

# Project Design Documentation for Email Notification System

## Solution 1: Actionable Message

### Overview

The actionable message is a technology that allows us to embed interactive elements like buttons (thumbs-up/thumbs-down), comments, etc., into our outlook emails without needing to open a new tab to visit a website. Figure 1 below shows the example of a poll in Outlook email.

Example: Poll in Outlook email

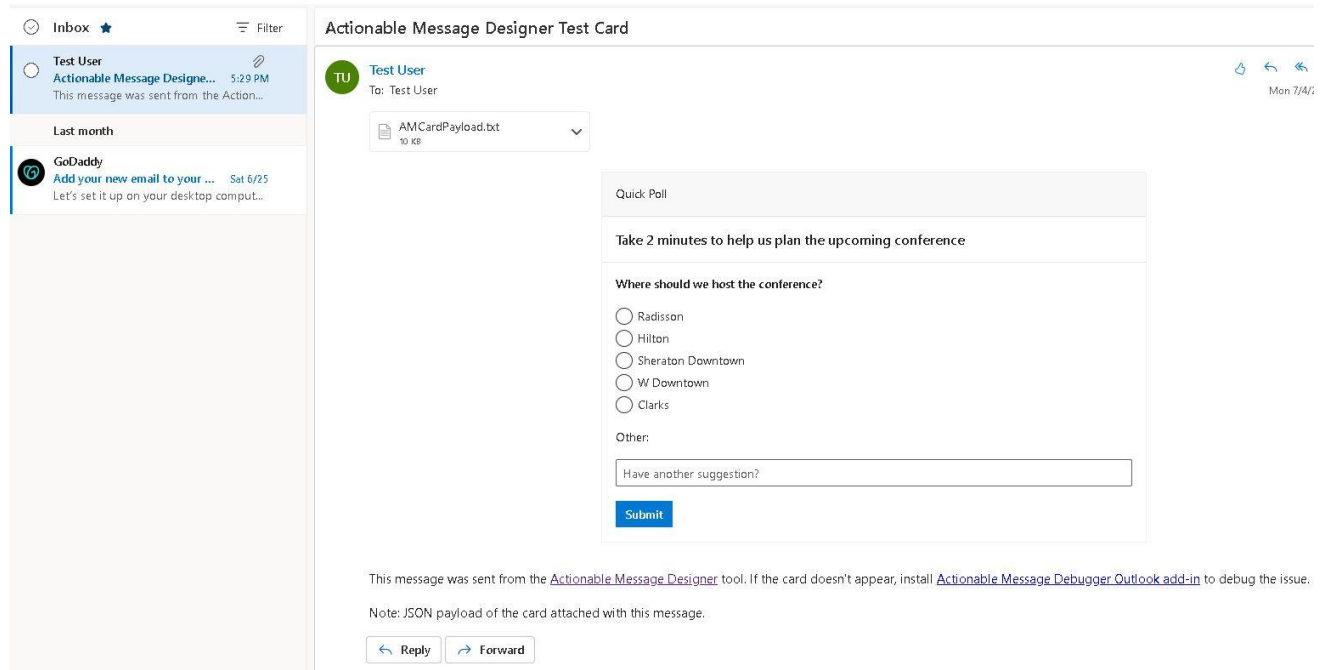


Figure 1: A poll in Outlook email

## Design Steps

### Step 1: Use the JSON code to build the Actionable Message card based on the given Mockup

**Explain:** Outlook Actionable Messages cards are designed using the Adaptive Card format. And the Adaptive Card is designed in JSON code.

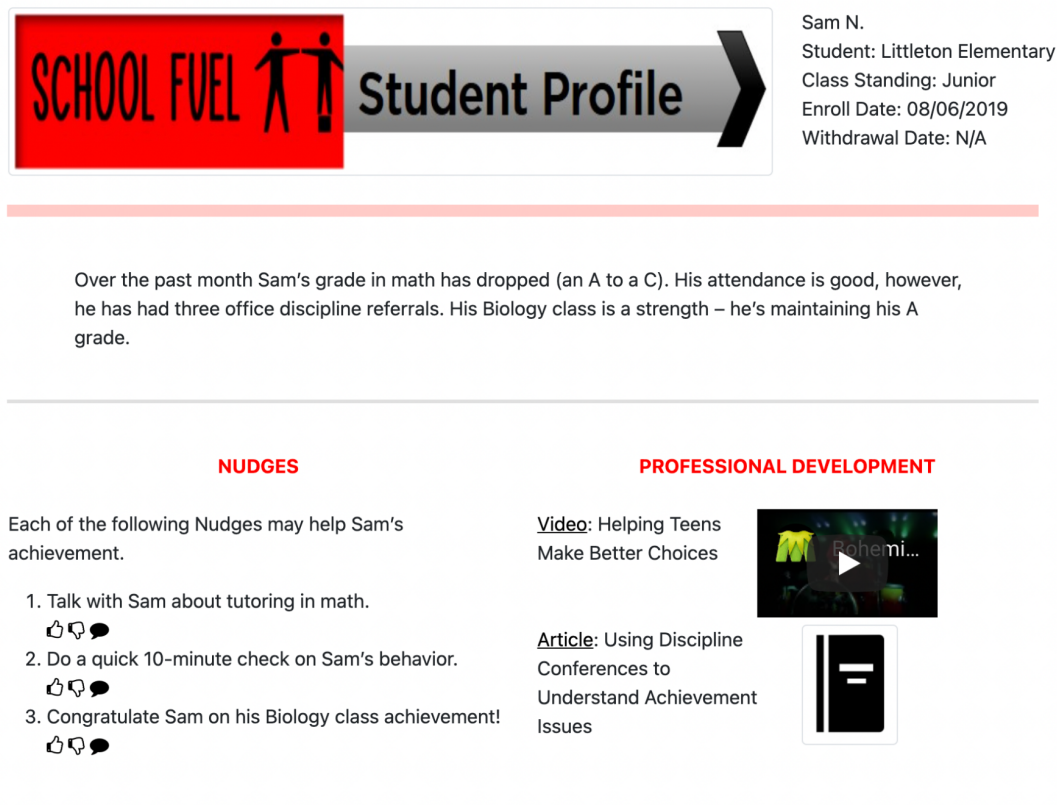


Figure 1.1: Mockup

## Tool: [Actionable Message Designer](#)

We can use the Actionable Message Designer to create the mockup. Actionable Message Designer is a tool that provides a drag-and-drop experience to build and tweak adaptive cards quickly. It can also generate the JSON code.

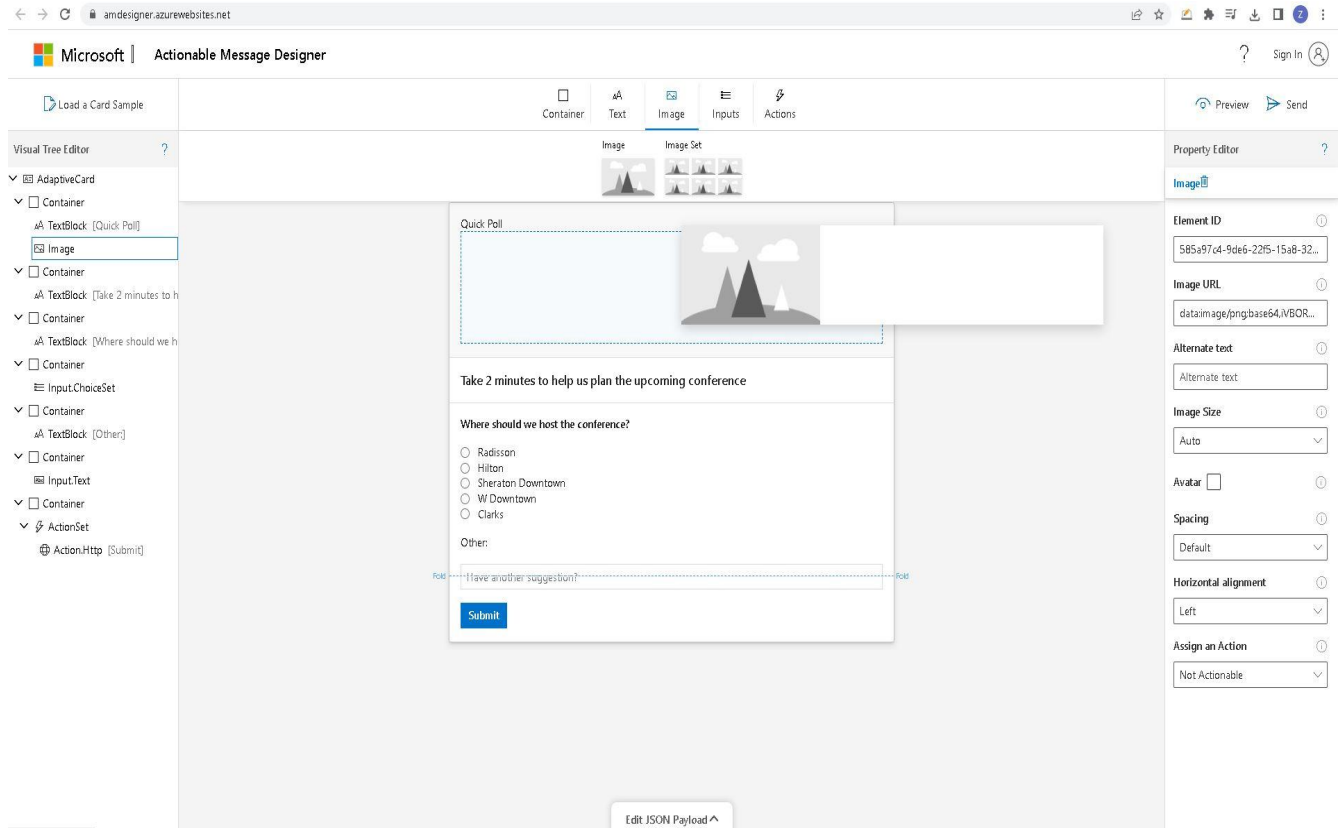


Figure 1.2: Actionable Message Designer

Microsoft | Actionable Message Designer

Visual Tree Editor

- AdaptiveCard
  - Container
    - TextBlock [Quick Poll]
  - Container
    - TextBlock [Take 2 minutes to h]
  - Container
    - TextBlock [Where should we h]
  - Container
    - Input.ChoiceSet
  - Container
    - TextBlock [Other]
  - Container
    - Input.Text
  - Container
    - ActionSet
      - Action.Http [Submit]

Quick Poll

Take 2 minutes to help us plan the upcoming conference

Where should we host the conference?

- ☐ Radisson
- ☐ Hilton
- ☐ Sheraton Downtown
- ☐ W Downtown
- ☐ Clarks

Other:

Have another suggestion?

Edit JSON Payload

```

1 {
2   "type": "AdaptiveCard",
3   "body": [
4     {
5       "type": "Container",
6       "style": "emphasis",
7       "items": [
8         {
9           "type": "TextBlock",
10          "text": "Quick Poll",
11          "wrap": true
12        },
13      ],
14      "padding": "Default"
15    },
16    {
17      "type": "Container",
18      "id": "d9d9d9d9-2a13-7f7f-4608-438a9f7777f7"
19    }
20  ]
21 }

```

Property Editor

Select an element to customize its properties

Figure 1.3: JSON code

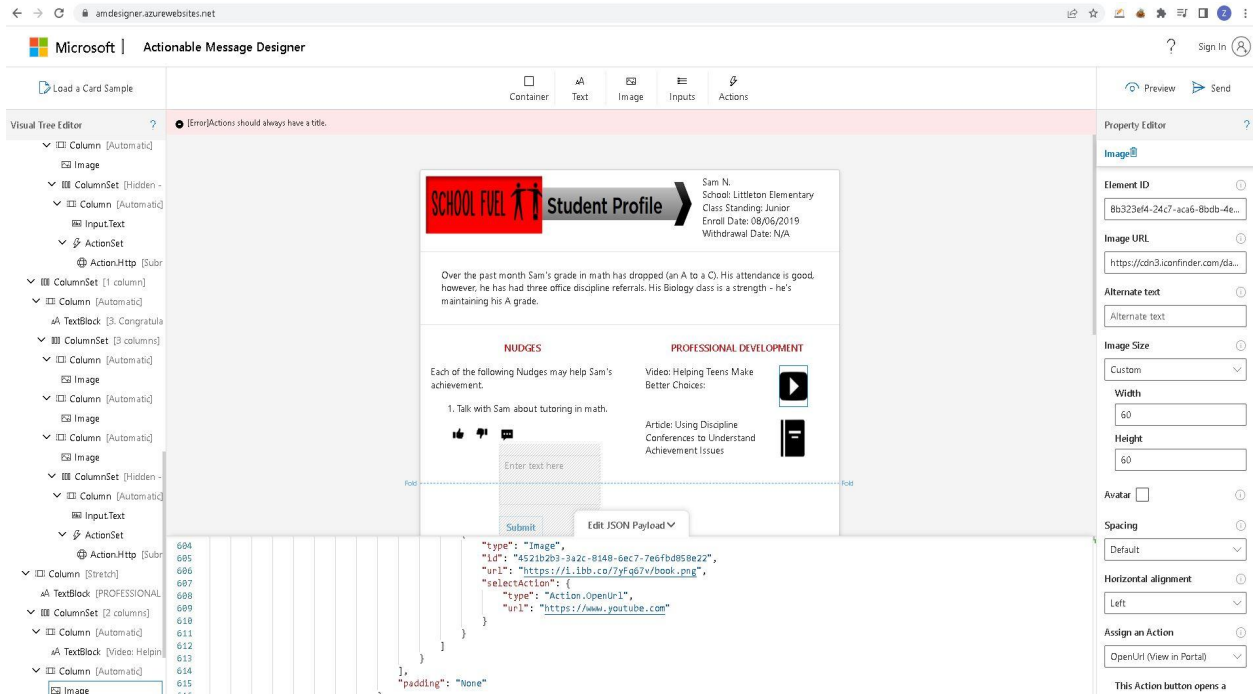


Figure 1.3: Using Actionable Message Designer to build mockup  
(You can download the JSON code in Appendix1.)

## Step 2: Using Power Automate Flow to Receive Response from Actionable Message

We have some feedback buttons (thumbs up, thumbs down, comment) on our nudges part. So, we need a server or endpoint to receive these feedback responses.

### NUDGES

Each of the following Nudges may help Sam's achievement.

1. Talk with Sam about tutoring in math.



2. Do a quick 10-minute check on Sam's behavior.



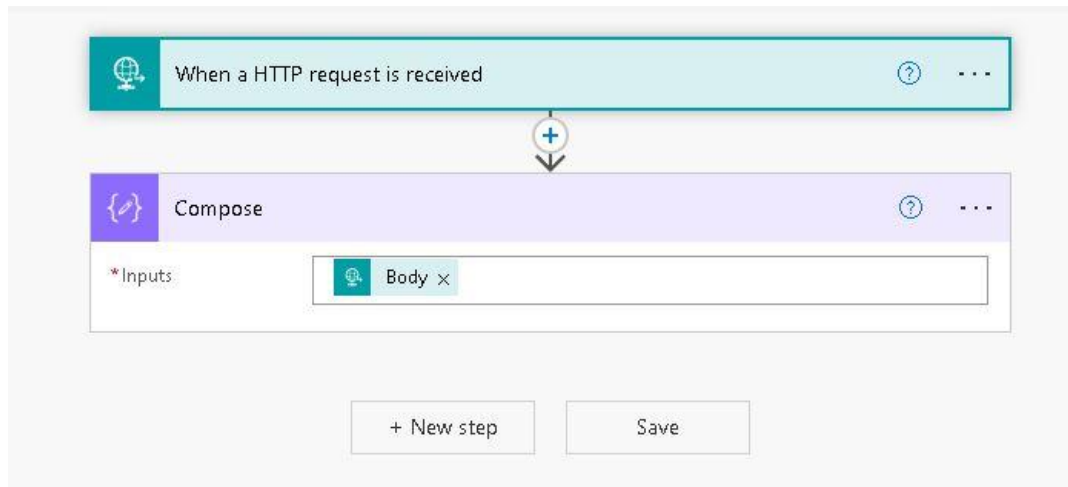
3. Congratulate Sam on his Biology class achievement!



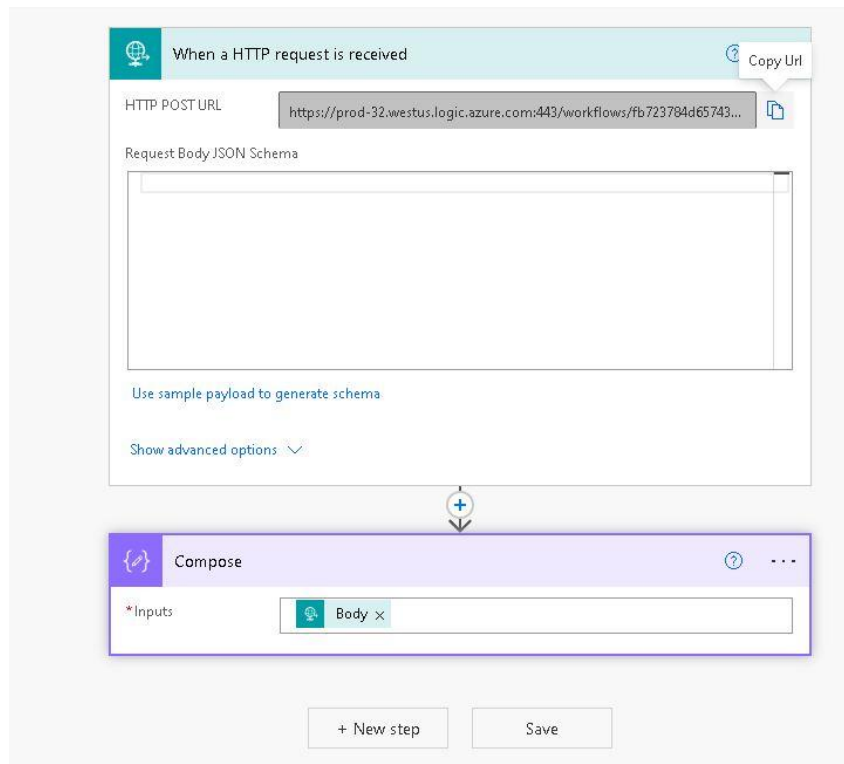
Figure 1.2: Feedback Buttons

For the server or endpoint, we can use Power Automate flow.

- a. In Power Automate, we can use “HTTP request” as a trigger, and “Compose” with the input “Body” as an action.



- b. Then we can save the flow. The endpoint URL will be generated after saving. We can just copy it.



- c. Back to the Actionable Message Designer, we can select one of the buttons and insert the endpoint URL.

The screenshot displays the 'Actionable Message Designer' interface. On the left, a 'Student Profile' card for 'Sam N.' from 'Littleton Elementary' is shown. Below the profile, there are two sections: 'NUDGES' and 'PROFESSIONAL DEVELOPMENT'. The 'NUDGES' section contains three items, each with a 'Submit' button. The first nudge is circled in red. On the right, the 'Property Editor' panel is open, showing the 'Assign an Action' dropdown set to 'Http (Submit)'. Below this, the 'Url' field is highlighted with a red circle and contains the text 'https://prod-32.westus.logic.a...'. A tooltip above the 'Url' field reads: 'Insert the URL/server address where this request will be made.'

- d. For the body of the button, we can insert the data that needs to be sent to the endpoint or server(Power Automate flow).

This screenshot shows a close-up of the 'Body' field in the 'Actionable Message Designer'. The 'Url' field above it contains 'https://prod-32.westus.logic.az...'. The 'Body' field contains a JSON payload: 

```
{"textContent1": "  
{{inputComment1.value}}"}}
```

- e. For the header, we can use the following information.

The screenshot shows an API client interface with the following sections:

- Url**: `https://prod-32.westus.logic.azure...`
- Body**: `{"textContent1": "{inputComment1.value}"}`
- Headers**:
  - Key**: `Authorization`
  - Value**: `Enter header value`
  - Key**: `Content-Type`
  - Value**: `application/json`

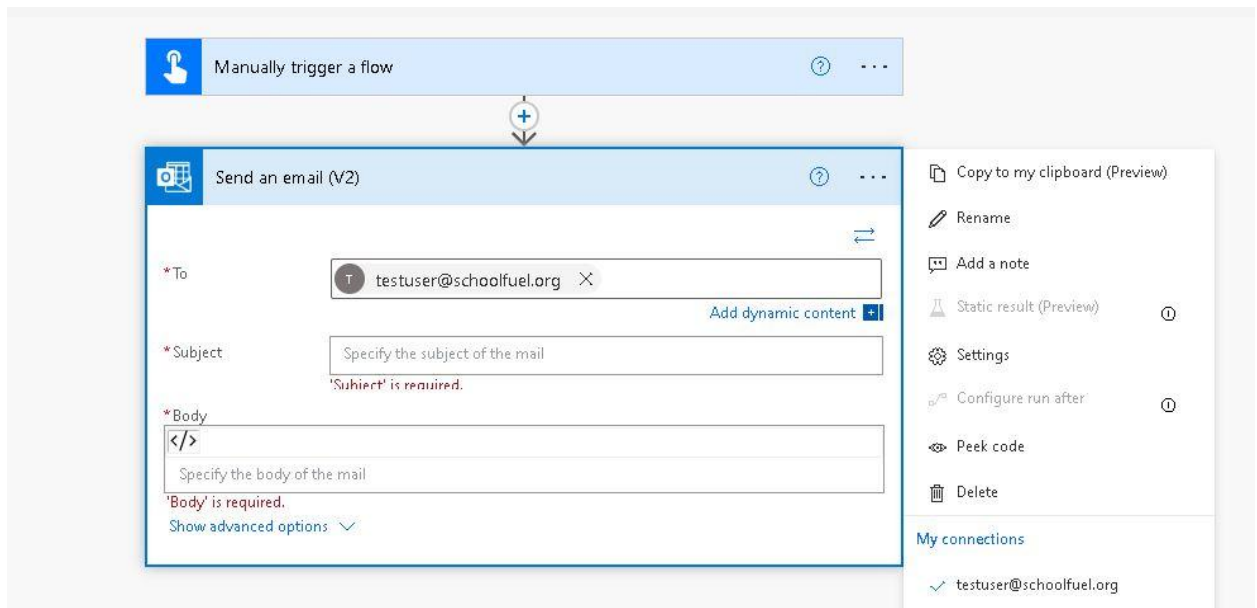
A red oval highlights the `Authorization` key and the `application/json` value. The `application/json` value is also highlighted with a blue border. At the bottom, there is a button labeled `Add a new header`.

- f. Repeat steps c, d, and e for the rest of the buttons.  
g. Save the output JSON code

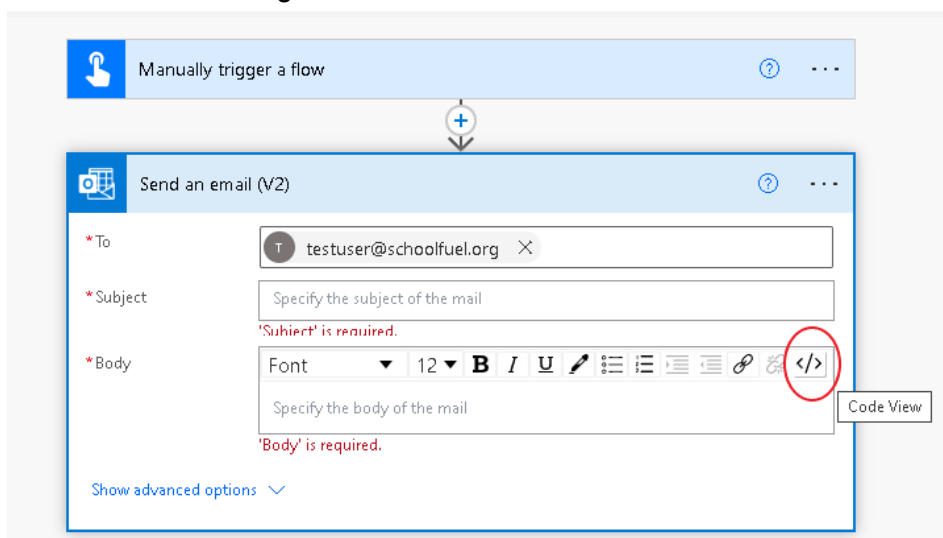


### Step 3: Using the second Power Automate flow to send the actionable message via Outlook email

- We can use a manual trigger as the flow trigger. If we want to choose when and how often the flow runs, we can use the scheduled trigger.
- We can use "Send an email (V2)" as the action. For the receiver's email address, we have to use the same address as the sender's address, since we have not registered the service with Microsoft. For example 1234@outlook.com to 1234@outlook.com.



- We need to switch the body designer into the code view and paste the JSON code in the middle of the following two lines of code.



- d. Then save the flow and run it. We will receive the actionable message in the outlook email. We can type something in the comment box, and submit it.

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- e. Back to the first flow, we can see the response is received.

28-day run history ⓘ All runs

Start	Duration	Status
Aug 29, 12:52 AM (11 sec ago)	37 ms	Succeeded

✓ Your flow ran successfully.

When a HTTP request is received 0s

Compose 0s

INPUTS Show raw inputs >

Inputs

```
{  
  "textContent1": "Hello, comment is here."  
}
```



OUTPUTS Show raw outputs >

Outputs

```
{  
  "textContent1": "Hello, comment is here."  
}
```

**Step 4: Using the Excel file and Power Automate flow to send multiple actionable messages (with the same format, different contents) at the same time**

- a. **We need to create an excel sheet that contains the information that we want to insert into the actionable message.**

**SCHOOL FUEL**  **Student Profile** 

Sam N.  
Student: Littleton Elementary  
Class Standing: Junior  
Enroll Date: 08/06/2019  
Withdrawal Date: N/A

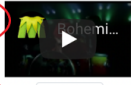
Over the past month Sam's grade in math has dropped (an A to a C). His attendance is good, however, he has had three office discipline referrals. His Biology class is a strength – he's maintaining his A grade.


**NUDGES**

Each of the following Nudges may help Sam's achievement.

1. Talk with Sam about tutoring in math.
2. Do a quick 10-minute check on Sam's behavior.
3. Congratulate Sam on his Biology class achievement!

**PROFESSIONAL DEVELOPMENT**

Video: Helping Teens Make Better Choices 

Article: Using Discipline Conferences to Understand Achievement Issues 

Excel Book - Saved to OneDrive

File Home Insert Draw Page Layout Formulas Data Review View Help

Calibri 11 B I

M6

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Address	Student	School	Class Standing	Enroll Date	Withdraw Date	Student Info	Nudge1	Nudge2	Nudge3	PD Video1	PD Article1	
2	testuser@schoolfuel.org	Name1	School1	Stand1	Date1	N/A	INFO1	Nudge1	N/A	N/A	PD Video1	PD Article1	
3	testuser@schoolfuel.org	Name2	School2	Stand2	Date2	N/A	INFO2	Nudge1	Nudge2	N/A	PD Video1	PD Article1	
4	testuser@schoolfuel.org	Name3	School3	Stand3	Date3	N/A	INFO3	Nudge1	Nudge2	Nudge3	PD Video1	PD Article1	
5													
6													

- b. Make sure that the data is in table format. To do that we can just highlight all the data using the mouse. Then go to the 'home' tab and choose 'format as table'.

File Home Insert Draw Page Layout Formulas Data Review View Help

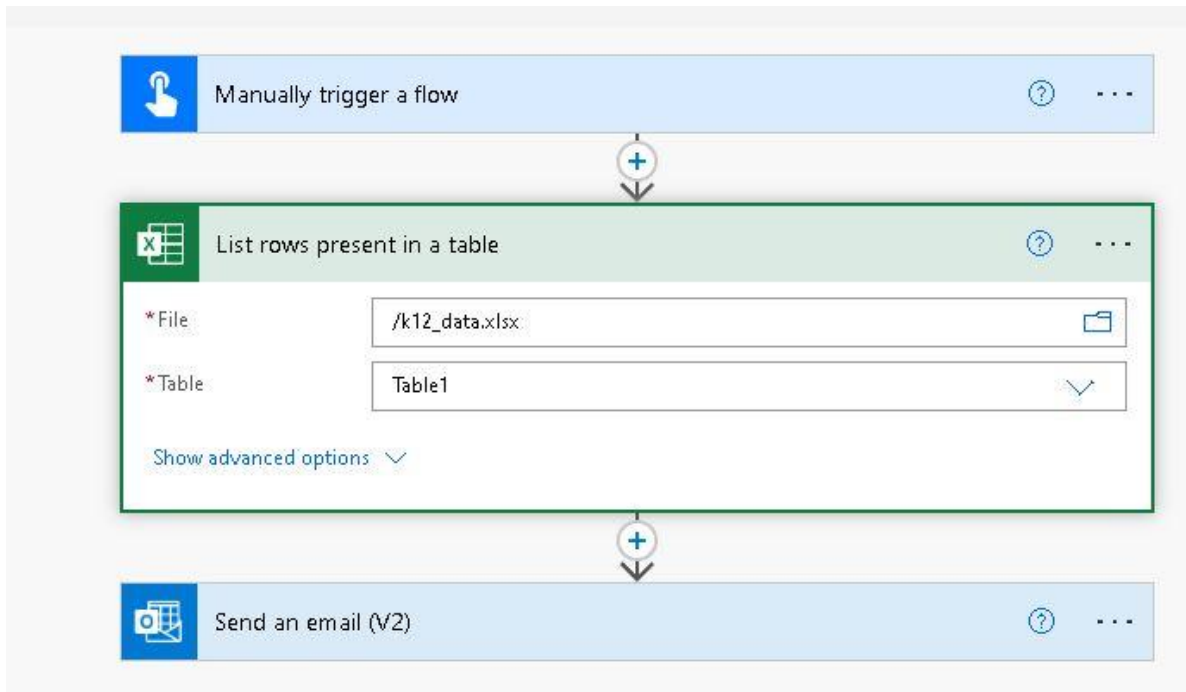
Calibri 11 B I

A1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Address	Student	School	Class Standing	Enroll Date	Withdraw Date	Student Info	Nudge1	Nudge2	Nudge3	PD Video1	PD Article1						
2	testuser@schoolfuel.org	Name1	School1	Stand1	Date1	N/A	INFO1	Nudge1	N/A	N/A	PD Video1	PD Article1						
3	testuser@schoolfuel.org	Name2	School2	Stand2	Date2	N/A	INFO2	Nudge1	Nudge2	N/A	PD Video1	PD Article1						
4	testuser@schoolfuel.org	Name3	School3	Stand3	Date3	N/A	INFO3	Nudge1	Nudge2	Nudge3	PD Video1	PD Article1						
5																		
6																		

Format As Table

- c. In Power Automate, we want to connect to the excel file and we can choose either Excel Online(business) or Excel Online (OneDrive) with the action 'List rows present in a table'. Then select the excel file and the table we want to use.



- d. Now we can add dynamic content to the actionable message. The dynamic content is all the data in the excel file.

The screenshot displays a Microsoft Power Automate workflow with the following steps:

- Manually trigger a flow** (Blue step)
- List rows present in a table** (Green step)
- Send an email (V2)** (Blue step, expanded)

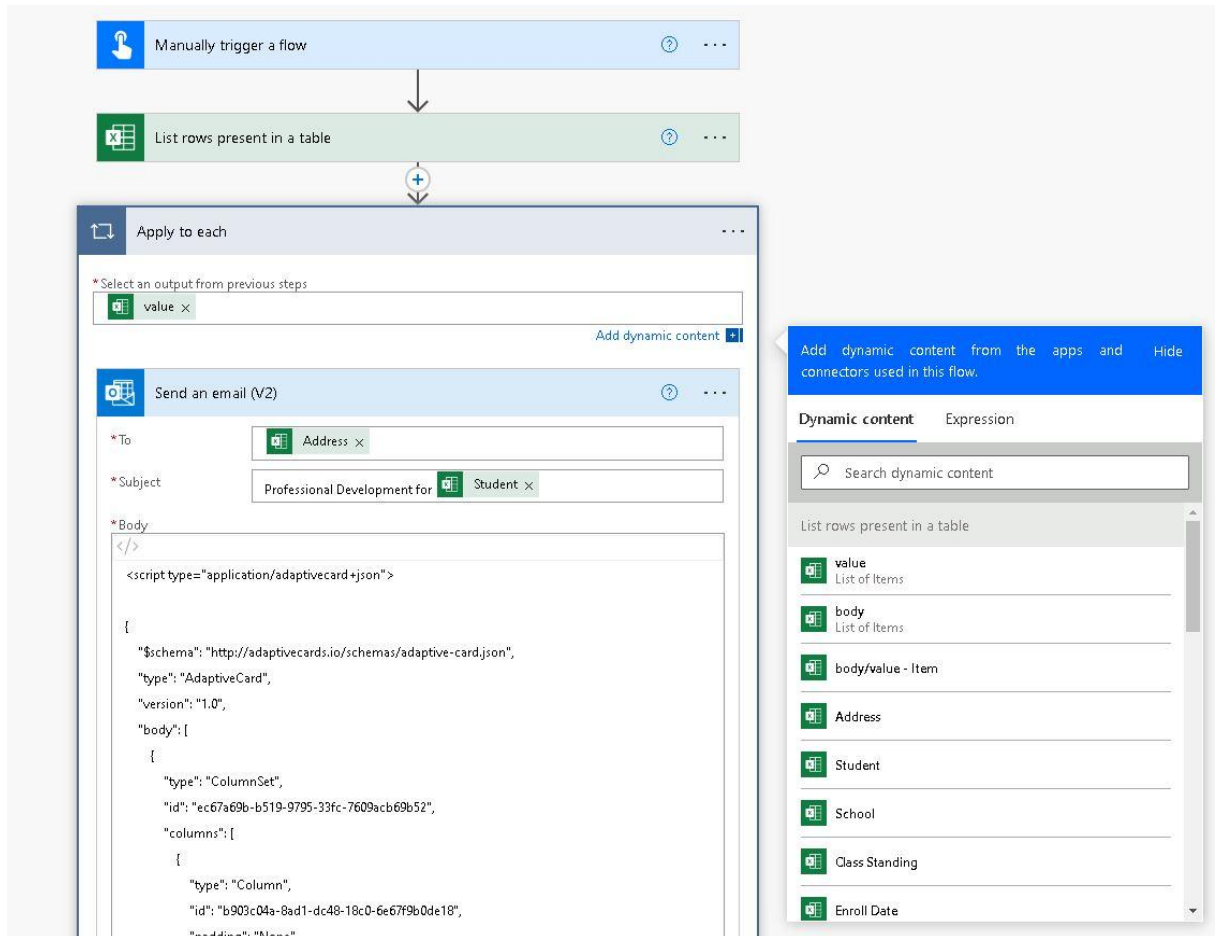
The **Send an email (V2)** step configuration includes:






- To:** Specify email addresses separated by semicolons like someone@contoso.com. Includes an **Add dynamic content** button.
- Subject:** Specify the subject of the mail.
- Body:** Includes a rich text editor with options for Font, Size (12), Bold (B), Italic (I), Underline (U), and other formatting tools. The text area contains "Specify the body of the mail".
- A **Show advanced options** link is visible at the bottom of the step configuration.

At the bottom of the canvas are buttons for **+ New step** and **Save**.





The **Dynamic content** pane on the right is open, showing a search bar and a list of dynamic content fields from the **List rows present in a table** step:

- Address
- Student
- School
- Class Standing
- Enroll Date
- Withdraw Date
- Student Info
- Nudge1



```
    }
  ]
},
{
  "type": "Column",
  "id": "577e23e8-0c90-5ea9-0df8-9d7889159ea9",
  "padding": "None",
  "width": "auto",
  "items": [
    {
      "type": "TextBlock",
      "id": "studentInfo1",
      "text": "
 Student
 School
      \nClass Standing:
 Class Standing
      \nEnroll Date:
 Enroll Date
      \nWithdrawal Date:
 Withdrawal Date
      ",
      "wrap": true
    }
  ]
},
{
  "horizontalAlignment": "Left",
  "verticalContentAlignment": "Center"
}
]
},
{
  "padding": "Small",
  "horizontalAlignment": "Center",
  "style": "default"
}
```


- e. Then save the flow and run it. We will receive multiple actionable messages with different contents at the same time.


Inbox 				 Filter	
From		Subject	Received 		
>  Test User		Professional Development for Name2	7:14 AM		
>  Test User		Professional Development for Name1	7:14 AM		
>  Test User		Professional Development for Name3	7:14 AM		

## Professional Development for Name1

**TU** Test User  
To: Test User

    
Mon 8/29

**SCHOOL FUEL** 

**Student Profile** 




Name1  
School: School1  
Class Standing: Stand1  
Enroll Date: Date1  
Withdrawal Date: N/A

INFO1




**NUDGES**

Each of the following Nudges may help Sam's achievement.




1. Nudge1


2. N/A


  

3. N/A

**PROFESSIONAL DEVELOPMENT**


Video: Helping Teens Make Better Choices: 


Article: Using Discipline Conferences to Understand Achievement Issues 

## Professional Development for Name2

**TU** Test User  
To: Test User

    
Mon 8/29/

**SCHOOL FUEL** 

**Student Profile** 




Name2  
School: School2  
Class Standing: Stand2  
Enroll Date: Date2  
Withdrawal Date: N/A

INFO2




**NUDGES**

Each of the following Nudges may help Sam's achievement.




1. Nudge1


2. Nudge2


  

3. N/A


  

**PROFESSIONAL DEVELOPMENT**


Video: Helping Teens Make Better Choices: 


Article: Using Discipline Conferences to Understand Achievement Issues 



 Test User  
To: Test User

    
Mon 8/29/









**Student Profile** 




Name3  
School: School3  
Class Standing: Stand3  
Enroll Date: Date3  
Withdrawal Date: N/A

INFO3

**NUDGES**  
Each of the following Nudges may help Sam's achievement.  

1. Nudge1  
  

2. Nudge2  
  

3. Nudge3  
  



**PROFESSIONAL DEVELOPMENT**  
Video: Helping Teens Make Better Choices:   
  
Article: Using Discipline Conferences to Understand Achievement Issues 

Figure. Sending Actionable Messages with the same format (Format3: three Nudges, one Video, one Article)

## Step 5: Using the Condition Step to send different formats of the actionable messages

Since we can have different numbers of nudges and professional developments in the actionable messages, we need to send different formats of the actionable messages. The maximum number we can have for each of the nudges, videos, and articles is five. So  $5 \times 5 \times 5$  is equal to 125. The total number of formats we can have is 125.

- a. Right now, we will use the [Actionable Message Designer](#) to create two other formats of actionable messages and save the JSON code. (We need to create 125 different formats in the future. Perhaps there is an alternative way to do it)

The screenshot displays the Microsoft Actionable Message Designer interface. On the left is the 'Visual Tree Editor' showing a hierarchical structure of the card design, including elements like AdaptiveCard, ColumnSet, Column, Image, TextBlock, Container, and InputText. The main canvas on the right shows a preview of the designed card. The card has a header with a 'SCHOOL FUEL' logo and a 'Student Profile' title. Below the header is a text block providing student information: Sam N., School: Littleton Elementary, Class Standing: Junior, Enroll Date: 08/06/2019, and Withdrawal Date: N/A. The main body of the card contains a paragraph about Sam's math grade. Below this, there are two sections: 'NUDGES' and 'PROFESSIONAL DEVELOPMENT'. The 'NUDGES' section lists a nudge about tutoring in math and includes a feedback form with thumbs up/down icons, a text input field, and a 'Submit' button. The 'PROFESSIONAL DEVELOPMENT' section lists a video and an article, each with a corresponding icon (play button and document icon).

Figure. Format1: one Nudge, one Video, one Article

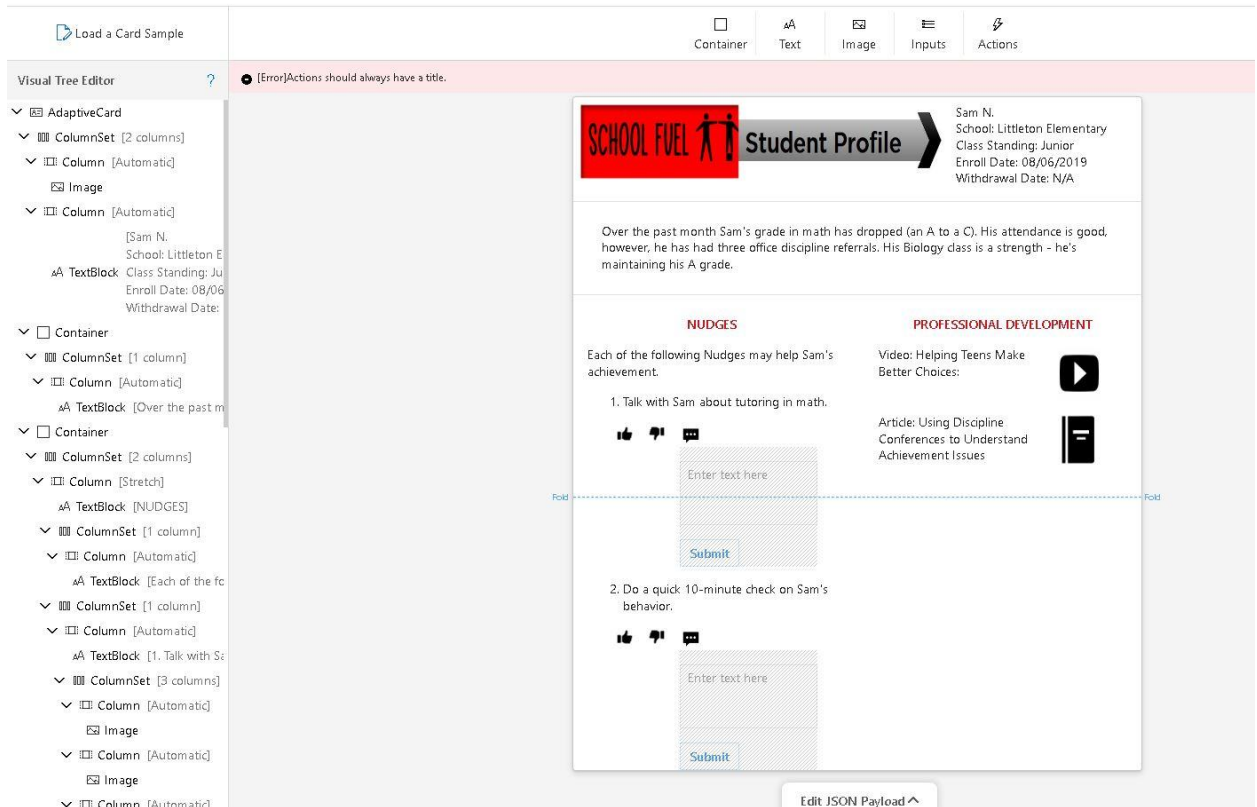
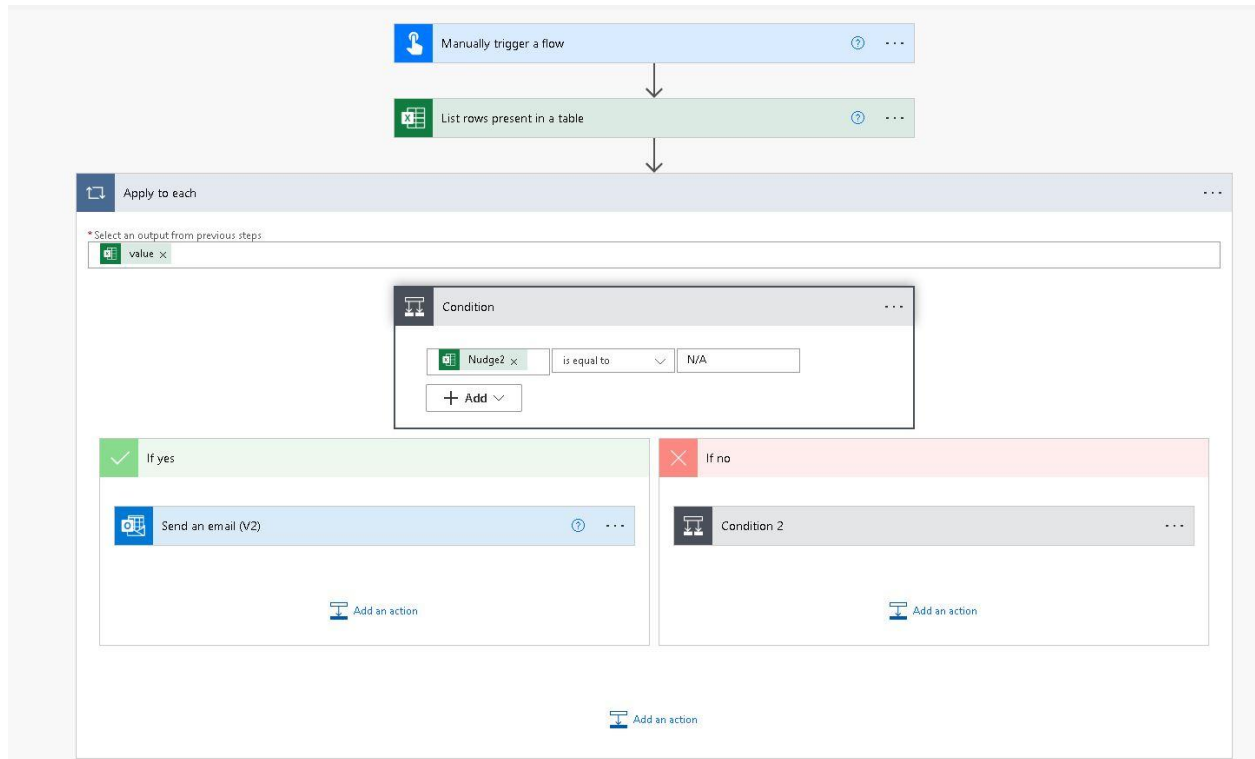


Figure. Format2: two Nudges, one Video, one Article

- b. Decide which format we will use based on the excel data. For example, if we only have one nudge (format1), then the column of Nudge2 and Nudge3 would be N/A. If we have two nudges (format2), then the column of Nudge3 would be N/A.

Address	Student	School	Class Standing	Enroll Date	Withdraw Date	Student Info	Nudge1	Nudge2	Nudge3	PD Video1	PD Article1
testuser@schoolfuel.org	Name1	School1	Stand1	Date1	N/A	INFO1	Nudge1	N/A	N/A	PD Video1	PD Article1
testuser@schoolfuel.org	Name2	School2	Stand2	Date2	N/A	INFO2	Nudge1	Nudge2	N/A	PD Video1	PD Article1
testuser@schoolfuel.org	Name3	School3	Stand3	Date3	N/A	INFO3	Nudge1	Nudge2	Nudge3	PD Video1	PD Article1

- c. In Power Automate, we can use the “Condition” action to send different formats of emails. For example, if “Nudge2” is equal to N/A, we will use **format1** else if “Nudge2” is equal to N/A we will use **format2** else we will use **format3**, etc.  
(So, we will use 125 “Condition” steps in the future. Perhaps there is an alternative way to do it)



d. Save the flow and run it.

Format1 for Name1


TU

Test User

To: Test User

Mon 8/25

SCHOOL FUEL



Student Profile

Name1

School: School1

Class Standing: Stand1

Enroll Date: Date1


Withdrawal Date: N/A


INFO1


NUDGES

Each of the following Nudges may help Sam's achievement.

1. Nudge1









PROFESSIONAL DEVELOPMENT

Video: Helping Teens Make Better Choices:



Article: Using Discipline Conferences to Understand Achievement Issues



Format2 for Name2


TU

Test User

To: Test User

Mon 8/29

SCHOOL FUEL



Student Profile

Name2

School: School2

Class Standing: Stand2

Enroll Date: Date2


Withdrawal Date: N/A


INFO2


NUDGES

Each of the following Nudges may help Sam's achievement.


1. Nudge1









2. Nudge2








PROFESSIONAL DEVELOPMENT

Video: Helping Teens Make Better Choices:



Article: Using Discipline Conferences to Understand Achievement Issues




Figure. Sending Actionable Messages in the different formats

Step 6: Using python code to output excel data.

## Reference:

- Actionable Message documentation ([link](#))

Appendix1: [Format 3 JSON code](#)