



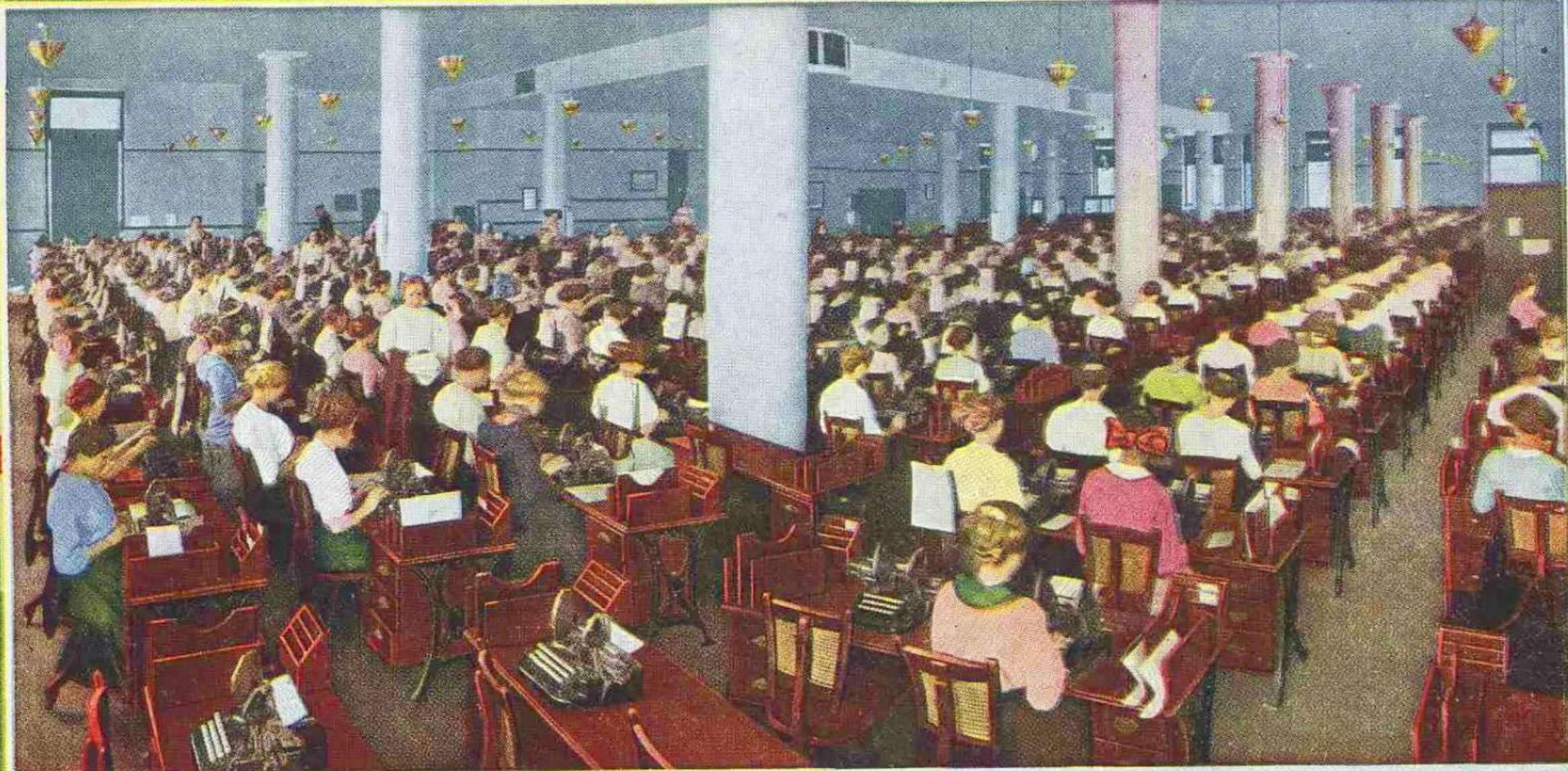
Google

Developers



Use Apps Script to create dynamic Google Forms

Eric Koleda, Developer Programs Engineer
Matt Ziegelbaum, Software Engineer



Entry Department. In this department the customers' orders are entered on tickets which are sent to the various merchandise departments. On each ticket is printed the exact hour the order must be shipped. This schedule is rigidly adhered to by the departments, which accomplishes the prompt shipment of every order that comes into our store.

Sears, Roebuck and Co., Chicago.



Mini-workflows

- Small in scope
- Limited time frame
- Rapidly changing



Mini-workflows

Email

- Minimal effort
- Familiar technology
- Complete chaos



Mini-workflows

Spreadsheet

- Structured data
- Simple to setup
- Error prone

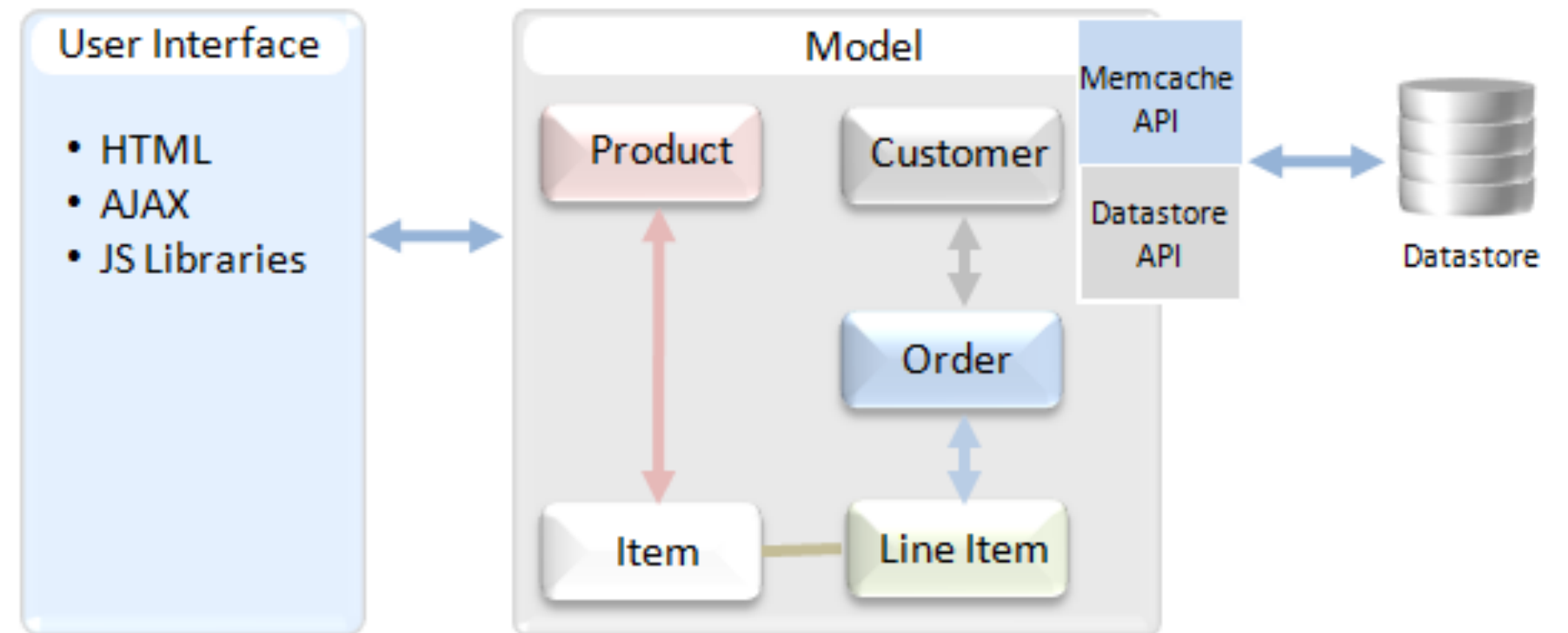
	A	B	C	D	E	F
1	COMPANY NAME					
2						
3	Street Address			DATE:		
4	City, ST ZIP Code					
5	Phone No., Fax No.			INVOICE #		
6						
7	BILL TO	[Name]		SHIP TO	[Name]	
8		[Company Name]			[Company Name]	
9		[Street Address]			[Street Address]	
10		[City, ST ZIP Code]			[City, ST ZIP Code]	
11		[Phone]			[Phone]	
12		[Email]			[Email]	
13						
14	SALES PERSON	P.O. NUMBER	SHIP DATE	SHIP VIA	F.O.B. POINT	TERMS
15						Due on receipt
16						
17	DESCRIPTION					AMOUNT
18						\$ 0.00
19						\$ 0.00
20						\$ 0.00



Mini-workflows

Custom application

- Tailored to your exact needs
- Scales to many users
- Maintenance required



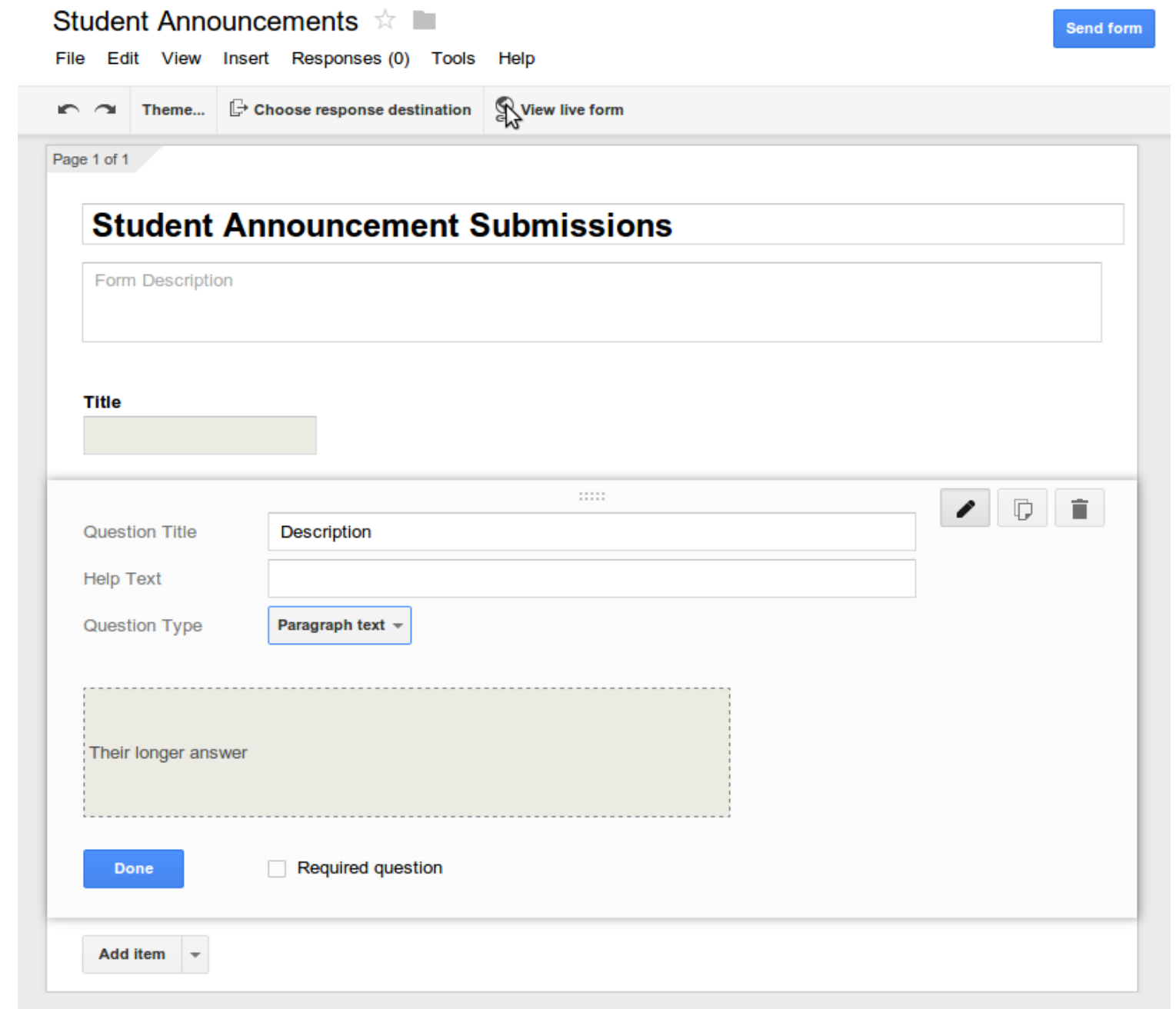


Google Forms



Google Forms

- Rich designer with real-time collaboration
- Scales to thousands of users
- Flexible storage options



The screenshot shows the Google Forms editor interface for a form titled "Student Announcements". At the top right, there is a "Send form" button. Below the title, there is a menu with options: "File", "Edit", "View", "Insert", "Responses (0)", "Tools", and "Help". A secondary toolbar includes "Theme...", "Choose response destination", and "View live form". The main editing area is labeled "Page 1 of 1" and contains a form titled "Student Announcement Submissions". Below the title is a "Form Description" field. A "Title" field is also present. The question configuration panel shows "Question Title" as "Description", "Help Text" as an empty field, and "Question Type" as "Paragraph text". A preview of the question shows a dashed box with the text "Their longer answer". At the bottom of the question configuration, there is a "Done" button and a "Required question" checkbox. An "Add item" button is located at the bottom left of the editor.



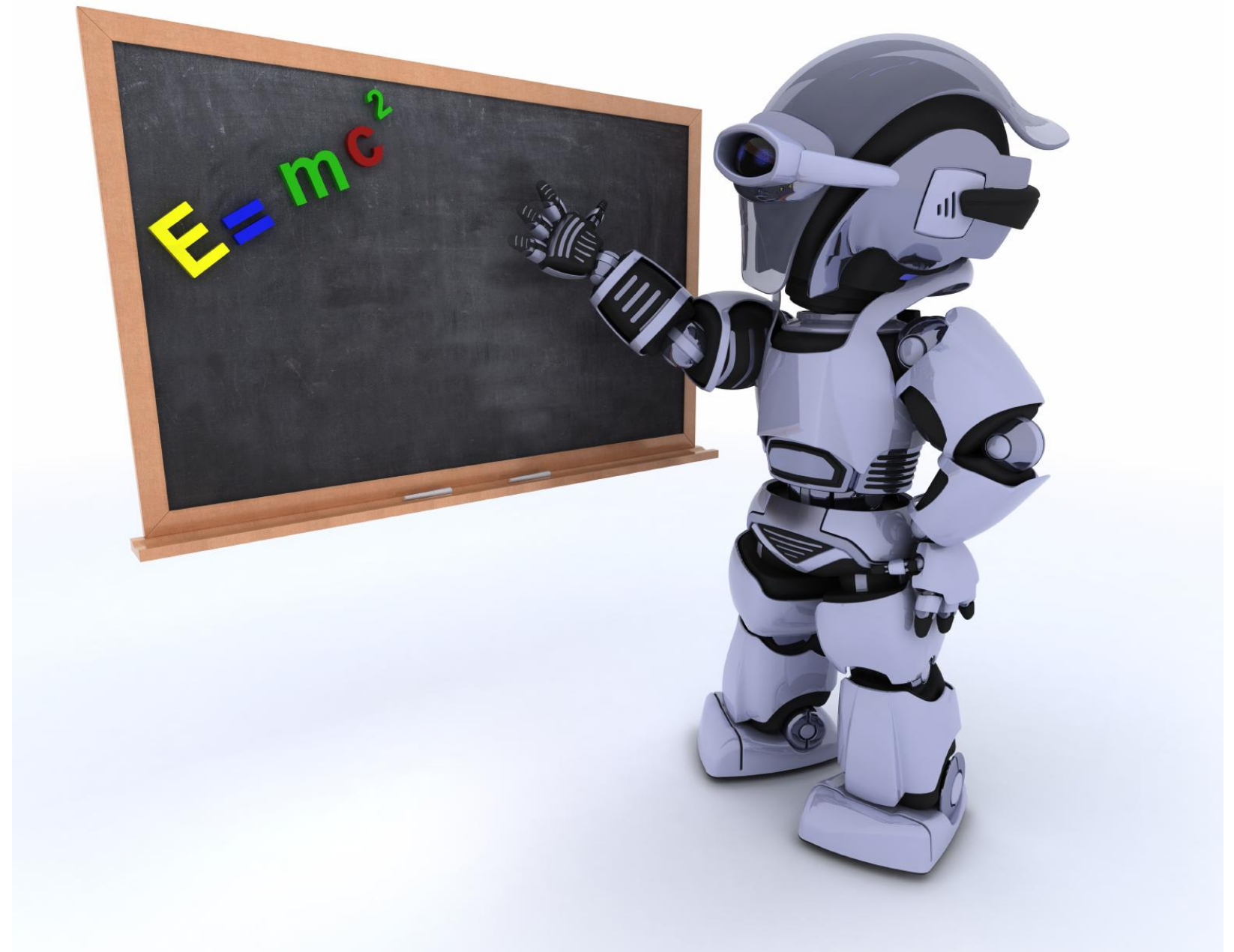
Forms in Education

- Millions of teachers and students on Google Apps for Education
- Lightweight mechanism to collect information



Automation needed

- Automatically update forms when new students enter a class
- Quickly create, distribute, and grade quizzes
- Route student feedback and issues to counselors, parents, etc



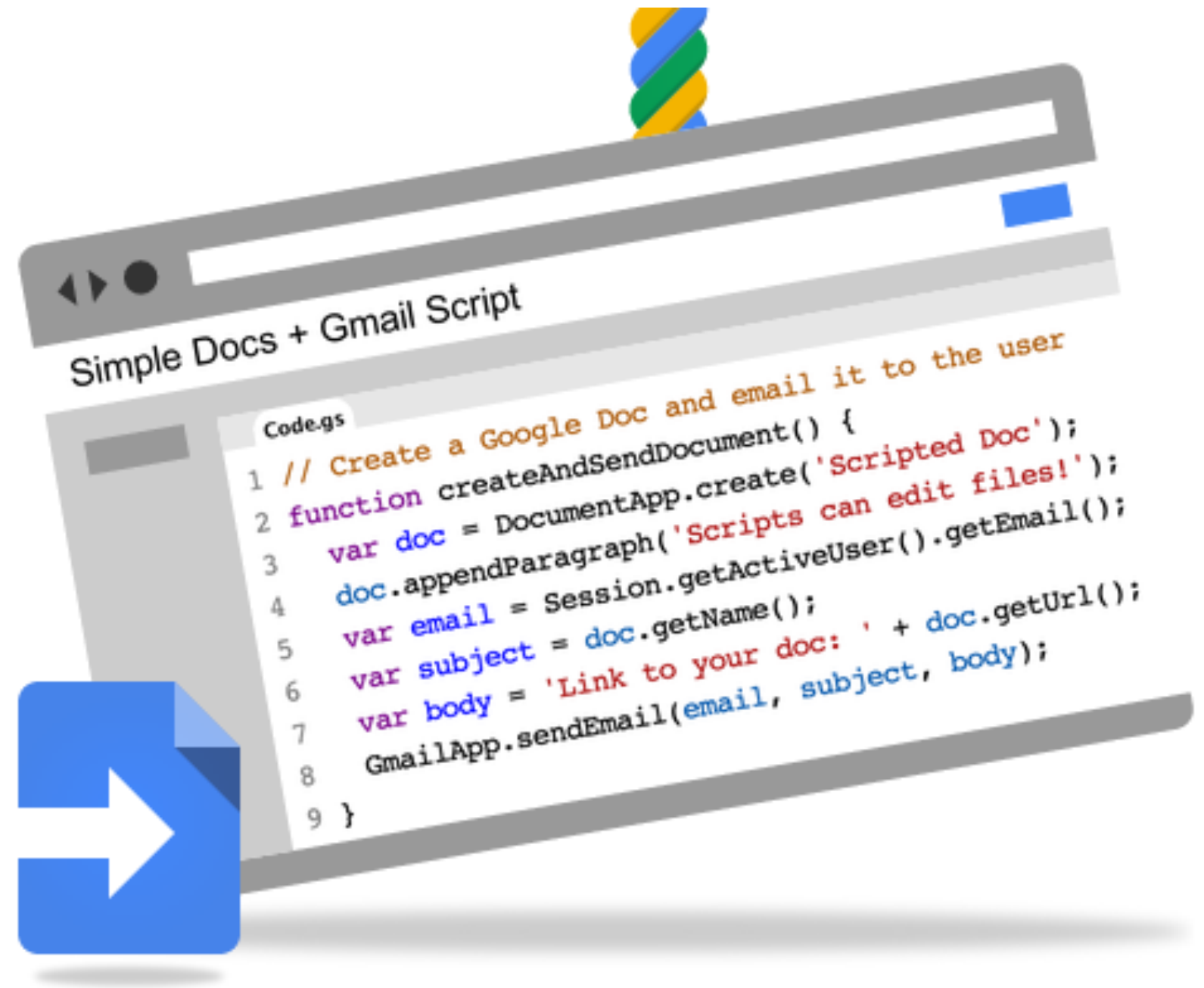


Forms + Apps Script

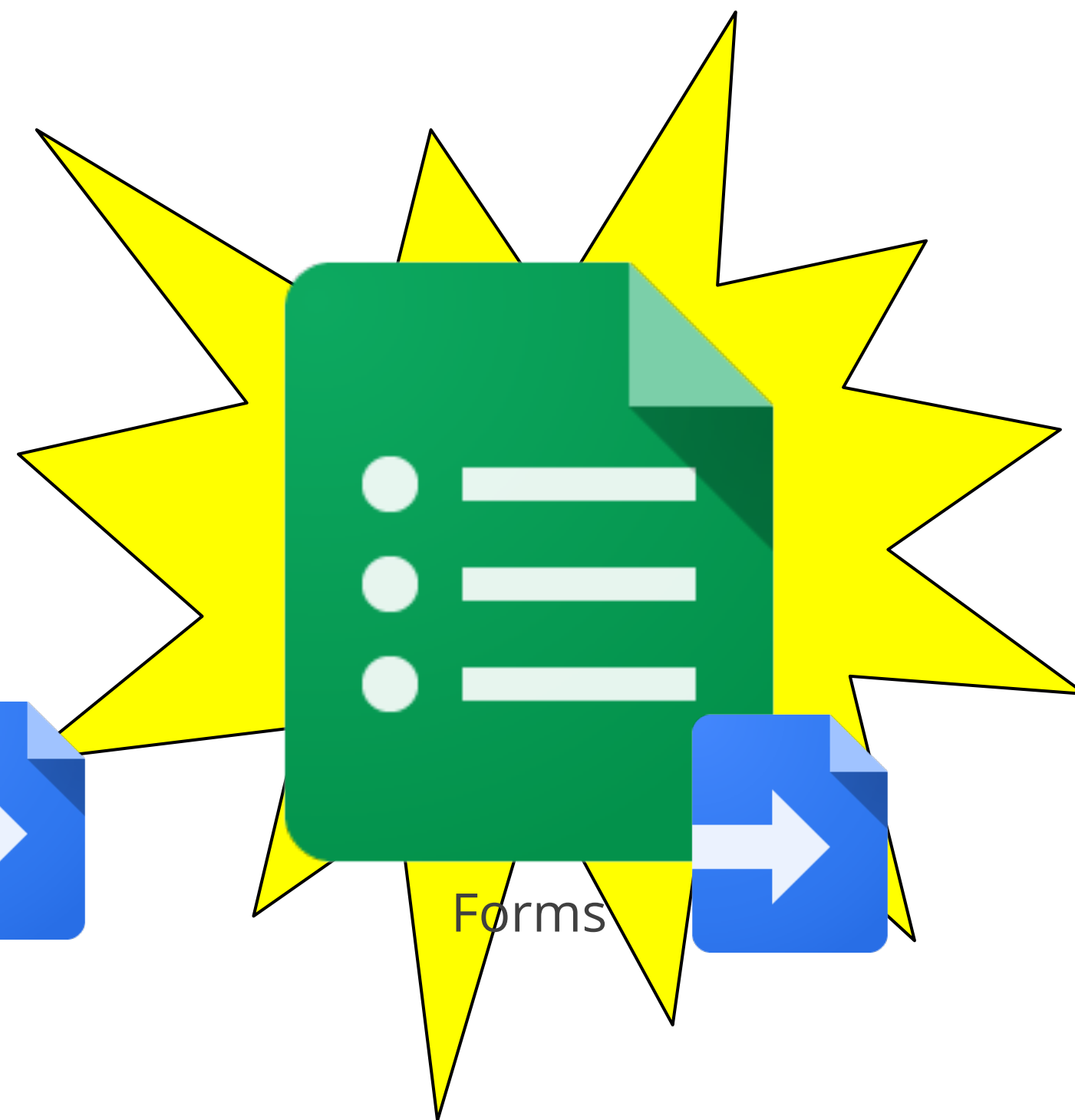
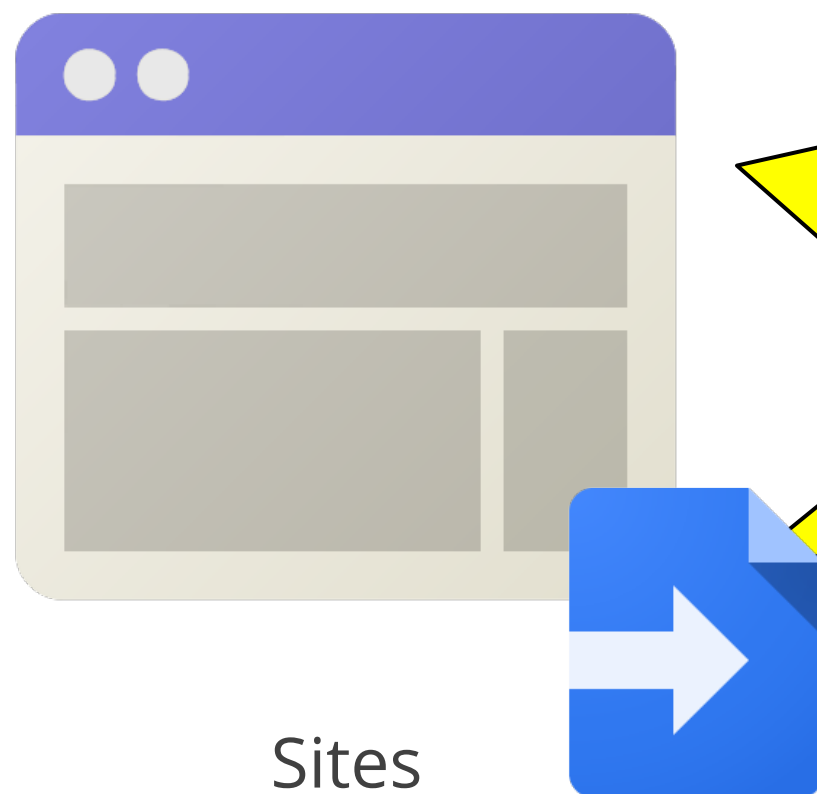


Apps Script

1. JavaScript in the cloud
2. No setup required
3. Easy access to data

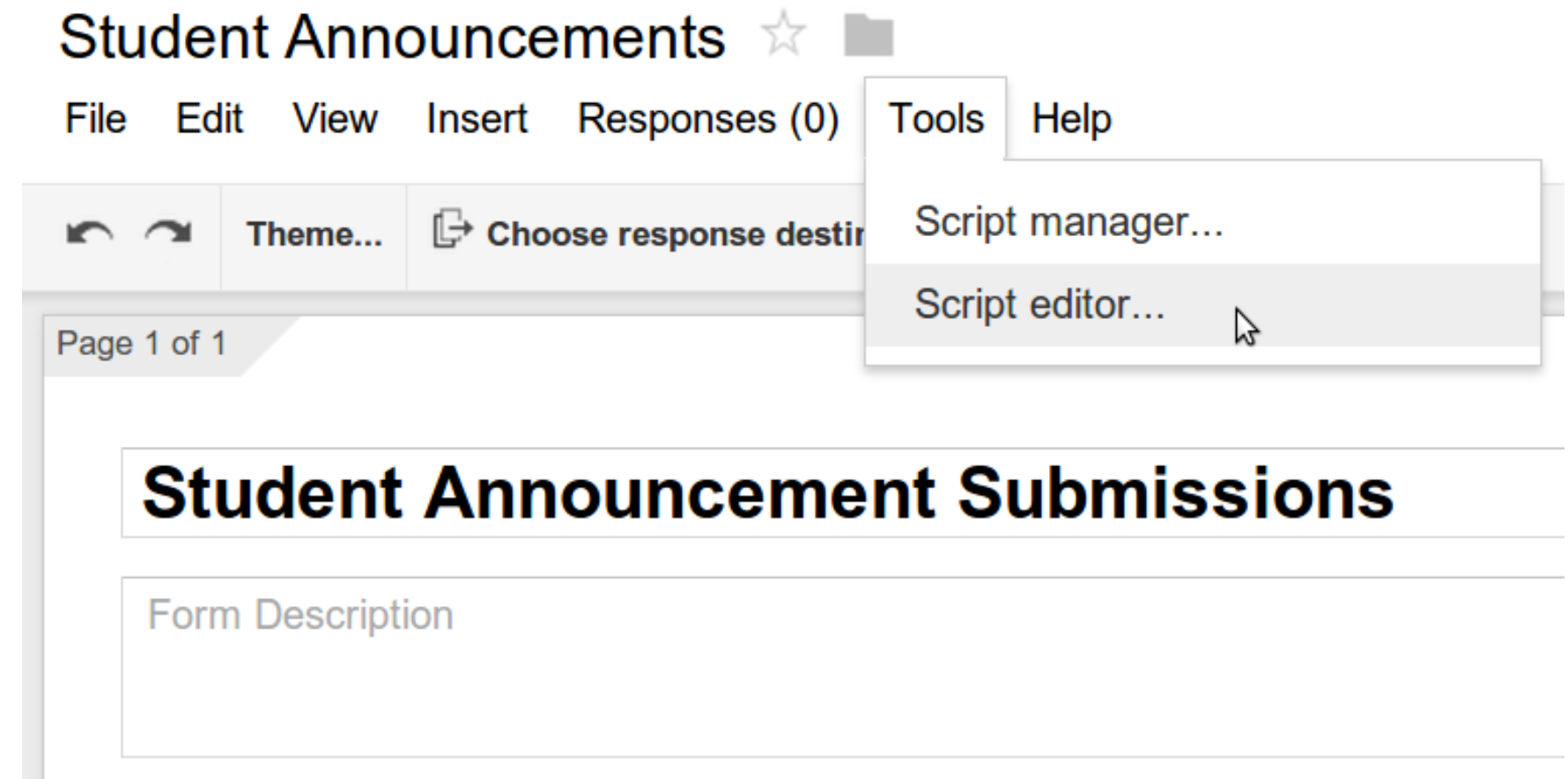


Now in Forms



Scripts in Forms

- Add scripts directly to a form
 - Tools > Script editor
- Scripts copy along with form
- Share same permissions as form
- Easy access to the attached form



The screenshot shows a web interface for editing a form titled "Student Announcements". The top navigation bar includes "File", "Edit", "View", "Insert", "Responses (0)", "Tools", and "Help". The "Tools" menu is open, displaying "Script manager..." and "Script editor...", with the latter being highlighted by a mouse cursor. Below the menu, there are buttons for "Theme..." and "Choose response destination". The main content area shows "Page 1 of 1" and a section titled "Student Announcement Submissions" with a "Form Description" field below it.



Integrated in three ways

1

Create, open, edit

2

Enhance the form designer

3

React to submissions



Integrated in three ways



Create, open, edit



Enhance the form designer



React to submissions



Create, open, edit

- What
 - Access forms in your Drive
 - Add, remove, and edit form fields
 - Change form settings and behavior
- Why
 - Generate new forms programmatically
 - Automatically update field choices from a data source
 - Perform bulk operations on forms

```
function myFunction() {
  var form = FormApp.getActiveForm();
  form.
}
```

- addCheckboxItem() : CheckboxItem
- addDateItem() : DateItem
- addDateTimeItem() : DateTimeItem
- addDurationItem() : DurationItem
- addGridItem() : GridItem
- addListItem() : ListItem
- addMultipleChoiceItem() : MultipleChoiceItem
- addPageBreakItem() : PageBreakItem



Create, open, edit

Sample code

JS

```
// Create form and email link.  
var form = FormApp.create(  
  'Dinner Planning Form');  
form.setTitle('Dinner Availability');  
form.setCollectEmails(true);  
  
var item = form.addCheckboxItem();  
item.setTitle(  
  'What days are you available?');  
item.setChoiceValues(  
  ['Monday', 'Tuesday', 'Wednesday']);  
  
MailApp.sendEmail(  
  Session.getActiveUser().getEmail(),  
  'Please fill out this form',  
  form.getPublishedUrl());
```

Page 1 of 1

Dinner Availability

Form Description

Add item



Create, open, edit

Sample code

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MailApp.sendEmail(  
  Session.getActiveUser().getEmail(),  
  'Please fill out this form',  
  form.getPublishedUrl());
```

Page 1 of 1

Dinner Availability

Form Description

What days are you available?

- Monday
- Tuesday
- Wednesday

Add item

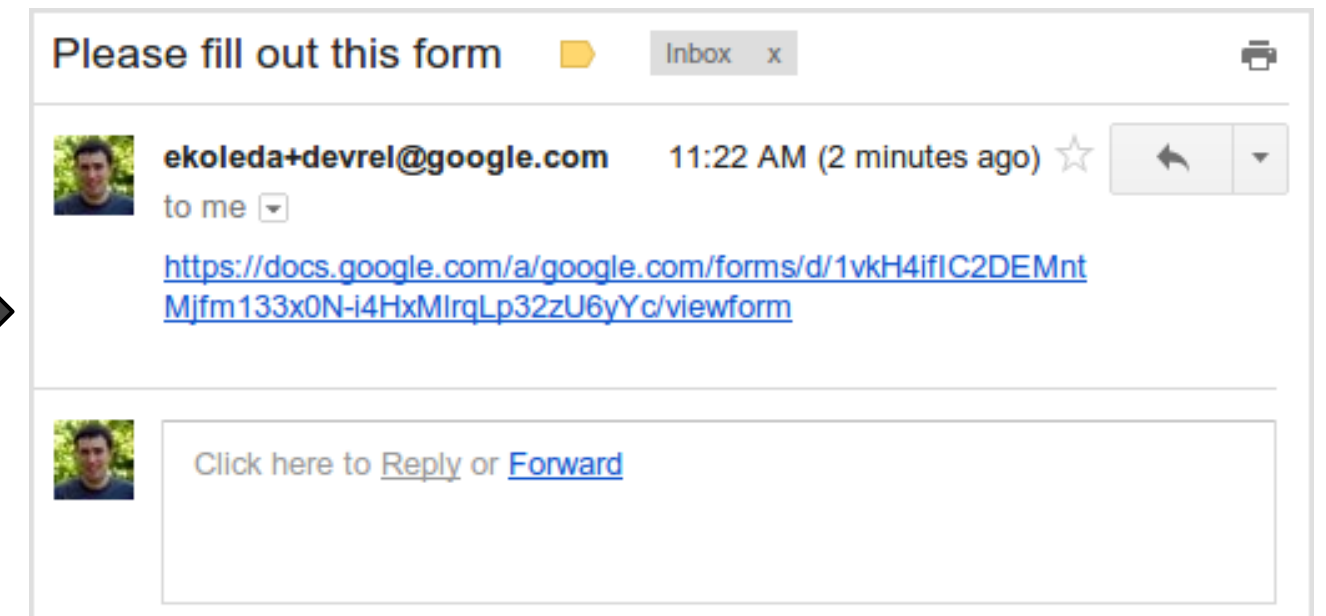


Create, open, edit

Sample code

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  Session.getActiveUser().getEmail(),  
  'Please fill out this form',  
  form.getPublishedUrl());
```



Integrated in three ways



Create, open, edit



Enhance the form designer



React to submissions



Enhance the form designer

- What
 - Add custom menus
 - Show prompts and alerts
 - Show custom dialogs and sidebars
- Why
 - Create macros for common tasks
 - Bring forward relevant data
 - Integrate with external systems

The image shows a screenshot of a form designer interface, tilted at an angle. At the top, it says "Page 1 of 1". Below that is a header for "Untitled form" with a "Form Description" field. The main area is for configuring a question. It has a "Question Title" field with "Untitled Question" and a "Help Text" field. The "Question Type" is set to "Multiple choice" with a dropdown arrow. There are two checkboxes: "Go to page based on answer" (unchecked) and "Required question" (unchecked). Below these are two radio button options: "Option 1" and "Click to add option". A blue button labeled "Done" is at the bottom left. At the bottom right, there is an "Add item" button with a dropdown arrow.

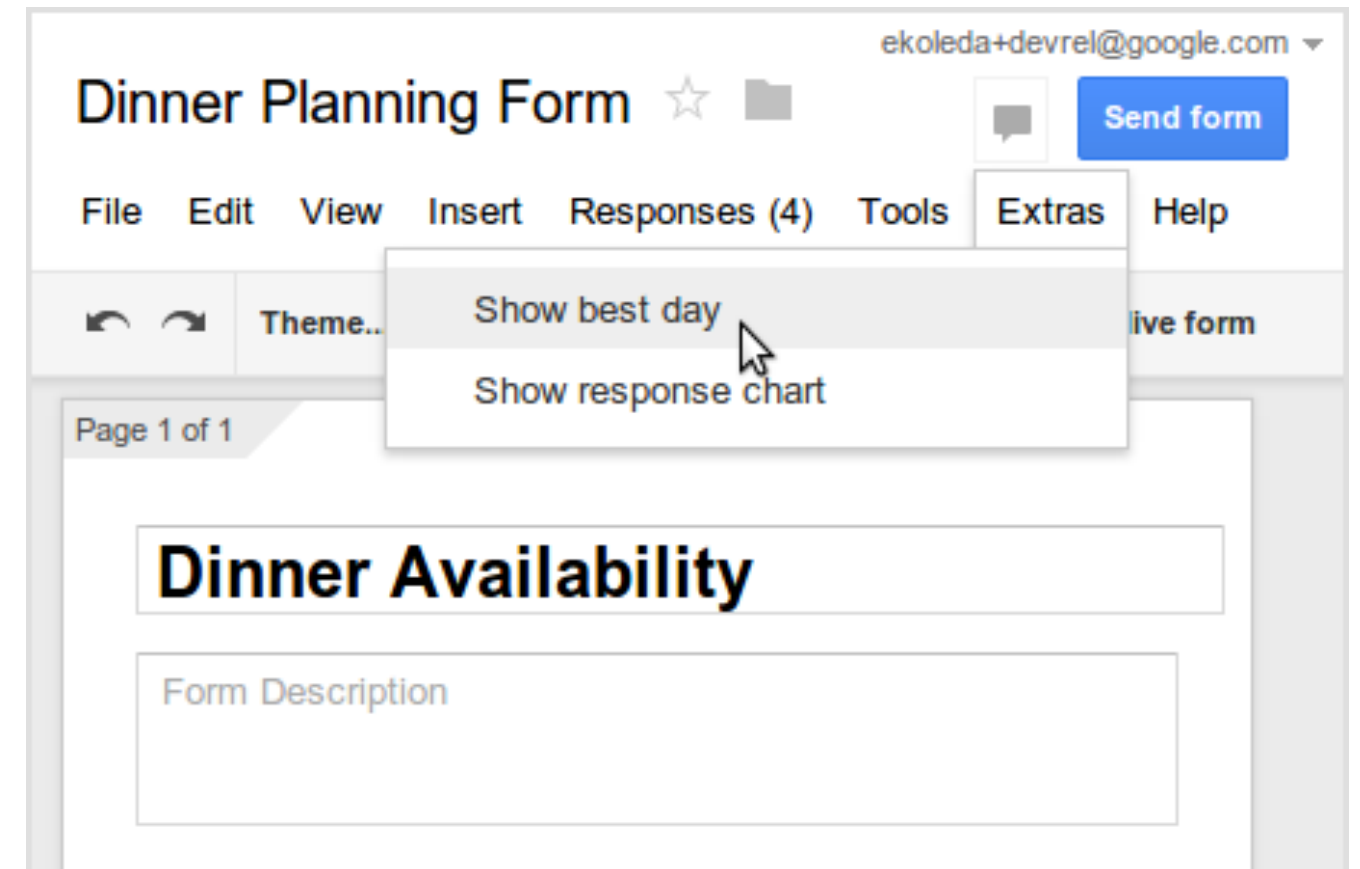


Enhance the form designer

Add custom menus

```
function onOpen() {  
  FormApp.getUi().createMenu('Extras')  
    .addItem('Show best day', 'showBestDay')  
    .addItem('Show response chart', 'showChart')  
    .addToUi();  
}  
  
function showBestDay() {  
  // ...  
}  
  
function showChart() {  
  // ...  
}
```

JS

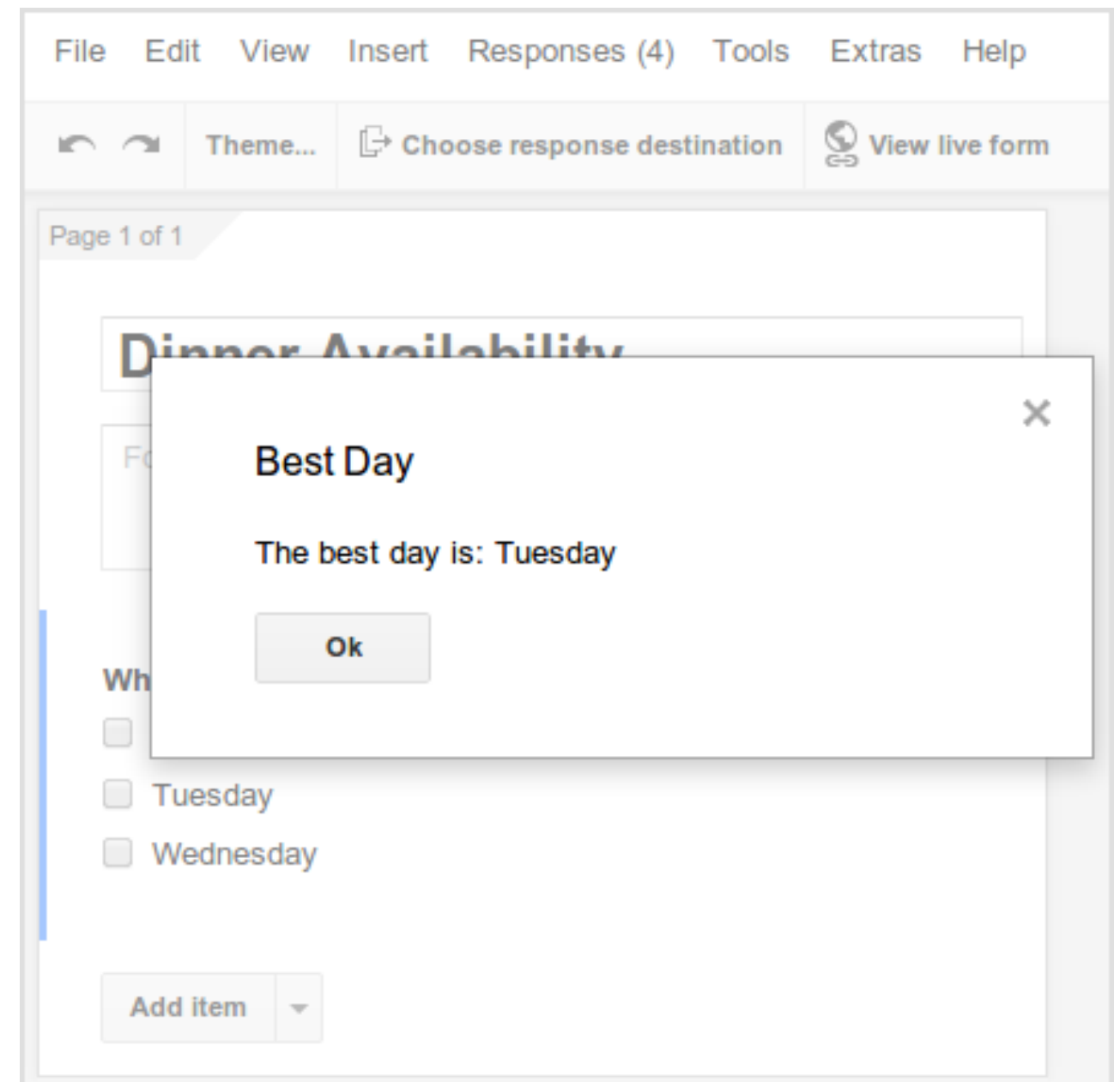


Enhance the form designer

Show prompts and alerts

```
function showBestDay() {  
  var bestDay = calculateBestDay();  
  
  var ui = FormApp.getUi();  
  ui.alert('Best Day',  
    'The best day is: ' + bestDay,  
    ui.ButtonSet.OK);  
}  
  
function calculateBestDay() {  
  // ...  
}
```

JS



The screenshot shows a Google Forms editor interface. The menu bar includes 'File', 'Edit', 'View', 'Insert', 'Responses (4)', 'Tools', 'Extras', and 'Help'. Below the menu, there are navigation icons and buttons for 'Theme...', 'Choose response destination', and 'View live form'. The main content area shows 'Page 1 of 1' and a form titled 'Dinner Availability'. The form has a section for 'When' with radio buttons for 'Tuesday' and 'Wednesday'. An alert dialog box is overlaid on the form, displaying the text 'Best Day' and 'The best day is: Tuesday' with an 'Ok' button.



Enhance the form designer

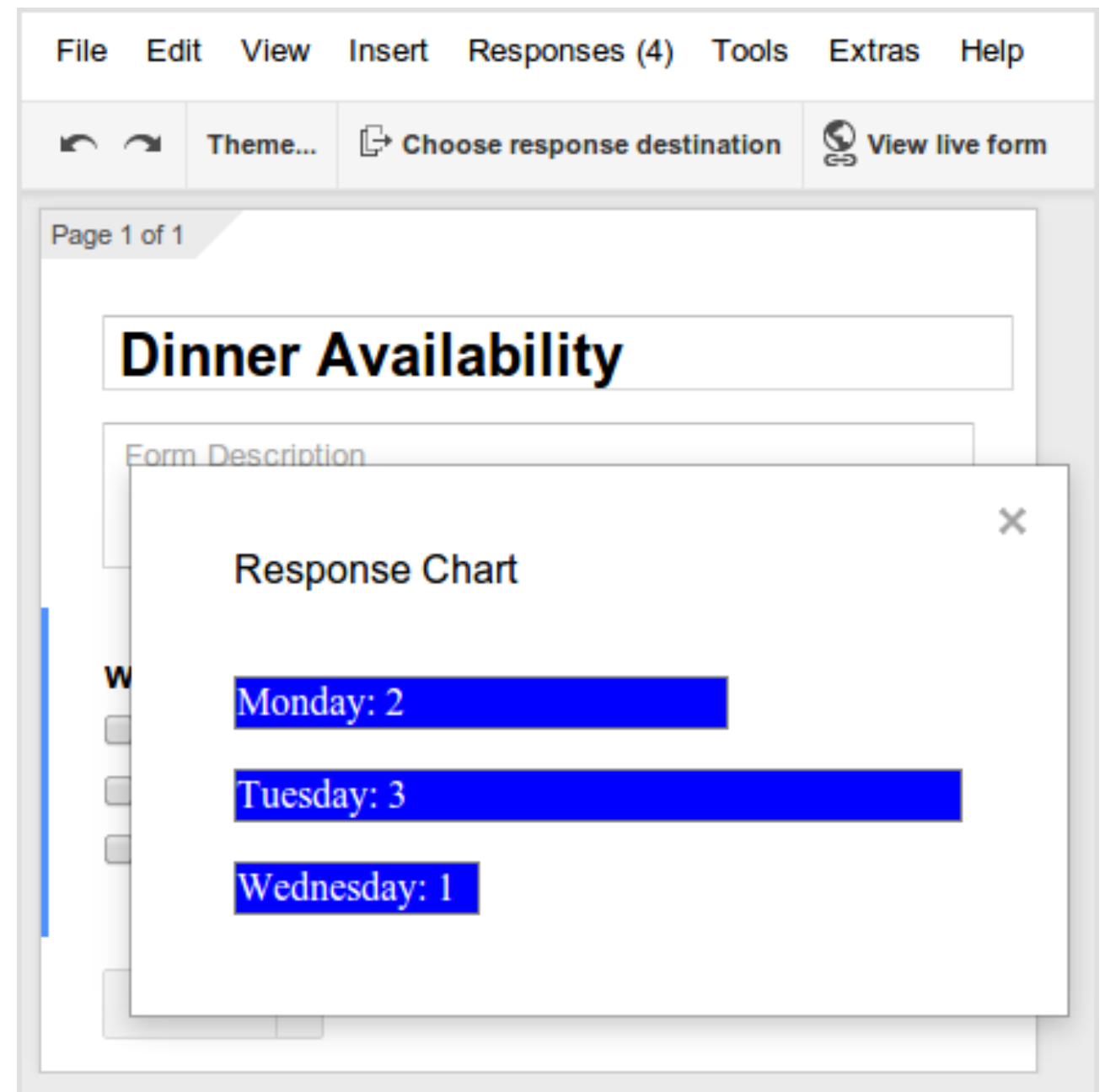
Show custom dialogs and sidebars

```
function showResponseChart() {
  var template = HtmlService
    .createTemplateFromFile('Chart.html');
  template.votes = getVotesPerDay();

  var html = template.evaluate()
    .setTitle('Response Chart')
    .setWidth(300)
    .setHeight(125);
  FormApp.getUi().showDialog(html);
}

function getVotesPerDay() {
  // ...
}
```

JS



The screenshot shows a Google Forms interface. The main form is titled "Dinner Availability" and has a "Form Description" section. A "Response Chart" dialog box is overlaid on the form, displaying a bar chart with the following data:

Day	Count
Monday	2
Tuesday	3
Wednesday	1



Integrated in three ways

1

Create, open, edit

2

Enhance the form designer

3

React to submissions



React to submissions

- What
 - Detect when a user has submitted the form
 - Read the data of the response
 - Take action and use other services
- Why
 - Build multi-stage workflows
 - Send personalized responses
 - Fill out other forms



React to submissions

Sample code

JS

```
function onFormSubmit(event) {  
  var response = event.response;  
  var email = response.getResponseEmail();  
  var days = response.getItemResponses()[0]  
    .getResponse();  
  
  var message = Utilities.formatString(  
    'Guest %s can attend on %s.', email,  
    days.join(', '));  
  
  var document = DocumentApp.openById('1kwC...');  
  document.getBody().appendParagraph(message);  
  document.addViewer(email);  
}
```

Current project's triggers

Run	Events
<input type="checkbox"/> onFormSubmit	From form On form submit

[Add a new trigger](#)

Save

Cancel



React to submissions

Sample code

```
function onFormSubmit(event) {  
  var response = event.response;  
  var email = response.getResponseEmail();  
  var days = response.getItemResponses()[0]  
    .getResponse();  
  
  var message = Utilities.formatString(  
    'Guest %s can attend on %s.', email,  
    days.join(', '));  
  
  var document = DocumentApp.openById('1kwC...');  
  document.getBody().appendParagraph(message);  
  document.addViewer(email);  
}
```

JS

Dinner Availability

Your username (ekoleda+devrel@google.com) will be recorded when you submit this form. Not ekoleda+devrel? [Sign out](#)

What days are you available?

- Monday
- Tuesday
- Wednesday

Send me a copy of my response.

Submit

Never submit passwords through Google Forms.

Powered by
Google Drive

This form was created inside of Google.com.

[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)



React to submissions

Sample code

```
function onFormSubmit(event) {  
  var response = event.response;  
  var email = response.getResponseEmail();  
  var days = response.getItemResponses()[0]  
    .getResponse();  
  
  var message = Utilities.formatString(  
    'Guest %s can attend on %s.', email,  
    days.join(', '));  
  
  var document = DocumentApp.openById('1kwC...');  
  document.getBody().appendParagraph(message);  
  document.addViewer(email);  
}
```

JS



Dinner Planning R... ☆ 📁 Share

File Edit View Insert Format Tools Table Help

Heading 1 Arial 18 B I ↕

1 2 3 4

Dinner Planning Responses

Guest ekoleda+devrel@google.com can attend on Monday, Tuesday.

Guest anagarajan@google.com can attend on Tuesday, Wednesday.

Guest gkal@google.com can attend on Tuesday.





Putting it all together

Live Demo

Simple, scalable data collection + Powerful, integrated automation



Get started

- 1** Try our Forms Quickstart
developers.google.com/apps-script
- 2** Write your own script
script.google.com
- 3** Show us, get a T-shirt
Chrome & Apps Sandbox



Thank You + Q&A

Eric Koleda, Developer Programs Engineer
plus.google.com/+EricKoleda

Matt Ziegelbaum, Software Engineer
<https://plus.google.com/s/Matt Ziegelbaum>





Google

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