Trigger-Action Programming in the Wild: An Analysis of 200,000 IFTTT Recipes

Blase Ur, Melwyn Pak Yong Ho, Stephen Brawner, Jiyun Lee, Sarah Mennicken, Noah Picard, Diane Schulze, Michael Littman
Trigger-Action Programming

if this then that
Trigger-Action Programming

Recipe

if this then that

Trigger

Action
Trigger-Action Programming

Recipe

if this then that

Trigger

Action
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Recipe

if this then that

Trigger

Action
Trigger-Action Programming

If tomorrow's forecast calls for rain, then send me an email.
Trigger-Action Programming

if

Tomorrow's forecast calls for rain

then

Send me an email
Trigger-Action Programming

if this happens:
- GARAGE DOOR IS OPENED
- AND STAYS THAT WAY FOR 20 MINUTE(S)

while this is true (optional):
- AWAY IS ACTIVE

then do this:
- SEND PUSH NOTIFY & SMS
- MESSAGE: YOU LEFT THE GARAGE OPEN!
Trigger-Action Programming

**Smart Things**

**Smart Rules**

**Microsoft Flow**

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**If this happens:**

- **Garage Door** is opened and stays that way for 20 minutes.

**While this is true (optional):**

- Away is active.

**Then do this:**

- Send push notification and text: 'You left the garage open!'

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**Microsoft Flow Examples:**

- Save email attachments to a SharePoint document library.
- Create a to-do item in Wunderlist for important emails.
- When a file is uploaded to a folder in OneDrive, initiate a backup to Azure Storage container.
- For new GitHub issues, send a Slack notification.

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*By Microsoft*

*Used 401 times*

*Used 371 times*
Trigger-Action Programming

if this then that
What are people creating on IFTTT?
Methodology

• Collect all publicly shared IFTTT recipes
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A few quick tips for publishing great Recipes:
• Hide fields that are not crucial to how the Recipe works
• You can edit field labels to make Recipes easier to understand
• Your Recipe may be edited by the IFTTT Team
Methodology

• Collect all publicly shared IFTTT recipes
  – Using Selenium & ChromeDriver
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  – As of September 6, 2015
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• Characterize recipes & ecosystem

• Share dataset with other researchers
Example

Get an email if there will be rain in your area tomorrow

Trigger

Tomorrow's forecast calls for
This Trigger monitors changes in tomorrow's forecasted weather condition.

Condition

Rain

Action

Send me an email
This Action will send you an HTML based email. Images and links are supported.
Example: Trigger Channel

Get an email if there will be rain in your area tomorrow

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**Condition**

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Example: Trigger

Get an email if there will be rain in your area tomorrow

by solomakhin
88k adds
Example: Action Channel

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Example: Action

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Send me an email
This Action will send you an HTML based email. Images and links are supported.
Example: Author

Get an email if there will be rain in your area tomorrow

by solomakhin

88k adds

Trigger

Tomorrow's forecast calls for

This Trigger monitors changes in tomorrow's forecasted weather condition.

Condition

Rain

Action

Send me an email

This Action will send you an HTML based email. Images and links are supported.
Example: Title

Get an email if there will be rain in your area tomorrow

by solomakhin

Send me an email

This Action will send you an HTML based email. Images and links are supported.
Example: Adoptions

Get an email if there will be rain in your area tomorrow

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Tomorrow's forecast calls for
This Trigger monitors changes in tomorrow’s forecasted weather condition.

Condition

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Key Characteristics
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  – 67,820 recipes → 224,590 recipes
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  – Only 2.5% of authors shared 10+ recipes
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• Many connections are being made
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• Many authors, but few are prolific
  – Only 2.5% of authors shared 10+ recipes

• Many connections are being made
  – 15,961 unique trigger-action combinations
Key Insights
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- IFTTT is big…and growing
Key Insights

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• Adoptions vs. duplicated functionality
Key Insights

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• Adoptions vs. duplicated functionality
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Download the dataset at www.upod.io/datasets

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