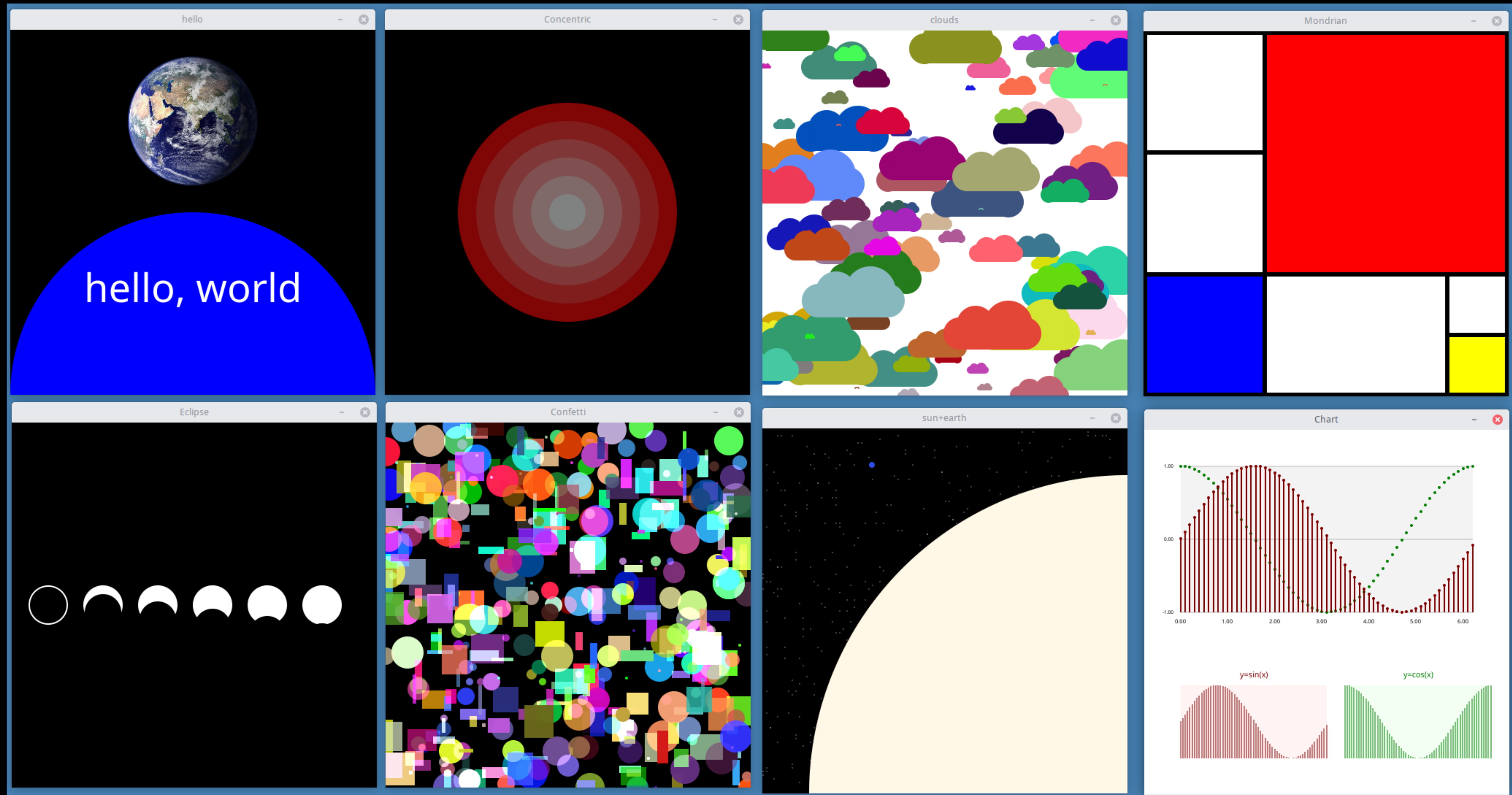


fc a high-level canvas API for the fyne toolkit



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Motivation

The desire for a high-level Go API for developers and designers to think in terms of high level objects that make up a visual display. The objects will be familiar to anyone using a modern illustration program (text, images, lines, arcs, circles, curves, etc). The API should facilitate the artful arrangement of these elements on a scalable 2D canvas.

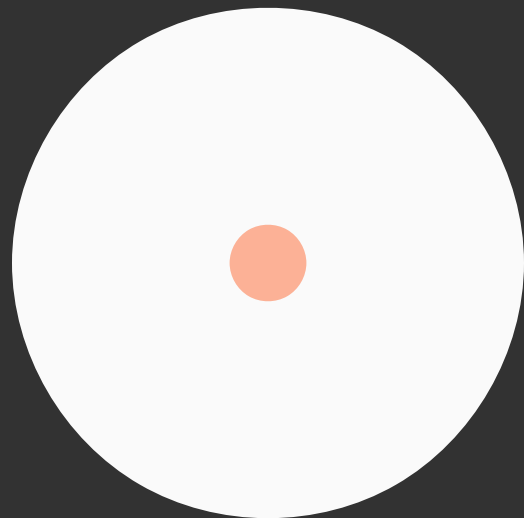
Use Cases: Information Displays, Data Visualization, Creative Coding, Presentations

Elements

Text

CText

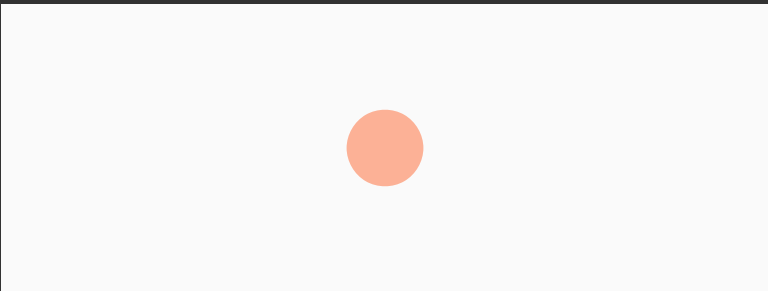
EText



circle



line

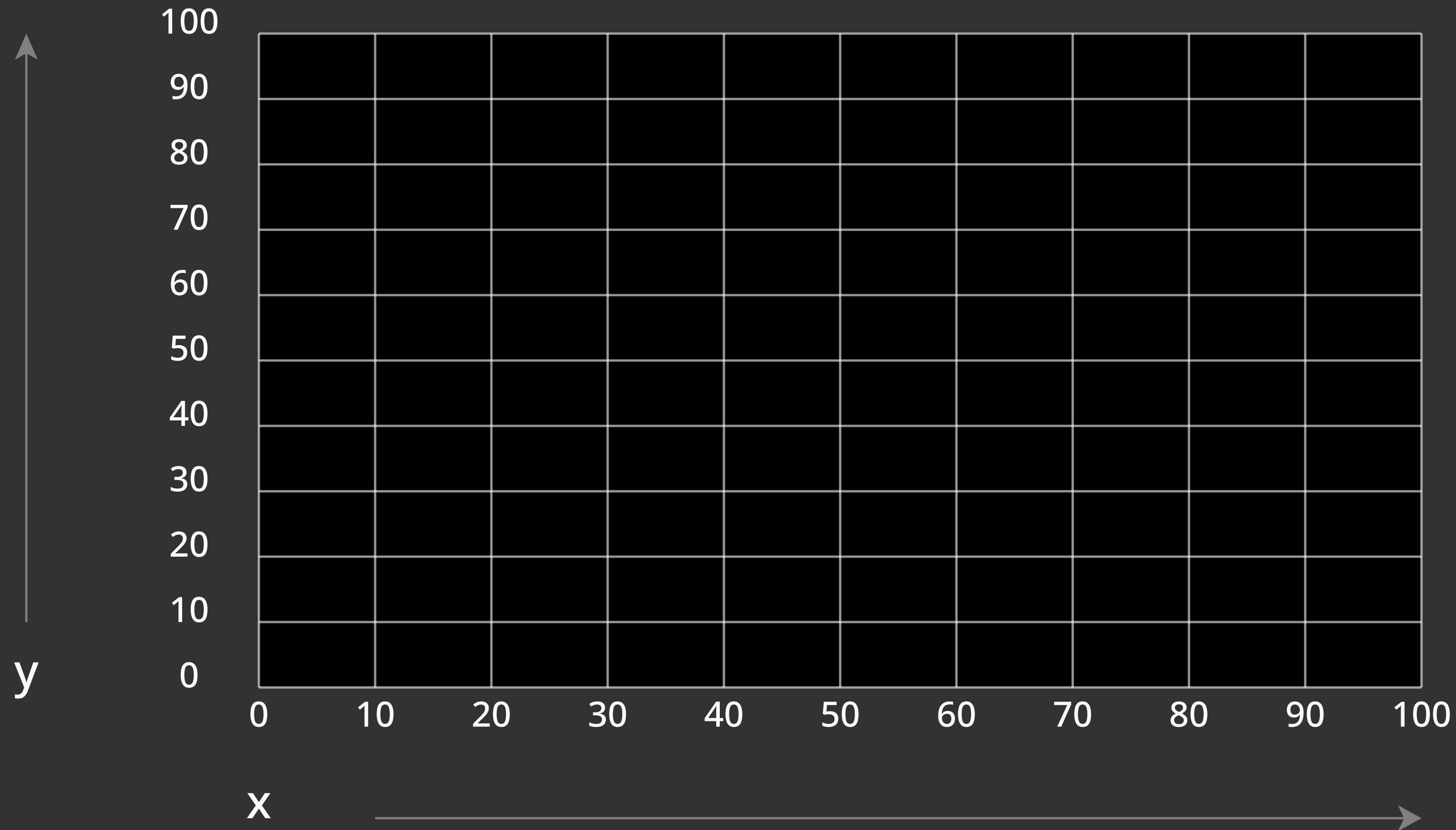


rectangle

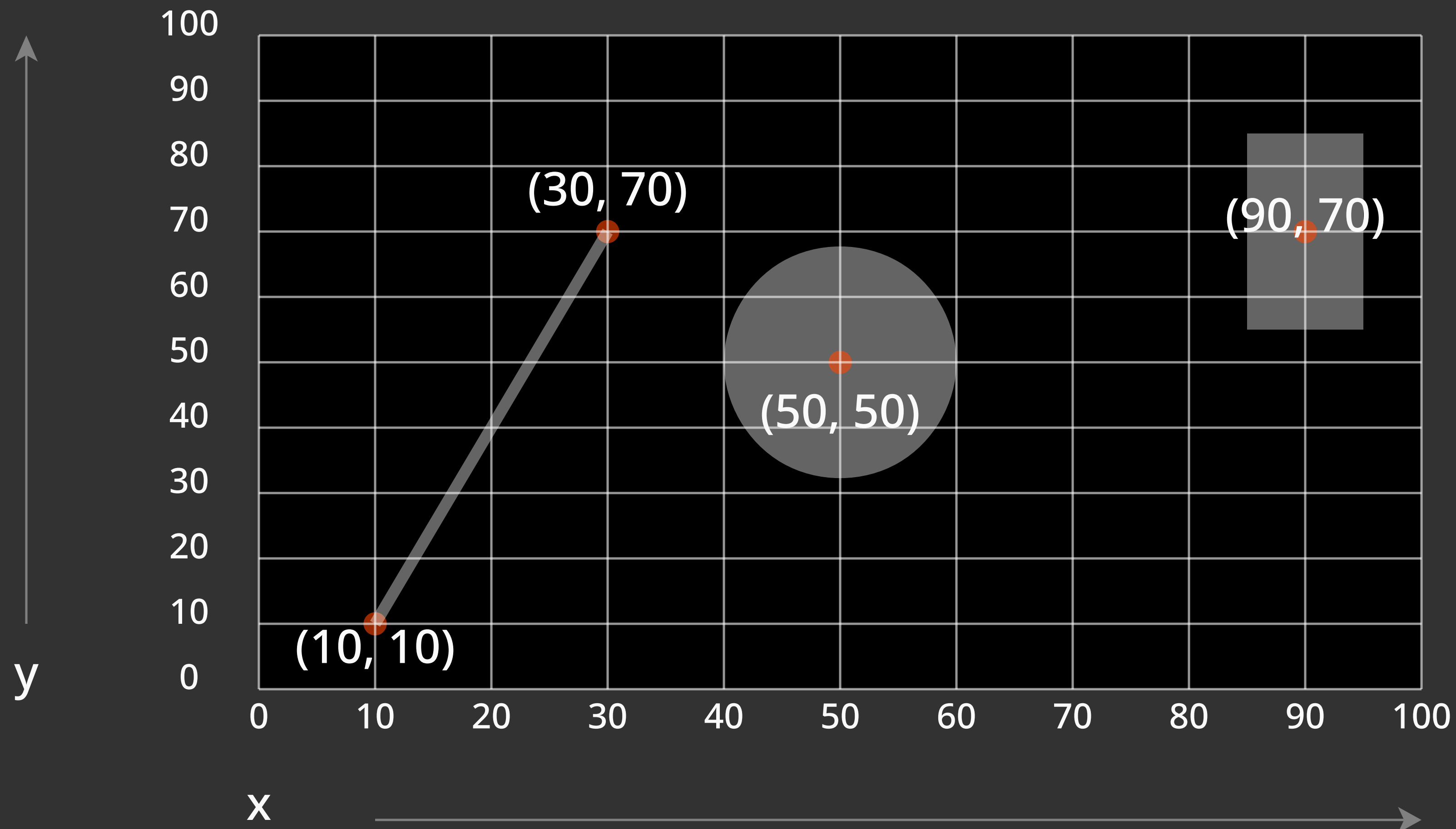


image

The Percent Grid



Using the Percent Grid



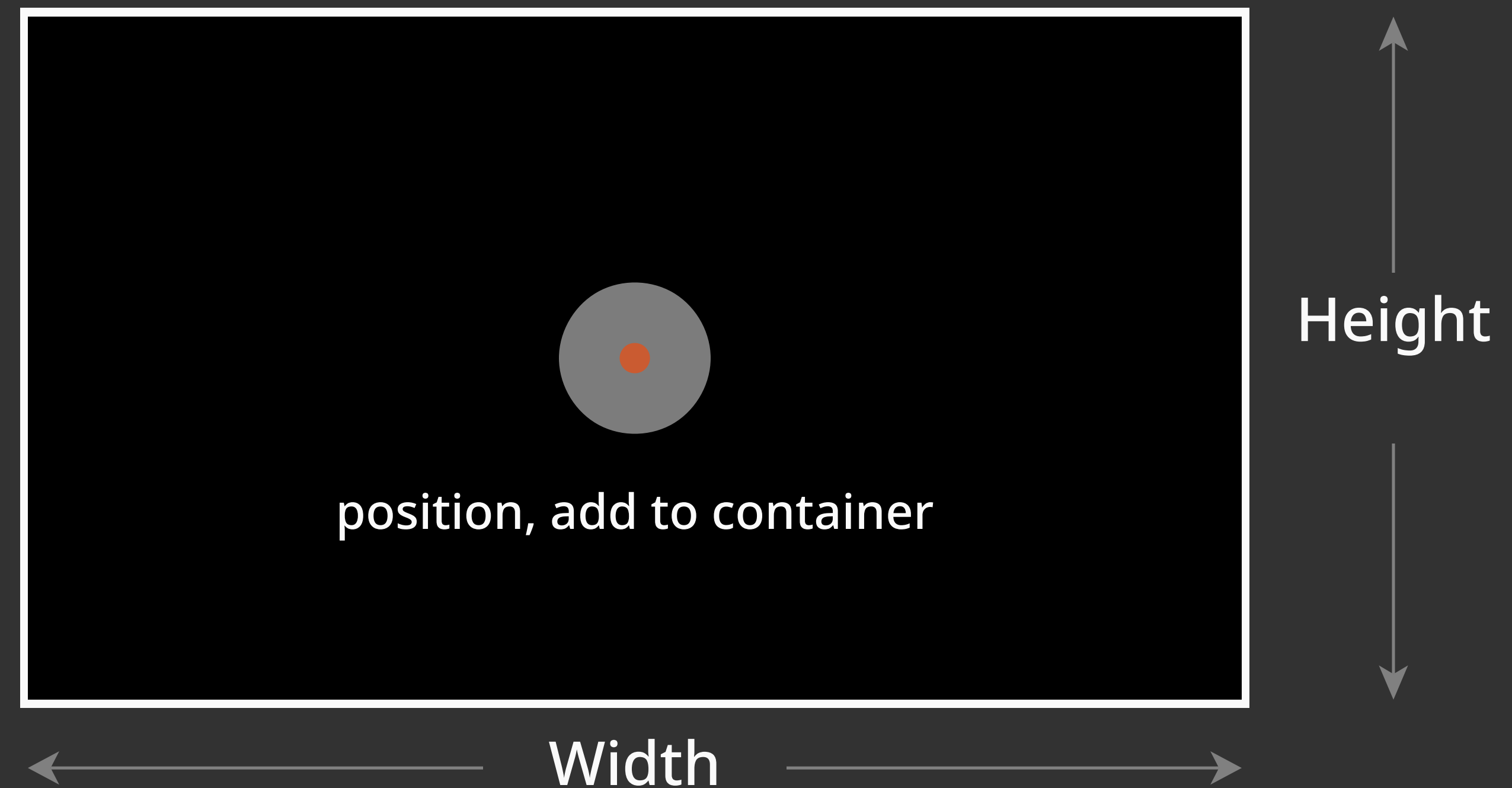
Rect(90, 70, ...)

Circle(50, 50, ...)

Line(10, 10, 30, 70, ...)

fc structure and operation

```
// Canvas is where objects are drawn into
type Canvas struct {
    Window    fyne.Window
    Container *fyne.Container
    Width      float64
    Height     float64
}
```



fc Percentage-based methods on *Canvas

Make a new canvas

```
NewCanvas(name string, w, h int) Canvas
```

Place text, left-aligned

```
Text(x, y, size float64, s string, fill color.RGBA)
```

Place centered text

```
CText(x, y, size float64, s string, fill color.RGBA)
```

Place end-aligned text

```
EText(x, y, size float64, s string, fill color.RGBA)
```

Obtain the text width

```
TextWidth(s string, size float64) float64
```

Circle centered (x,y), radius r

```
Circle(x, y, r float64, fill color.RGBA)
```

Rectangle, upper-left at (x,y)

```
CornerRect(x, y, w, h float64, fill color.RGBA)
```

Rectangle centered at (x,y)

```
Rect(x, y, w, h float64, fill color.RGBA)
```

Line from (x1,y) to (x2,y2)

```
Line(x1, y1, x2, y2, size float64, stroke color.RGBA)
```

Image centered at (x,y)

```
Image(x, y float64, w, h int, name string)
```

Display and run

```
EndRun()
```

Convenience methods

Lookup colors by name

```
ColorLookup(s string) color.RGBA
```

Map one range into another

```
MapRange(value, low1, high1, low2, high2 float64) float64
```

Polar to Cartesian

```
Polar(x, y, r, angle float64) (float64, float64)
```

Convert degrees to radians

```
Radians(deg float64) float64
```


fc hello, world

```
package main

import (
    "image/color"

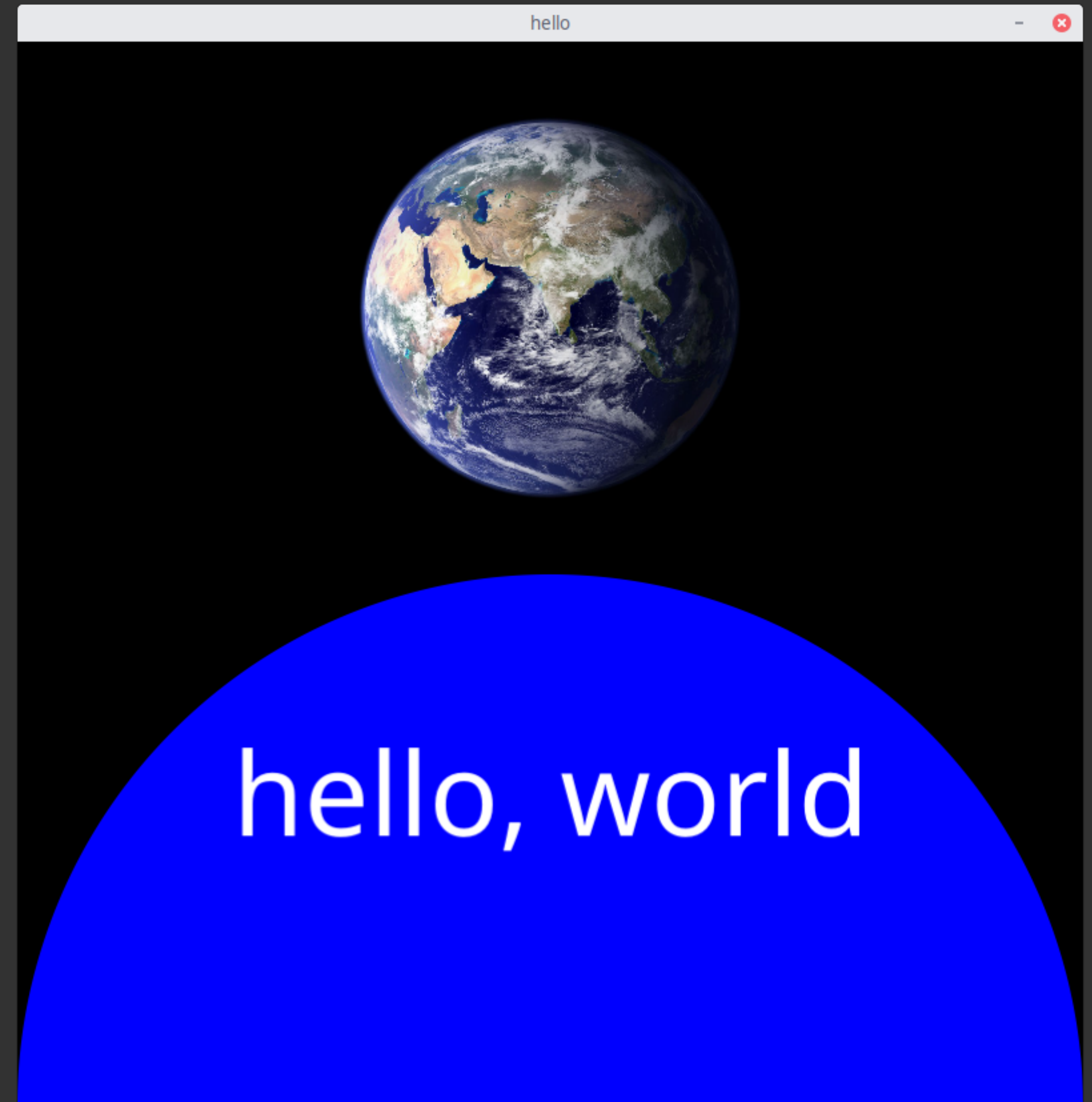
    "github.com/ajstarks/fc"
)

func main() {
    width, height := 500, 500
    blue := color.RGBA{0, 0, 255, 255}
    white := color.RGBA{255, 255, 255, 255}

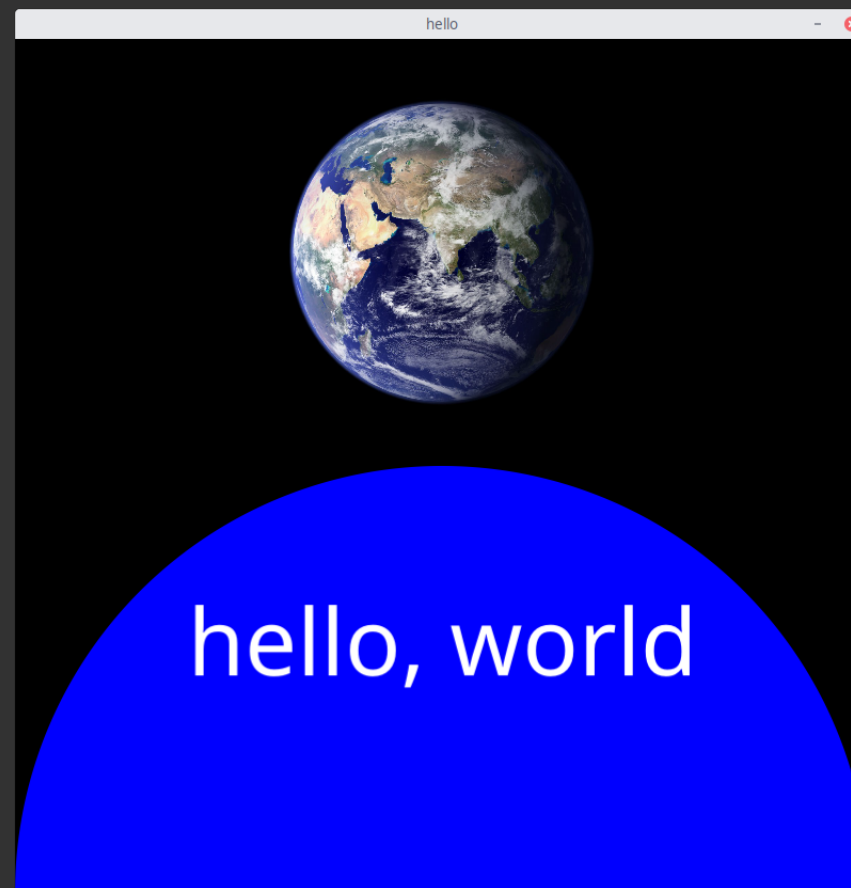
    canvas := fc.NewCanvas("hello", width, height)

    canvas.Circle(50, 0, 100, blue)
    canvas.CText(50, 25, 10, "hello, world", white)
    canvas.Image(50, 75, 200, 200, "earth.jpg")

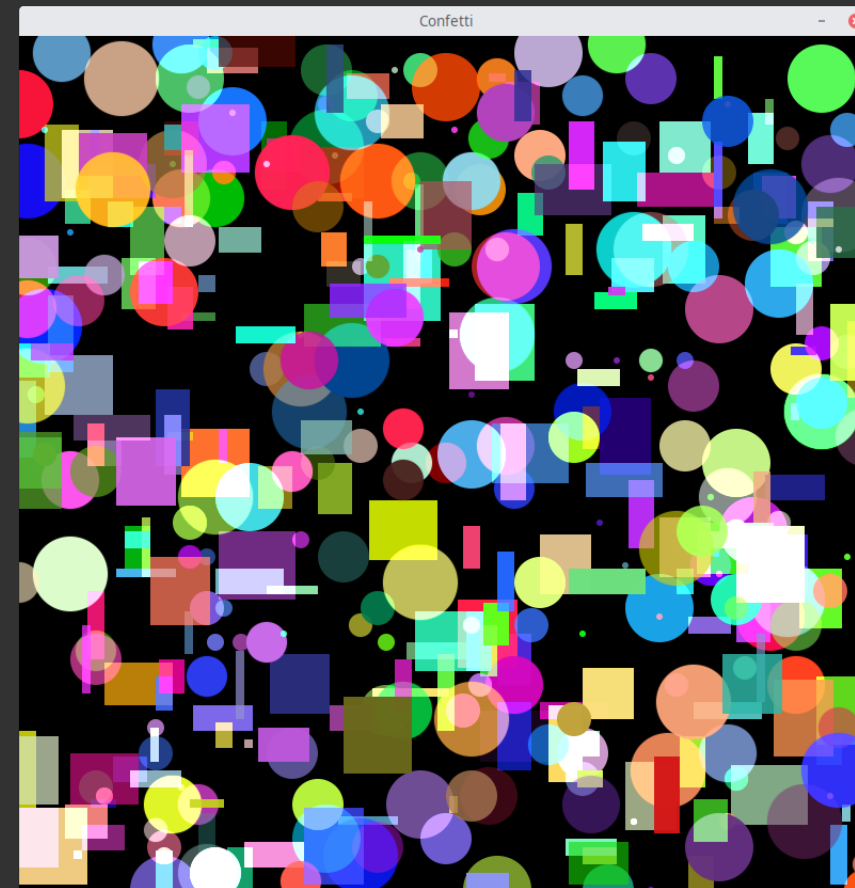
    canvas.EndRun()
}
```



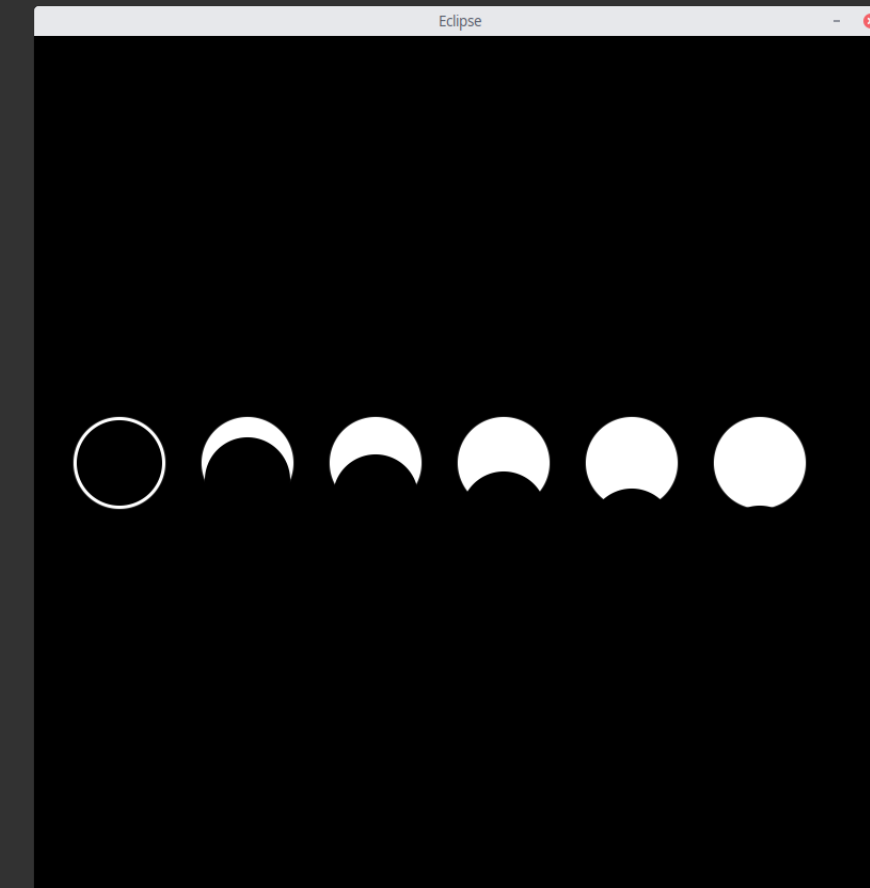
demo/test clients



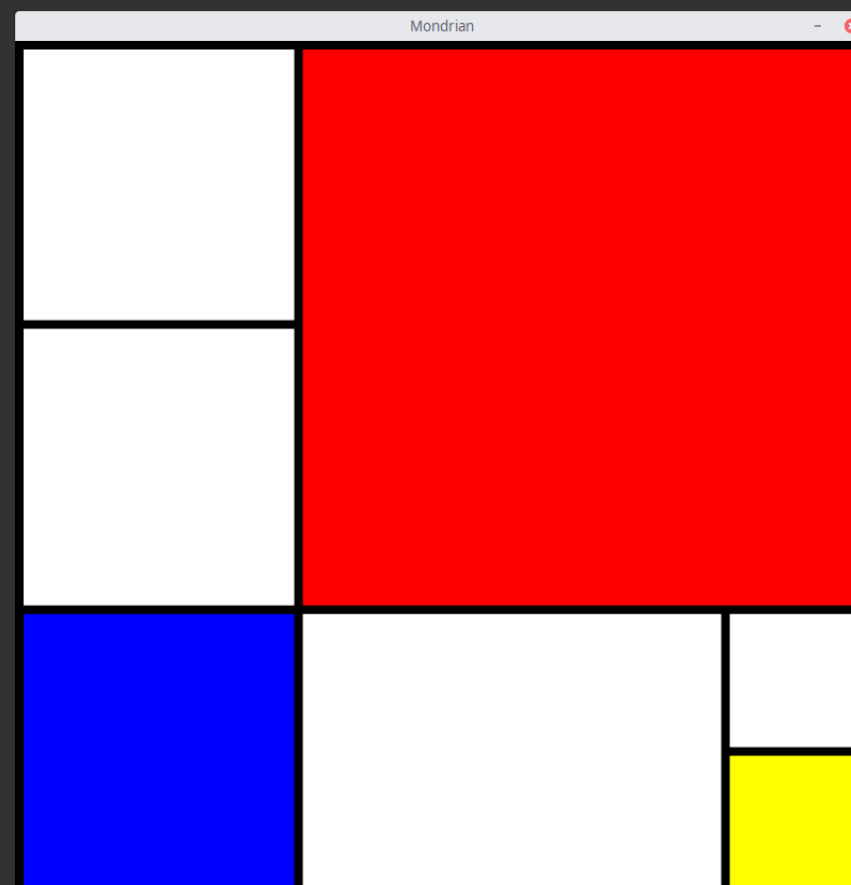
hello



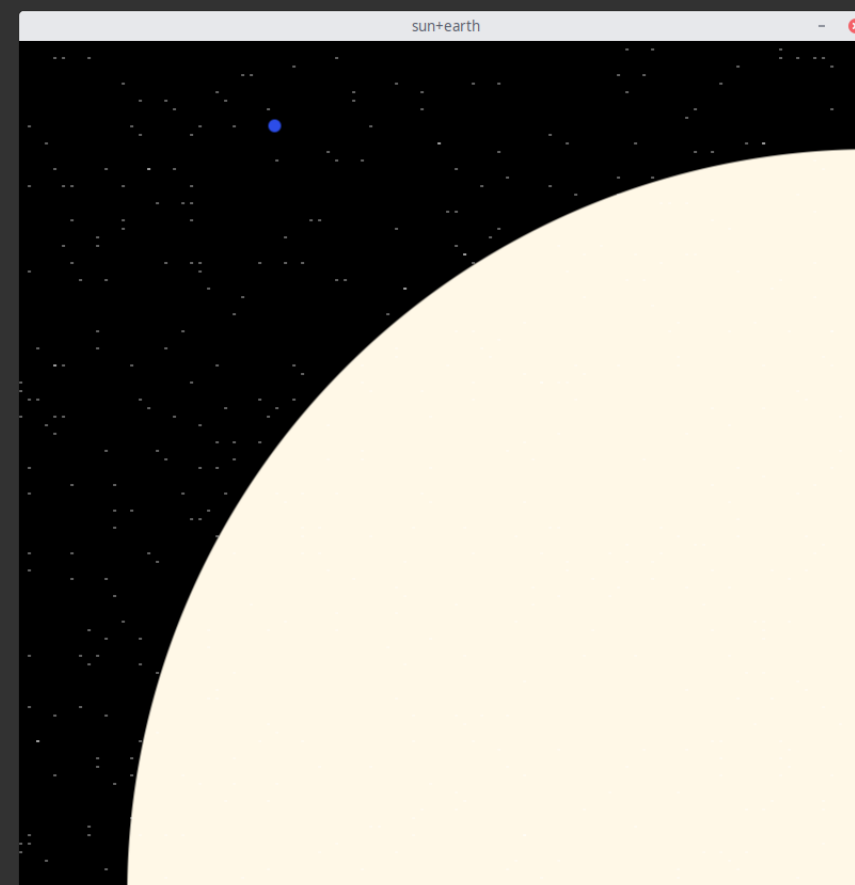
confetti



eclipse



mondrian



sunearth

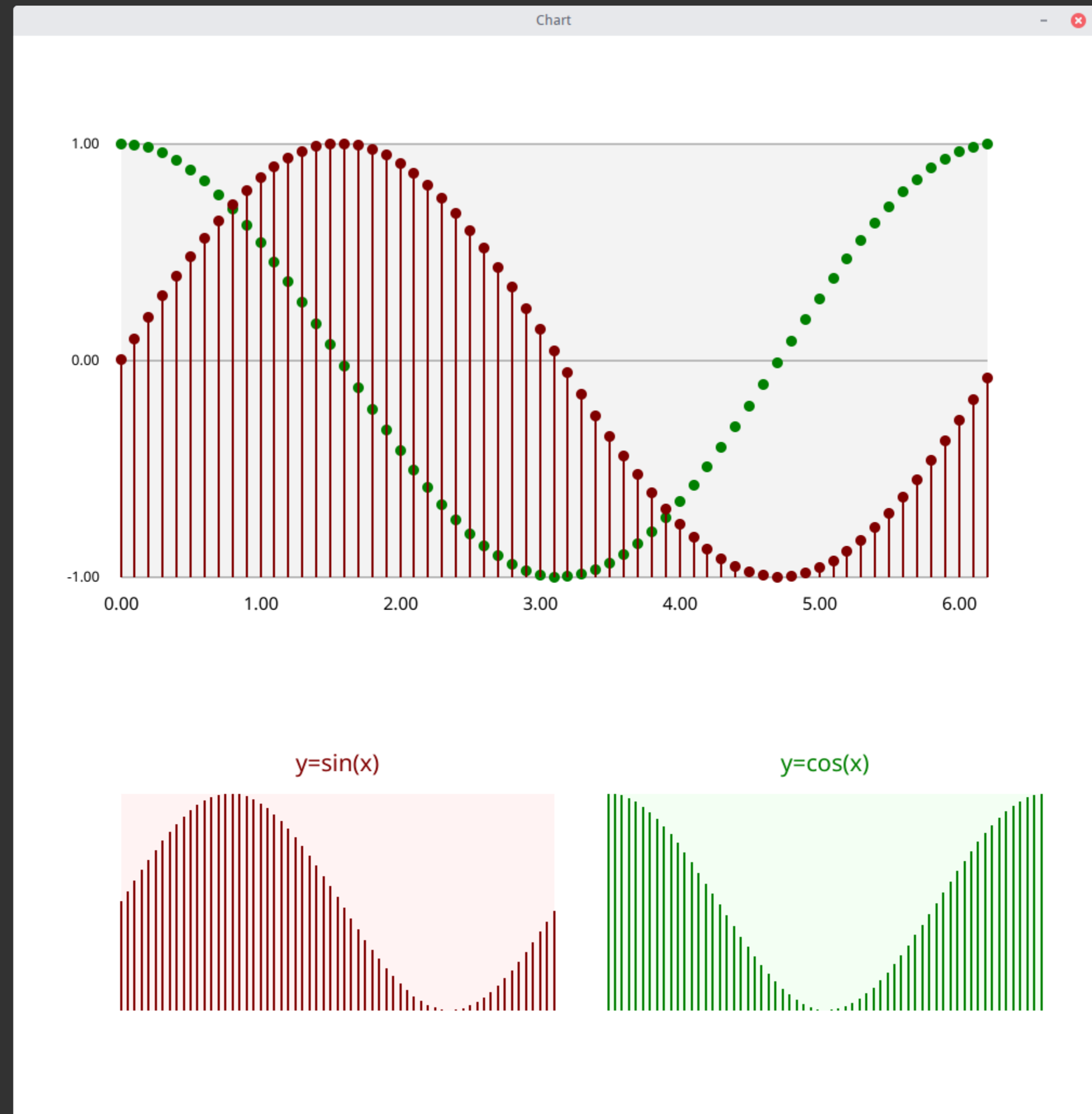


cloud

fc/chart

Scalable, modular, composable charts

- Bar charts
- Column Charts
- Line charts
- Scatter charts
- Title
- Axes
- Frames



fc/chart: data structures

```
// NameValue is a name,value pair
type NameValue struct {
    label string
    note  string
    value float64
}

// ChartBox holds the essential data for making a chart
type ChartBox struct {
    Title          string
    Data           []NameValue
    Color          color.RGBA
    Top, Bottom, Left, Right float64
    Minvalue, Maxvalue    float64
    Zerobased         bool
}
```

fc/chart methods on *ChartBox

Read data int ChartBox	<code>func DataRead(r io.Reader) (ChartBox, error)</code>
Bar Chart	<code>Bar(c fc.Canvas, size float64)</code>
Horizontal Bar Chart	<code>HBar(c fc.Canvas, size, linespacing, textsize float64)</code>
Line Chart	<code>Line(c fc.Canvas, size float64)</code>
Scatter Chart	<code>Scatter(c fc.Canvas, size float64)</code>
Centered Title	<code>CTitle(c fc.Canvas, size, offset float64)</code>
Chart Frame	<code>Frame(c fc.Canvas, opacity float64)</code>
X Axis Label	<code>Label(c fc.Canvas, size float64, interval int)</code>
Y axis	<code>YAxis(c fc.Canvas, size, min, max, step float64, fmt string, grid bool)</code>

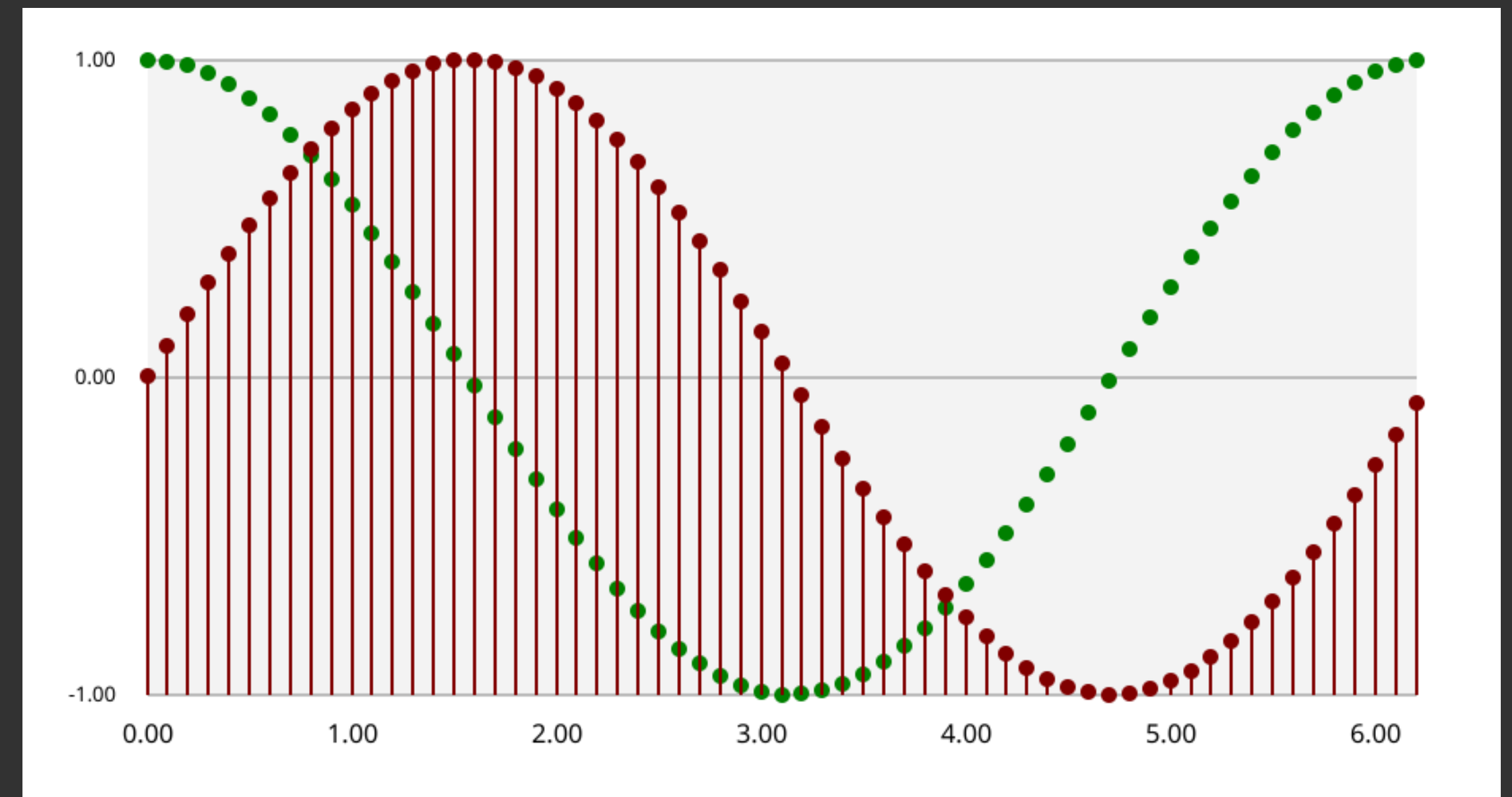
fc/chart: read data

```
sr, err := os.Open("sin.d")
if err != nil {
    return err
}
cr, err := os.Open("cos.d")
if err != nil {
    return err
}
sine, err := chart.DataRead(sr)
if err != nil {
    return err
}
cosine, err := chart.DataRead(cr)
if err != nil {
    return err
}
```

# y=sin(x)		# y=cos(x)	
0.00	0.0000	0.00	1.0000
0.10	0.0998	0.10	0.9950
0.20	0.1987	0.20	0.9801
0.30	0.2955	0.30	0.9553
0.40	0.3894	0.40	0.9211
0.50	0.4794	0.50	0.8776
0.60	0.5646	0.60	0.8253
0.70	0.6442	0.70	0.7648
0.80	0.7174	0.80	0.6967
0.90	0.7833	0.90	0.6216
1.00	0.8415	1.00	0.5403
...		...	
6.00	-0.2794	6.00	0.9602
6.10	-0.1822	6.10	0.9833
6.20	-0.0831	6.20	0.9965

fc/chart: two data sets

```
cosine.Frame(canvas, 5)
cosine.Label(canvas, 1.5, 10)
cosine.YAxis(canvas, 1.2, -1.0, 1.0, 1.0, "%0.2f", true)
cosine.Color = color.RGBA{0, 128, 0, 255}
sine.Color = color.RGBA{128, 0, 0, 255}
cosine.Scatter(canvas, 1)
sine.Scatter(canvas, 1)
sine.Bar(canvas, 0.2)
```



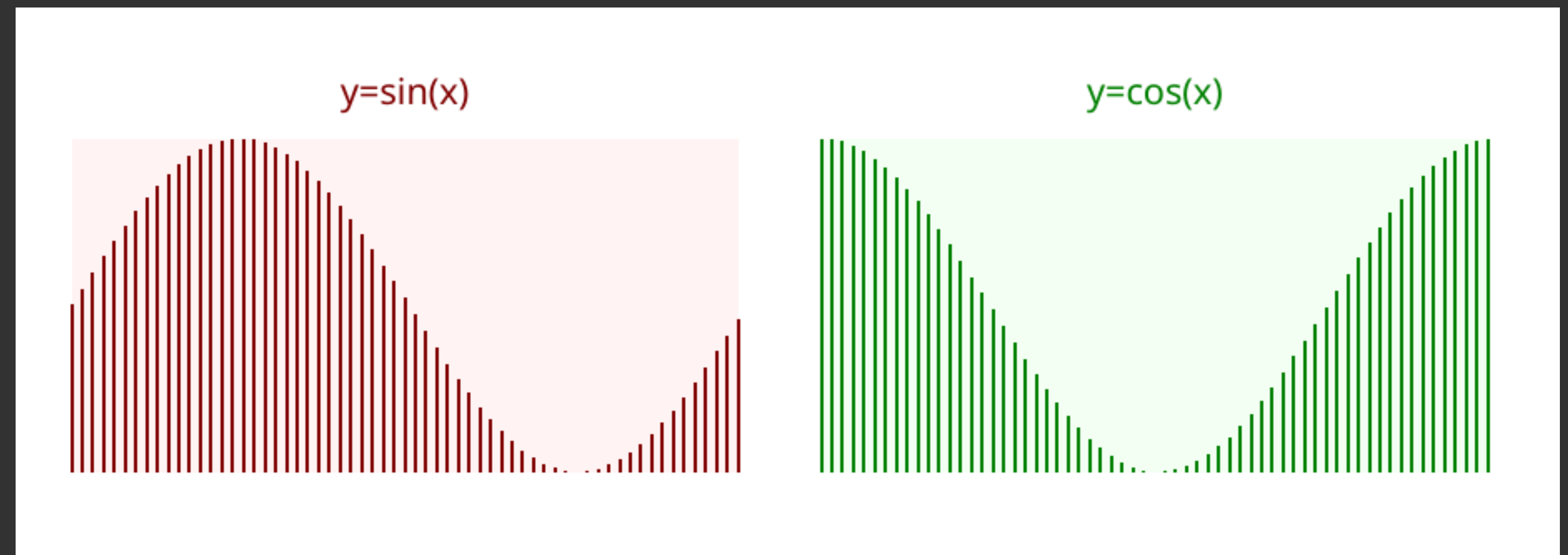
fc/chart: side by side

```
sine.Left = 10  
sine.Right = sine.Left + 40  
sine.Top, cosine.Top = 30, 30  
sine.Bottom, cosine.Bottom = 10, 10
```

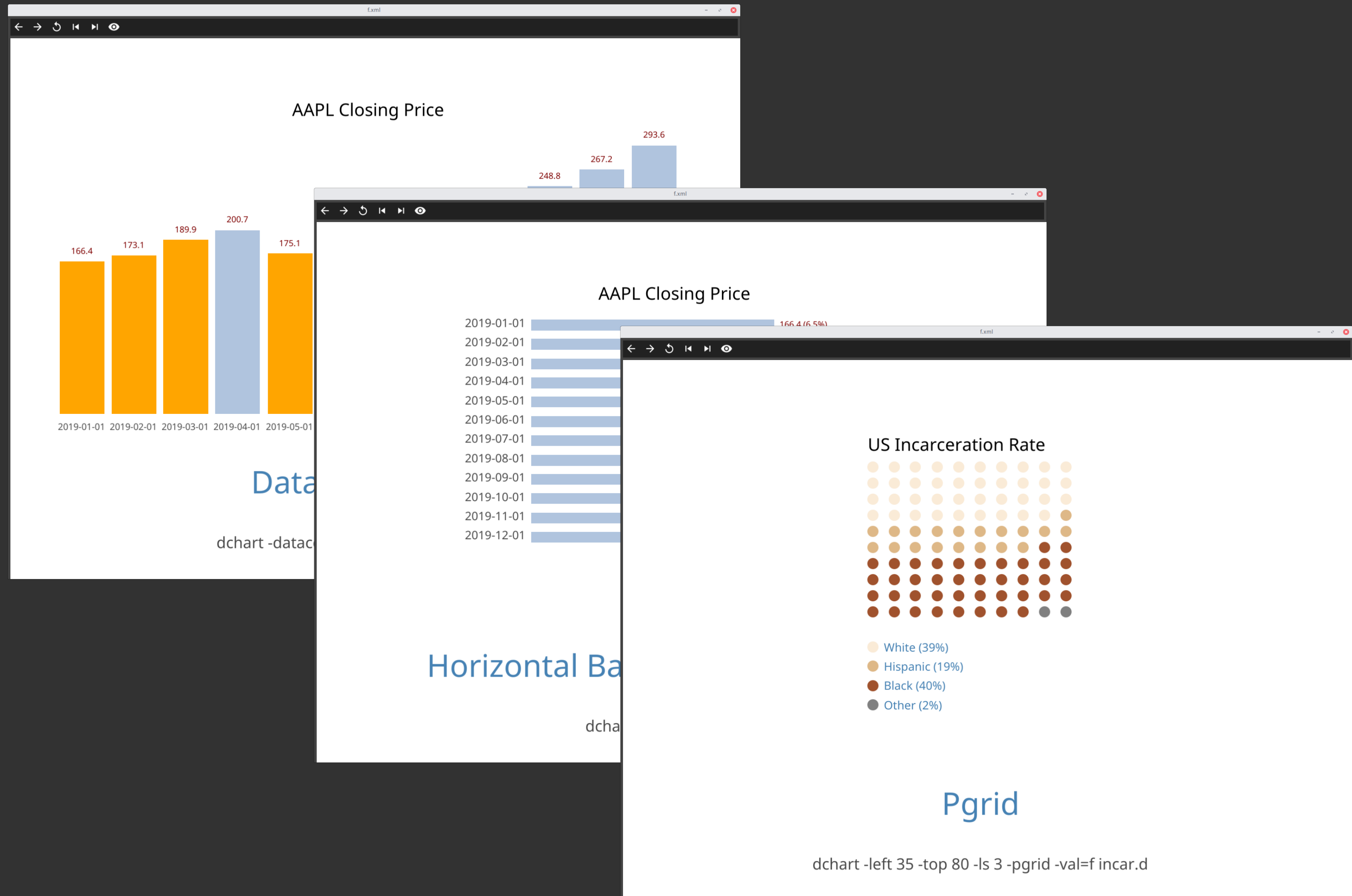
```
sine.CTitle(canvas, 2, 2)  
sine.Frame(canvas, 5)  
sine.Bar(canvas, 0.1)
```

```
offset := 45.0  
cosine.Left = sine.Left + offset  
cosine.Right = sine.Right + offset
```

```
cosine.CTitle(canvas, 2, 2)  
cosine.Frame(canvas, 5)  
cosine.Bar(canvas, 0.1)
```



fcdeck: decksh viewer



go get it

github.com/ajstarks/fc