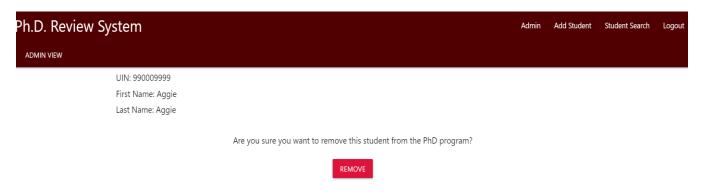
This page lets the admin add a Department or Summary Review for a student. Admin can also upload Department Letter and flag all appropriate notes (this is what is different from the Faculty view of the same page). This page also allows for viewing of the student's report and improvement plan. The information entered here is updated in the <u>Student Review Sheet</u>. The links of the files uploaded are updated in Sheet2 of <u>Review Year Information Sheet</u>.

Associated files:

- add student review.html
- add student review js.html

The files for the Admin and Faculty view of Add Reviews page are the same. The additional components for the Admin view are hidden/displayed by setting the visibility attribute after the session active user verification.

9. Admin View - Remove Student

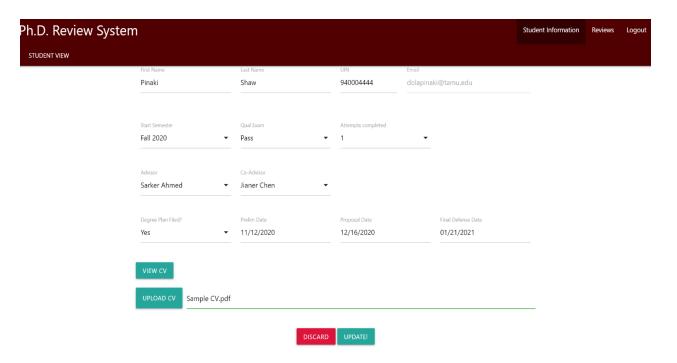


This page lets the admin remove a student from the PhD program. All data pertaining to the student is unaffected. Only the flag for 'current_status' in <u>Student Info Sheet</u> is changed from '1' to '0'. Thus, the student marked as removed will no longer appear anywhere in the app.

Associated files:

- remove student.html
- remove_student_js.html

10. Student View - Student Information

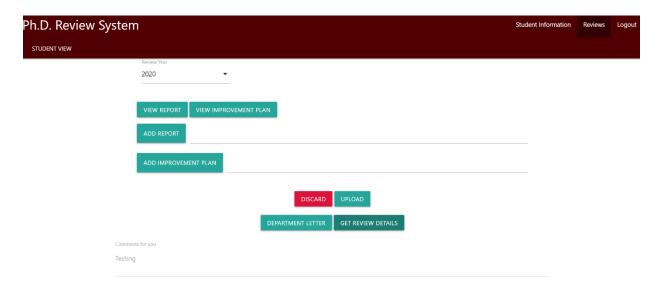


In this page, a student can enter/edit his information, view the last uploaded CV and upload a new CV.

Associated files:

student info.html

11. Student View - Reviews



In this page, a student can select a review year from the dropdown. If the review year is active, the student can view and add report and improvement plan for that year. For an inactive review year, document upload is disabled. The student can also view the department letter and comments for the selected review year.

Associated files:

- student review.html
- student review javascript.html

Testing:

Due to the lack of testing frameworks for Google Apps Script, the focus was to test each feature of the application manually. The testing steps are detailed in this <u>test document</u>.

Future Work:

Following features can be added/modified in the future version of the application:

1. Option to view review documents in the Reviews page for each student instead of the Add Reviews page.

- 2. The links to the documents maybe moved from the Review Year Sheet to the Student Reviews sheet, thereby collating all review related information for a student in one Spreadsheet.
- 3. Calls to the SpreadsheetApp API are inherently slow. In future versions, one aspect to focus on might be towards reducing the number of reads and writes to Google Sheets to improve the response time of the application.

Important Links:

- 1. Find the codebase at https://github.com/pinakishaw/phd-review-system
- 2. Check out the deployed app: PhD Review System Preview
- 3. Get started with Google Apps Script with these tutorials and official documentation
- 4. Check out the test file here

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