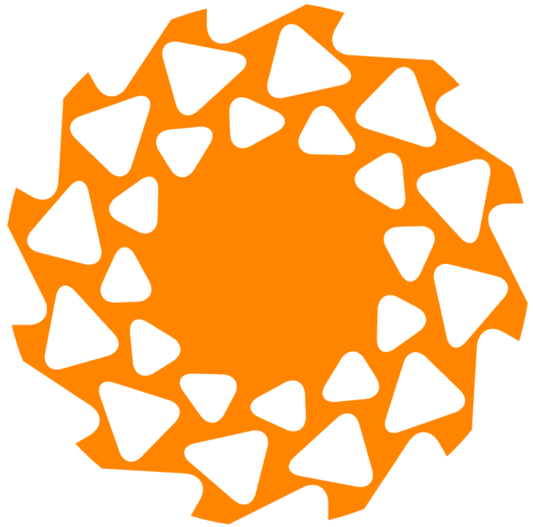
Building Apps that work Anywhere

Andrew Williams - 26 March 2025

About Me

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



fyne labs

How Go makes GUI simple

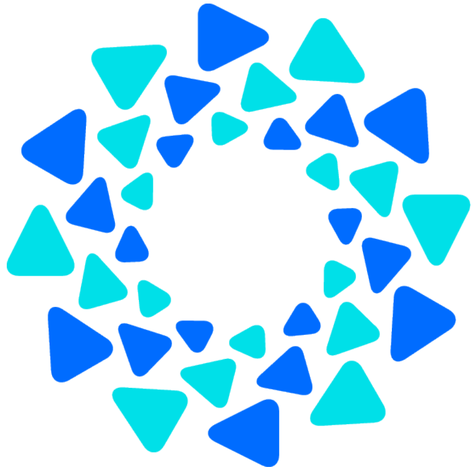
- Write once, run anywhere
- Apps that just work, do not require libraries or setup
- Native performance, without duplicating code
- Lower barrier of entry to building GUI apps
- Modern language standards and techniques
- Promote good engineering principles too

Fyne Project

"

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

"

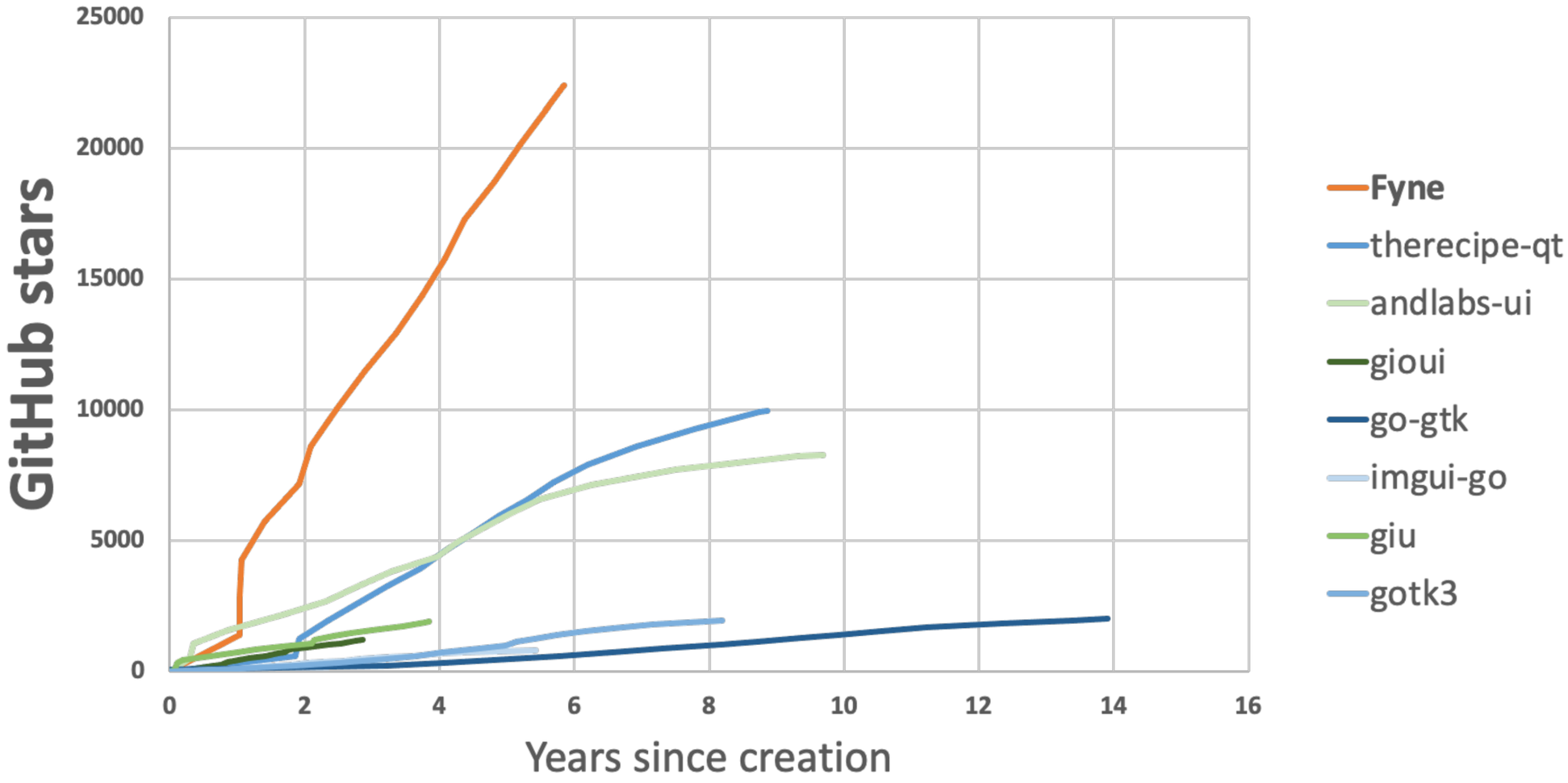


fyne

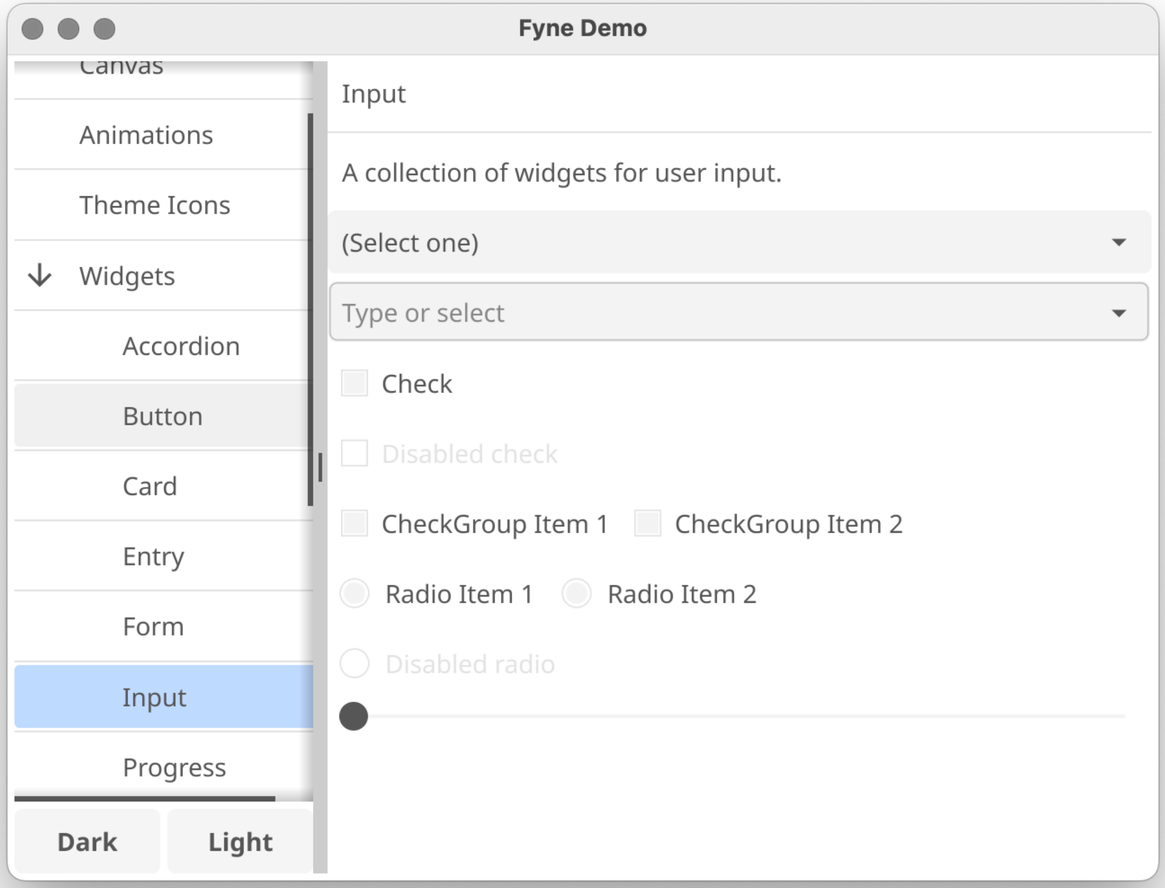
Fyne Stats

- 6 years old
- Most popular GUI toolkit for Go
- Ranked 5th of all GUI tools by @OSSInsight
- Over 26'000 GitHub stars!
- Community of >2500 on Slack, Discord, Matrix
- 15% popularity of Flutter, 20% of React Native

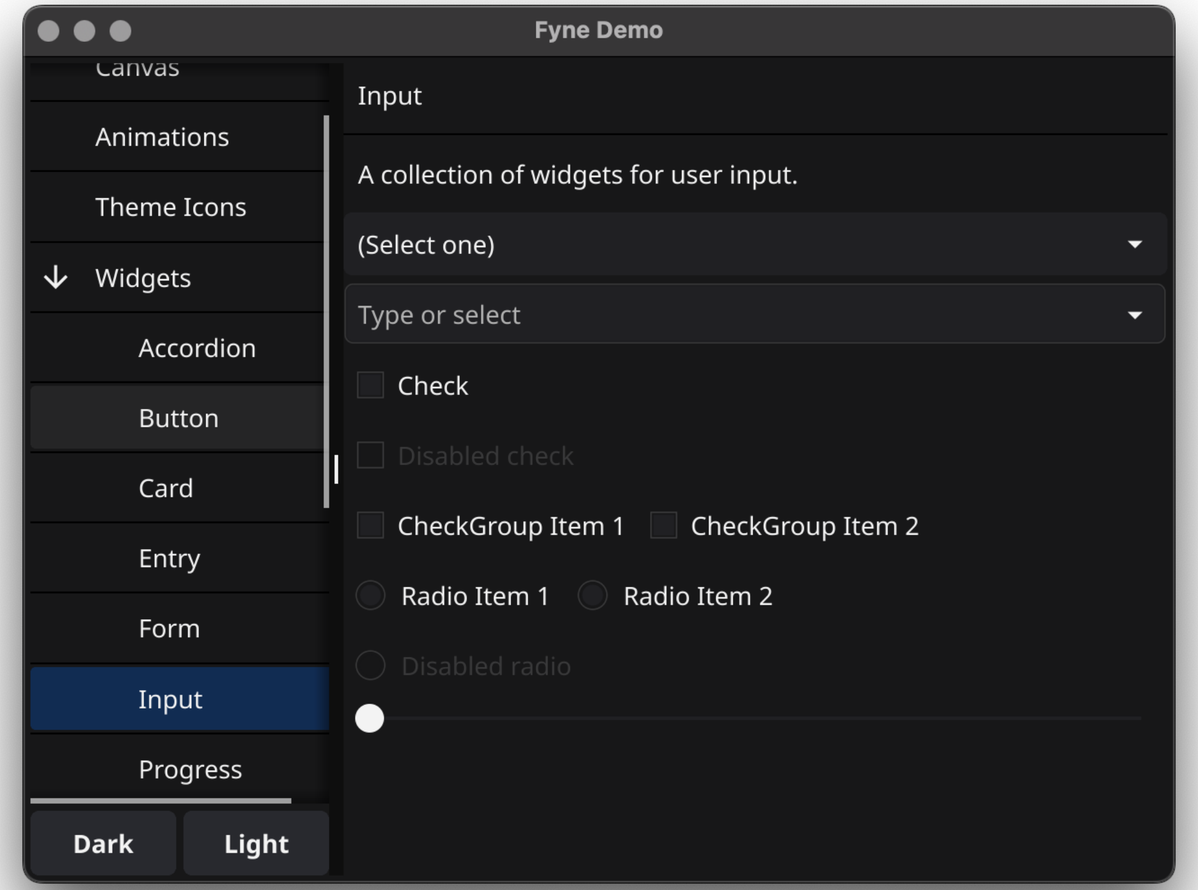
Fyne Stats


25000
20000
15000
10000
5000
0
GitHub stars
0
2
4
6
8
10
12
14
16
Years since creation
Fyne
therecipe-qt
andlabs-ui
gioui
go-gtk
imgui-go
giu
gotk3

Screenshot


Fyne Demo
Canvas
Animations
Theme Icons
Widgets
Accordion
Button
Card
Entry
Form
Input
Progress
Dark
Light
Input
A collection of widgets for user input.
(Select one)
Type or select
Check
Disabled check
CheckGroup Item 1
CheckGroup Item 2
Radio Item 1
Radio Item 2
Disabled radio

Screenshot (dark)



Prerequisites

- Install Go (>= 1.19)
- Set up gcc/clang

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

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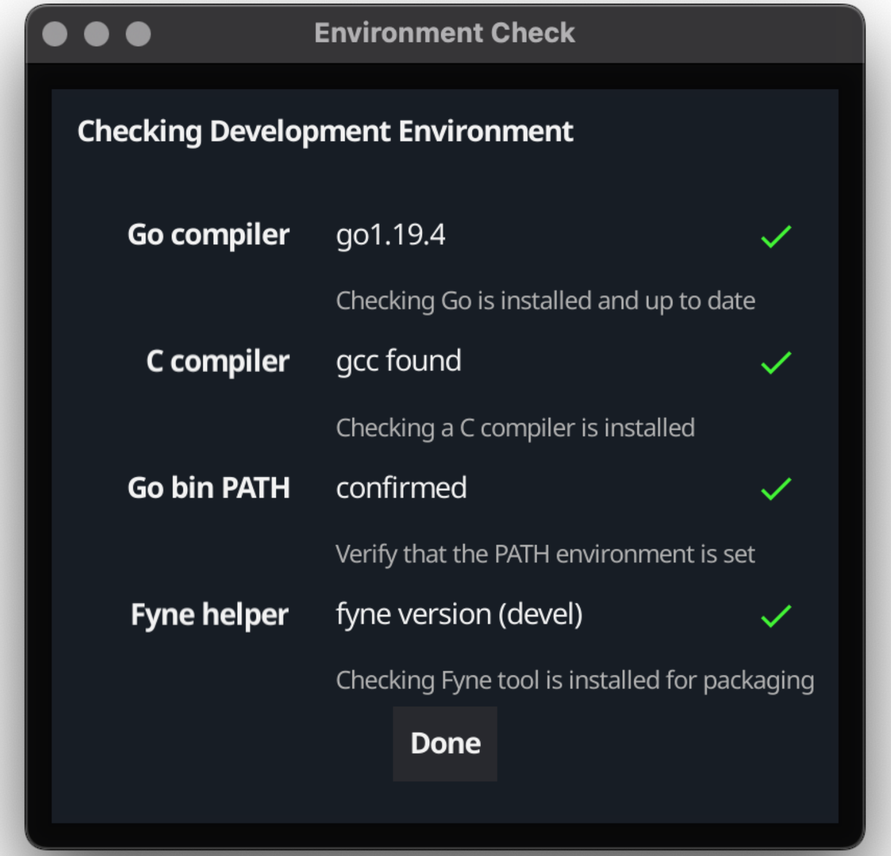
https://docs.fyne.io/started/

- 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 hello.go

$ go run .
```

Code: Hello World

```go
package main

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

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

    w.SetContent(widget.NewLabel("Hello Bristol!"))
    w.ShowAndRun()
}
```

Compiling for other targets

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

$ fyne install

$ fyne package -os windows

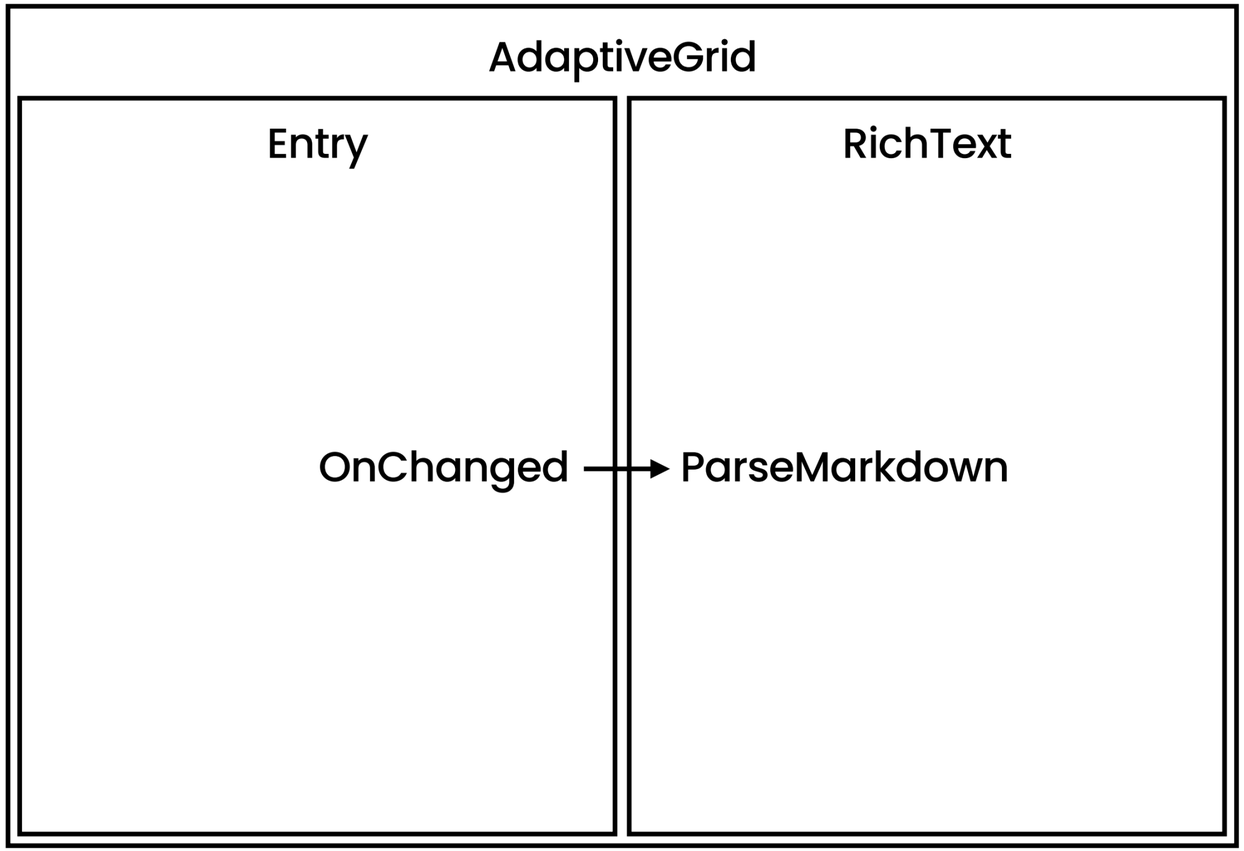
$ fyne package -os android -appID com.company.myapp

--

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

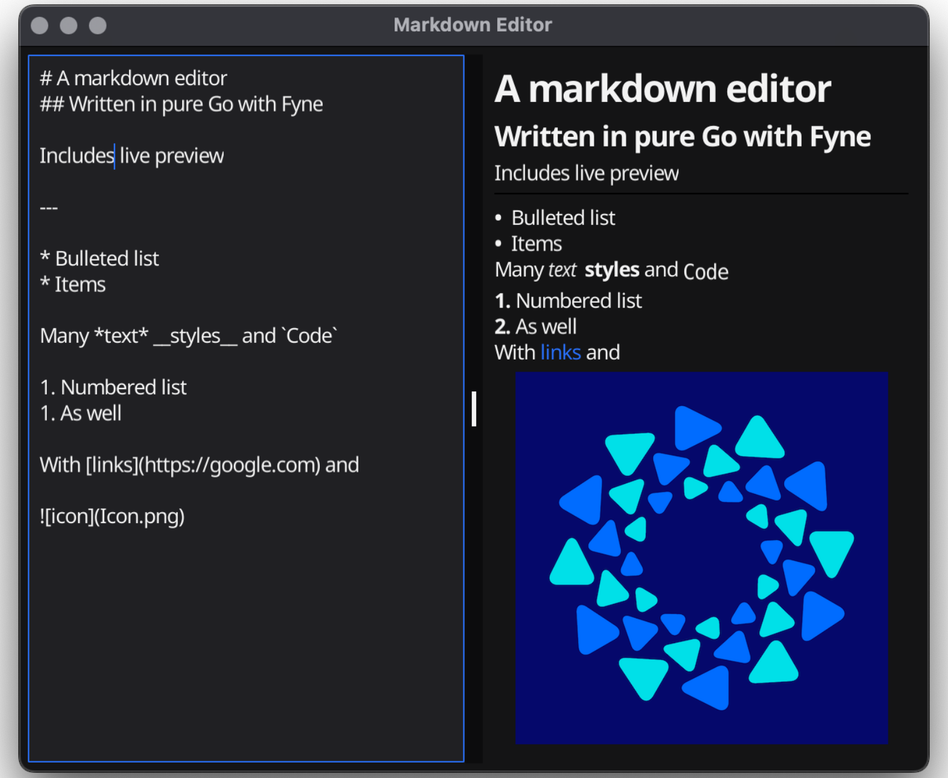


Code: Markdown Editor

```go
package main

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

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

    input := widget.NewMultiLineEntry()
    output := widget.NewRichTextFromMarkdown("")
    content := container.NewAdaptiveGrid(2, input, output)

    input.OnChanged = output.ParseMarkdown

    w.SetContent(content)
    w.Resize(fyne.NewSize(320, 240))
    w.ShowAndRun()
}
```

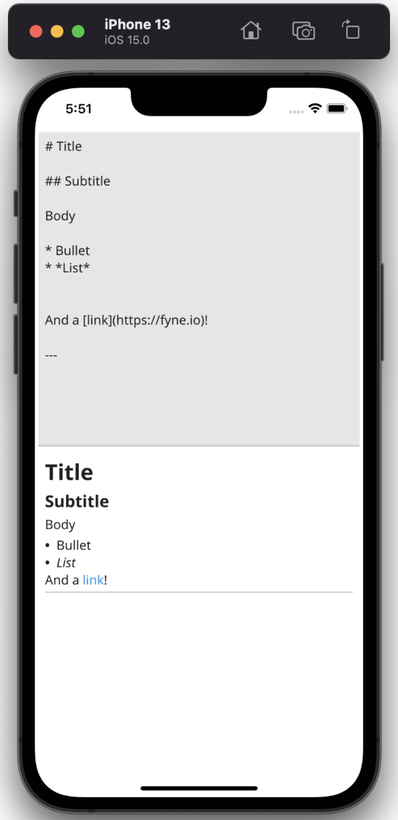
Let's make a Markdown editor!

$ go run (or fyne package)



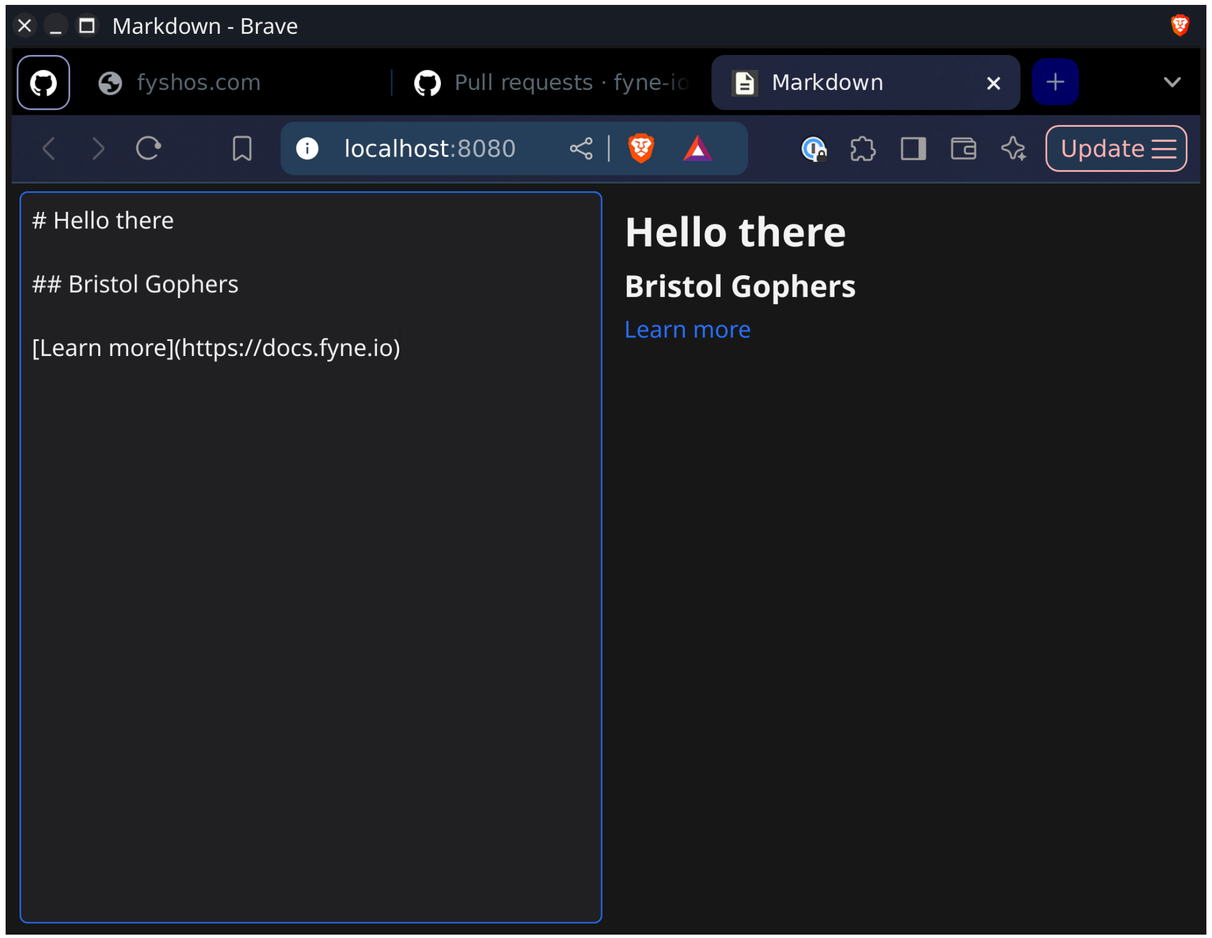
Let's make a Markdown editor!

$ fyne install -os ios



Let's make a Markdown editor!

$ fyne serve



Testing

```go
package main

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...

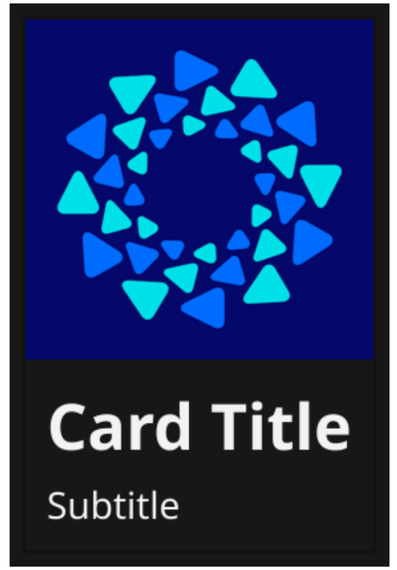
Basic Widgets

```
widget.NewLabel("Text label")

widget.NewButtonWithIcon("Cancel"
    theme.CancelIcon, func() {})

widget.NewProgressBar()

widget.NewCard("Card Title",
    "subtitle", content)

widget.NewRichTextFromMarkdown(
    `# RichText Heading …`)
```

Text label

Cancel

74%



RichText Heading

A Sub Heading

A

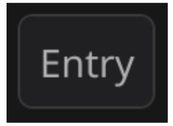
B

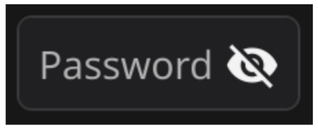
Shown item

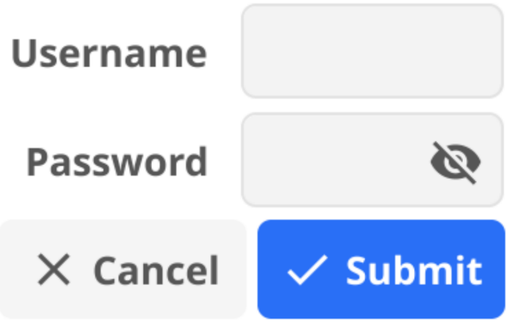
1 TextGrid
2 ··Content

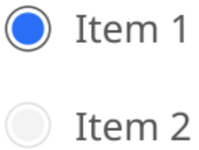
Input Widgets

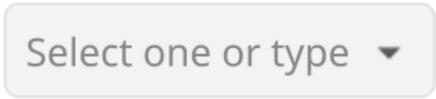
```
widget.NewEntry()

widget.NewPasswordEntry()

widget.NewSlider(0, 100)

widget.NewCheck(“Check”, func(bool) {})

widget.NewRadioGroup([]string{
    “Option 1", "Option 2"}, func(string) {})

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





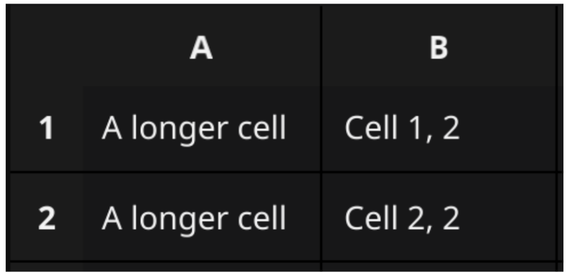


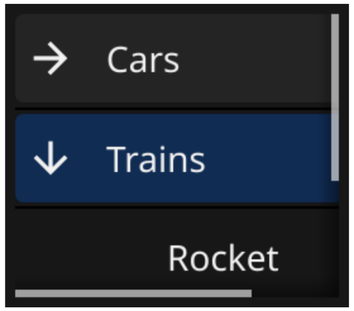


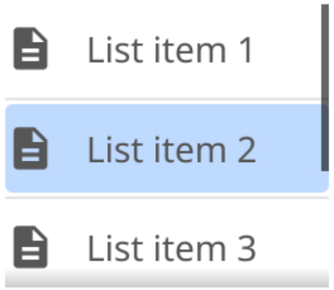


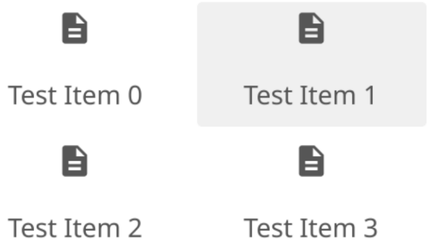
Collection Widgets

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

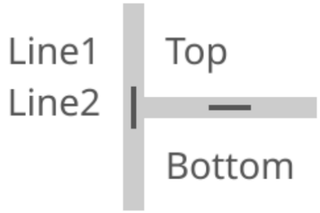




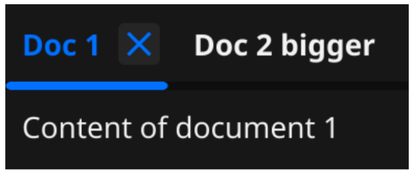


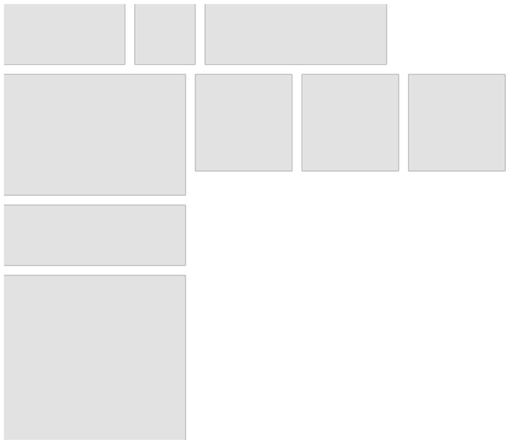


Containers



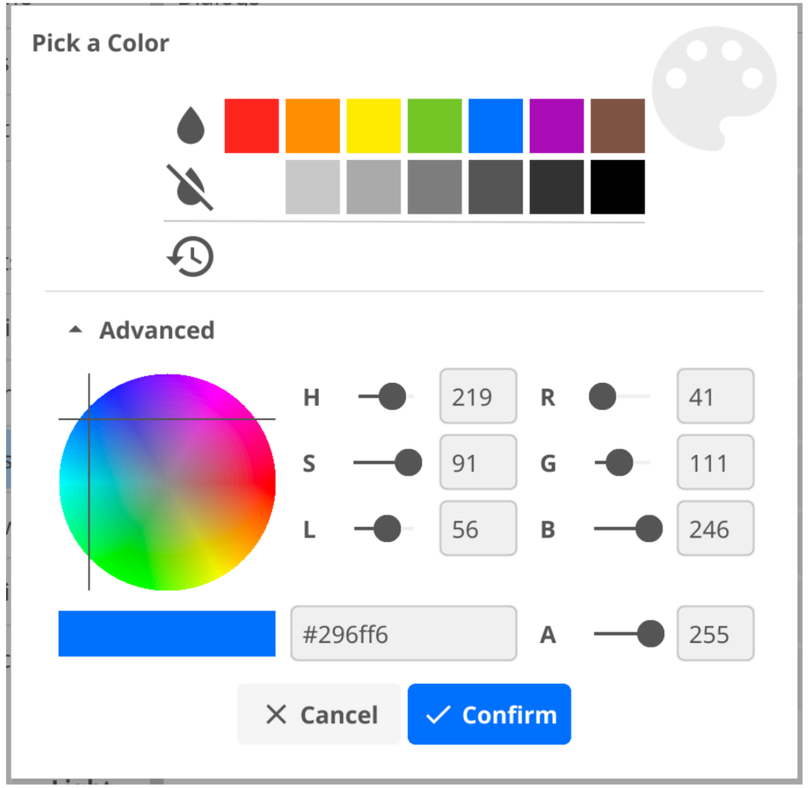

```
container.NewHSplit(left, right)
container.NewAppTabs(items…)
container.NewDocTabs(items…)
container.NewScroll(content)
container.New(layout, objects…)
```

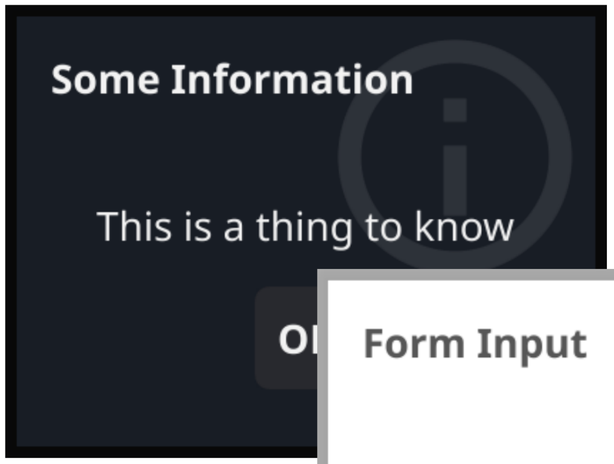


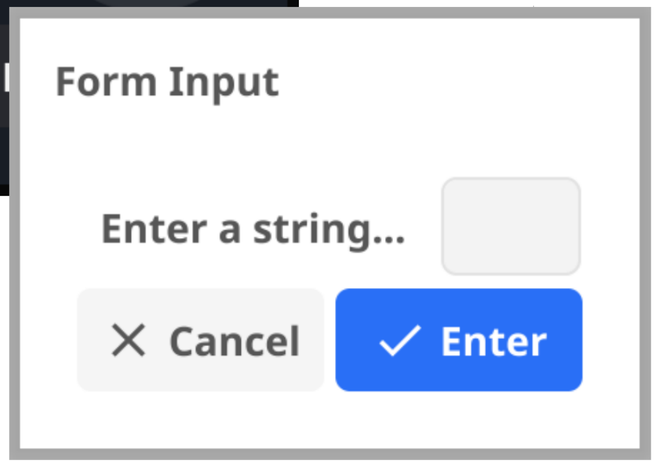


Dialogs

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

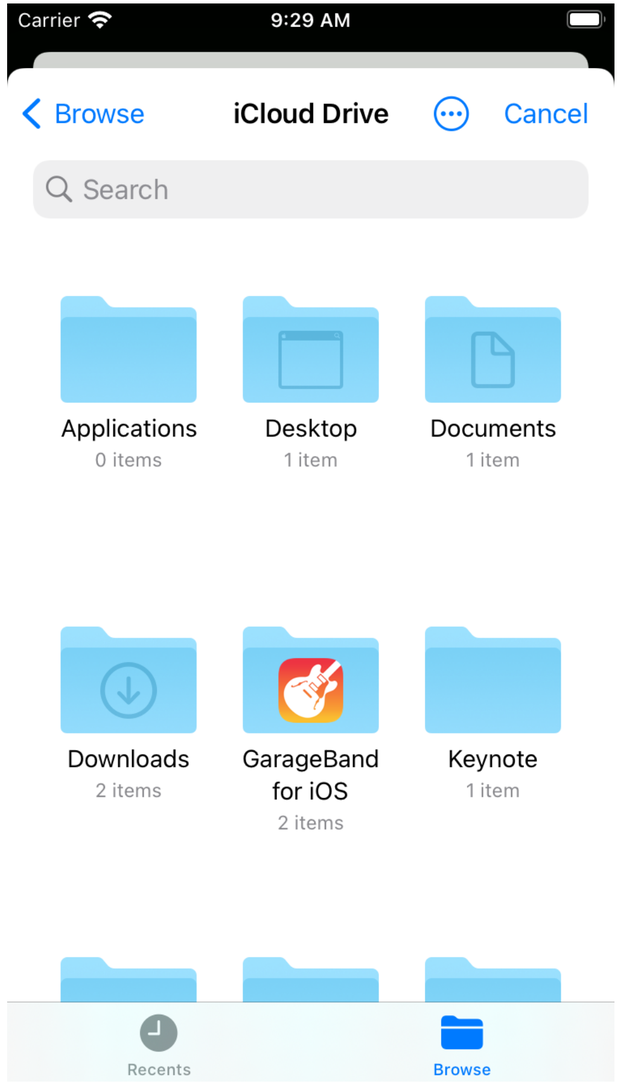






File input

- dialog.ShowFileOpen
- dialog.ShowFileSave
- Use fyne.URI not path
- storage package abstraction

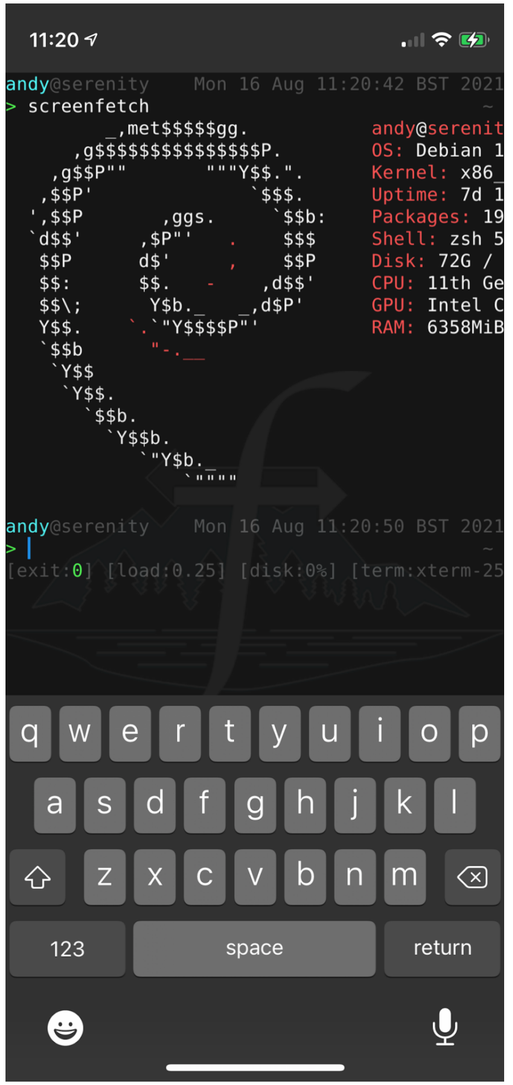


3rd party components too!

- 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
- 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

Questions?

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