

Building Graphical Go apps is Fyne!

Andrew Williams - 16 August 2024

About Me

- Software Engineer, Author, Entrepreneur
- Coder at Maven, Enlightenment
- Founder of Fyne project
- Go developer since 2018
- CEO Fyne Labs



fyne
labs





How Go makes GUI simple

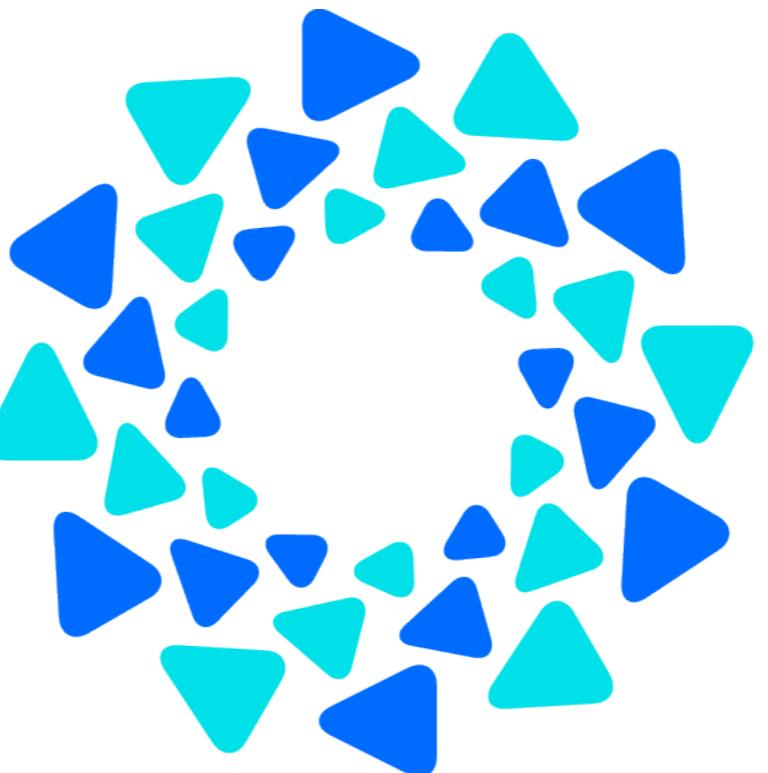
- Write once, run anywhere
- Apps that just work, do not require libraries or setup
- Native performance, without duplicating code
- Lower barrier of entry to building GUI apps
- Modern language standards and techniques
- Promote good engineering principles too

Fyne Project

"

Fyne aims to be the simplest toolkit for
developing beautiful and usable
native graphical applications
for desktop, mobile and beyond

"

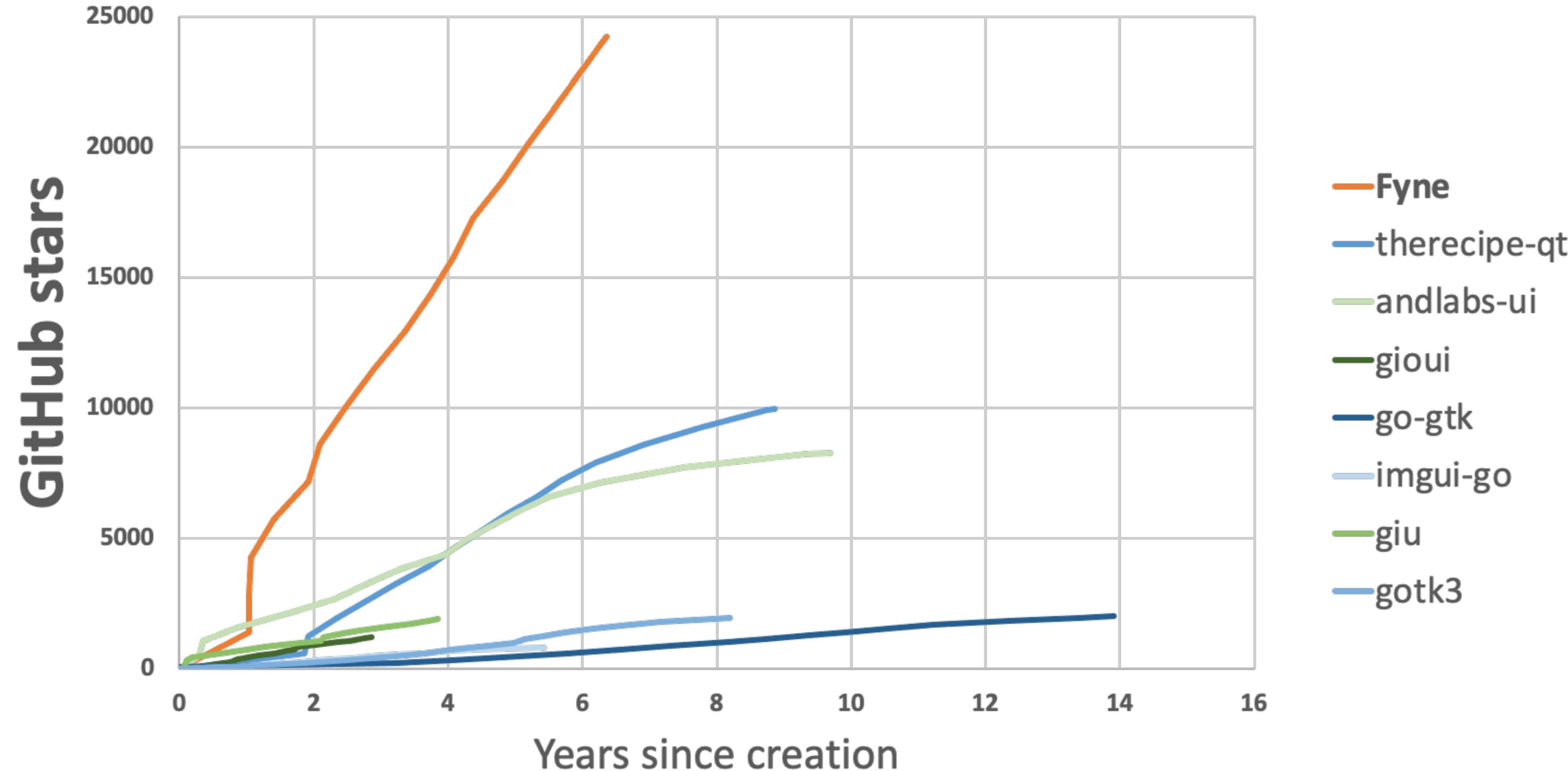


fyne

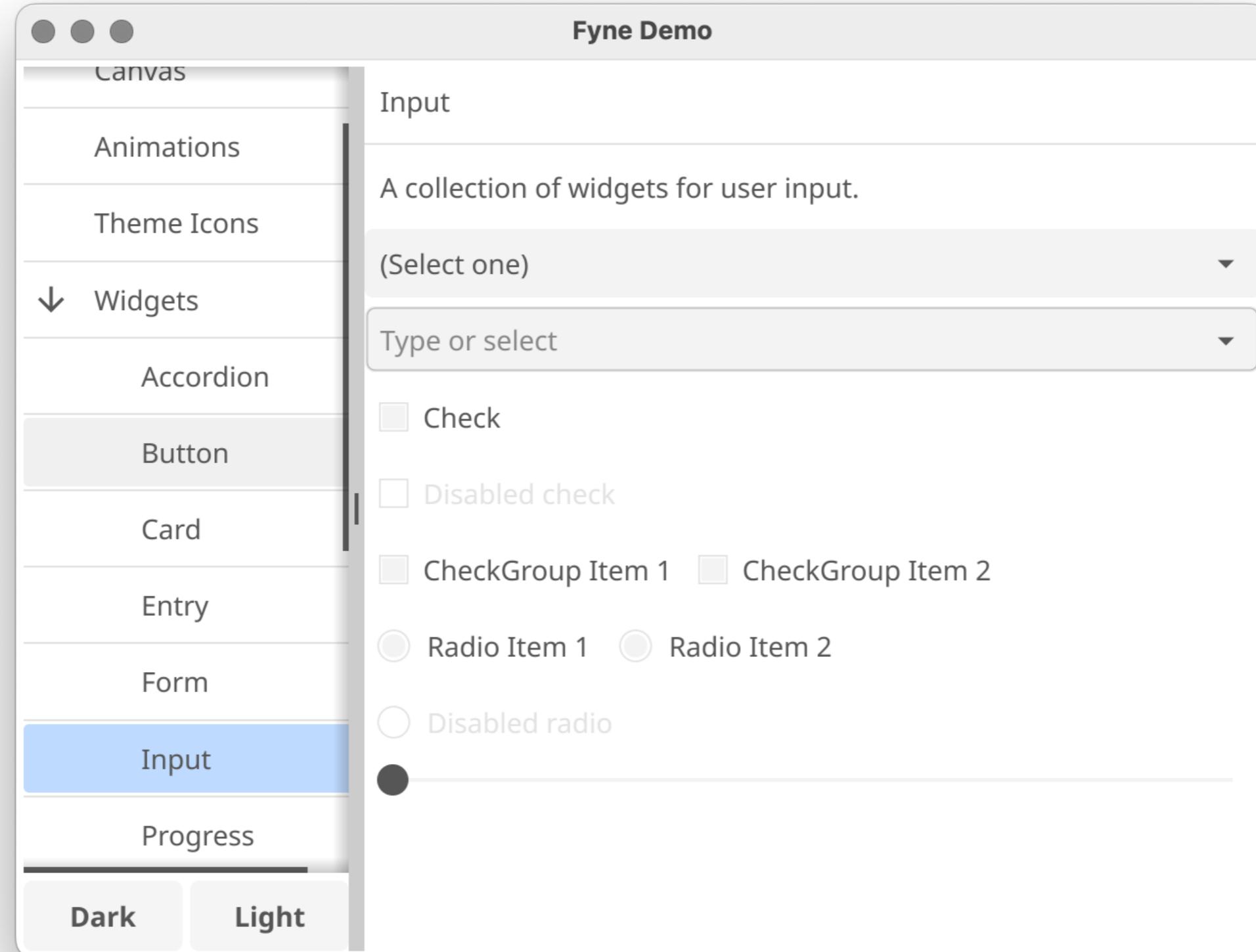
Fyne Stats

- 6 years old
- Most popular GUI toolkit for Go
- Ranked 6th of all GUI tools by @OSSInsight
- Over 24250 GitHub stars!
- Community of >2350 on Slack, Discord, Matrix
- 15% popularity of Flutter, 20% of React Native

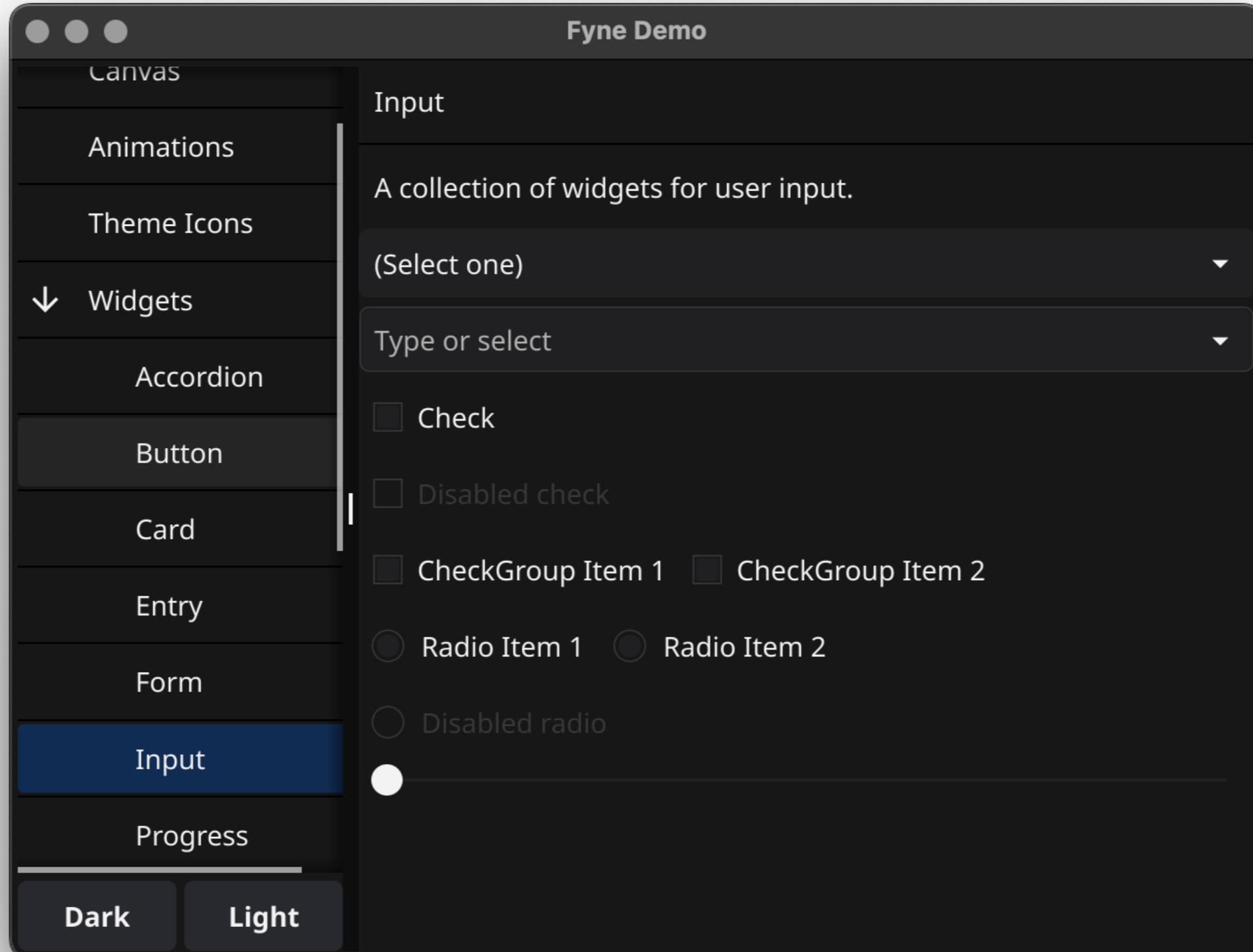
Fyne Stats



Screenshot



Screenshot (dark)

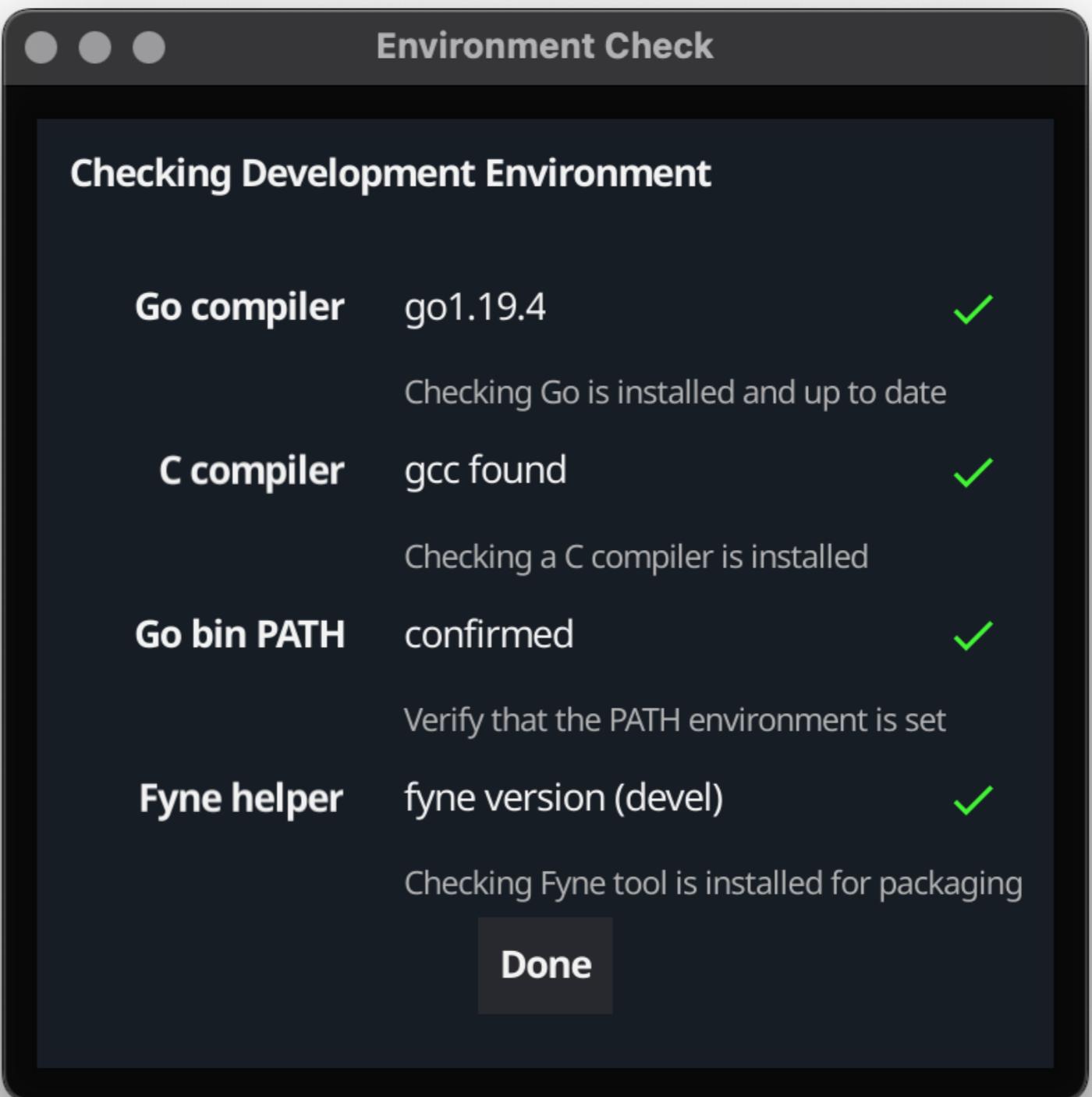


Prerequisites

- Install Go (≥ 1.19)
- Set up gcc/clang

<https://docs.fyne.io/started/>

Double check with "Fyne Setup"



Build our first app

```
$ mkdir myproject; cd myproject
```

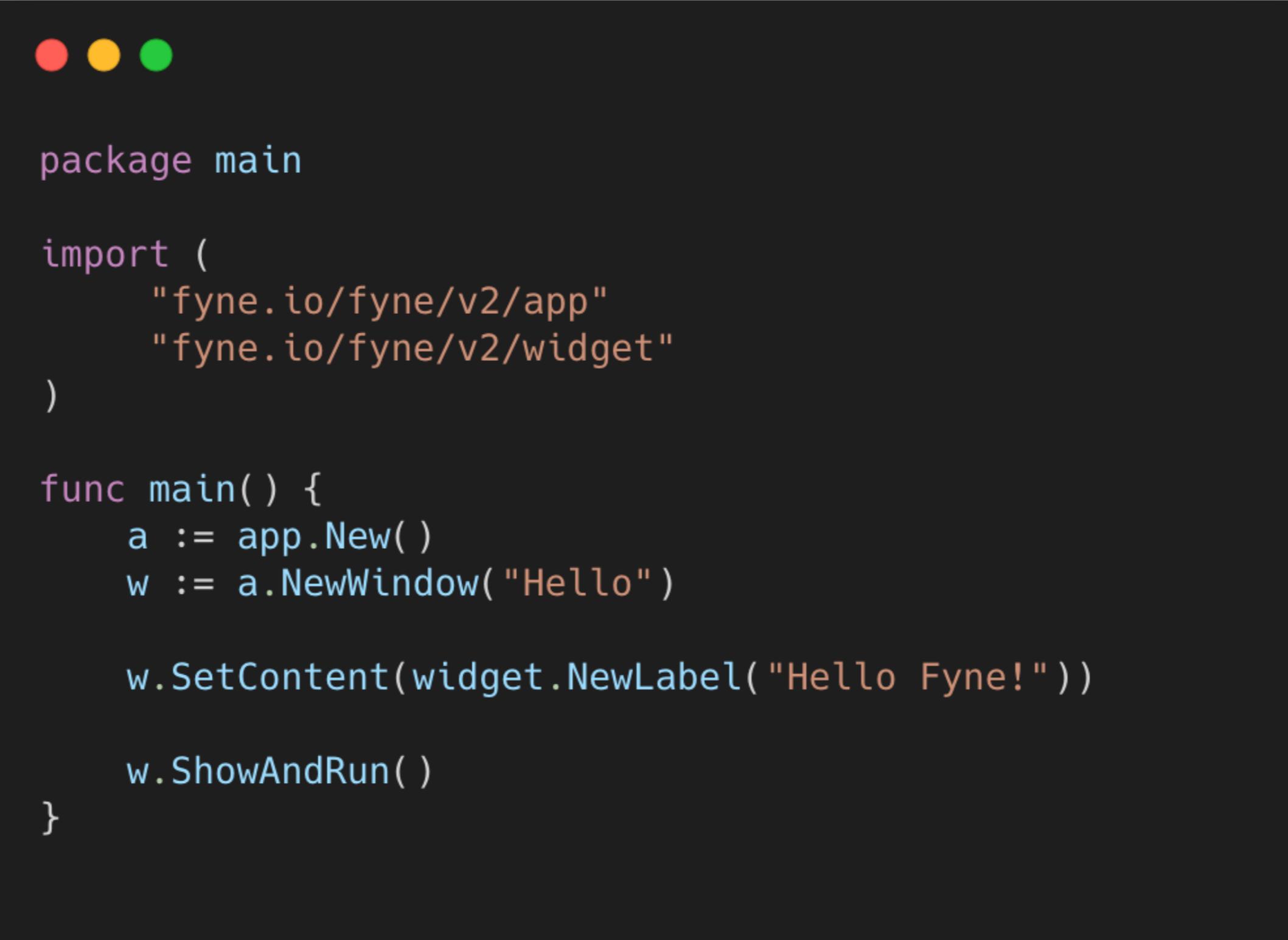
```
$ go mod init myproject
```

```
$ go get fyne.io/fyne/v2@latest
```

```
$ vim ui.go
```

```
$ go run .
```

Hello World



```
package main

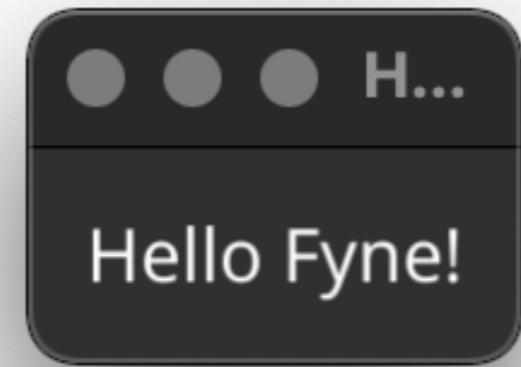
import (
    "fyne.io/fyne/v2/app"
    "fyne.io/fyne/v2/widget"
)

func main() {
    a := app.New()
    w := a.NewWindow("Hello")

    w.SetContent(widgetNewLabel("Hello Fyne!"))

    w.ShowAndRun()
}
```

Hello World



Compiling for other targets

```
$ go install fyne.io/fyne/v2/cmd/fyne@latest
```

```
$ fyne install
```

```
$ fyne package -os windows
```

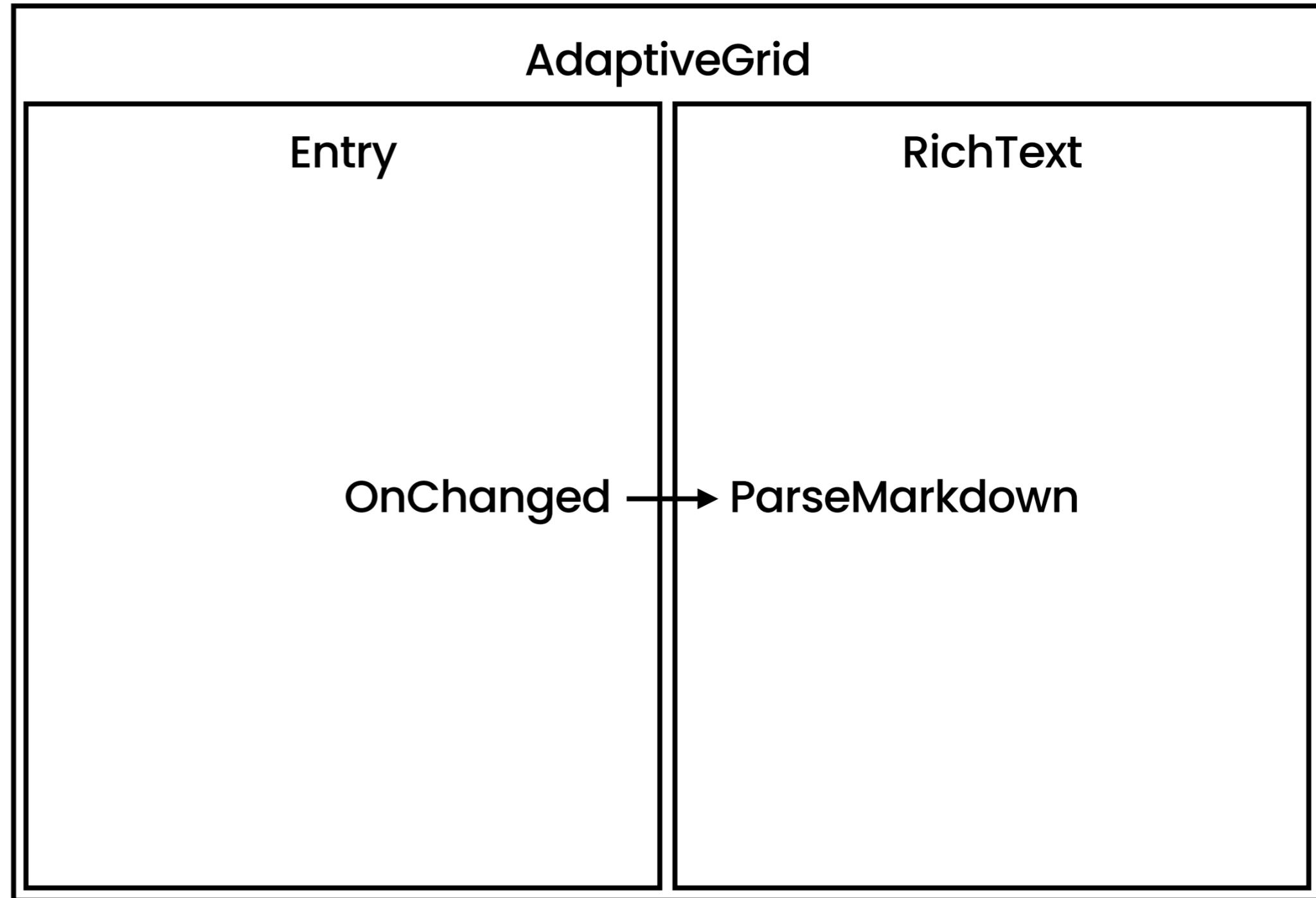
```
$ fyne package -os android -applD com.company.myapp
```

--

Also see fyne-cross tool <https://github.com/fyne-io/fyne-cross>

Let's make a Markdown editor!

- Editor widget for input
- RichText widget for output
- AdaptiveGrid container
- Update through OnChanged



Markdown editor

```
● ● ●

package main

import (
    "fyne.io/fyne/v2/app"
    "fyne.io/fyne/v2/container"
    "fyne.io/fyne/v2/widget"
)

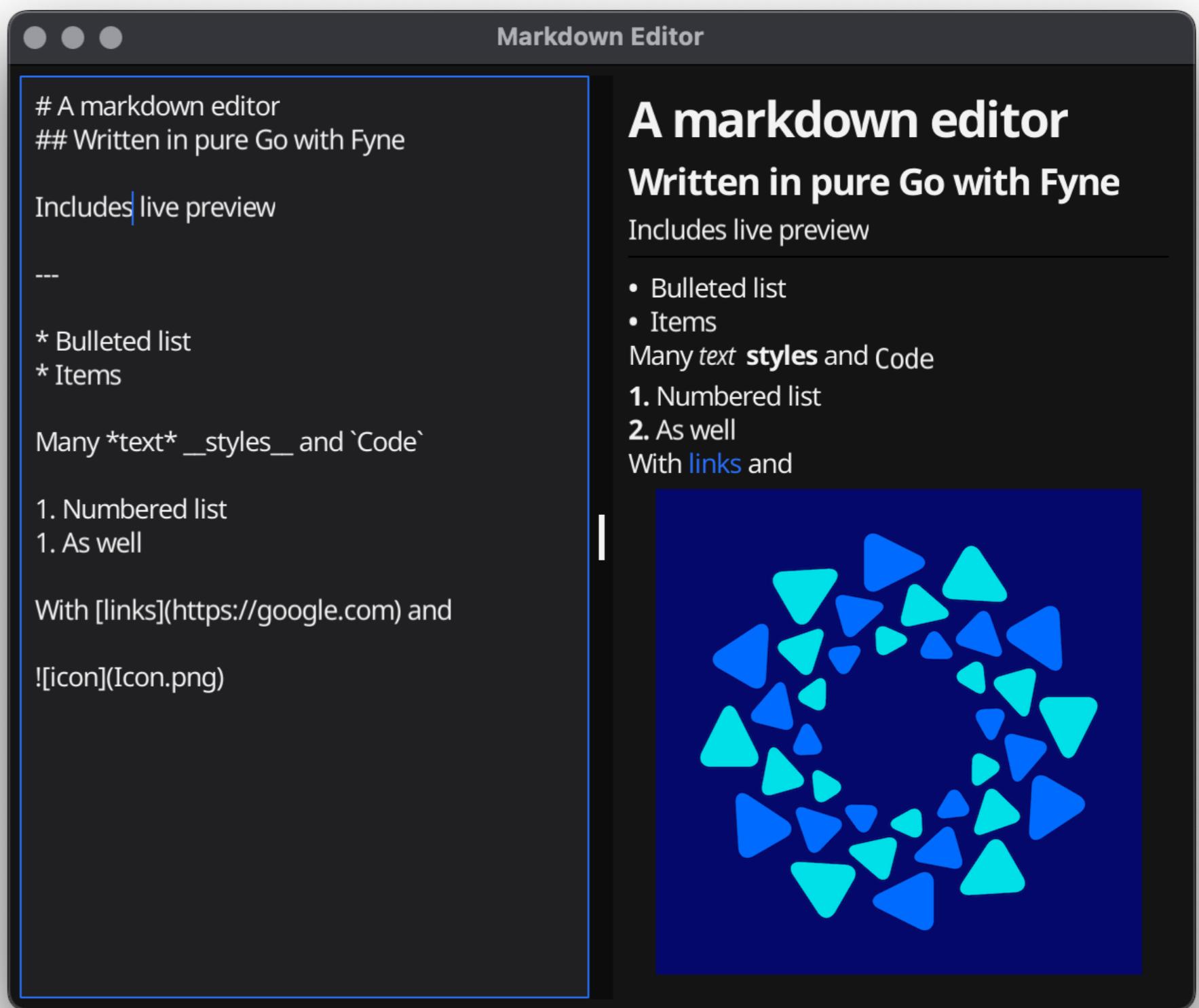
func main() {
    a := app.New()
    w := a.NewWindow("Markdown Editor")

    edit := widget.NewMultiLineEntry()
    preview := widget.NewRichTextFromMarkdown("")
    edit.OnChanged = preview.ParseMarkdown

    w.SetContent(
        container.NewAdaptiveGrid(2, edit, preview))
    w.ShowAndRun()
}
```

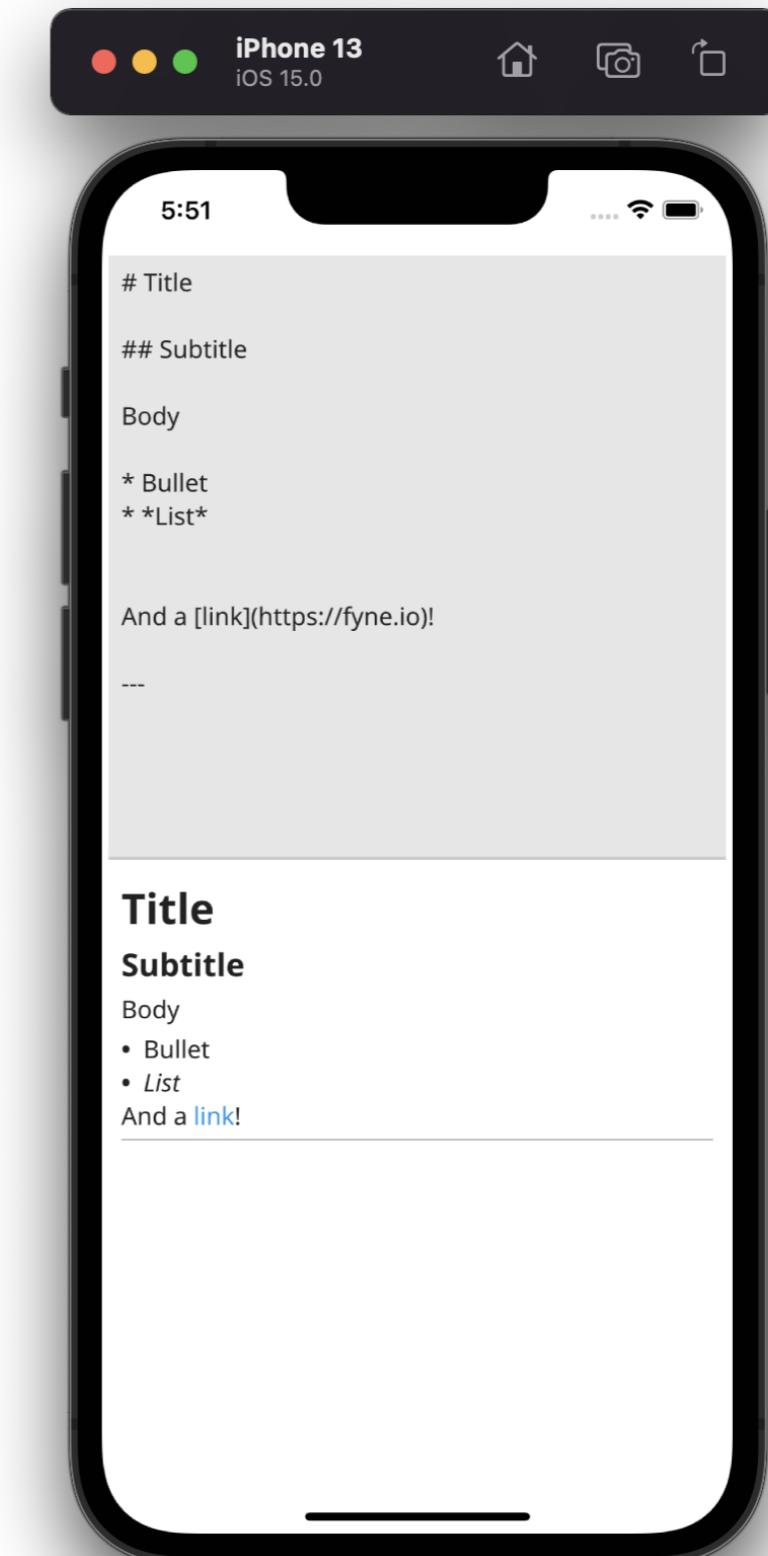
Markdown editor

- Editor widget for input
- RichText widget for output
- AdaptiveGrid container
- Update through OnChanged



Markdown editor

- Editor widget for input
- RichText widget for output
- AdaptiveGrid container
- Update through OnChanged



Testing

```
$ vim ui_test.go
```

```
$ go test .
```



```
package test

import (
    "testing"

    "github.com/stretchr/testify/assert"
    "fyne.io/fyne/v2/test"
    "fyne.io/fyne/v2/widget"
)

func TestText_Selected(t *testing.T) {
    e := widget.NewEntry()
    test.Type(e, "Hello")
    assert.Equal(t, "Hello", e.Text)

    test.DoubleTap(e)
    assert.Equal(t, "Hello", e.SelectedText())
    assert.Equal(t, 5, e.CursorColumn)
}
```

Exploring further...

Graphics Capabilities

Line

(Rounded) Rectangle

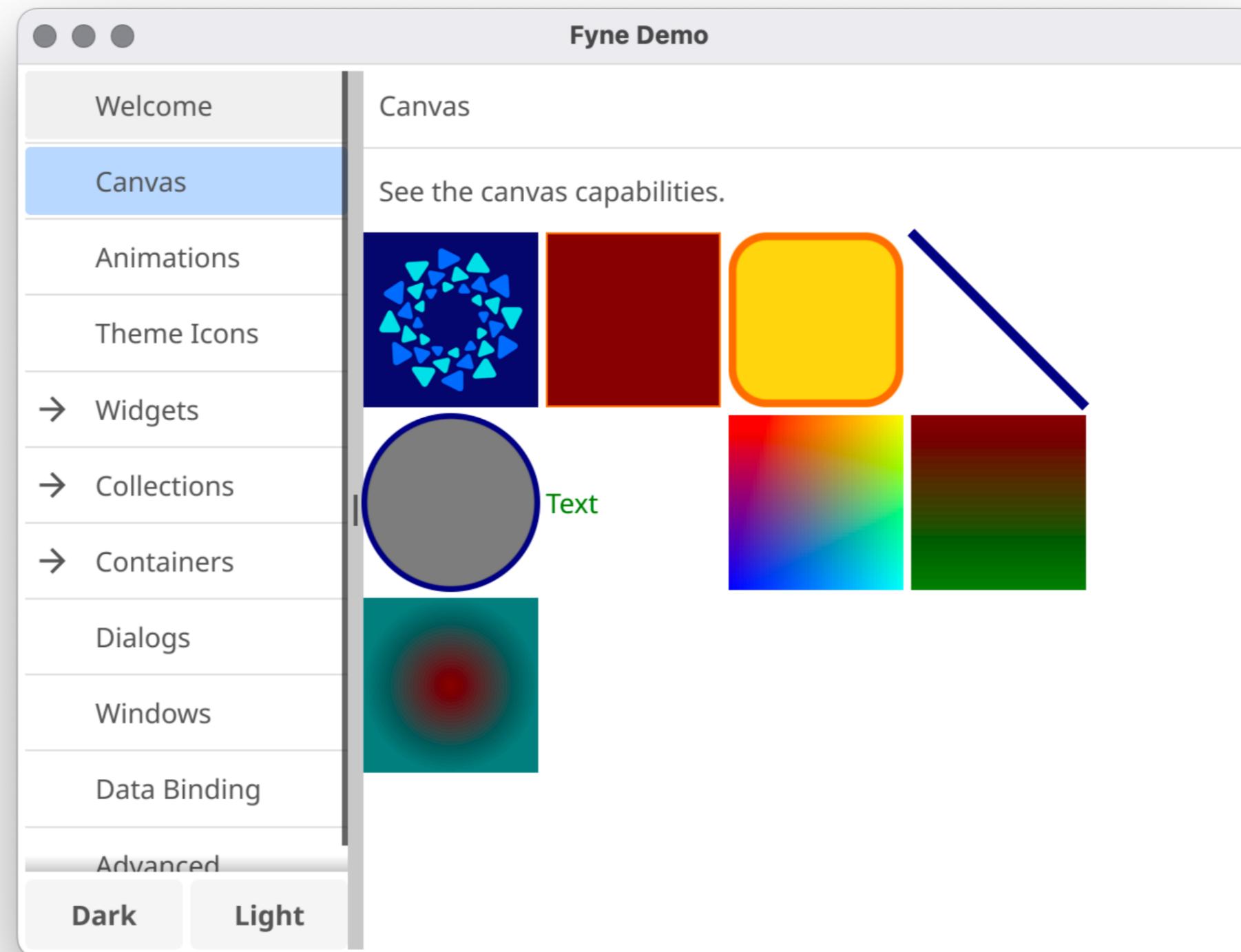
Circle

Text

(Linear/Radial) Gradient

Image (SVG, bitmap), Raster

Icon and themes bundled

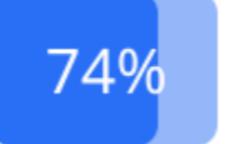
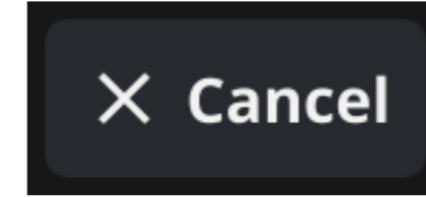


Basic Widgets

```
widgetNewLabel("Text label")  
  
widget.NewButtonWithIcon("Cancel"  
    theme.CancelIcon, func() {})  
  
widget.NewProgressBar()  
  
widget.NewCard("Card Title",  
    "subtitle", content)  
  
widget.NewRichTextFromMarkdown(  
    `# RichText Heading ...`)
```

1 TextGrid
2 Content

Text label

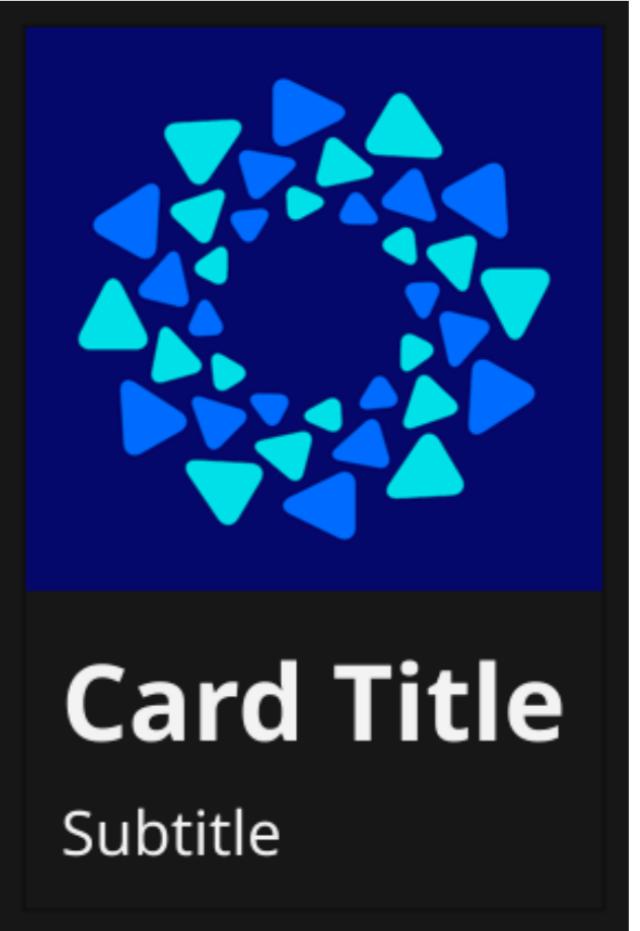


RichText Heading
A Sub Heading

▼ A

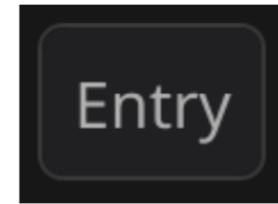
▲ B

Shown item

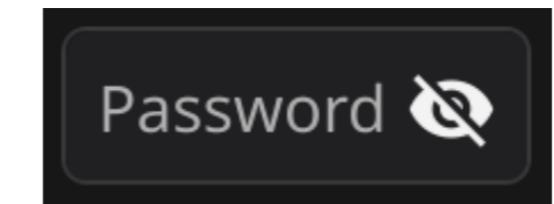


Input Widgets

```
widget.NewEntry()
```



```
widget.NewPasswordEntry()
```



```
widget.NewSlider(0, 100)
```



```
widget.NewCheck("Check", func(bool) {})
```



Check

```
widget.NewRadioGroup([]string{
```



Item 1

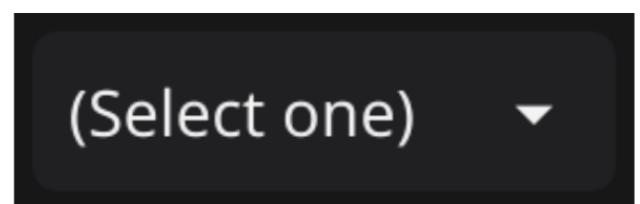
```
    "Option 1", "Option 2"}, func(string) {})
```

```
widget.NewSelect([]string{"Option A", "Option B"},
```



Item 2

```
func(string) {})
```

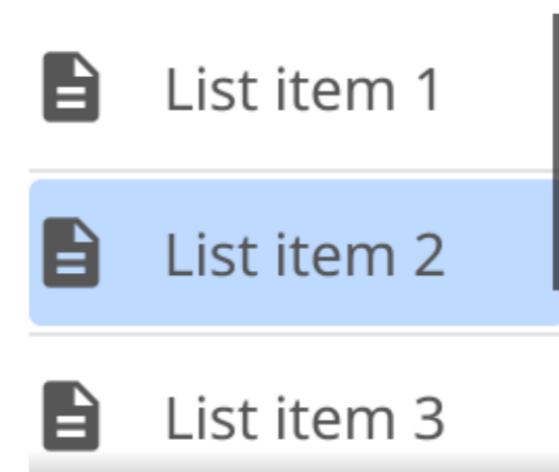
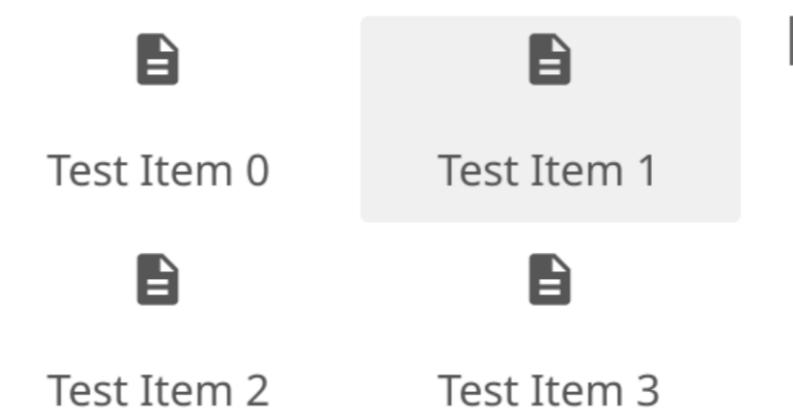
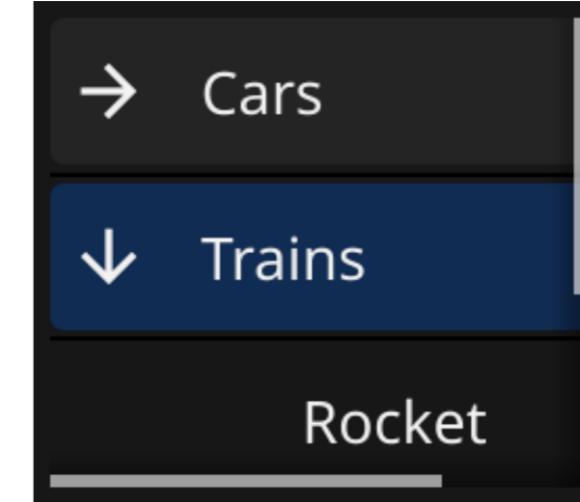


Select one or type ▾

Collection Widgets

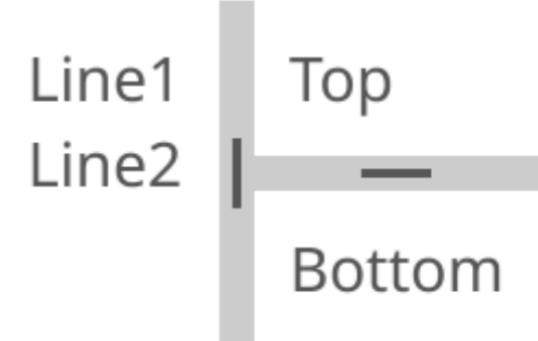
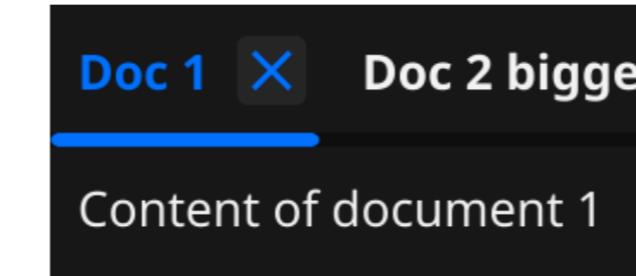
```
widget.NewList(  
    func() int {  
        return len(data)  
    },  
    func() fyne.CanvasObject {  
        return widgetNewLabel("Template Object")  
    },  
    func(id widget.ListItemID, o fyne.CanvasObject) {  
        o.(*widget.Label).SetText(data[id])  
    },  
)
```

A	B
1 A longer cell	Cell 1, 2
2 A longer cell	Cell 2, 2

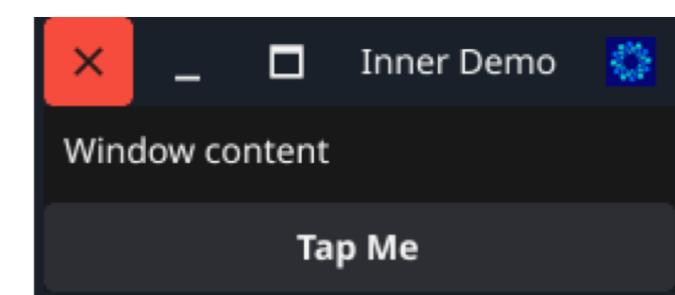


Containers

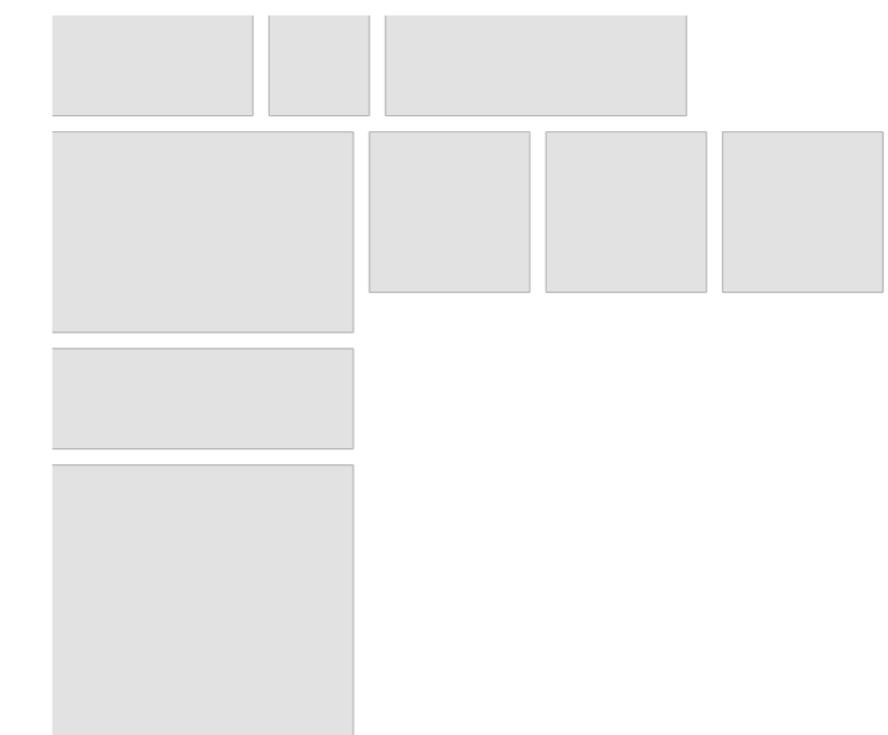
container.NewHSplit(left, right)



container.NewAppTabs(items...)



container.NewDocTabs(items...)



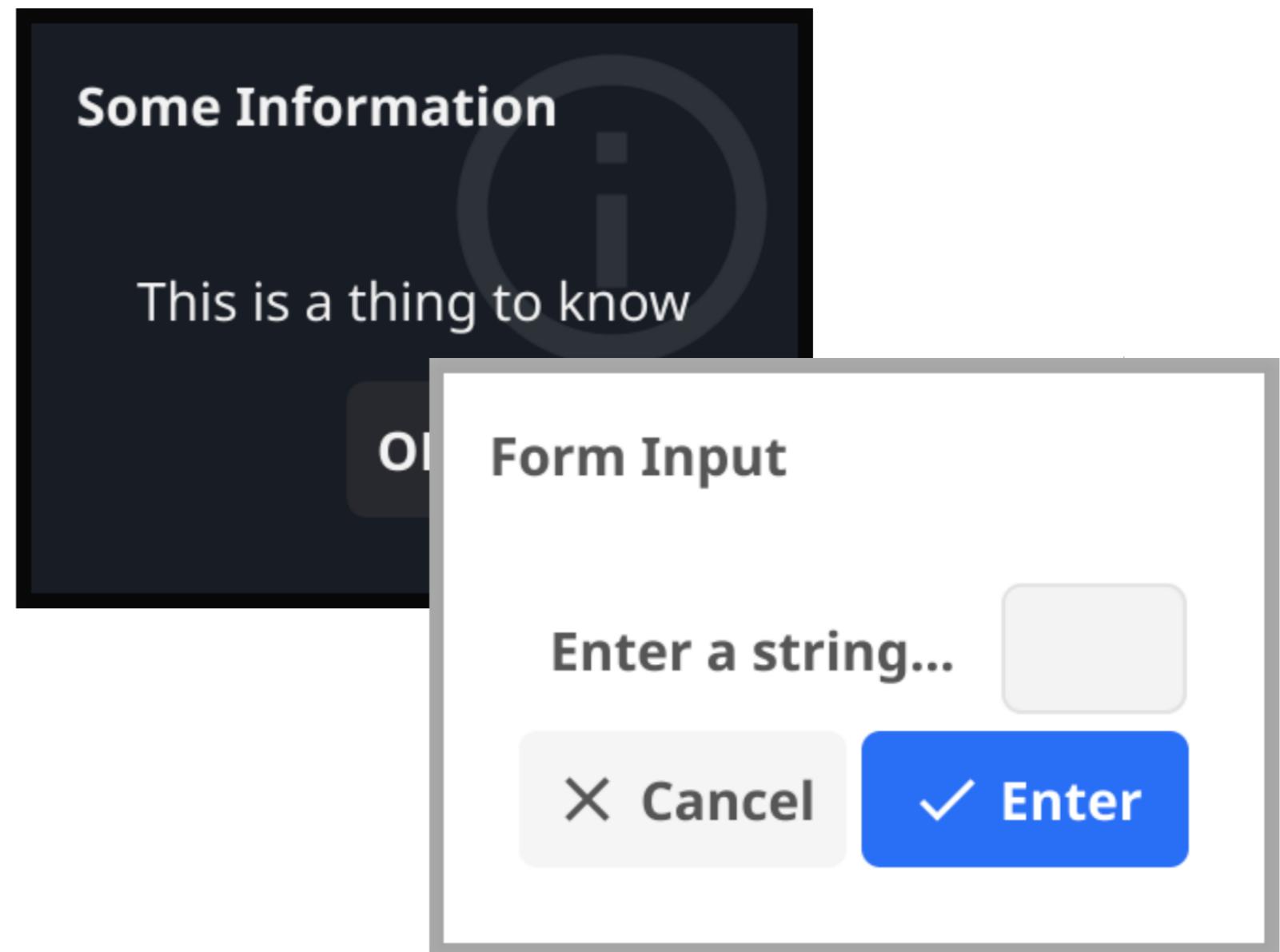
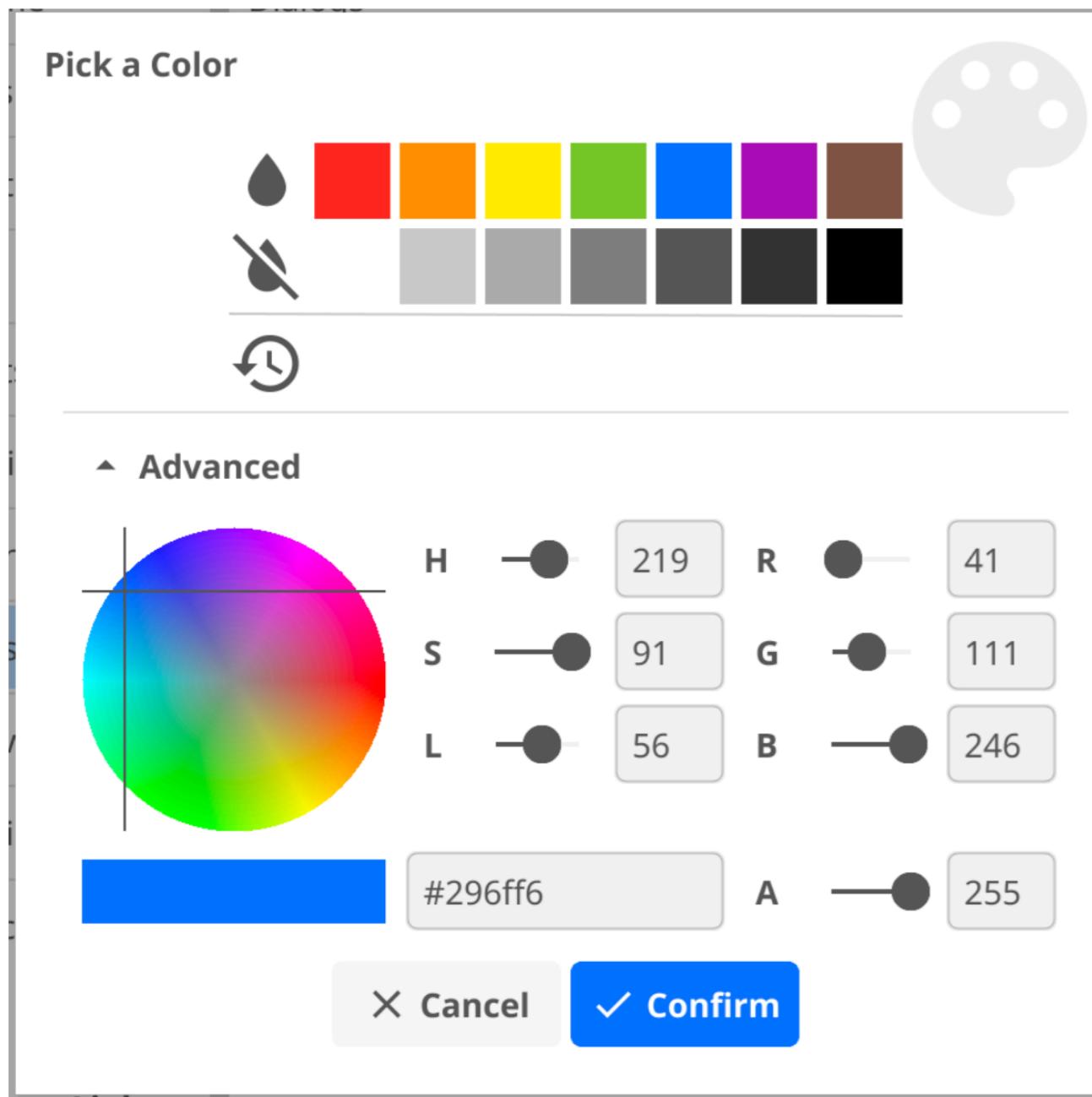
container.NewScroll(content)



container.New(layout, objects...)

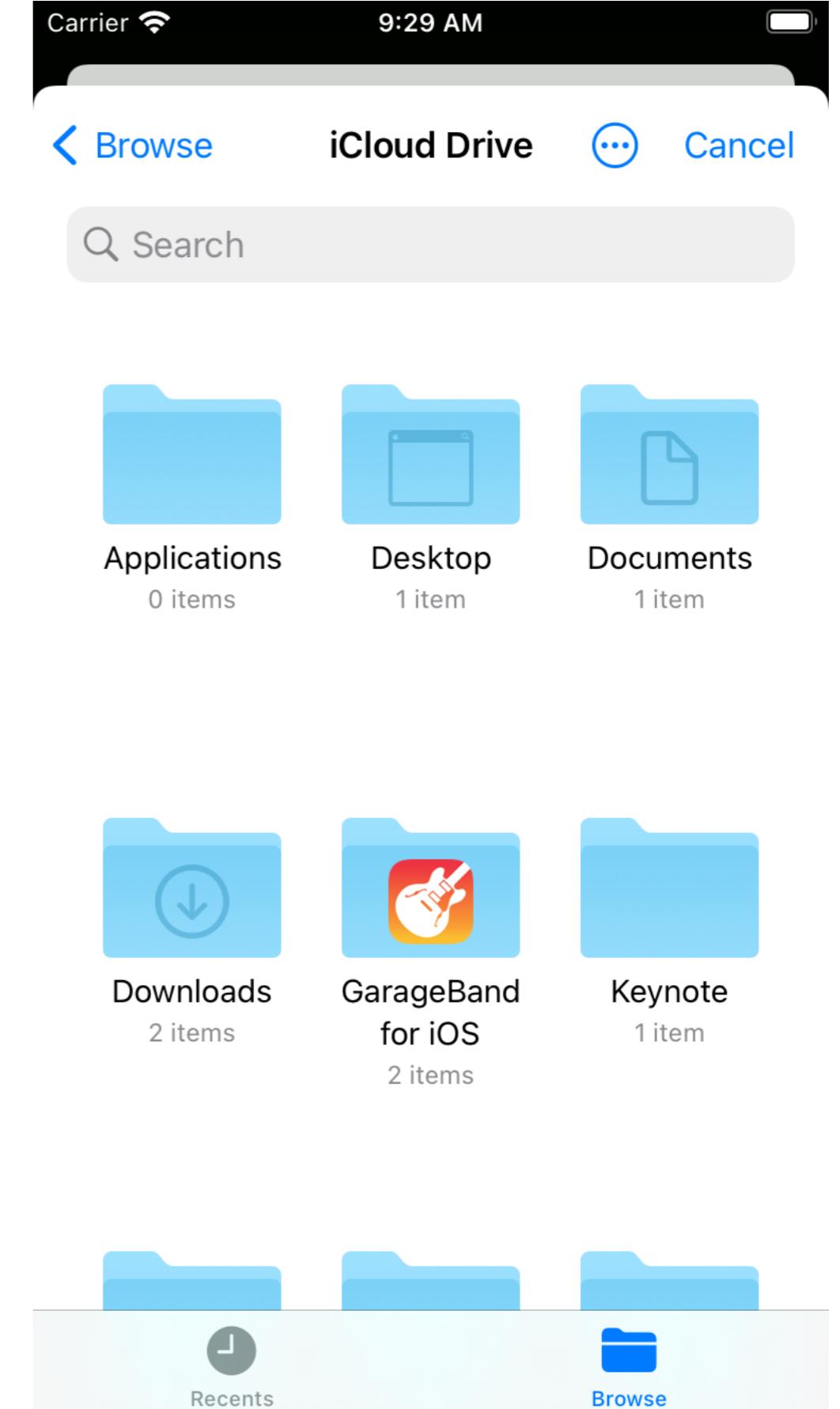
Dialogs

```
dialog.ShowConfirm("Confirmation",  
    "Are you enjoying this demo?", func(bool) {}, win)
```



File input and data binding

- dialog.ShowFileOpen
- dialog.ShowFileSave
- storage package abstraction

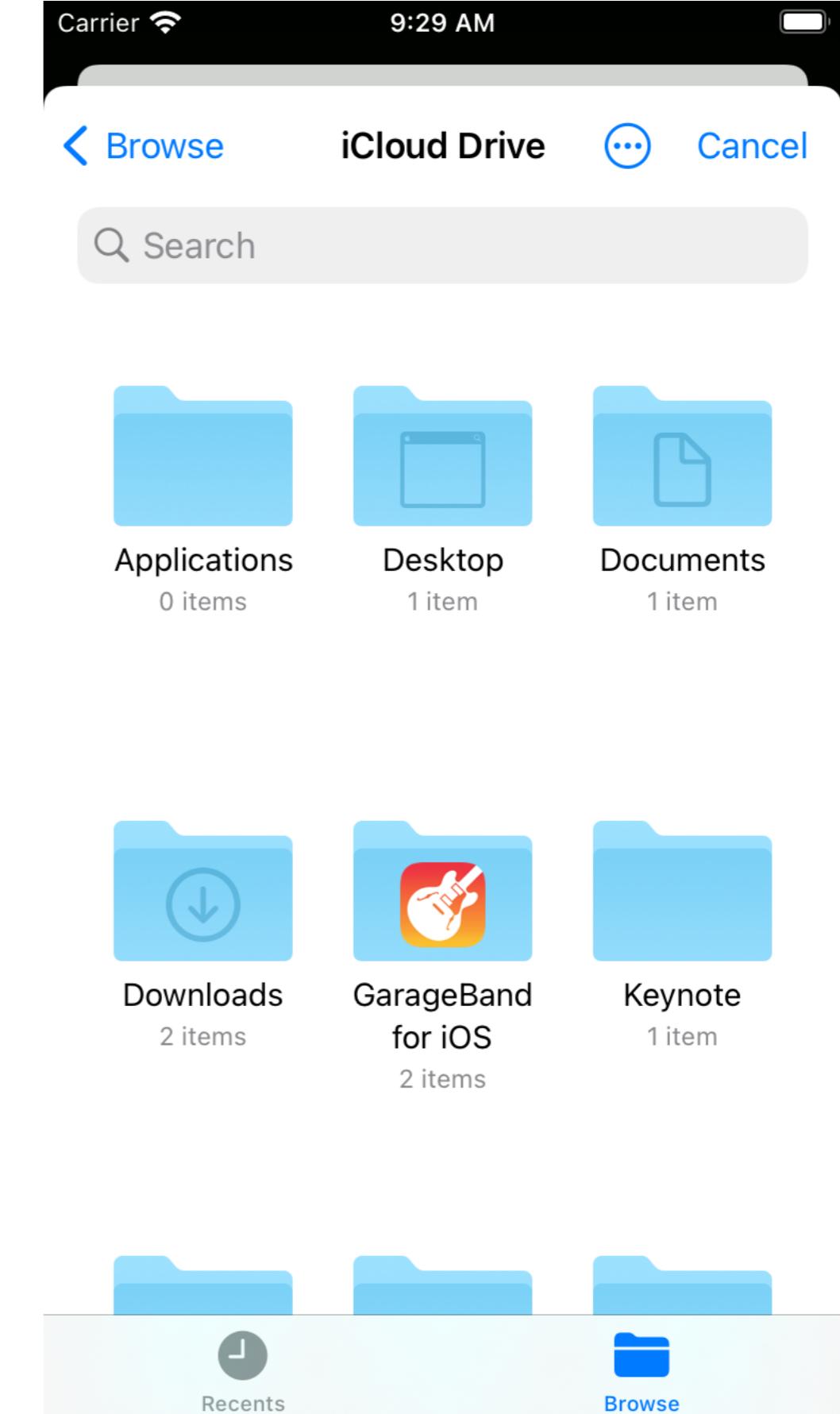


File input and data binding

- dialog.ShowFileOpen
- dialog.ShowFileSave
- storage package abstraction

--

- binding.NewString
- widget.NewLabelWithData



3rd party components too!

- Just import package and use

- Works like any widget

```
$ map := xWidget.NewMap()
```

```
$ cmdline := terminal.New()
```

<https://addons.fyne.io>



But there is more!

- Menus, menu bar
- Notifications
- Translations
- System Tray
- Preferences and Documents
- Cloud storage integration



But there is EVEN MORE!

This entire presentation, and desktop, is Fyne!

But also ONE MORE THING!

Editing Fyne apps with a GUI builder!

Learn more

- Documentation: <https://docs.fyne.io>
- Videos: <https://www.youtube.com/c/fyne-io>
- Apps: <https://apps.fyne.io>
- Contribute: <https://github.com/fyne-io/fyne/>
- Sponsor! <https://fyne.io/sponsor/>
- App Builder <https://fysion.app>

Learn more @ Fyne Conf

- 20 September 2024
- Berlin and Online
- <https://conf.fyne.io>



Questions?

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