

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 [plugin](#) 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 [Account Sheet](#) 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

Ph.D. Review System

Welcome to the PhD Review System for the Department of Computer Science and Engineering!
Please login to continue.

LOGIN!

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

Ph.D. Review System

Admin Student Search Add Student Logout

ADMIN VIEW

Link to Spreadsheets

STUDENT PERSONAL DETAILS

STUDENT REVIEW DETAILS

LIST OF STUDENTS/FACULTIES

REVIEW YEAR INFORMATION

Add a New Review Year

Enter new review year
e.g. 2020

ADD

Begin/End a Review Year

Current Review Year: 2020

END

Review Year
2021

BEGIN THIS REVIEW YEAR

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 [Review Year Information Sheet](#). 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 screenshot shows the 'Ph.D. Review System' interface. At the top, there is a dark red header bar with the text 'Ph.D. Review System' on the left and navigation links 'Admin', 'Student Search', 'Add Student', and 'Logout' on the right. Below the header, the page is titled 'ADMIN VIEW'. The main content area contains a form for adding a new student. The form fields are arranged in a grid-like structure:

- First Name (text input)
- Last Name (text input)
- UIN (text input)
- Email (text input)
- Start Semester (dropdown menu with 'Choose your option')
- Qual Exam (dropdown menu with 'Choose your option')
- Attempts completed (dropdown menu with 'Choose your option')
- Advisor (dropdown menu with 'Choose Advisor')
- Co-Advisor (dropdown menu with 'Choose Co-Advisor')
- Degree Plan Filed? (dropdown menu with 'Choose your option')
- Prelim Date (text input)
- Proposal Date (text input)
- Final Defense Date (text input)

At the bottom of the form, there are two buttons: a red 'DISCARD' button and a green 'UPDATE!' button.

The admin can add a new student to the PhD program through this view. The details entered in this page are updated in the [Student Info Sheet](#).

Associated Files:

- add_student.html
- add_student_js.html

4. Admin/Faculty View – Search Student

Ph.D. Review System

AdminAdd StudentStudent SearchLogout

ADMIN VIEW

Student Search

Last NameFirst NameUIN

SEARCH

UIN	Name	Advisor	Start Semester	Qual Exam	Degree Plan Submitted	CV	More Student Details	All Reviews	Add Review	Remove
930001909	Shekhawat, Anna		Fall 2019	fail	no	CV	Details	Reviews	Add Review	Remove
123456000	Def, Abc	Dr. XYZZZ	Fall 2017	pass	yes	CV	Details	Reviews	Add Review	Remove
230002341	Zumkhewala, Purav	Martin Carlisle	Fall 2019	NA	yes	CV	Details	Reviews	Add Review	Remove
830000048	Pendurk, Sumedh	Martin Carlisle	Summer 2020	pass	no	CV	Details	Reviews	Add Review	Remove
329006917	Thakkar, Vraj					CV	Details	Reviews	Add Review	Remove
729004637	Kunder, Ankur	Duncan Walker	Fall 2020	pass	yes	Not available	Details	Reviews	Add Review	Remove
424004174	Ratliff, David	Sarker Ahmed	Fall 2020	NA	yes	CV	Details	Reviews	Add Review	Remove
920001444	Everdeen, Katriss		Spring 2019	fail		CV	Details	Reviews	Add Review	Remove
910009998	Sandeep, Devi	James Caverlee	Summer 2020	pass	yes	CV	Details	Reviews	Add Review	Remove
910009999	Testing, Aggie	Theodora Chaspari	Spring 2020	pass	yes	Not available	Details	Reviews	Add Review	Remove
123004567	Test 2, Aggie 2	Duncan Walker	Fall 2020	fail	no	Not available	Details	Reviews	Add Review	Remove
123005467	test3, Aggie3	Duncan Walker	Fall 2020	NA	yes	CV	Details	Reviews	Add Review	Remove
990009999	Aggie, Aggie	James Caverlee	Fall 2020	pass	yes	Not available	Details	Reviews	Add Review	Remove
940004444	Shaw, Pinaki	Sarker Ahmed	Fall 2020	pass	yes	CV	Details	Reviews	Add Review	Remove

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

Ph.D. Review System

AdminAdd StudentStudent SearchLogout

ADMIN VIEW

Student Information

Last NameFirst NameUINEmail

AggieAggie990009999aggieaggie@tamu.edu

Start SemesterQual ExamAttempts Completed

Fall 2020Pass1

AdvisorCo-Advisor

James CaverleeJianer Chen

Degree Plan SubmittedPrelim DateProposal DateFinal Defense Date

YesNovember 12, 2020December 16, 2020January 20, 2021

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

Ph.D. Review System

AdminAdd StudentStudent SearchLogout

ADMIN VIEW

Reviews for the Student

Review for UIN: 990009999

First Name: Aggie

Last Name: Aggie

Review Year

Choose Review Year

Reviewer	Rating	Review Year	Review
Department	N	2020	Testing on 12/01/2020'
Pinaki Shaw	S	2019	Testing Faculty Review

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

Ph.D. Review System

Student SearchLogout

FACULTY VIEW

Review for UIN: 990009999

First Name: Aggie

Last Name: Aggie

Review Year

Select Review Year

Comments For Student

Rating

Choose your option

SUBMIT

VIEW STUDENT REPORT

VIEW IMPROVEMENT PLAN

VIEW DEPARTMENT LETTER

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 [Student Review Sheet](#).

Associated files:

- add_student_review.html
- add_student_review_js.html

8. Admin View – Add Review

Ph.D. Review System

AdminAdd StudentStudent SearchLogout

ADMIN VIEW

Review for UIN: 990009999

First Name: Aggie

Last Name: Aggie

Review Year

Select Review Year

Comments For Student

Rating

Choose your option

ADD DEPARTMENTAL LETTER

Notes (select all that apply)

☐ Needs to improve grade

☐ No student report available

☐ Misconduct

☐ Needs to pass qualifier exam

☐ Needs to find advisor

☐ Needs to file degree plan

☐ Needs to do prelim

☐ Needs to submit proposal

☐ Needs to finish soon

SUBMIT

VIEW STUDENT REPORT

VIEW IMPROVEMENT PLAN

VIEW DEPARTMENT LETTER

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 [Student Review Sheet](#). The links of the files uploaded are updated in Sheet2 of [Review Year Information Sheet](#).

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

Ph.D. Review System

Admin Add Student Student Search Logout

ADMIN VIEW

UIN: 990009999
First Name: Aggie
Last Name: Aggie

Are you sure you want to remove this student from the PhD program?

REMOVE

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 [Student Info Sheet](#) 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

Ph.D. Review System

Student Information Reviews Logout

STUDENT VIEW

First Name	Last Name	UIN	Email
Pinaki	Shaw	940004444	dolapinaki@tamu.edu

Start Semester	Qual Exam	Attempts completed
Fall 2020	Pass	1

Advisor	Co-Advisor
Sarker Ahmed	Jianer Chen

Degree Plan Filed?	Prelim Date	Proposal Date	Final Defense Date
Yes	11/12/2020	12/16/2020	01/21/2021

VIEW CV

UPLOAD CV

Sample CV.pdf

DISCARD UPDATE!

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

The screenshot shows the 'Ph.D. Review System' interface for a student. At the top, there is a dark red header with the title 'Ph.D. Review System' on the left and navigation links 'Student Information', 'Reviews' (highlighted), and 'Logout' on the right. Below the header, the page is titled 'STUDENT VIEW'. A 'Review Year' dropdown menu is set to '2020'. Below this, there are four teal buttons: 'VIEW REPORT', 'VIEW IMPROVEMENT PLAN', 'ADD REPORT', and 'ADD IMPROVEMENT PLAN'. Further down, there are two buttons: 'DISCARD' (red) and 'UPLOAD' (teal). At the bottom, there are two more teal buttons: 'DEPARTMENT LETTER' and 'GET REVIEW DETAILS'. A section for 'Comments for you' is visible at the bottom, with the text 'Testing'.

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 [test document](#).

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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