

# 1. Introduction

## 1.1. Overview

This Google Apps Script app helps maintain the Google Drive folder hierarchy while removing files and access from subfolders when duplicating a Google Drive folder. Initially, this tool has been developed to help migrating the Path of Hope Foundation's Google Drive folders to facilitate new interns.

## 1.2. Codebase

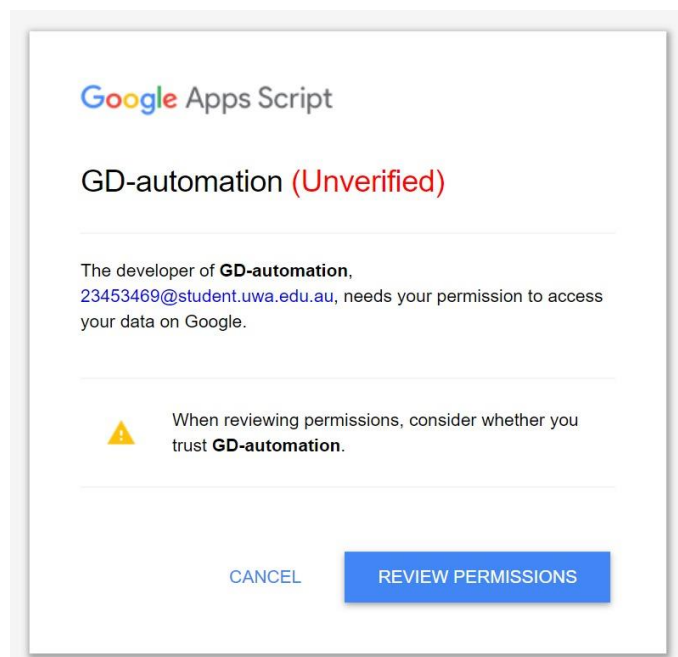
The code is hosted and maintained at <https://github.com/VictorAZ12/gd-automation>.

# 2. Getting Started

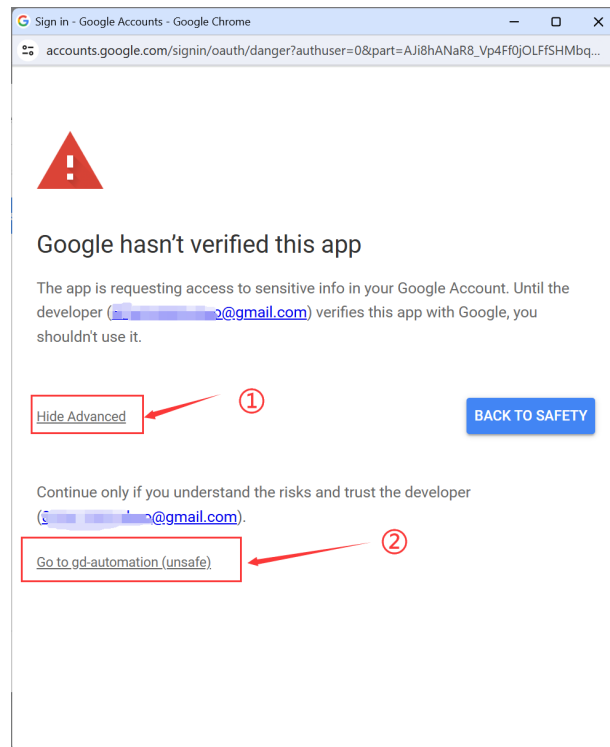
## 2.1. Access

This web app requires a standard modern browser like Chrome or Safari, and stable Internet connection to use. A stable version of this application has been deployed at <https://script.google.com/macros/s/AKfycbxBlb0wukyovuiBeXP20g8qylsIKazyG34SDXjho5f05mly0UjEWQav2AILR7OR3AMP/exec>.

When you access the page for the first time, you will likely see the following screenshot:



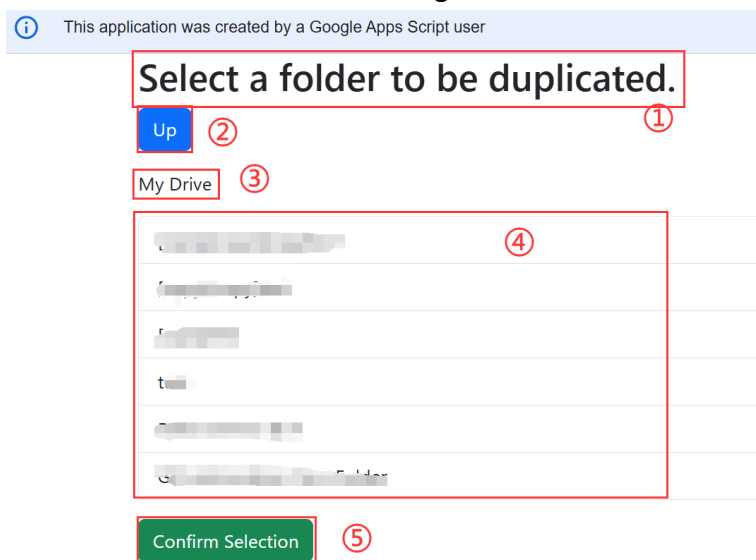
Please click on REVIEW PERMISSIONS, allow access, then proceed with the following instructions:



Please click on “Advanced” and then click “Go to <project name>”.

## 2.2. Select a folder to duplicate

After granting access, you can refresh the page or open the link again. You should be able to see the following user interface:

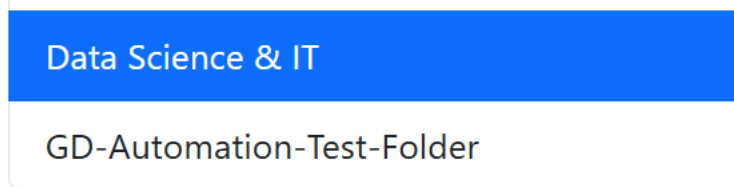


① – A message indicating that you’re select a folder to duplicate.

② – Navigate up. You can navigate up to the parent folder of current folder, but cannot navigate outside the root folder (My Drive).

③ – Current folder, which is a path string indicating the location of your current folder in your Google Drive.

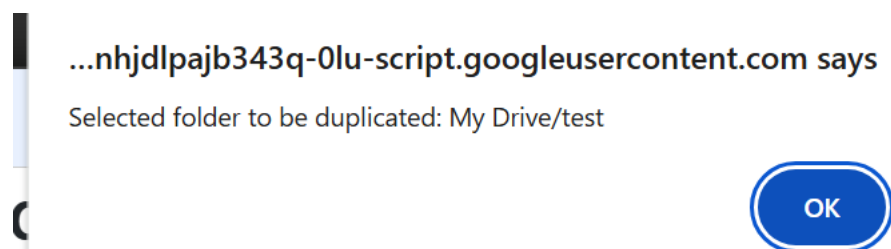
④ – Folder selection area, where you can single click to select a folder, then click again to navigate into it. The selected folder's path will be displayed below like this:



Selected folder: My Drive/Data Science & IT

⑤- Confirm Selection, confirm your current selection.

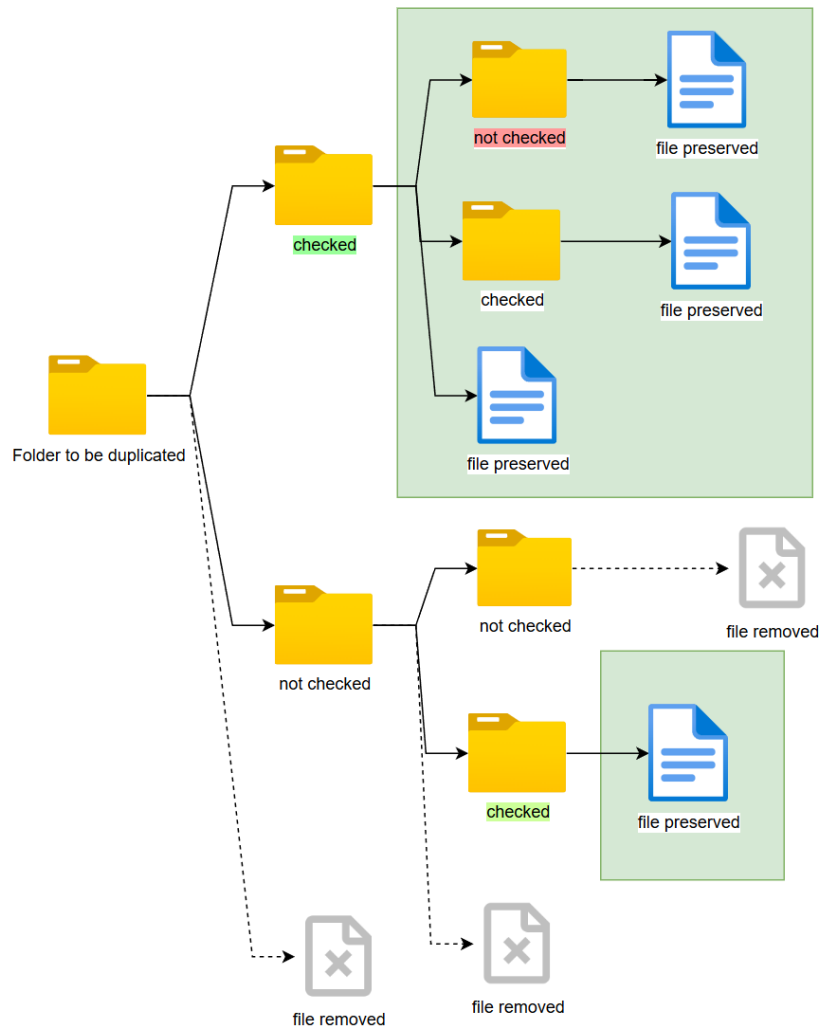
After you select a folder to duplicate, you can click on “Confirm Selection”, then you will see a dialog box showing your final selection:



If you have accidentally selected a wrong folder, simply refresh the page to start all over again.

### 2.3. Select subfolders to maintain files

Next, you will be able to use checkboxes of folders to mark the folders you want to maintain files. The rule is: if a folder is marked as “keep files”, then all files within the folder and its subfolders are maintained. Files will be removed by default.



After you have checked all the folders in which the files are to be preserved, you can then click “Confirm Selection” and proceed to the next step.

## 2.4. Select subfolders to maintain access

You may also select some folders to maintain their access after duplication. All editors and viewers will be migrated for all your checked folders and subfolders within your checked folders. Click “Confirm Selection” to proceed to the next step.

## 2.5. Submission and post-submission result

### Selected Folders

Folder to be duplicated: My Drive/test

**Folders to keep files:**

**Folders to keep access:**

Submit

You should be able to review the selected folder to be duplicated, and the folders you checked to keep files and/or access. Once you have confirmed, click the “Submit” button.

### Submitted



Processing, please wait.

The web app has submitted your selections and is waiting for the server to respond. You can close the page while the server is processing your request. Should you want to see if your request is successful, stay a bit longer on this page, and you will likely to see a failure/success screen.

### Submitted

Successful!

Open created folder

### Logs

Folder [copy][copy][copy][copy]test created.

Folder copied as My Drive/[copy][copy][copy][copy]test.

Duplicate folder path string: My Drive/[copy][copy][copy]test, folde

Access copy completed (if any), see Apps Script console for details.

All work done.

Most of the time, you will see a success page, including some logs during operation. You can then click on “Open created folder”, which brings to Google Drive to start working on the duplicated folder.

## Submitted

Request unsuccessful!

## Logs

Something went wrong.

Error: Folder duplication not completed.

Runtime:

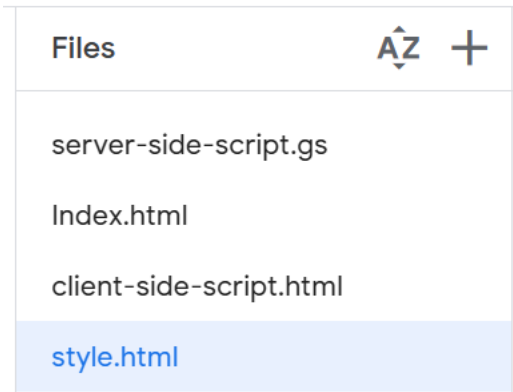
Folder [copy]test already exists in the target folder, cannot copy folder.

If an error occurs, you will see “Request unsuccessful!” and the logs indicating the problem. For example, the screenshot above explains that a new folder cannot be created. Because the new folder simply adds “[copy]” before the selected folder’s name, if you have done a duplication before, you cannot duplicate before you rename your previously created folder. This is for preventing multiple submissions due to network issues or other causes.

## 3. Developer's guide and Deployment

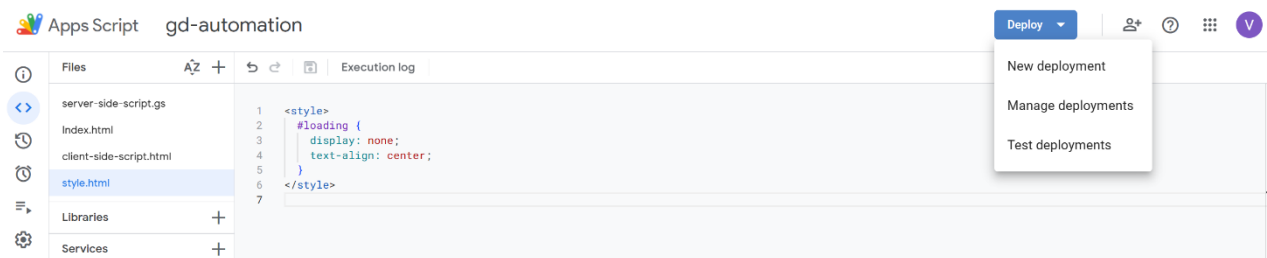
### 3.1. Deployment

1. Login your google account
2. Create a new Google Apps Script project in <https://script.google.com/home>.
3. Add some files by clicking the plus button.

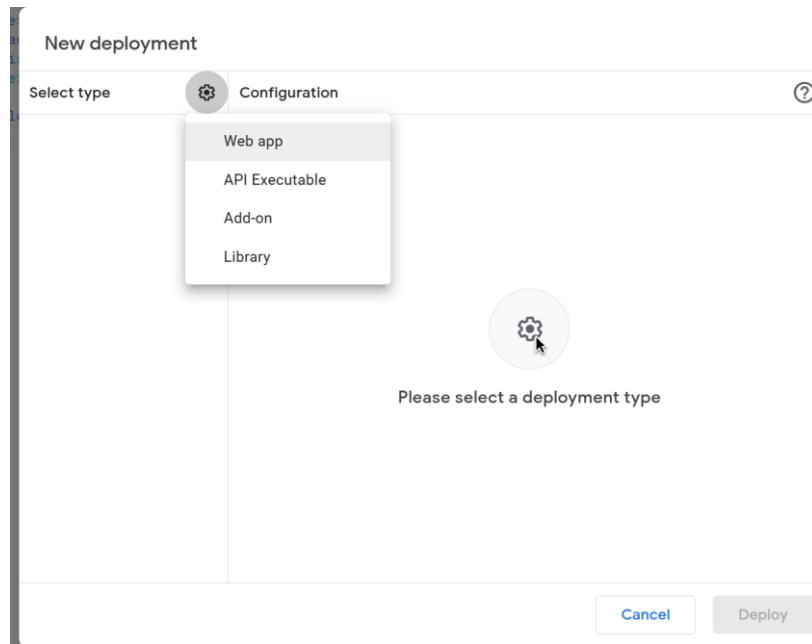


The files should contain 1 script named “server-side-script.gs”, and 3 HTMLs named “Index.html”, “client-side-script.html”, and “style.html” as listed in the screenshot above.

4. Copy code from the files with same file names from [https://script.google.com/d/1laWH0-DGMnFPBc\\_5VOI3YzBtiLAVJzwaV4KU\\_uJ2Sr1lwMKa4h4eDa7A/edit?usp=sharing](https://script.google.com/d/1laWH0-DGMnFPBc_5VOI3YzBtiLAVJzwaV4KU_uJ2Sr1lwMKa4h4eDa7A/edit?usp=sharing)
5. Deploy



Click on “New deployment”



Deploy as a Web app.

...

Configuration

Description

New description

Web app

Execute as

Me (81...@gmail.com)

The web app will be authorized to run using your account data.

Who has access

Only myself

This can also be used as a library. [Learn more](#)

Cancel Deploy

Configure: set a description, then select “execute as Me” and “Only myself” you’re your personal access. Alternatively, you can select execute as the accessing user, and allow access for other Google users to allow other people using it. Then select Deploy.

#### 6. Authorize

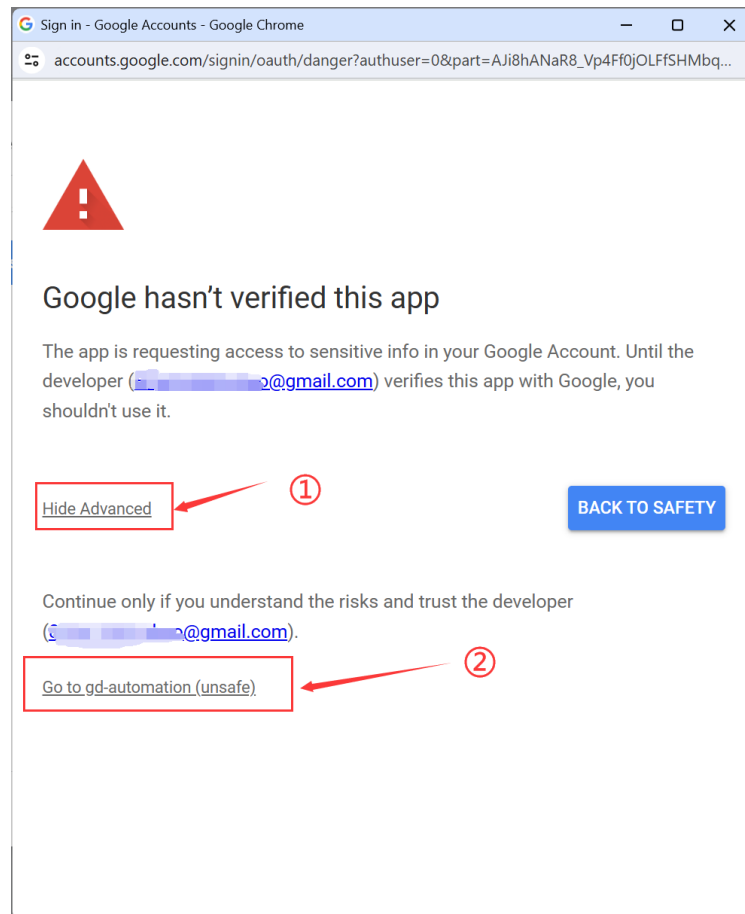
The web app needs to access your Google Drive folder, therefore you need to authorize in the following page:



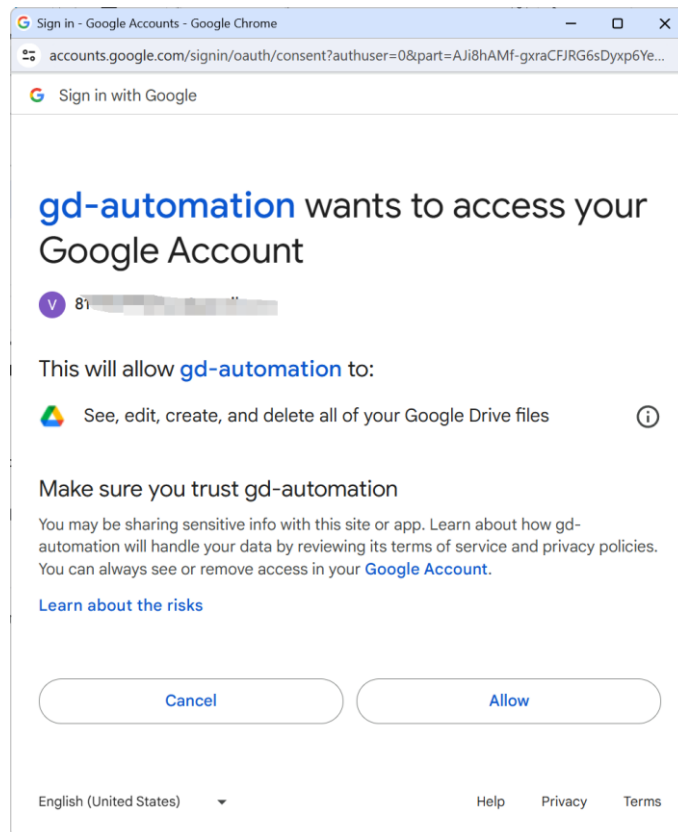
## New deployment

The Web App requires you to authorize access to your data.

[Authorize access](#)



Please click on “Advanced” and then click “Go to <project name>”.



Click on "Allow".

## 7. Access the deployed project


### New deployment

Deployment successfully updated.

**Version 1 on Jul 9, 2024, 1:14 PM**

Deployment ID


AKfycbwqdTUwKAu\_\_i4FMjMFaVdIHNR8cy-RReAimp3q1YH-GaOJz1cfWWsxvCwf3qHS4Lj

 [Copy](#)

**Web app**

URL

[https://script.google.com/macros/s/AKfycbwqdTUwKAu\\_\\_i4FMjMFaVdIHNR8cy-RReAimp3q1YH-GaOJz1cfWWsxvCwf3qHS4Lj](https://script.google.com/macros/s/AKfycbwqdTUwKAu__i4FMjMFaVdIHNR8cy-RReAimp3q1YH-GaOJz1cfWWsxvCwf3qHS4Lj)

 [Copy](#)

[Done](#)

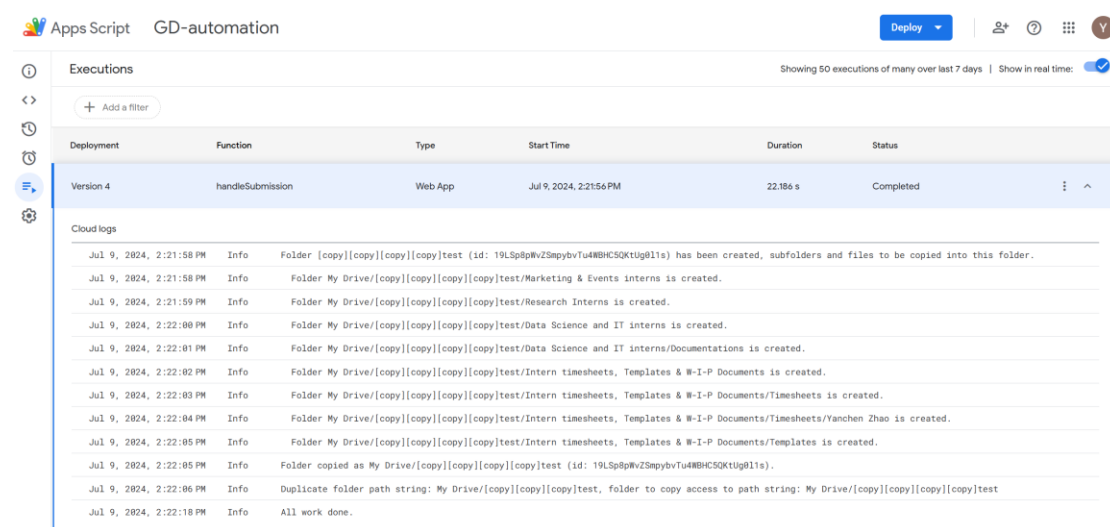
You can access this web app using this URL.

## 3.2. Application Design

This application is based on Google Apps Script, which can be separated into 2 parts: the HTML user interface, and the server-side script.

### 3.2.1 Server-side Script and server logs

The file “server-side-script.gs” contains JavaScript functions that can be run either from your Google Apps Script or when called by client’s side. Functions have comments and use Logger.log to output some running logs the Google Apps Script console, which can be seen in the Executions tab.



The screenshot shows the Google Apps Script interface for a project named "GD-automation". The "Executions" tab is active, displaying a table of deployments. The first deployment, "Version 4", is highlighted and shows a successful execution of the "handleSubmission" function. Below the table, the "Cloud logs" section displays a series of log messages indicating the successful creation of various folders and files in Google Drive.

Deployment	Function	Type	Start Time	Duration	Status
Version 4	handleSubmission	Web App	Jul 9, 2024, 2:21:56 PM	22.186 s	Completed

Cloud logs

- Jul 9, 2024, 2:21:58 PM Info Folder [copy][copy][copy][copy]test (id: 19LSp8pWvZ5mPybvTu4MBHC5QKtUg01s) has been created, subfolders and files to be copied into this folder.
- Jul 9, 2024, 2:21:58 PM Info Folder My Drive/[copy][copy][copy][copy]test/Marketing & Events Interns is created.
- Jul 9, 2024, 2:21:59 PM Info Folder My Drive/[copy][copy][copy][copy]test/Research Interns is created.
- Jul 9, 2024, 2:22:00 PM Info Folder My Drive/[copy][copy][copy][copy]test/Data Science and IT Interns is created.
- Jul 9, 2024, 2:22:01 PM Info Folder My Drive/[copy][copy][copy][copy]test/Data Science and IT Interns/Documentations is created.
- Jul 9, 2024, 2:22:02 PM Info Folder My Drive/[copy][copy][copy][copy]test/Intern timesheets, Templates & W-I-P Documents is created.
- Jul 9, 2024, 2:22:03 PM Info Folder My Drive/[copy][copy][copy][copy]test/Intern timesheets, Templates & W-I-P Documents/Timesheets is created.
- Jul 9, 2024, 2:22:04 PM Info Folder My Drive/[copy][copy][copy][copy]test/Intern timesheets, Templates & W-I-P Documents/Timesheets/Yanchen Zhao is created.
- Jul 9, 2024, 2:22:05 PM Info Folder My Drive/[copy][copy][copy][copy]test/Intern timesheets, Templates & W-I-P Documents/Templates is created.
- Jul 9, 2024, 2:22:05 PM Info Folder copied as My Drive/[copy][copy][copy][copy]test (id: 19LSp8pWvZ5mPybvTu4MBHC5QKtUg01s).
- Jul 9, 2024, 2:22:06 PM Info Duplicate folder path string: My Drive/[copy][copy][copy]test, folder to copy access to path string: My Drive/[copy][copy][copy][copy]test
- Jul 9, 2024, 2:22:18 PM Info All work done.

### 3.2.2 Client-side HTML and user interface

According to the best practices for hosting HTML services with Google Apps Script (<https://developers.google.com/apps-script/guides/html/best-practices>), unlike normal HTML, CSS, JS file structures, all CSS and JavaScript are stored in HTML files as well. The main HTML is Index.html, more styles can be added to style.html, and client-side JavaScript functions are stored in client-side-script.html. Please refer to the link provided above for more information.

To save development time cost, the user interface only integrated some Bootstrap elements for better user experience.

### 3.2.3 Application Flow Chart

