
Professional Certificate in Google Apps Script Advanced Techniques

Advanced Google Sheets Automation

In this explanation, we will discuss key terms and vocabulary related to Advanced Google Sheets Automation in the context of the Professional Certificate in Google Apps Script Advanced Techniques. We will cover various concepts, including triggers, custom functions, and data validation, and provide examples and practical applications to help you understand and apply these concepts in your own projects.

1. Triggers

Triggers are a way to automatically run a script in response to a specific event, such as opening a spreadsheet or editing a cell. There are two types of triggers: simple triggers and installable triggers.

Simple triggers are automatically available in a script and do not require any setup. They include functions such as `onOpen()` and `onEdit()`, which run when a spreadsheet is opened or edited, respectively.

Installable triggers, on the other hand, must be set up manually and can be more versatile than simple triggers. They include triggers such as `onFormSubmit()` and time-driven triggers, which can run a script at a specific time or interval.

Here is an example of how to set up a time-driven trigger to run a script every day at 6:00 AM:

1. Go to the "Triggers" menu in the script editor and click on "+ Add Trigger."
2. Select the function you want to run and set the event type to "Time-driven."
3. Choose the specific time and interval for the trigger, such as "Day timer" and "6:00 AM - 6:00 AM."
4. Click "Save" to create the trigger.

Triggers can be very useful for automating repetitive tasks and saving time. For example, you could use a time-driven trigger to update a dashboard with the latest data from a database every hour.

2. Custom Functions

Custom functions are a way to create your own formulas in Google Sheets. They allow you to perform complex calculations or operations that are not available as built-in functions.

To create a custom function, you need to write a script in the Apps Script editor and then use the function name in a cell in Google Sheets. Here is an example of a simple custom function that calculates the sum of two numbers:

```
function mySum(a, b) {  
  return a + b;  
}
```

To use this function in a cell, you would type `=mySum(1, 2)` (without the quotes) and press enter. The cell would then display the result, which is 3 in this case.

Custom functions can also be used to interact with other Google services, such as Google Drive or Gmail. For example, you could create a custom function that searches for a specific email in Gmail and returns the number of attachments.

3. Data Validation

Data validation is a way to control the type and format of data that can be entered into a cell or range of cells in Google Sheets. It can be used to ensure that data is consistent and accurate, and to prevent errors or incorrect entries.

There are several types of data validation that you can use in Google Sheets, including:

- * Text: This type of validation allows you to specify a list of acceptable text entries, such as "Yes" or "No."
- * Numbers: This type of validation allows you to specify a range of acceptable numbers, such as "0-100" or ">50."
- * Dates: This type of validation allows you to specify a range of acceptable dates, such as "Today" or "Last 7 days."
- * Custom formula: This type of validation allows you to use a custom formula to determine whether an entry is valid. For example, you could use a custom formula to check if a date is a weekend or a holiday.

Here is an example of how to set up data validation to allow only text entries of "Yes" or "No" in a cell:

1. Select the cell or range of cells that you want to apply the validation to.
2. Go to the "Data" menu and click on "Validation."
3. In the "Criteria" tab, select "Text" from the dropdown menu.
4. In the "List of items" field, enter "Yes,No" (without the quotes).
5. Click "Save" to apply the validation.

Data validation can be very useful for ensuring that data is entered consistently and accurately. For example, you could use data validation to require that a date is entered in a specific format, or to prevent the entry of duplicate values in a list.

Challenge:

Now that you have learned about triggers, custom functions, and data validation, try the following challenge to apply your knowledge:

1. Create a time-driven trigger to run a script every day at 6:00 AM that updates a dashboard with the latest data from a database.
2. Write a custom function that calculates the average of three numbers and use it in a cell in Google Sheets.
3. Set up data validation to allow only numbers between 0 and 100 in a range of cells in Google Sheets.

In this explanation, we have discussed key terms and vocabulary related to Advanced Google Sheets Automation in the context of the Professional Certificate in Google Apps Script Advanced Techniques. We have covered triggers, custom functions, and data validation, and provided examples and practical

applications to help you understand and apply these concepts in your own projects. We hope that this explanation has been helpful and informative, and that you are now able to use these concepts to automate your own Google Sheets tasks.