

DevJam 2019

Tips & Tricks for Bixby Views

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Introductions



Jonathan Pan

- Developer Evangelist
- Winner of the 2019 Internal Hackathon
- Has 4 too many cats (meow)

@JohnWithoutTheH



Roger Kibbe

- Senior Developer Evangelist
- Winner of the 2018 Bixby Hackathon
- Father of two daughters
- UC Berkeley Graduate – Go Bears!

@rogerkibbe



000
Demo Code

The Demo Code

<https://github.com/bixbydevelopers/result-view-tutorial>

Completed code in the enhanced branch:

```
git clone https://github.com/bixbydevelopers/result-view-tutorial.git  
git checkout enhanced
```

bixbydevelopers / **result-view-tutorial**

Code Issues 0 Pull requests 0 Projects 0 Wiki Security Insights Settings

This capsule has a tutorial video associated with it. This is a code along capsule which demonstrates result views in Bixby Studio. [Edit](#)

bixby bixby-developer-studio result-view Manage topics

4 commits 2 branches 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find File Clone or download

jonmpa Update readme.md

first commit for master branch

Clone with HTTPS Use SSH
Use Git or checkout with SVN using the web URL.
<https://github.com/bixbydevelopers/re>

Open in Desktop Download ZIP

The Data Structure

JSON

/code/utils/pets.js

```
1 // array of pet objects. Hardcoded data to display in the capsule.  
2 const pets = [  
3   {  
4     name: "Moxie",  
5     species: "cat",  
6     image: "/images/moxie.jpg",  
7     images: [{url:"/images/moxie.jpg"}, {url:"/images/moxie-1.png"}, {url:"/images/moxie-2.png"},  
8      {url:"/images/moxie-3.png"}],  
9     height: 9.6,  
10    weight: 9.4,  
11    age: '3 yrs',  
12    gender: "Female ♀",  
13    bio:  
14      "Moxie works very hard every day to become Instagram famous, shameless plug:  
15      @moxie.the.calico\n\nAfter a tough life on the streets, she currently resides with her owner where she  
16      loves being irresistably cute, seeing how long she can stretch a single meow, and playing fetch with her  
17      human. Moxie loves cuddles, watching birds, and punching her evil doppelganger in the mirror.",  
18    interests: [  
19      "Sitting on keyboards",  
20      "Maining Pikachu in SSBU",  
21      "Reading books 📚",  
22      "Sleeping on her owner's face 😴",  
23      "Asking for food at 4am",  
24    ],  
25    link: "https://www.instagram.com/moxie.the.calico/",  
26    linkDescription: "Moxie's Instagram"  
27  },]
```

Model

/models/Concepts/Pet.model.bxb

```
1 structure (Pet) {  
2   description (A pet)  
3   property (name) {  
4     type (Name)  
5     min (Required) max (One)  
6   }  
7   property (image) {  
8     type (viv.core.Text)  
9     min (Required) max (One)  
10    visibility (Private)  
11  }  
12   property (images) {  
13     type (AdditionalImages)  
14     min (Optional) max (Many)  
15   }  
16   property (bio) {  
17     type (viv.core.Text)  
18     min (Required) max (One)  
19     visibility (Private)  
20   }  
21   property (species) {  
22     type (Species)  
23     min (Required) max (One)  
24     visibility (Private)  
25   }  
26   property (height) {
```



001

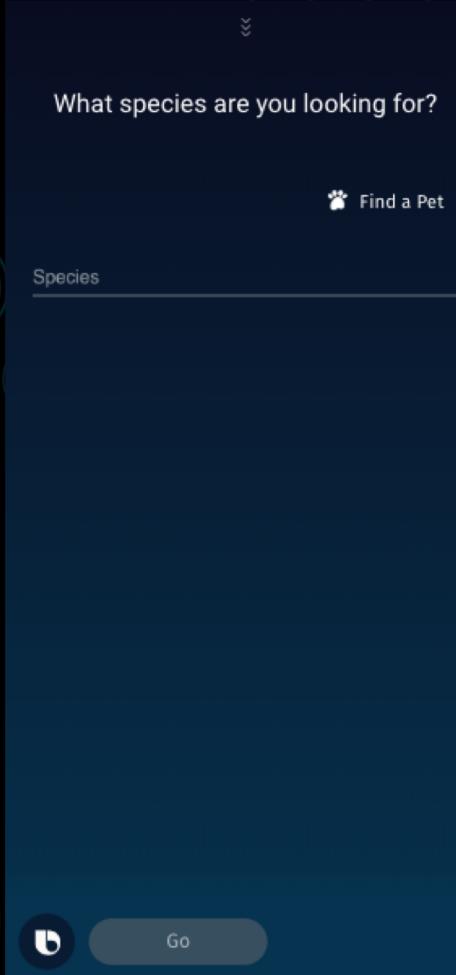
What are Views?

Views in Bixby

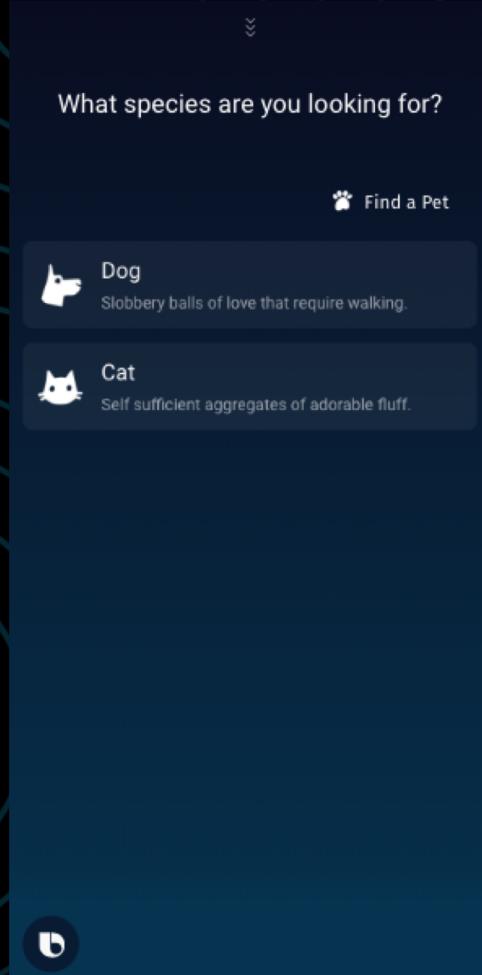
Helps collect an input from a user

Input View

Form Input

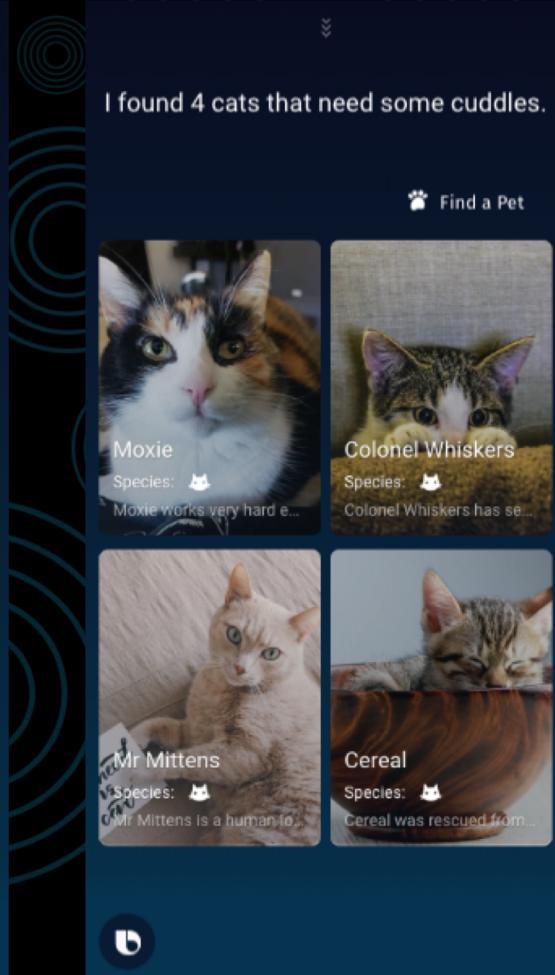


Selection Input



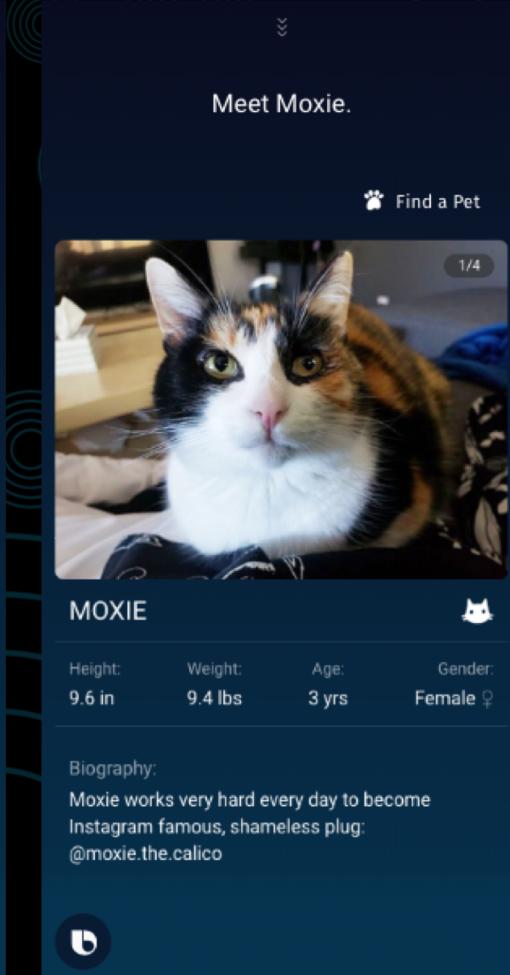
Result View

List View



Displays the results to the users

Detailed View



Why use Result Views?

List of 7 Pets

No Result View

I found these.

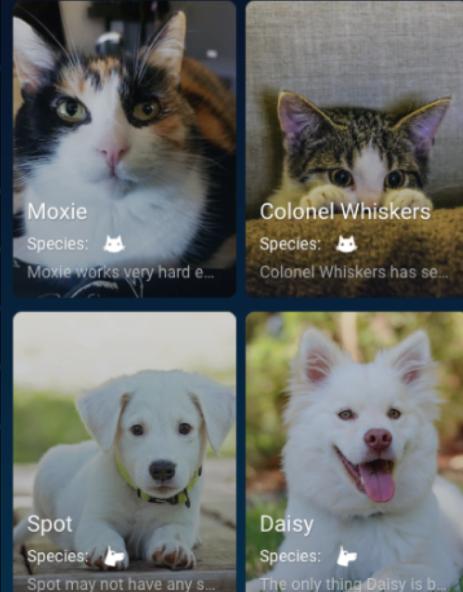
Find a Pet

```
0.1.0-example.result_view_tutorial_completed.Pet  
0.1.0-example.result_view_tutorial_completed.Pet  
0.1.0-example.result_view_tutorial_completed.Pet  
0.1.0-example.result_view_tutorial_completed.Pet  
0.1.0-example.result_view_tutorial_completed.Pet  
0.1.0-example.result_view_tutorial_completed.Pet  
0.1.0-example.result_view_tutorial_completed.Pet
```

With Result View

I found 7 pets that need some cuddles.

Find a Pet



Click on a pet

No Result View

Here's what I found.

Find a Pet

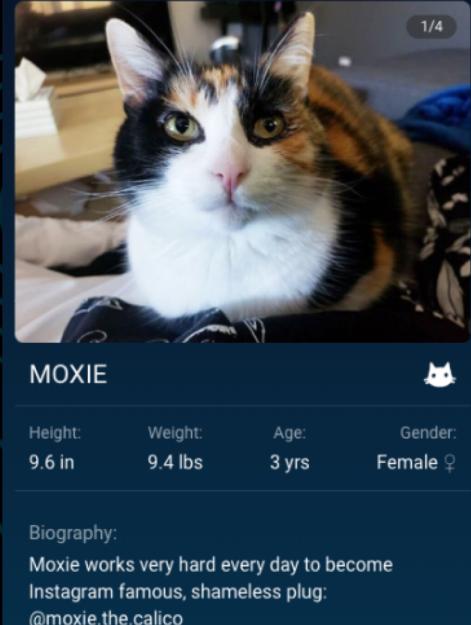
```
0.1.0-example.result_view_tutorial_completed.Pet  
age 3 yrs  
I Moxie works very hard every day to be...  
gender Female ♀  
height 9.6  
image /images/moxie.jpg  
im... 0.1.0-example.result_view_tutorial_...  
0.1.0-example.result_view_tutorial_...  
0.1.0-example.result_view_tutorial_...  
0.1.0-example.result_view_tutorial_...  
interests Sitting on keyboards  
Maining Pikachu in SSBU  
Reading books 📖
```

Detailed View

With Result View

This is Moxie.

Find a Pet



List View vs Detailed View

NL Utterance

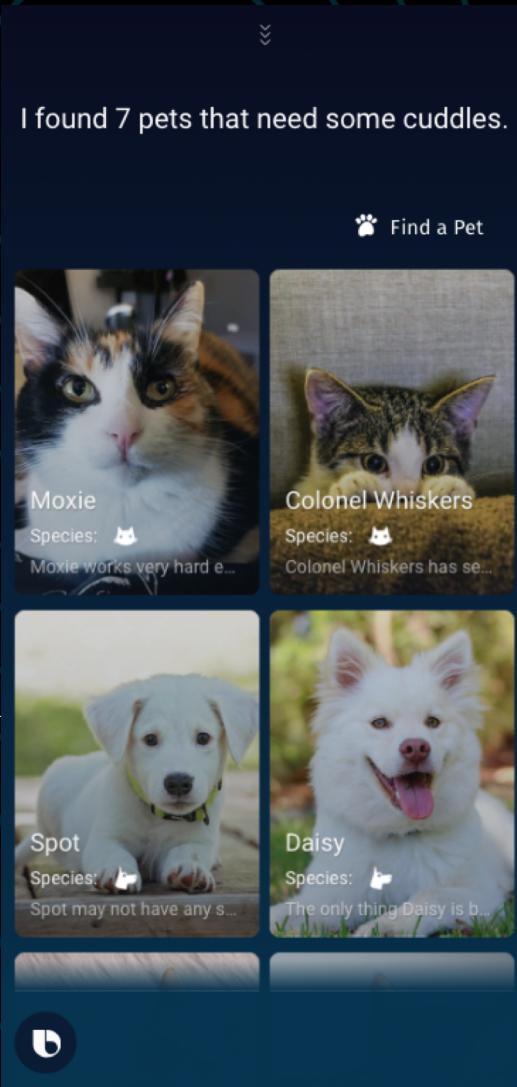
"Show me some pets"

Starts the action FindPets

Action

FindPets

Since FindPets found multiple pets, Bixby shows a list view



This is Moxie.



NL Utterance

"Show me Moxie"

Starts FindPets with Moxie as the name input

Optional Input

Name

Action

FindPets

Since FindPets only found 1 pet with the name Moxie, it shows a detailed view

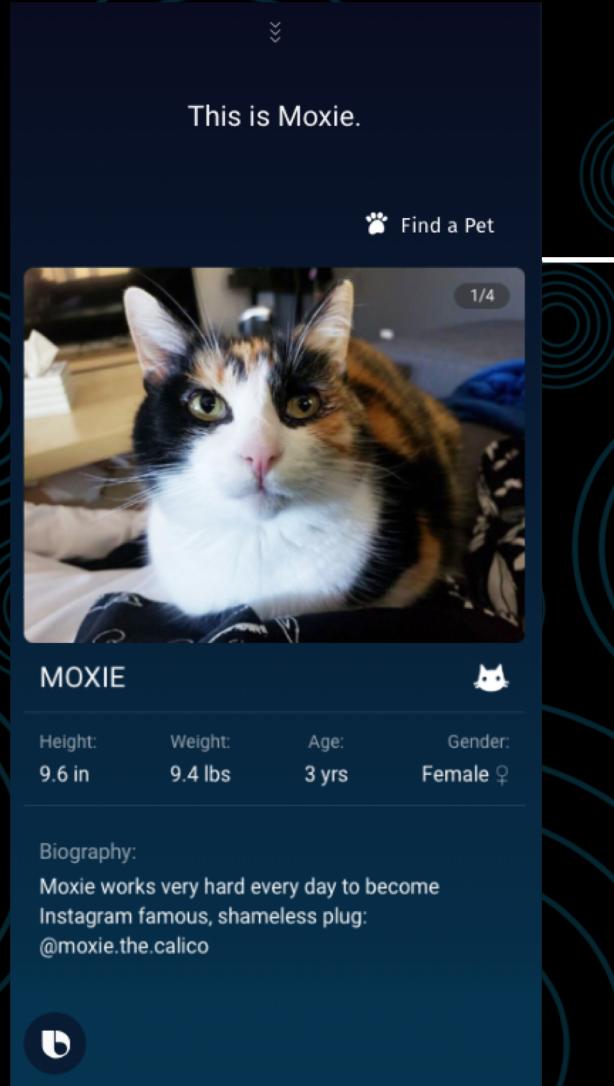
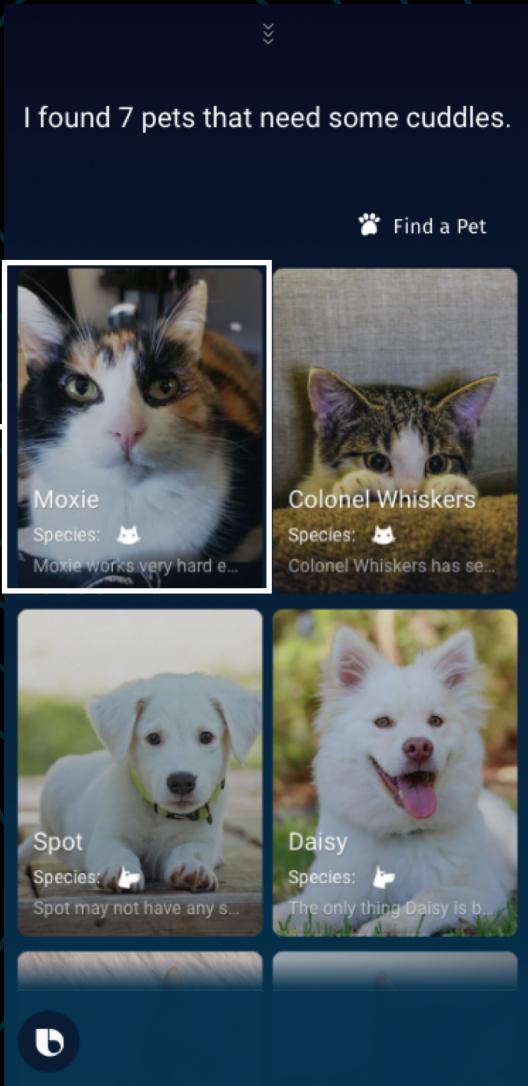
Layout Macros

Layout macros are useful for fragmenting UI elements to be reusable and also help organize your code.

Layout Macro

`pet-summary.layout.bxb`

Each tile is a pet-summary layout macro



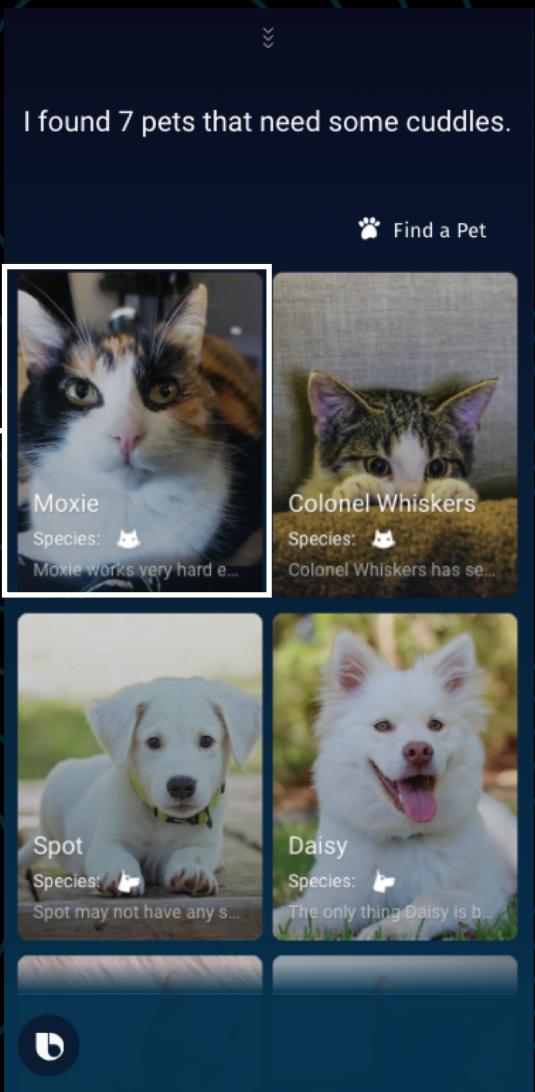
Layout Macro

`pet-details.layout.bxb`

This entire details page is a layout macro and only shows up when just 1 pet is found.

002
List View

Result View - List of



Layout Macro

pet-summary.layout.bxb

Each tile is a pet-summary layout macro

- Loops through all the pets and makes a pet-summary for each image-card
- List views support “first one”, “second one”, etc.

Image-Card

I found 7 pets that need some cuddles.

Find a Pet

Pet Name	Species	Bio
Moxie	Cat	Moxie works very hard e...
Colonel Whiskers	Cat	Colonel Whiskers has se...
Spot	Dog	Spot may not have any s...
Daisy	Dog	The only thing Daisy is b...

image-card

Shows an image with
3 slots to put text /
single-lines into.

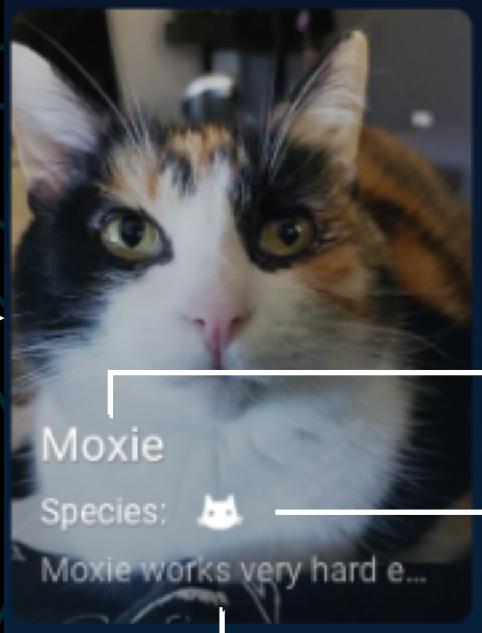


Image background

Aspect ratio can affect how many are in a column. You can also manually set the number of image-cards in a row with column-size.

slot1

Text of pet's name

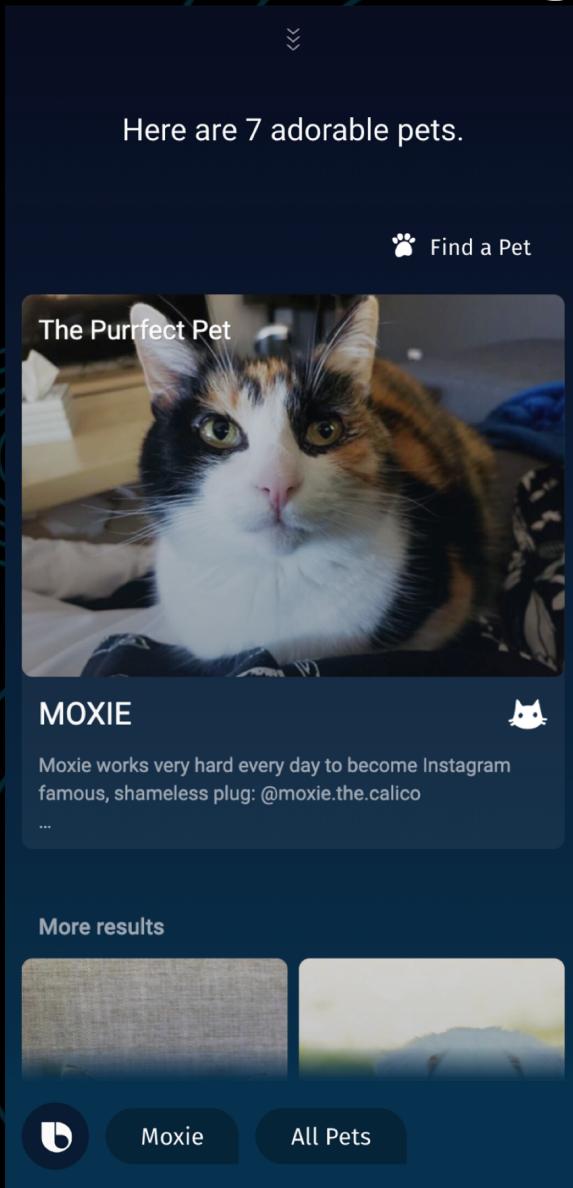
slot2

Single-line with an in-line image

slot3

Text of pet's biography

Highlighted Result



```
1 result-view{  
2   match: Pet (pets)  
3  
4   render{  
5     // this is the list view when findPets finds more than 1 pet  
6     if (size(pets) > 1){  
7       list-of (pets){  
8         highlights{  
9           select (pick){  
10             label{  
11               template ("The Purrfect Pet")  
12             }  
13             layout-macro (best-pet){  
14               param (pet){  
15                 expression (pick)  
16               }  
17             }  
18           }  
19         }  
20       }  
21     }  
22   }  
23 }  
24  
25 where-each (pet){  
26   layout-macro (pet-summary){  
27     param (pet){  
28       expression (pet)  
29     }  
30   }  
31 }  
32 }
```

003
Detail View

Image and Text

Meet Moxie.

Find a Pet

MOXIE

Height: 9.6 in Weight: 9.4 lbs Age: 3 yrs Gender: Female ♀

Biography:

Moxie works very hard every day to become Instagram famous, shameless plug:
@moxie.the.calico

b

The screenshot shows a pet profile for a cat named Moxie. At the top, it says "Meet Moxie." and has a "Find a Pet" button. Below that is a large photo of a calico cat. Under the photo, the name "MOXIE" is displayed in bold capital letters, followed by its height (9.6 in), weight (9.4 lbs), age (3 yrs), and gender (Female ♀). A "Biography" section contains the text: "Moxie works very hard every day to become Instagram famous, shameless plug: @moxie.the.calico". At the bottom left is a small logo with a lowercase "b" inside a circle.

image

Shows an image. Local images and web urls acceptable.

```
image: "/images/moxie.jpg",
```

Local image

single-line

A single line of text. Can contain in-line images.

paragraph

Good for more than 1 line of text. Supports \ escapes for quotes and line breaks.

Biography:

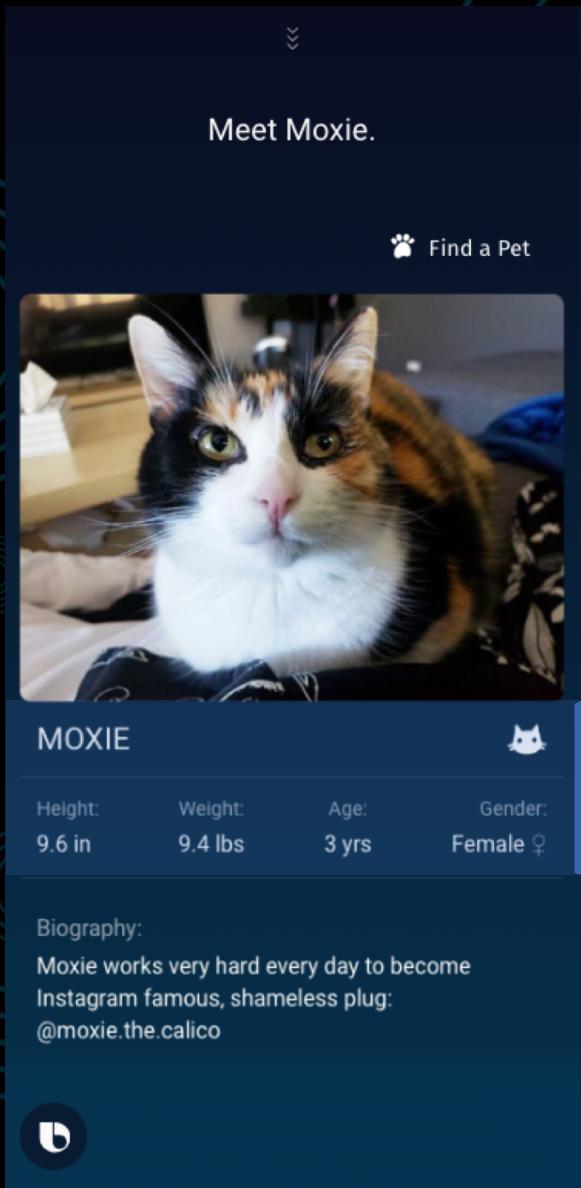
Moxie works very hard every day to become
Instagram famous, shameless plug:
@moxie.the.calico

single-line

paragraph

Detail text style makes it darker. Good for labels.

Hbox and Vbox



hbox

A horizontal box.
Contains vboxes.
Great for showing
stats.

vbox

text

vbox

A box in an hbox.
Similar to html grid
systems. Responsive.

vbox

single-line

This single-line contains
only an image



hbox

hbox

```
height: 9.6,  
weight: 9.4,  
age: '3 yrs',  
gender: "Female ♀",
```

MOXIE

Height:
9.6 in

Weight:
9.4 lbs

Age:
3 yrs

Gender:
Female ♀

vbox
text
text

vbox
text
text

vbox
text
text

vbox
text
text

Dividers and Spacers

Meet Moxie.

Find a Pet

MOXIE

Height: 9.6 in	Weight: 9.4 lbs	Age: 3 yrs	Gender: Female ♀
-------------------	--------------------	---------------	---------------------

Biography:

Moxie works very hard every day to become Instagram famous, shameless plug:
@moxie.the.calico

divider

A horizontal line. Great for adding visual separation between 2 UI elements.

spacer

Creates a space of 24px between 2 UI elements.

divider

divider

spacer

For-Each

Instagram famous, shameless plug:
@moxie.the.calico

After a tough life on the streets, she currently resides with her owner where she loves being irresistably cute, seeing how long she can stretch a single meow, and playing fetch with her human. Moxie loves cuddles, watching birds, and punching her evil doppelganger in the mirror.

Moxie's Instagram ↗

Interests:
Sitting on keyboards
Maining Pikachu in SSBU
Reading books 📖
Sleeping on her owner's face 😴
Asking for food at 4am



Click Me

Show me more cats!

Animals similar to these are always looking for a home at your local animal shelter. Although this is just a demo capsule, please consider donating to a local shelter and/or adopting a pet if you want to be unconditionally loved by an animal that just needs a warm family to call home.

Sincerely,
Jon P.



Moxie

All Pets

for-each

Iterates through an array and renders something for each item in the array.

interests: [

```
"Sitting on keyboards",  
"Maining Pikachu in SSBU",  
"Reading books 📖",  
"Sleeping on her owner's face 😴",  
"Asking for food at 4am",  
],
```

The array of Moxie's interests that gets passed into the for-each loop.

Interests:

Sitting on keyboards

Maining Pikachu in SSBU

Reading books 📖

Sleeping on her owner's face 😴

Asking for food at 4am

Cell-card with On-Click

resides with her owner where she loves being irresistably cute, seeing how long she can stretch a single meow, and playing fetch with her human. Moxie loves cuddles, watching birds, and punching her evil doppelganger in the mirror.

Moxie's Instagram 

Interests:

Sitting on keyboards

Maining Pikachu in SSBU

Reading books 

Sleeping on her owner's face 

Asking for food at 4am

 Click Me
Show me more cats!

Animals similar to these are always looking for a home at your local animal shelter. Although this is just a demo capsule, please consider donating to a local shelter and/or adopting a pet if you want to be unconditionally loved by an animal that just needs a warm family to call home.

Sincerely,
Jon P.



cell-card

A clickable card with customizable slots. On-click can dispatch new goals.

slot1

Slot2

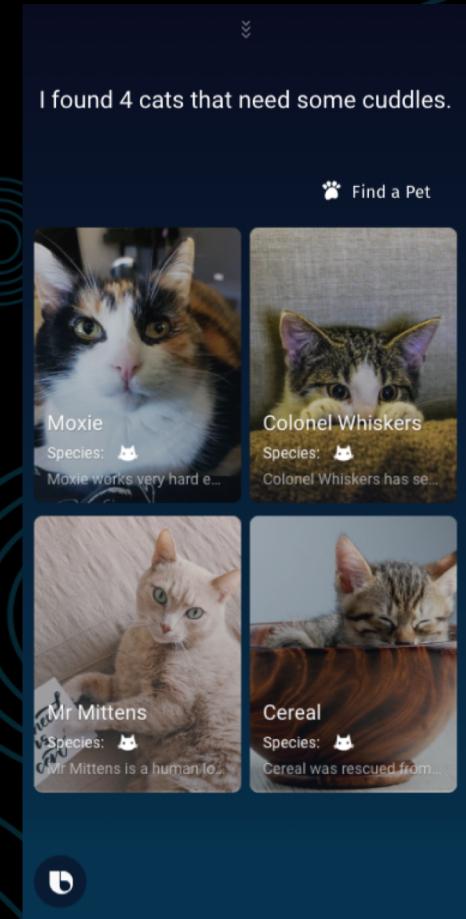


Click Me

Show me more cats!

click

Clicking on this initiates the FindPets action with the optional input species set to "cat".



Miscellaneous

resides with her owner where she loves being irresistably cute, seeing how long she can stretch a single meow, and playing fetch with her human. Moxie loves cuddles, watching birds, and punching her evil doppelganger in the mirror.

Moxie's Instagram

Interests:

Sitting on keyboards

Maining Pikachu in SSBU

Reading books 📖

Sleeping on her owner's face 😸

Asking for food at 4am



Click Me

Show me more cats!

Animals similar to these are always looking for a home at your local animal shelter. Although this is just a demo capsule, please consider donating to a local shelter and/or adopting a pet if you want to be unconditionally loved by an animal that just needs a warm family to call home.

Sincerely,
Jon P.



Moxie's Instagram

click

Clicking on this punches out to Moxie's Instagram

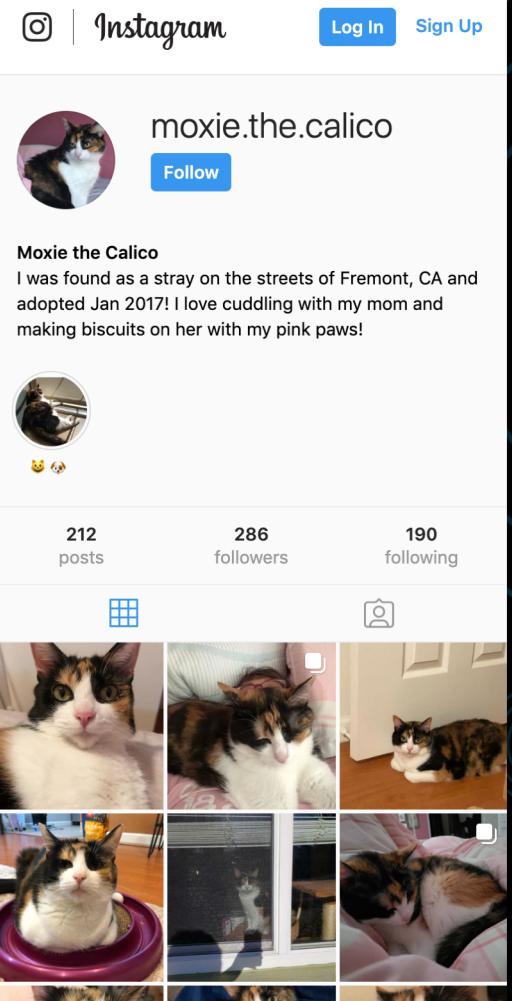
attribution-link

Punch-out link. Opens the default browser if a URL is supplied.

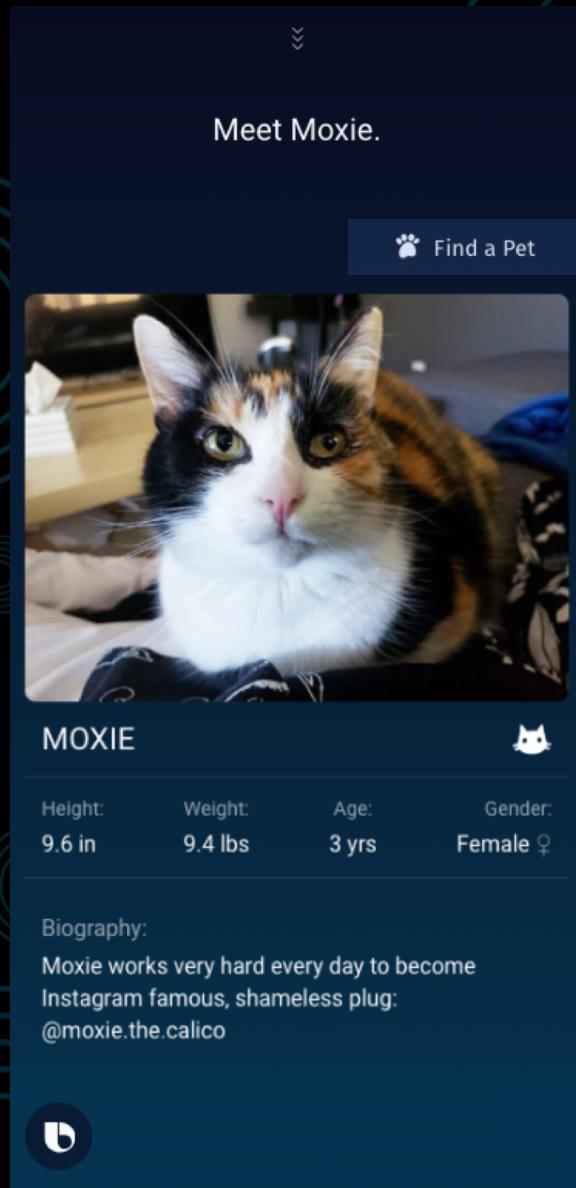
Legal styled text is small and faint

Animals similar to these are always looking for a home at your local animal shelter. Although this is just a demo capsule, please consider donating to a local shelter and/or adopting a pet if you want to be unconditionally loved by an animal that just needs a warm family to call home.

Sincerely,
Jon P.



Dialog and Capsule Name



dialog

Set the dialog in the message key in the view or a dialog.bxb file.
Displays what is read to the user.
Use the *speech* key to read something different from what's displayed.

Find a Pet

Set the icon and display name in capsule-info.bxb
As of August 2019, icons must be .png and .jpg format
This icon is cropped in a circle

004

Dos and Don'ts

How should we use the building blocks?

Dos and Don'ts

"Find the best space resort on Venus"

Do this!

A smartphone screen displaying a mobile application interface. At the top, a header says "Check out this Space Resort in the Galaxy" with a "Space Resorts" button. Below is a large image of the planet Venus. A section titled "Romantic Resort" features the text "Venus Space Spa" and "Venus • 0.904g". It includes a 5-star rating icon and a "Soar To The Sun" button. At the bottom is a footer with a "B" logo, "Make reservation", and "Find S..." buttons.

Don't do this!

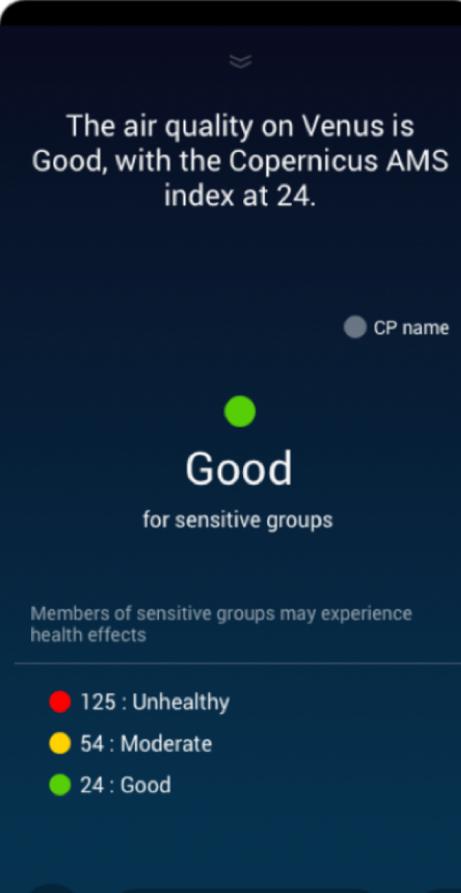
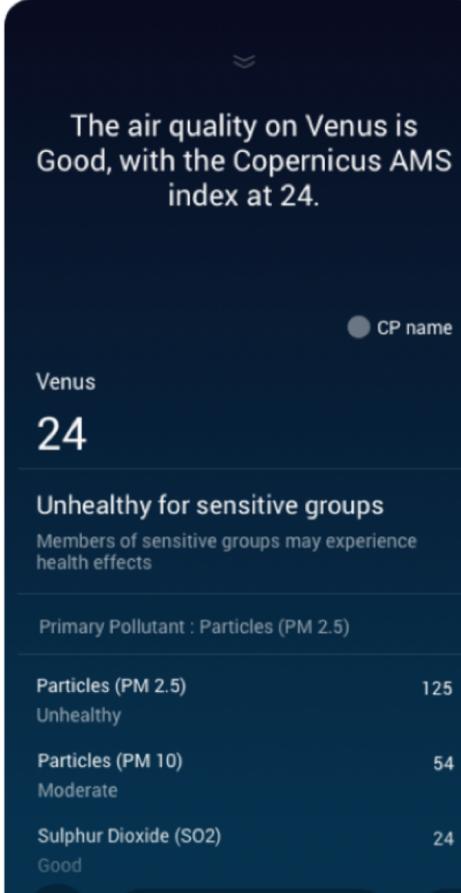
A smartphone screen displaying a mobile application interface. At the top, a header says "Check out this Space Resort in the Galaxy" with a "Space Resorts" button. Below is a large image of the planet Venus. A section titled "Romantic Resort" features the text "Venus Space Spa", "Venus • 0.904g", "Cryo Spa", and "Swimming Pool". It includes a sad face icon and a rating of "4.5". Below this is another section titled "Soar To The Sun" featuring the text "The Icarus", "Venus • 0.904g", "Spa", and a smiley face icon with a rating of "4.0". At the bottom is a footer with a "B" logo, "Make reservation", and "Find S..." buttons.

Get straight to the point
Keep it simple and
minimal.

How should we use the building blocks?

Dos and Don'ts

"What's the air quality on Venus today?"

Do this!	Don't do this!												
 <p>The air quality on Venus is Good, with the Copernicus AMS index at 24.</p> <p>CP name</p> <p>Good for sensitive groups</p> <p>Members of sensitive groups may experience health effects</p> <p>125 : Unhealthy 54 : Moderate 24 : Good</p>	 <p>The air quality on Venus is Good, with the Copernicus AMS index at 24.</p> <p>CP name</p> <p>Venus</p> <p>24</p> <p>Unhealthy for sensitive groups Members of sensitive groups may experience health effects</p> <p>Primary Pollutant : Particles (PM 2.5)</p> <table border="1"><thead><tr><th>Pollutant</th><th>Index</th><th>Status</th></tr></thead><tbody><tr><td>Particles (PM 2.5)</td><td>125</td><td>Unhealthy</td></tr><tr><td>Particles (PM 10)</td><td>54</td><td>Moderate</td></tr><tr><td>Sulphur Dioxide (SO₂)</td><td>24</td><td>Good</td></tr></tbody></table>	Pollutant	Index	Status	Particles (PM 2.5)	125	Unhealthy	Particles (PM 10)	54	Moderate	Sulphur Dioxide (SO ₂)	24	Good
Pollutant	Index	Status											
Particles (PM 2.5)	125	Unhealthy											
Particles (PM 10)	54	Moderate											
Sulphur Dioxide (SO ₂)	24	Good											

Dialog and content work together

How should we use the building blocks?

Dos and Don'ts

"Where is Venus?"

Do this!

Venus is located in the Milky Way Galaxy.

Space Resorts

It is currently 162 million miles from Earth.



Don't do this!

Okay, here's what I found. Let's take a look.

CP name

Venus
Planet

Venus is the second planet from the Sun, orbiting it every 224.7 Earth days. It has the longest rotation period of any planet in the Solar System and rotates in the opposite direction to most other planets. It does not have any natural satellites. It is named after the Roman goddess of love and beauty. [Wikipedia](#)



See more results

People also search for



How about Mercury

How about Earth

How about Jupiter

How about Mars

Deliver what users need
Provide the most
relevant content, based
on the user's utterance.

005
Input Views

The Demo Code

<https://github.com/jonmpa/input-view-tutorial>

Code in master branch:

git clone https://github.com/bixbydevelopers/result-view-tutorial.git

The screenshot shows a GitHub repository page for 'jonmpa / input-view-tutorial'. The repository has 4 commits, 1 branch, 0 packages, 0 releases, and 1 contributor. The 'Code' tab is selected. A tooltip for the 'Clone or download' button shows the HTTPS URL: <https://github.com/jonmpa/input-view-tutorial>. The repository description is empty, and there are no issues, pull requests, or actions.

jonmpa / input-view-tutorial

Code Issues 0 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

No description, website, or topics provided. Edit

Manage topics

4 commits 1 branch 0 packages 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

jonmpa Update readme.md

assets/readme pushing up readme and more
code first commit
models pushing up readme and more
resources pushing up readme and more

Clone with HTTPS Use SSH
Use Git or checkout with SVN using the web URL.
<https://github.com/jonmpa/input-view-tutorial>

Open in Desktop Download ZIP

Forms: text-input

Good for collecting short text inputs like names

text-input

What is your name?

Your Name

Jonathan Pan

Submit Name

text-input

It's a pleasure to meet you, Jonathan Pan. What is your email address?

Email Address

jpan@viv.ai

Go

Has email validation

Also useful for:

- Phone Numbers
- Alpha-Numeric Combinations
- Shorter strings (usually less than 50 characters)

Forms: text-input - Trainings

Name	text-input	checkbox	Like
Trainings: "Bob" "John Doe" "My name is John Doe"	<p>What is your name?</p> <p>Your Name Jonathan Pan</p> <p>Submit Name</p>	<p>Do you like this capsule?</p> <p>Yes I do like this capsule! I also like this tutorial and will give it a thumbs up on YouTube.</p> <p><input checked="" type="checkbox"/></p> <p>Go</p>	Need vocab file for true and false equivalents Training: "yes"

Forms: other types

A true / false checkbox
Good for asking for permission

checkbox

Do you like this capsule?

Yes I do like this capsule!
I also like this tutorial and will give it a thumbs up on YouTube.

Go

textarea

What kind of tutorials would you like to see next? Any additional feedback?

Feedback

I'd like to see something about persistence. No additional feedback.

Go

Useful for collecting longer blocks of text.

Forms: other types - Trainings

Need vocab file for true and false equivalents

Like

checkbox

Training:
“yes”

A screenshot of a mobile application interface showing a form. At the top, there is a blue header bar with the word "checkbox" in white. Below the header, the question "Do you like this capsule?" is displayed. A text input field contains the response "Yes I do like this capsule! I also like this tutorial and will give it a thumbs up on YouTube." To the right of the text input is a checked checkbox icon. At the bottom of the screen, there is a "Go" button.

textarea

Feedback

What kind of tutorials would you like to see next? Any additional feedback?

Feedback

I'd like to see something about persistence. No additional feedback.

Training:
“Foo bar foo bar”

Collecting Dates

date-picker

When did you start using Bixby?

February 18 2017

March 19 2018

April 20 2019

May 21

June 22

Submit

calendar

When are you planning to build something for Bixby?

S M T W T F S

September 2019

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

October 2019

1	2	3	4	5
6	7	8	9	10
11	12			

Go

Good for collecting a single date

Good for collecting a range of dates. Can be used to collect a single date as well.

Collecting Dates - Trainings

Started

date-picker

Trainings:
“April 1st 2019”
“Yesterday”

Train as Time.DateTimeExpression

When did you start using Bixby?

February	18	2017
March	19	2018
April	20	2019
May	21	
June	22	

Submit

calendar

When are you planning to build something for Bixby?

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

September 2019

October 2019

Go

Duration

Training:
“From January 1st to February 28th”

Train as Time.DateInterval

006

Learning Resources

Useful Links

Result View UI Elements:

<https://bixbydevelopers.com/dev/docs/reference/type/layout.content.section.content>

Search “*content.section.content*”

Input View UI Elements:

<https://bixbydevelopers.com/dev/docs/reference/type/input-view>

Search “*input-view*”

Bixby Developers Github

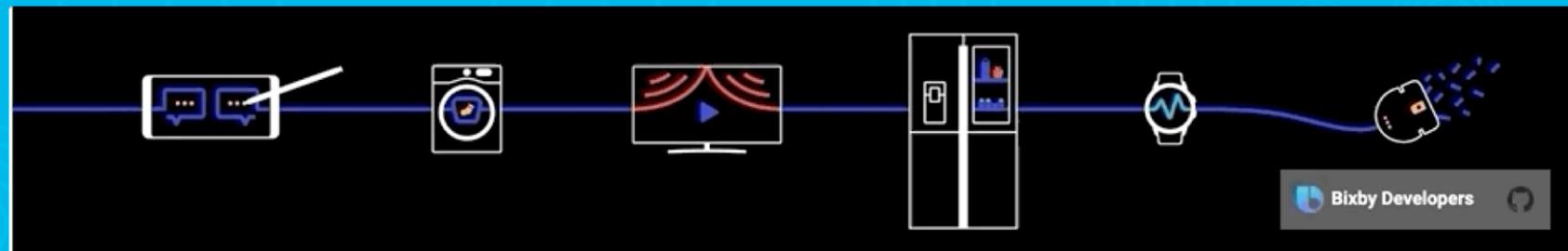
<https://github.com/bixbydevelopers>



YouTube

www.youtube.com/c/bixbydevelopers

Result View Tutorial



Input View Tutorial

Bixby Developers
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Upcoming Events

Side Chef AMA

- 3:00 PM (PDT) Friday Nov 22nd
- www.reddit.com/r/Samsung

Next Webinar - Open Office Hours

- 11:00 AM (PDT) Tuesday Nov 26th
- <https://srasamsung.zoom.us/j/288529659>

Slack Invite

- tiny.cc/bixbydevslack



Thank you

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