

# Deck



a Go package for presentations

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## DECK: a package for presentations

Deck is a package written in Go

That uses a singular markup language

With elements for text, lists, code, and graphics

All layout and sizes are expressed as percentages

Clients are interactive or create formats like PDF or SVG

Servers use a RESTful API to list, upload, stop, start, remove decks

Elements

# text element

Hello, World (plain text)

A block of text, word-wrapped to a specified width. You may specify size, font, color, and opacity.

```
package main

import "fmt"
func main() {
    fmt.Println("Hello, World")
}
```

# list element

- Point A
- Point B
- Point C
- Point D

```
<list xp="5" yp="70" sp="3"  
  type="bullet"  
  font="sans"  
  color="rgb(0,127,0)">  
<li>Point A</li>  
<li>Point B</li>  
<li>Point C</li>  
<li>Point D</li>  
</list>
```

First item

Second item

The third item

the last thing

```
<list xp="35" yp="70" sp="3"  
  type="plain"  
  font="serif"  
  color="rgb(0,0,127)">  
<li>First item</li>  
<li>Second item</li>  
<li>The third item</li>  
<li>the last thing</li>  
</list>
```

1. This

2. That

3. The other

4. One more

```
<list xp="70" yp="70" sp="3"  
  type="number"  
  font="mono"  
  color="black">  
<li>This</li>  
<li>That</li>  
<li>The other</li>  
<li>One more</li>  
</list>
```

# image element

height

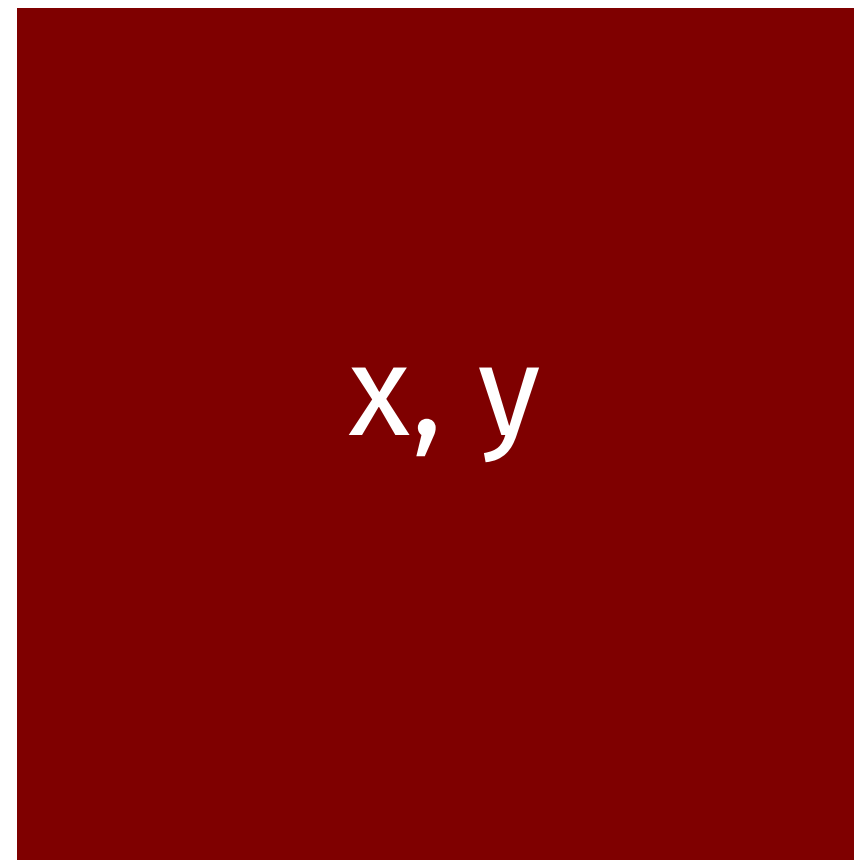


width

```
<image xp="50" yp="50" width="360" height="203" name="desert2.jpg"/>
```

# rect element

height (relative  
to element  
or canvas  
width)

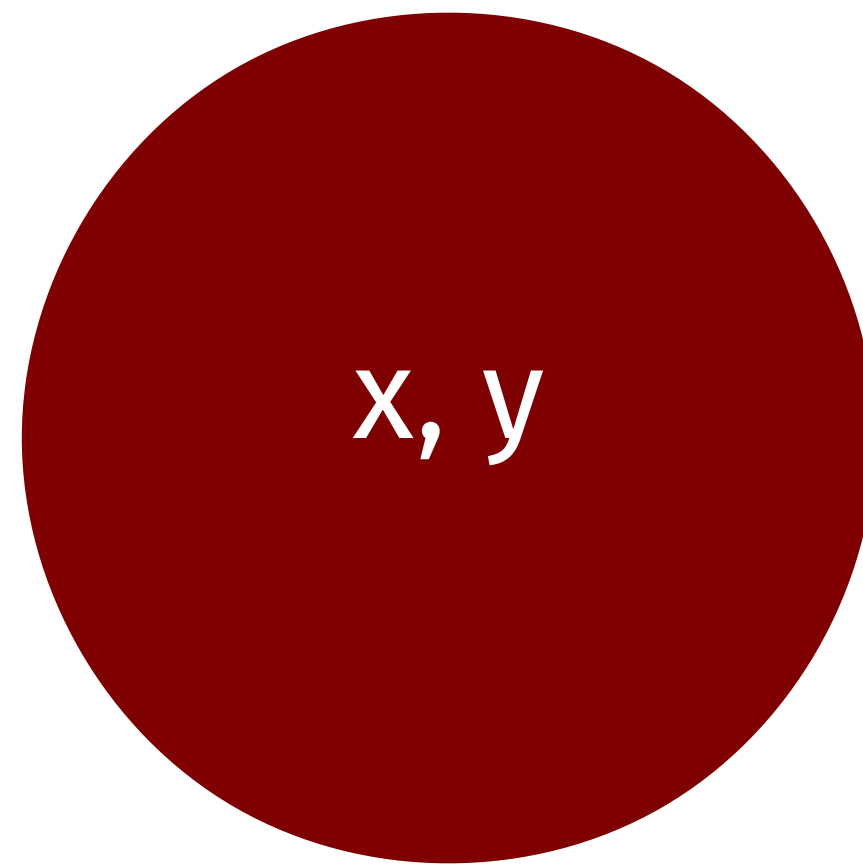


width

```
<rect xp="50" yp="50" wp="20" hr="100"/>
```

# ellipse element

height (relative  
to element  
or canvas  
width)

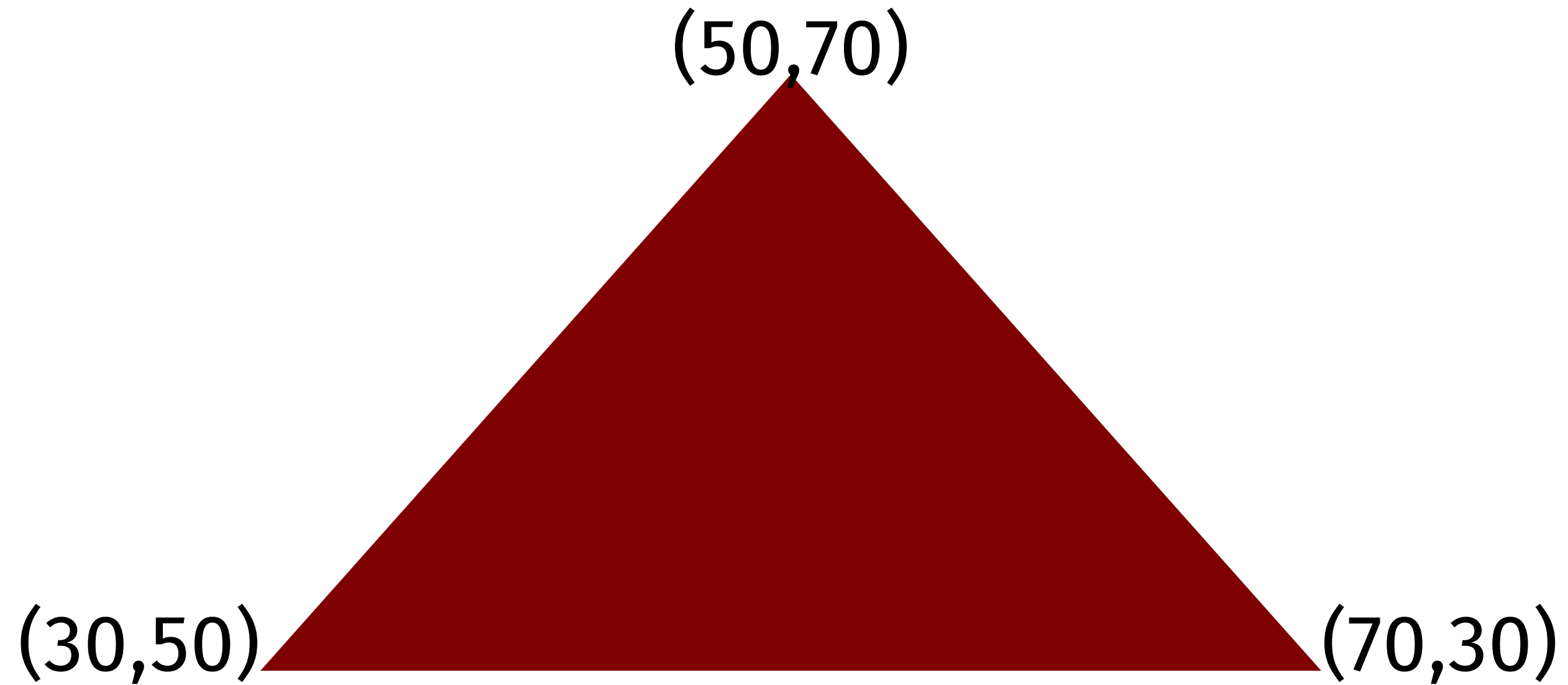


width

```
<ellipse xp="50" yp="50" wp="20" hr="100"/>
```

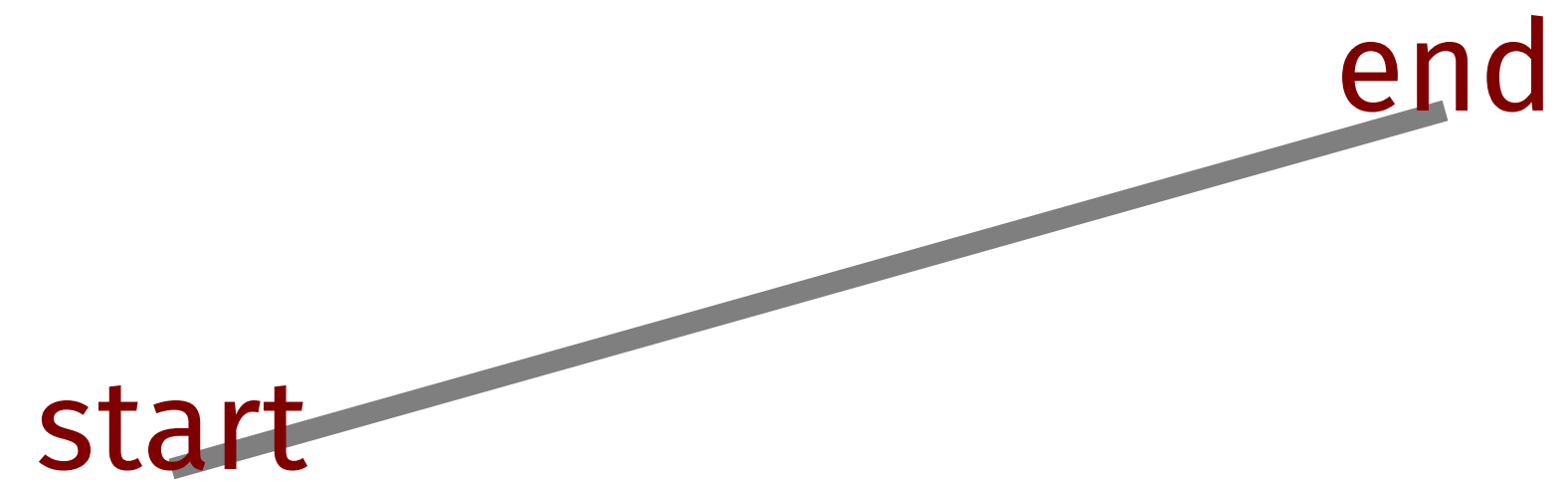


# polygon element



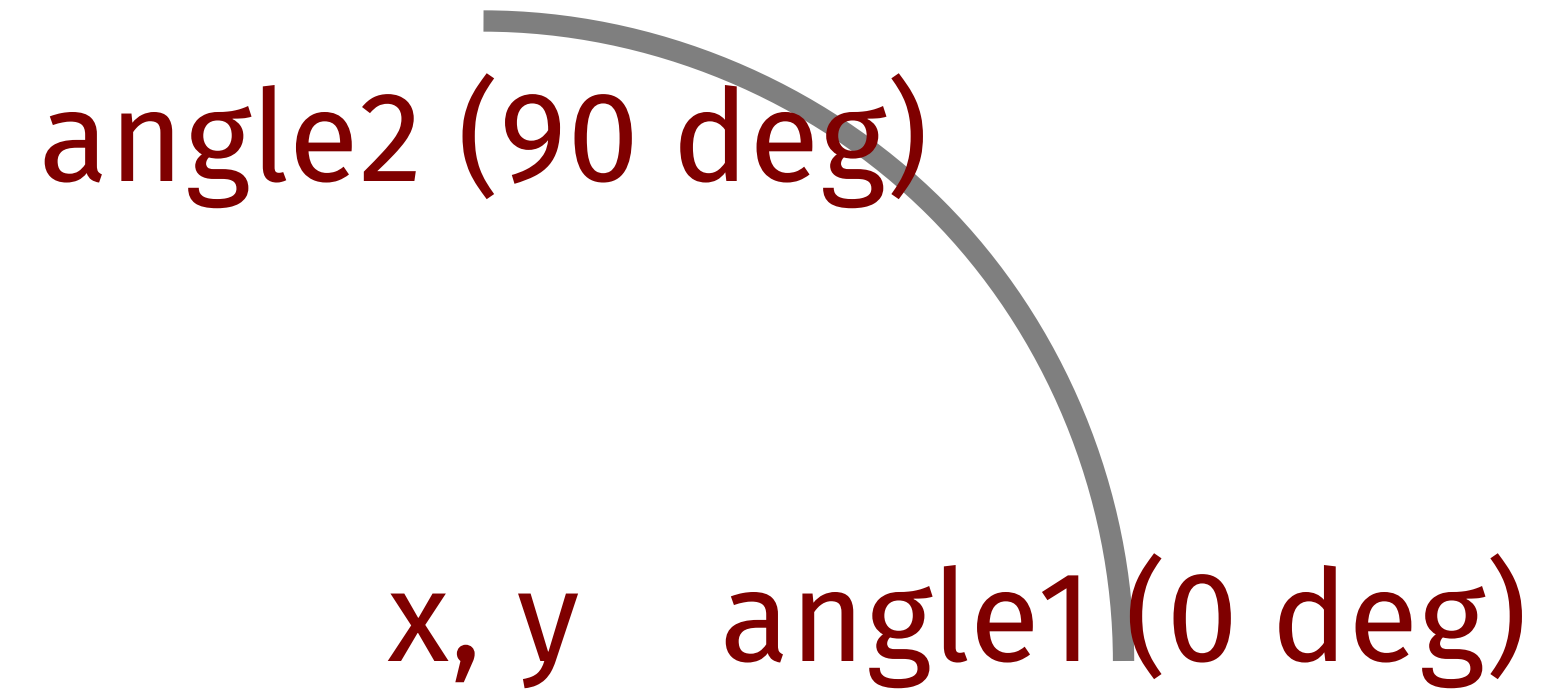
```
<polygon xc="30 50 70" yc="30 70 30"/>
```

# line element



```
<line xp1="35" yp1="50" xp2="65" yp2="65"/>
```

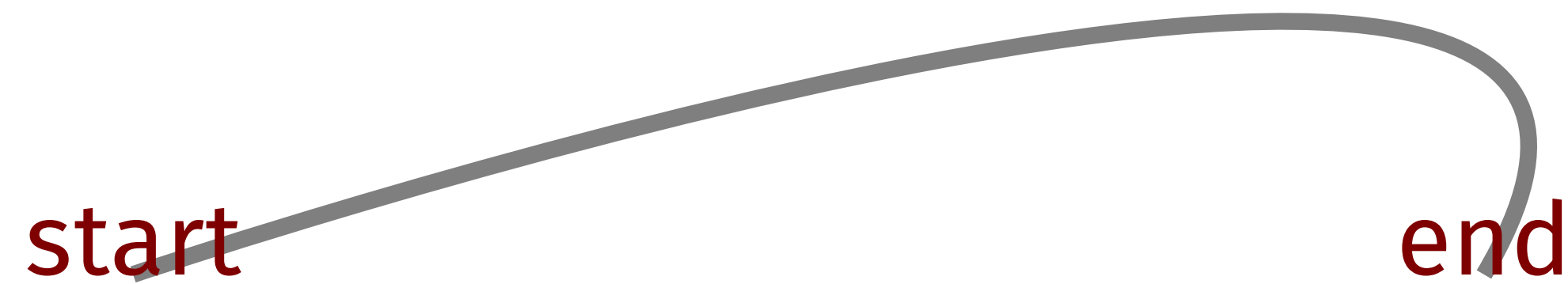
# arc element



```
<arc xp="50" yp="50" wp="30" hp="30" a1="0" a2="90"/>
```

# curve element

control



```
<curve xp1="30" yp1="50" xp2="80" yp2="80" xp3="70" yp3="50"/>
```

Markup and Layout

Start the deck	<deck>
Set the canvas size	<canvas width="1024" height="768" />
Begin a slide	<slide bg="white" fg="black">
Place an image	<image xp="70" yp="60" width="256" height="179" name="work.png" caption="Desk"/>
Draw some text	<text xp="20" yp="80" sp="3" link="http://goo.gl/Wm05Ex">Deck elements</text>
Make a bullet list	<list xp="20" yp="70" sp="2" type="bullet"> <li>text, list, image</li> <li>line, rect, ellipse</li> <li>arc, curve, polygon</li>
End the list	</list>
Draw a line	<line xp1="20" yp1="10" xp2="30" yp2="10"/>
Draw a rectangle	<rect xp="35" yp="10" wp="4" hr="75" color="rgb(127,0,0)"/>
Draw an ellipse	<ellipse xp="45" yp="10" wp="4" hr="75" color="rgb(0,127,0)"/>
Draw an arc	<arc xp="55" yp="10" wp="4" hp="3" a1="0" a2="180" color="rgb(0,0,127)"/>
Draw a quadratic bezier	<curve xp1="60" yp1="10" xp2="75" yp2="20" xp3="70" yp3="10" />
Draw a polygon	<polygon xc=75 75 80" yc="8 12 10" color="rgb(0,0,127)"/>
End the slide	</slide>
End of the deck	</deck>

# Anatomy of a Deck

# Deck elements

- text, list, image
- line, rect, ellipse
- arc, curve, polygon



Desk



# Text and List Markup

Position, size

```
<text xp="..." yp="..." sp="...">
```

Block of text

```
<text ... type="block">
```

Lines of code

```
<text ... type="code">
```

Attributes

```
<text ... color="..." opacity="..." font="..." align="..." link="...">
```

Position, size

```
<list xp="..." yp="..." sp="...">
```

Bullet list

```
<list ... type="bullet">
```

Numbered list

```
<list ... type="number">
```

Attributes

```
<list ... color="..." opacity="..." font="..." align="..." link="...">
```



# Common Attributes for text and list

<b>xp</b>	horizontal percentage
<b>yp</b>	vertical percentage
<b>sp</b>	font size percentage
<b>type</b>	"bullet", "number" (list), "block", "code" (text)
<b>align</b>	"left", "middle", "end"
<b>color</b>	SVG names ("maroon"), or RGB "rgb(127,0,0)"
<b>opacity</b>	percent opacity (0-100, transparent - opaque)
<b>font</b>	"sans", "serif", "mono"
<b>link</b>	URL

[illegible]

10%, 50%

Hello

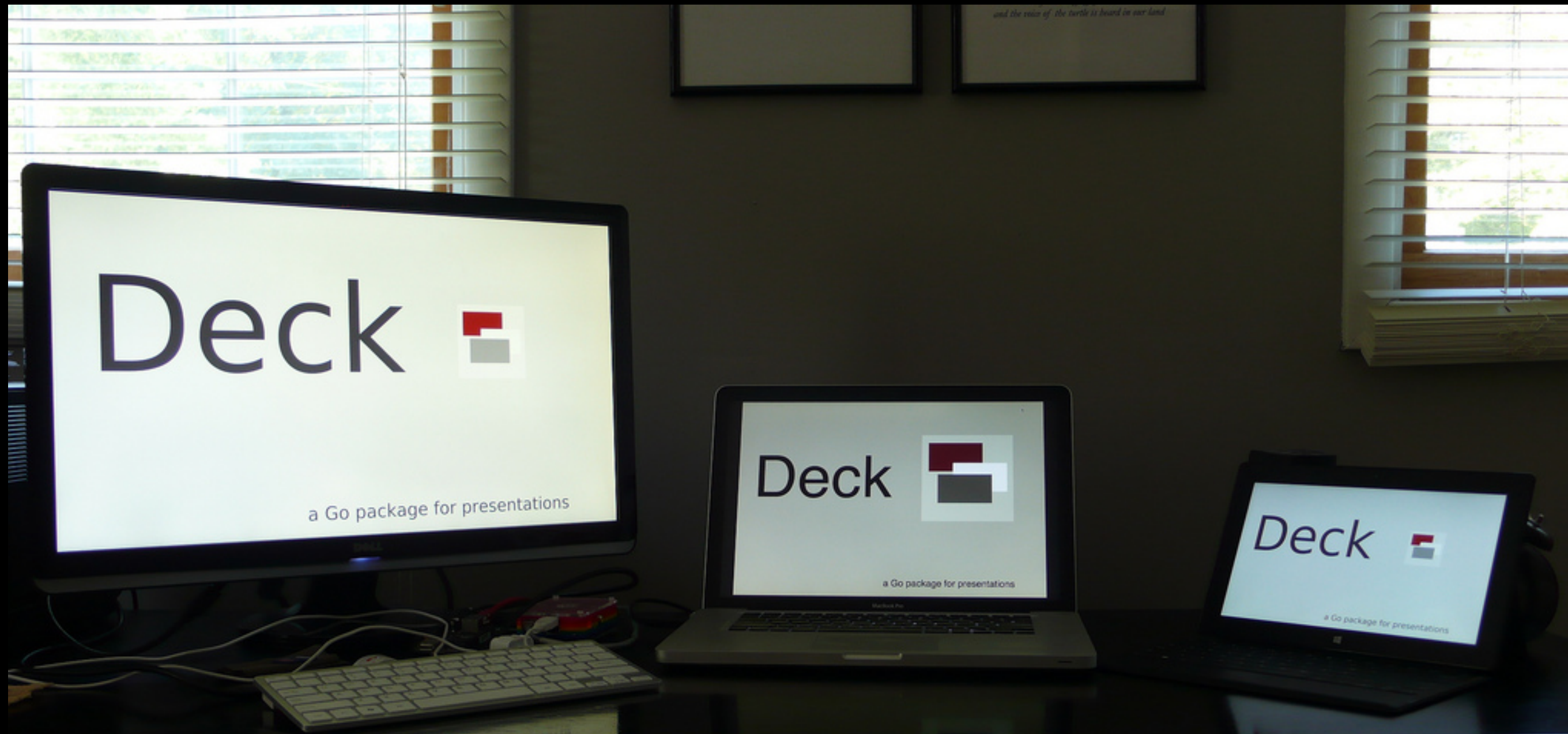
50%, 50%



90%, 50%



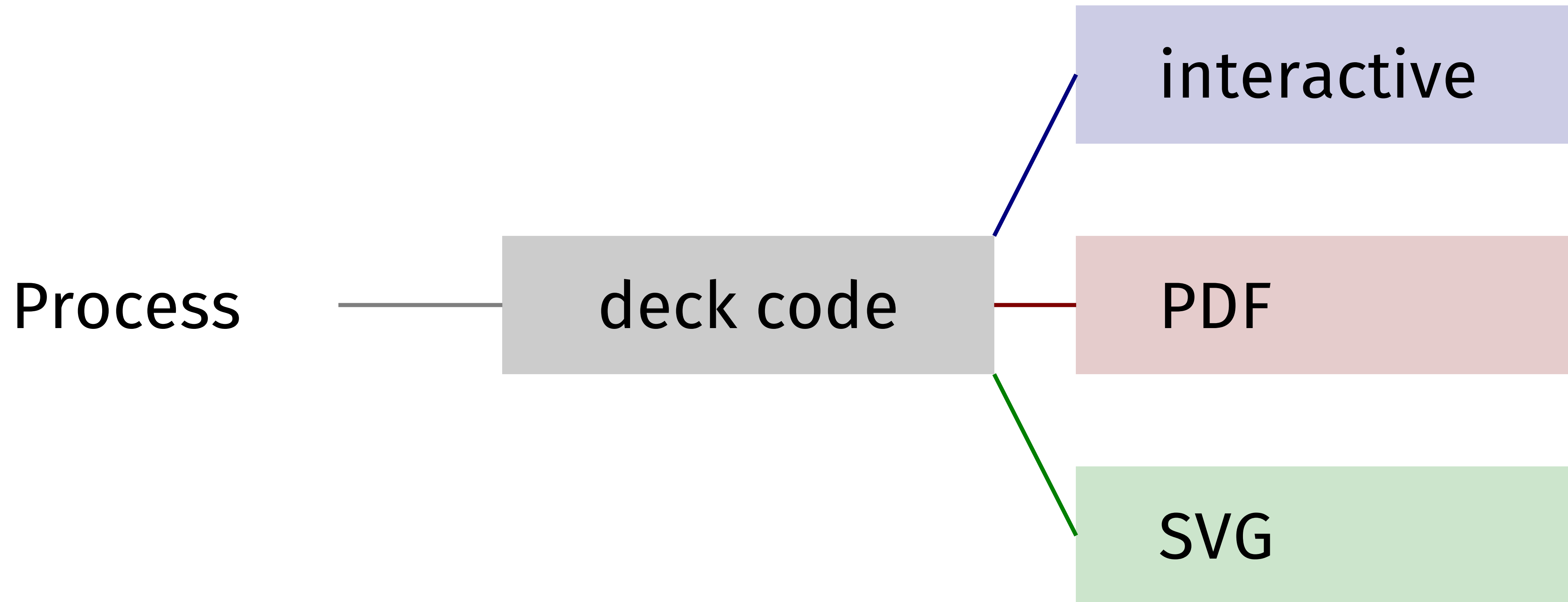
Percentage-based layout



# Clients

```
package main
import (
    "log"
    "github.com/ajstarks/deck"
)
func main() {
    presentation, err := deck.Read("deck.xml", 1024, 768) // open the deck
    if err != nil {
        log.Fatal(err)
    }
    for _, slide := range presentation.Slide {           // for every slide...
        for _, t := range slide.Text {                   // process the text elements
            x, y, size := deck.Dimen(presentation.Canvas, t.Xp, t.Yp, t.Sp)
            slideText(x, y, size, t)
        }
        for _, l := range slide.List {                   // process the list elements
            x, y, size := deck.Dimen(presentation.Canvas, l.Xp, l.Yp, l.Sp)
            slideList(x, y, size, l)
        }
    }
}
```

# A Deck Client



```

func main() {
    benchmarks := []Bardata{
        {"Macbook Air", 154.701},
        {"MacBook Pro (2008)", 289.603},
        {"BeagleBone Black", 2896.037},
        {"Raspberry Pi", 5765.568},
    }
    ts := 2.5
    hts := ts / 2
    x := 10.0
    bx1 := x + (ts * 12)
    bx2 := bx1 + 50.0
    y := 60.0
    maxdata := 5800.0
    linespacing := ts * 2.0
    text(x, y+20, "Go 1.1.2 Build and Test Times", ts*2, "black")
    for _, data := range benchmarks {
        text(x, y, data.label, ts, "rgb(100,100,100)")
        bv := vmap(data.value, 0, maxdata, bx1, bx2)
        line(bx1, y+hts, bv, y+hts, ts, "lightgray")
        text(bv+0.5, y+(hts/2), fmt.Sprintf("%.1f", data.value), hts, "rgb(127,0,0)")
        y -= linespacing
    }
}

```

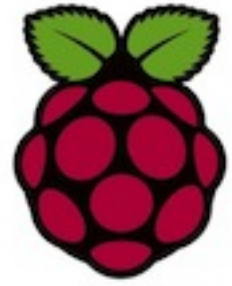
## Generating a Barchart

# Go 1.1.2 Build and Test Times



```
$ (echo '<deck><slide>'; go run deckbc.go; echo '</slide></deck>')
```





```
go get github.com/ajstarks/deck/cmd/vgdeck
```



```
go get github.com/ajstarks/deck/cmd/pdfdeck
```



```
go get github.com/ajstarks/deck/cmd/svgdeck
```

# pdfdeck [options] file.xml...

- sans, -serif, -mono [font] specify fonts
- pagesize [w,h, or Letter, Legal, Tabloid, A2-A5, ArchA, Index, 4R, Widescreen]
- stdout (output to standard out)
- outdir [directory] directory for PDF output
- fontdir [directory] directory containing font information
- author [author name] set the document author
- title [title text] set the document title
- grid [percent] draw a percent grid on each slide

# svgdeck [options] file.xml...

- sans, -serif, -mono [font] specify fonts
- pagesize [Letter, Legal, A3, A4, A5]
- pagewidth [canvas width]
- pageheight [canvas height]
- stdout (output to standard out)
- outdir [directory] directory for PDF output
- title [title text] set the document title
- grid [percent] draw a percent grid on each slide

# vgdeck [options] file.xml...

- loop [duration] loop, pausing [duration] between slides
- slide [number] start at slide number
- w [width] canvas width
- h [height] canvas height
- g [percent] draw a percent grid

# vgdeck Commands

<code>+, Ctrl-N, [Return]</code>	Next slide
<code>-, Ctrl-P, [Backspace]</code>	Previous slide
<code>^, Ctrl-A</code>	First slide
<code>\$, Ctrl-E</code>	Last slide
<code>r, Ctrl-R</code>	Reload
<code>x, Ctrl-X</code>	X-Ray
<code>/, Ctrl-F [text]</code>	Search
<code>s, Ctrl-S</code>	Save
<code>q</code>	Quit

# Deck Web API

GET	/
GET	/deck/
GET	/deck/?filter=[type]
POST	/deck/content.xml?cmd=1s
POST	/deck/content.xml?cmd=stop
POST	/deck/content.xml?slide=[num]
DELETE	/deck/content.xml
POST	/upload/ Deck:content.xml
POST	/table/ Deck:content.txt
POST	/table/?textsize=[size]
POST	/media/ Media:content.mov

```
sex -dir [start dir] -listen [address:port] -maxupload [bytes]
```

List the API

List the content on the server

List content filtered by deck, image, video

Play a deck with the specified duration

Stop playing a deck

Play deck starting at a slide number

Remove content

Upload content

Generate a table from a tab-separated list

Specify the text size of the table

Play the specified video

# deck [command] [argument]

deck play file [duration]	Play a deck
deck stop	Stop playing a deck
deck list [deck image video]	List contents
deck upload file...	Upload content
deck remove file...	Remove content
deck video file	Play video
deck table file [textsize]	Make a table
\$ deck upload *.jpg	# upload images
\$ mkpicdeck *.jpg   deck upload /dev/stdin	# generate the slide show deck
\$ deck play stdin	# play it

# Display

## Good Design

- is innovative
- makes a product useful
- is aesthetic
- makes a product understandable
- is unobtrusive
- is honest
- is long-lasting
- is thorough down to the last detail
- is environmentally-friendly
- is as little design as possible



Server

HDMI



RESTful API

# Controller

- > list
- > upload
- > play/stop
- > delete



Design Examples



hello, world

Top

Left

Right

Bottom

20%

30%

70%

20%

Header (top 20%)

Summary  
(30%)

Detail  
(70%)

Footer (bottom 20%)

bullet

- Point A
- Point B
- Point C
- Point D

plain

First item

Second item

The third item

the last thing

number

1. This

2. That

3. The other

4. One more

```
<list>...</list>
```

BOS



SFO

Virgin America 351

Gate B38

8:35am

On Time

JFK



IND

US Airways 1207

Gate C31C

5:35pm

Delayed



AAPL	503.73	-16.57 (3.18%)
------	--------	----------------

AMZN	274.03	+6.09 (2.27%)
------	--------	---------------

GOOG	727.58	-12.41 (1.68%)
------	--------	----------------

# Two Columns

One

Two

Three

Four



Tree and Sky

Five

Six

Seven

Eight

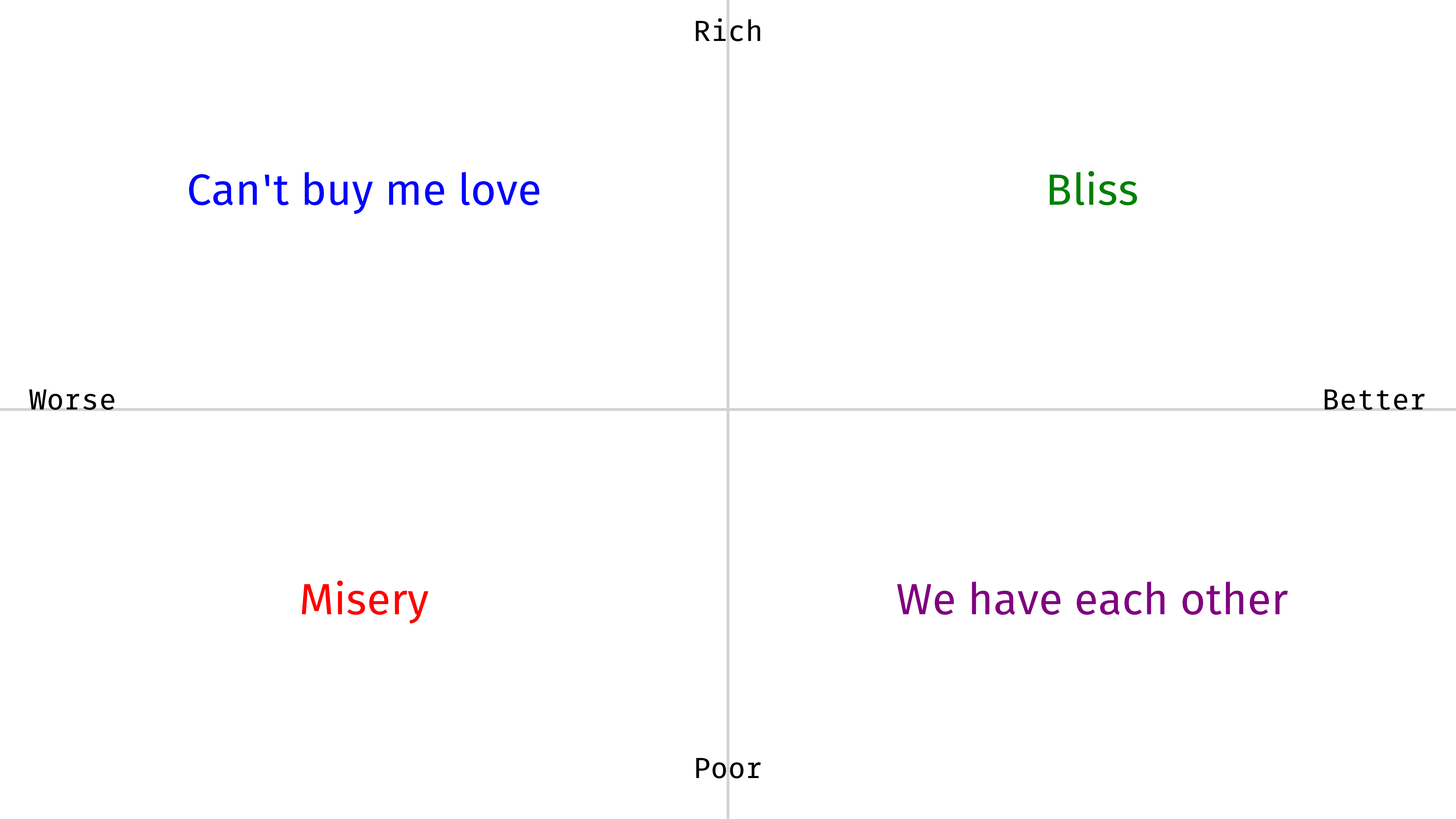


Rocks

go

build	compile packages and dependencies
clean	remove object files
env	print Go environment information
fix	run go tool fix on packages
fmt	run gofmt on package sources
get	download and install packages and dependencies
install	compile and install packages and dependencies
list	list packages
run	compile and run Go program
test	test packages
tool	run specified go tool
version	print Go version
vet	run go tool vet on packages

This is not a index card



Rich

Can't buy me love

Bliss

Worse

Better

Misery

We have each other

Poor

## Code

```
package main
import (
    "github.com/ajstarks/svgo"
    "os"
)

func main() {
    canvas := svg.New(os.Stdout)
    width, height := 500, 500
    a, ai, ti := 1.0, 0.03, 10.0

    canvas.Start(width, height)
    canvas.Rect(0, 0, width, height)
    canvas.Gstyle("font-family:serif;font-size:144pt")

    for t := 0.0; t <= 360.0; t += ti {
        canvas.TranslateRotate(width/2, height/2, t)
        canvas.Text(0, 0, "i", canvas.RGBA(255, 255, 255, a))
        canvas.Gend()
        a -= ai
    }
    canvas.Gend()
    canvas.End()
}
```

## Output



A few months ago, I had a look at the brainchild of a few serious heavyweights working at Google. Their project, the Go programming language, is a static typed, c lookalike, semicolon-less, self formatting, package managed, object oriented, easily parallelizable, cluster fuck of genius with an unique class inheritance system. It doesn't have one.

# The Go Programming Language

is a static typed,  
c lookalike,  
semicolon-less,  
self formatting,  
package managed,  
object oriented,  
easily parallelizable,  
cluster fuck of genius  
with an unique class inheritance system.



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---

# The Go Programming Language

is a static typed, c lookalike, semicolon-less, self formatting,  
package managed, object oriented, easily parallelizable,  
cluster fuck of genius with an unique class inheritance system.

It doesn't have one.

So, the next time you're about  
to make a subclass, think hard  
and ask yourself

what would Go do

Andrew Mackenzie-Ross, <http://pocket.co/sSc56>



Python and Ruby programmers come to Go because they don't have to surrender much expressiveness, but gain performance and get to play with concurrency.

Less is exponentially more  
Rob Pike



The background image is a photograph of a sky filled with large, dark, billowing clouds. A bright, glowing light source, likely the sun, is positioned in the upper center, partially obscured by the clouds, creating a strong backlighting effect and illuminating the edges of the cloud formations. The overall color palette is dominated by deep blues and greys, with the bright white and yellow of the light source providing a focal point.

You must not blame me if I do talk to the clouds.

FOR, LO,

the winter is past,

the rain is over and gone;

The flowers appear on the earth;

the time for the singing of birds is come,  
and the voice of the turtle is heard in our land.



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Dieter Rams

[github.com/ajstarks/deck](https://github.com/ajstarks/deck)



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