

# Deck



a Go package for presentations

---

## 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

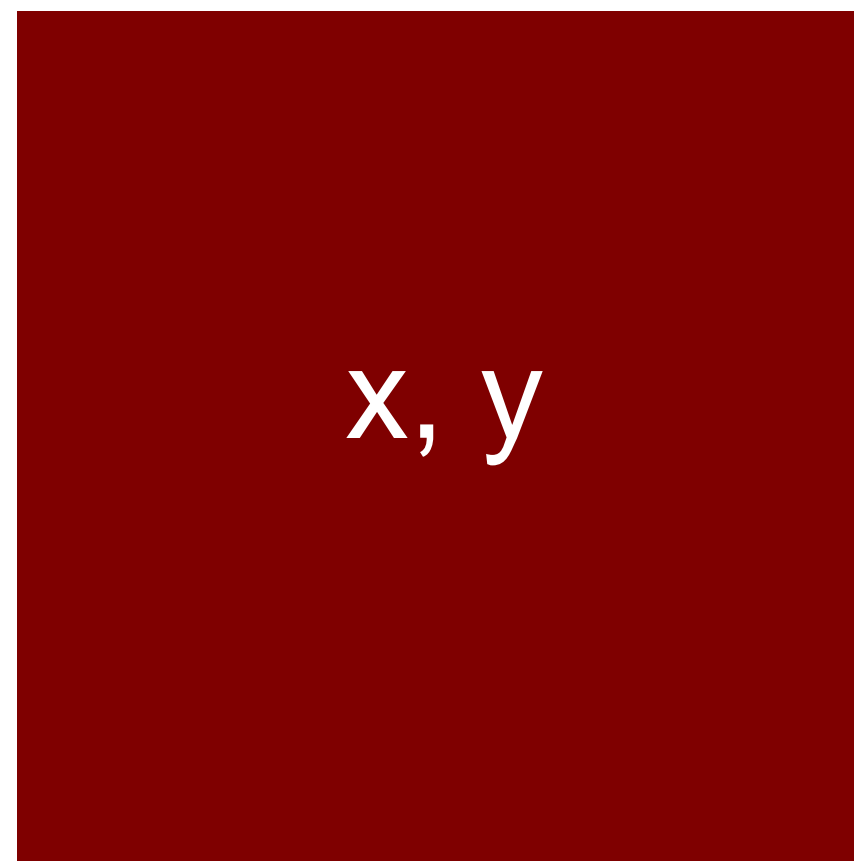


width

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

# rect element

height (relative  
to element  
or canvas  
width)

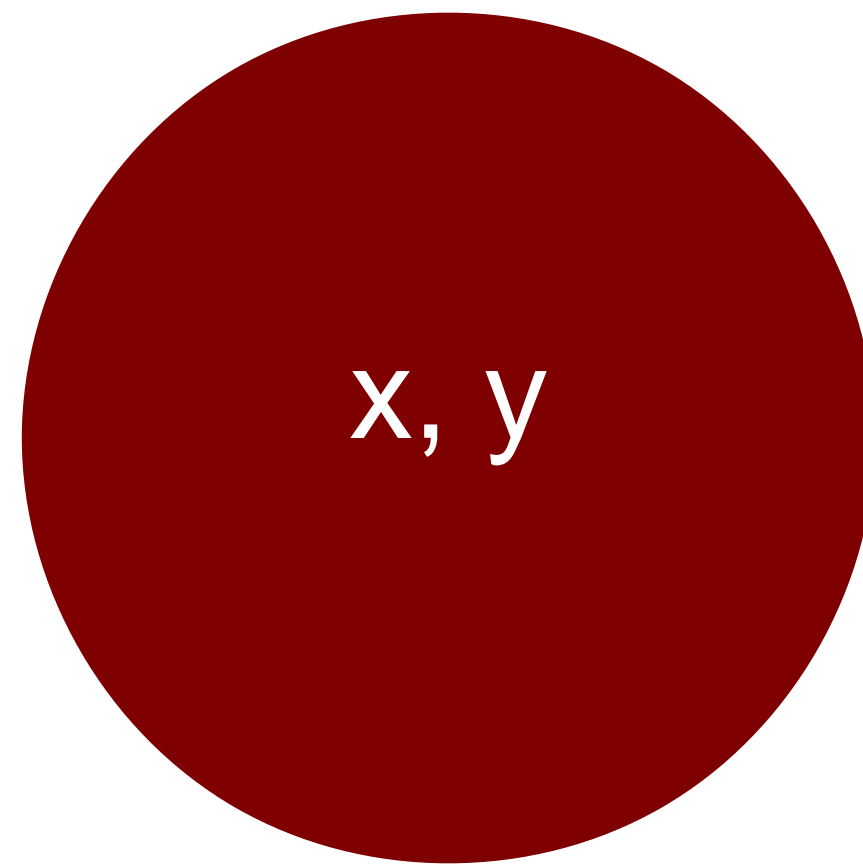


width

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

# ellipse element

height (relative  
to element  
or canvas  
width)

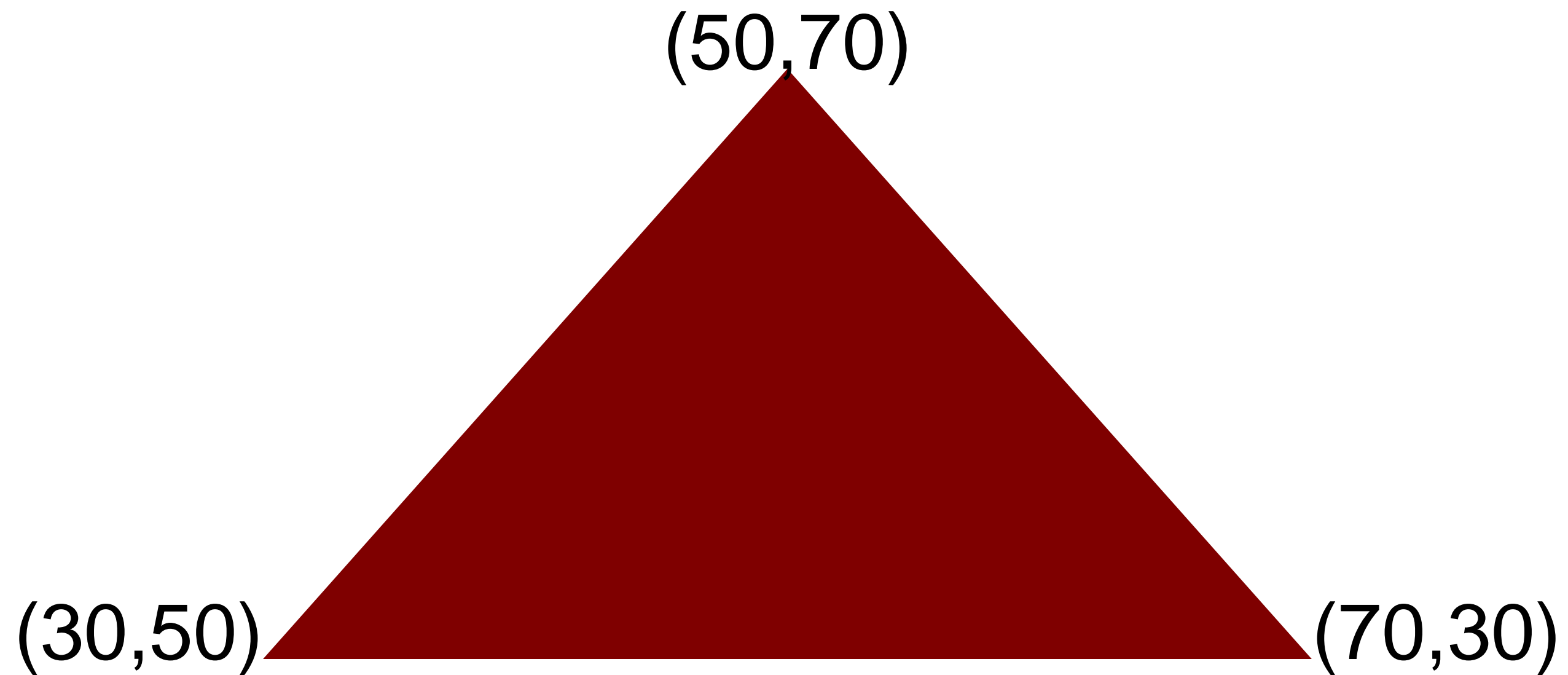


width

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

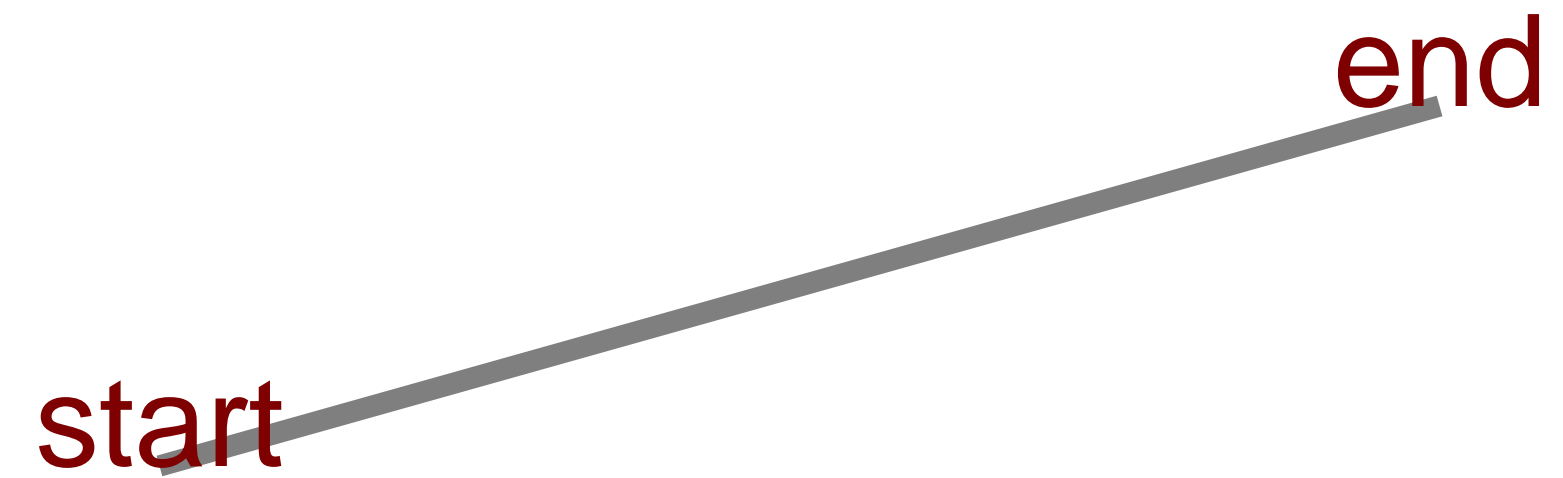


# polygon element



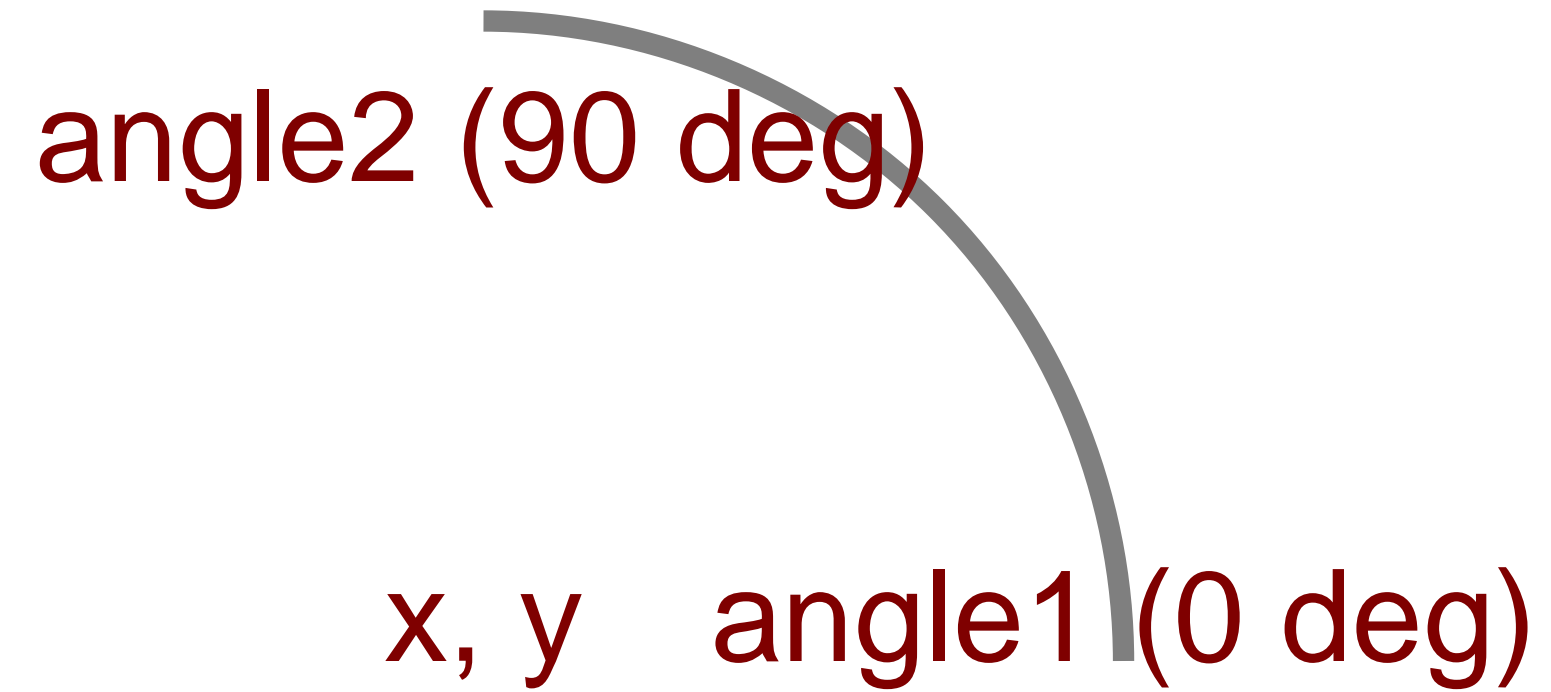
```
<polygon xc="30 50 70" yc="30 70 30" />
```

# line element



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

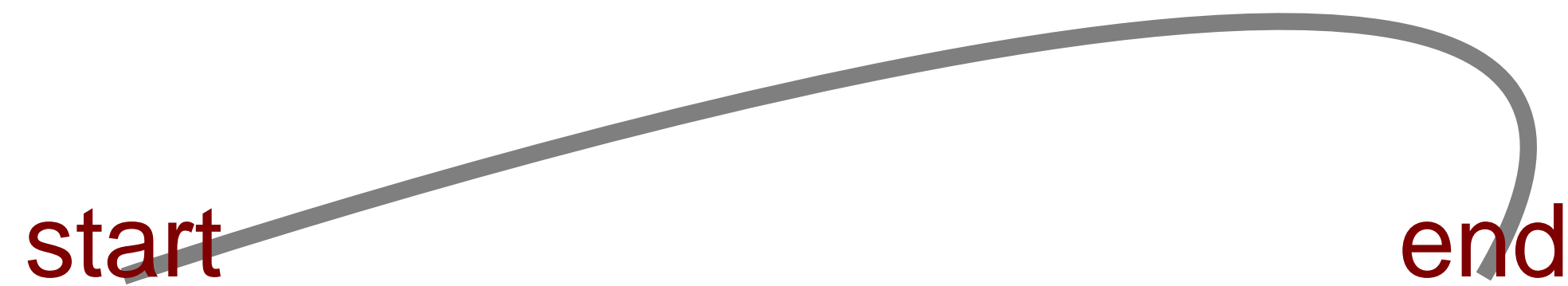
# arc element



```
<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="...">
```



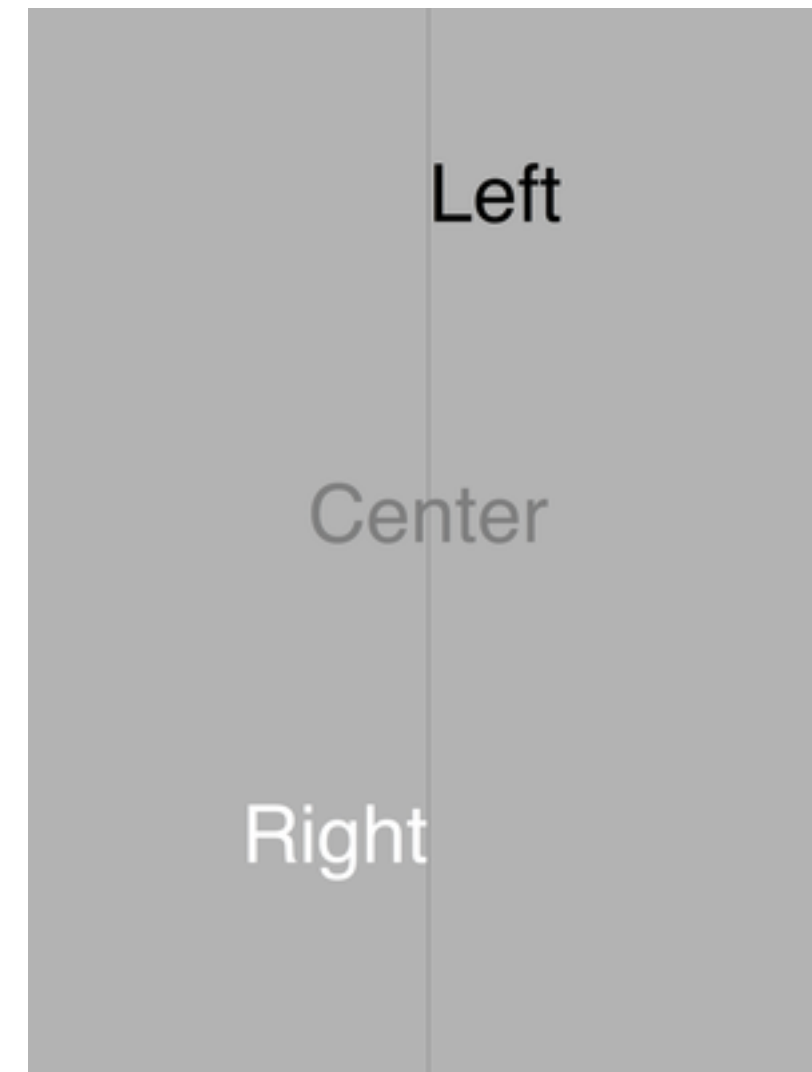
# Common Attributes for text and list

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

# Scaling the canvas



Landscape



Portrait

A Percent Grid with a 10x10 grid of squares. The horizontal axis is labeled 10, 20, 30, 40, 50, 60, 70, 80, 90. The vertical axis is labeled 10, 20, 30, 40, 50, 60, 70, 80, 90. The text "Percent Grid" is centered in the grid.

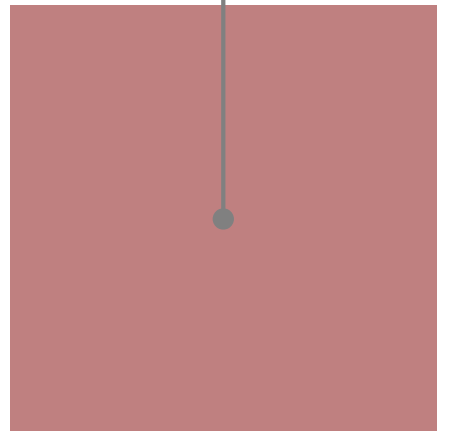
10%, 50%

Hello

50%, 50%



90%, 50%



Percentage-based layout



# Clients

```
package main

import (
    "github.com/ajstarks/deck"
    "log"
)

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

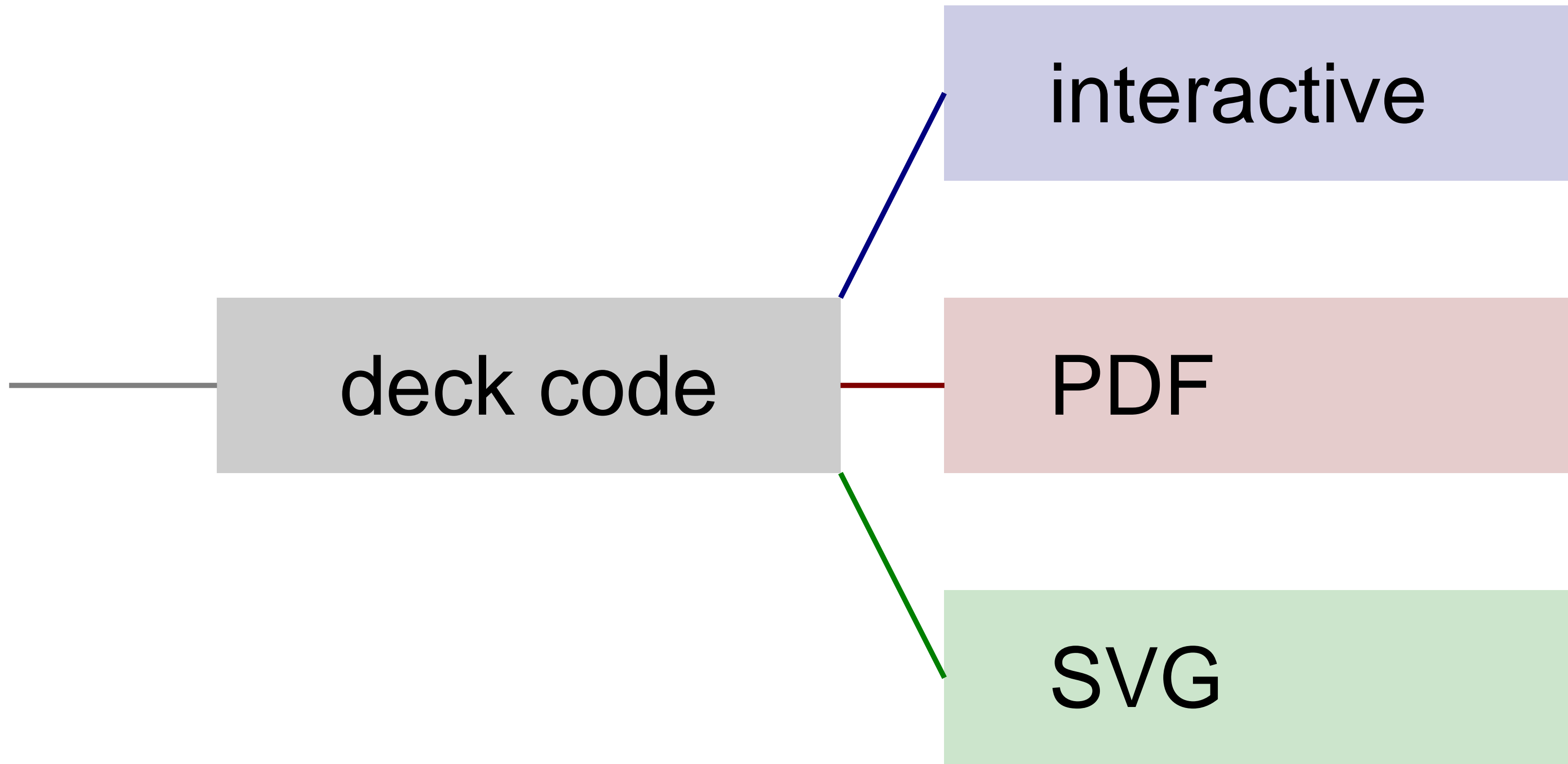
Process

deck code

interactive

PDF

SVG



# Generating a Barchart

```
package main
```

```
import (  
    "fmt"  
    "github.com/ajstarks/deck/generate"  
    "os"  
)
```

```
type Bardata struct {  
    label string  
    value float64  
}
```

```
func vmap(value float64, low1 float64, high1 float64, low2 float64, high2 float64) float64 {  
    return low2 + (high2-low2)*(value-low1)/(high1-low1)  
}
```

```
func main() {  
    benchmarks := []Bardata{  
        {"Macbook Air", 154.701}, {"MacBook Pro (2008)", 289.603}, {"BeagleBone Black", 2896.037}, {"Raspberry Pi", 5765.568},  
    }  
    maxdata := 5800.0  
    ts := 2.5  
    hts := ts / 2  
    x, y := 10.0, 60.0  
    bx1 := x + (ts * 12)  
    bx2 := bx1 + 50.0  
    linespacing := ts * 2.0  
    deck := generate.NewSlides(os.Stdout, 0, 0)  
    deck.StartDeck()  
    deck.StartSlide("rgb(255,255,255)")  
    deck.Text(x, y+20, "Go 1.1.2 Build and Test Times", "sans", ts*2, "black")  
    for _, data := range benchmarks {  
        deck.Text(x, y, data.label, "sans", ts, "rgb(100,100,100)")  
        bv := vmap(data.value, 0, maxdata, bx1, bx2)  
        deck.Line(bx1, y+hts, bv, y+hts, ts, "lightgray")  
        deck.Text(bv+0.5, y+(hts/2), fmt.Sprintf("%.1f", data.value), "sans", hts, "rgb(127,0,0)")  
        y -= linespacing  
    }  
    deck.EndSlide()  
    deck.EndDeck()  
}
```



# Go 1.1.2 Build and Test Times





```
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

`+, Ctrl-N, [Return]`

Next slide

`-, Ctrl-P, [Backspace]`

Previous slide

`^, Ctrl-A`

First slide

`$, Ctrl-E`

Last slide

`r, Ctrl-R`

Reload

`x, Ctrl-X`

X-Ray

`/, Ctrl-F [text]`

Search

`s, Ctrl-S`

Save

`q`

Quit

# Deck Web API

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

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

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

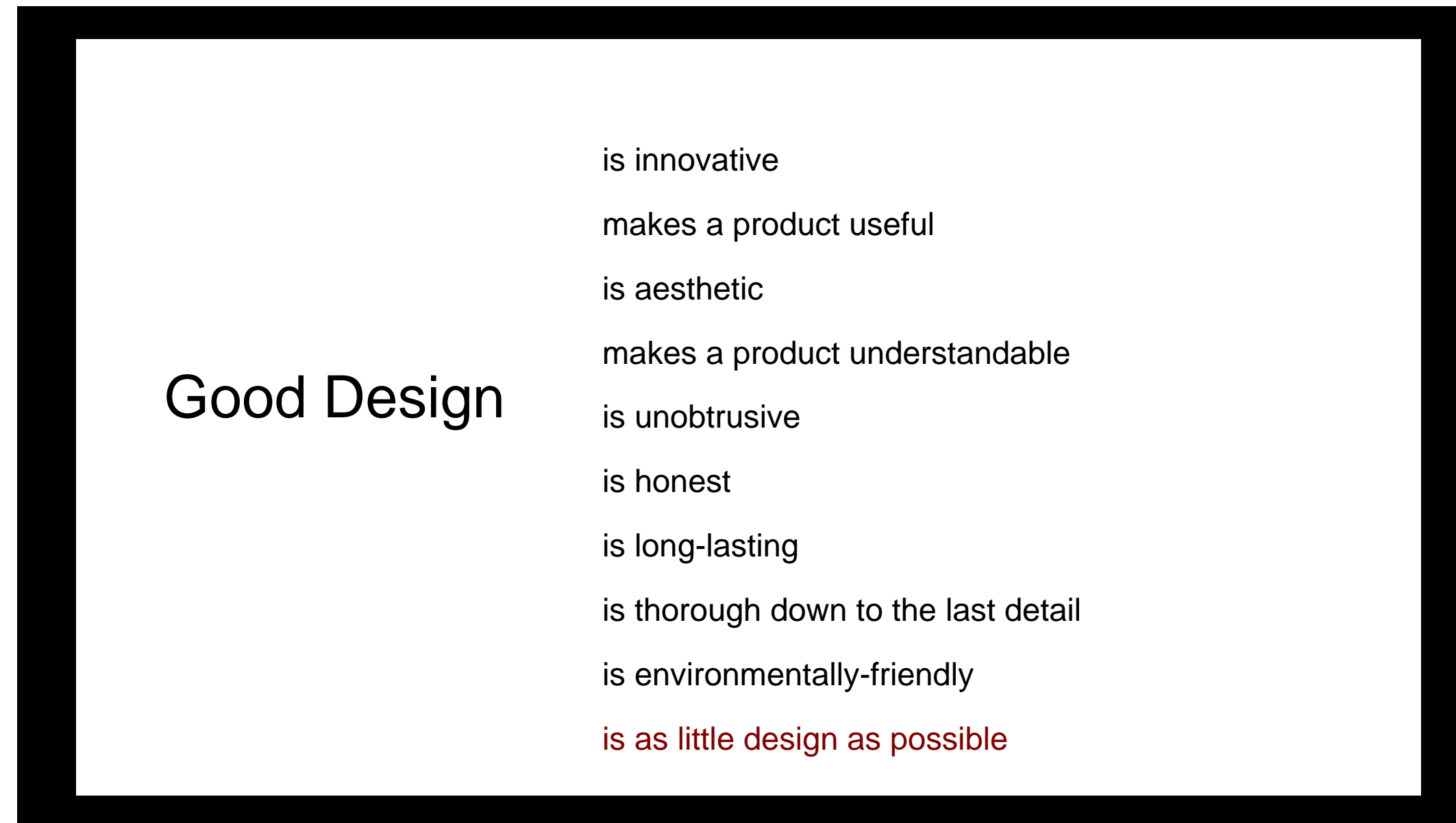
# deck [command] [argument]

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



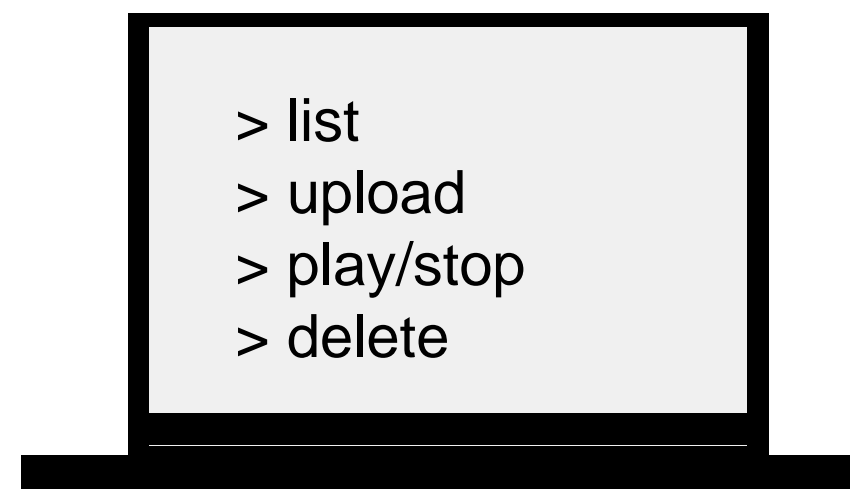
Server

HDMI



RESTful API

# Controller



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

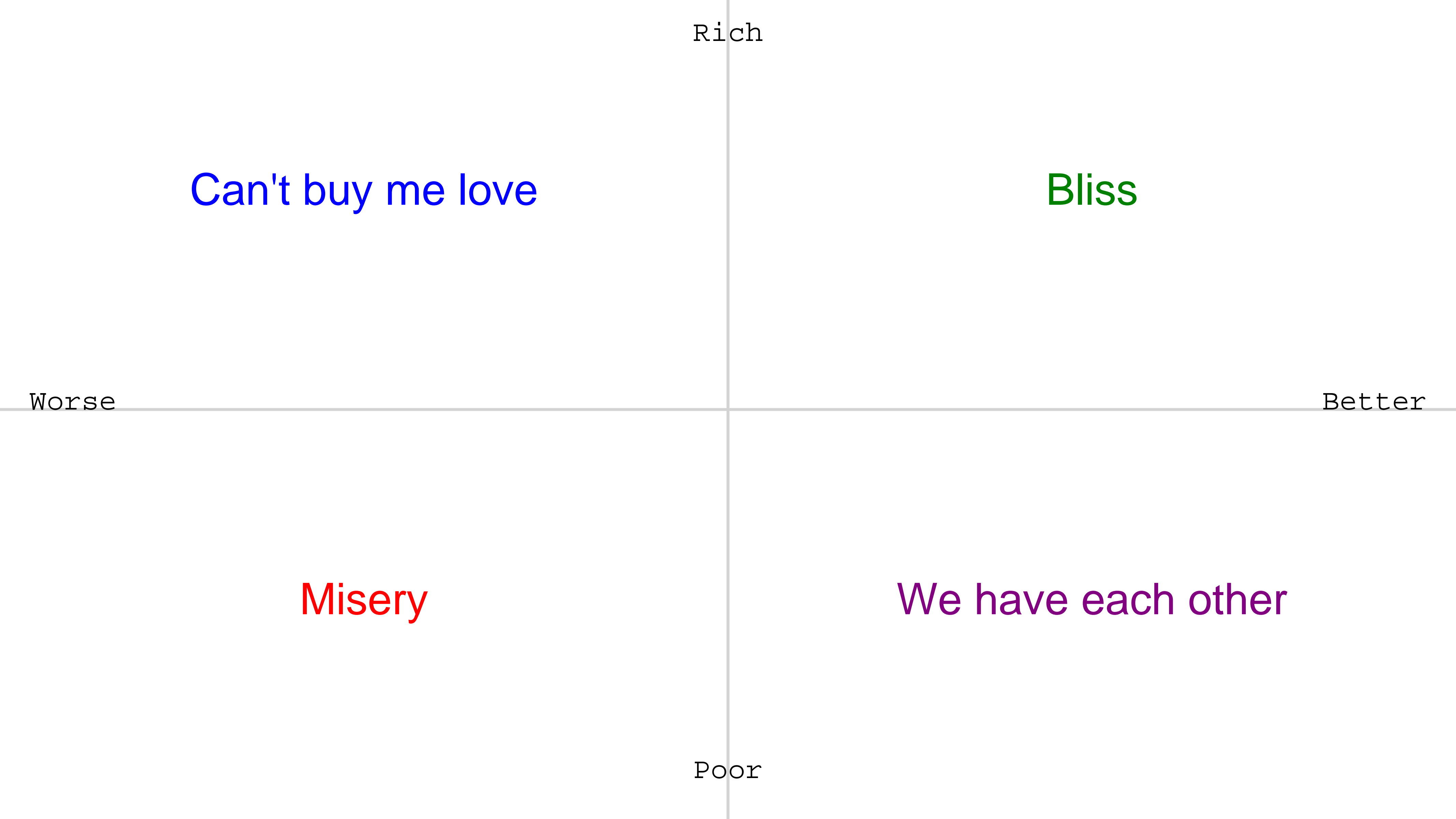


Rocks

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



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 image features a full-page background of a sky with dark, heavy clouds. A bright light source, likely the sun, is visible breaking through the clouds in the upper center, creating a strong glow and illuminating the surrounding cloud layers. The sky transitions from a deep blue at the top to a lighter, hazy blue near the horizon.

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.

# Good Design

is innovative

makes a product useful

is aesthetic

makes a product understandable

is unobtrusive

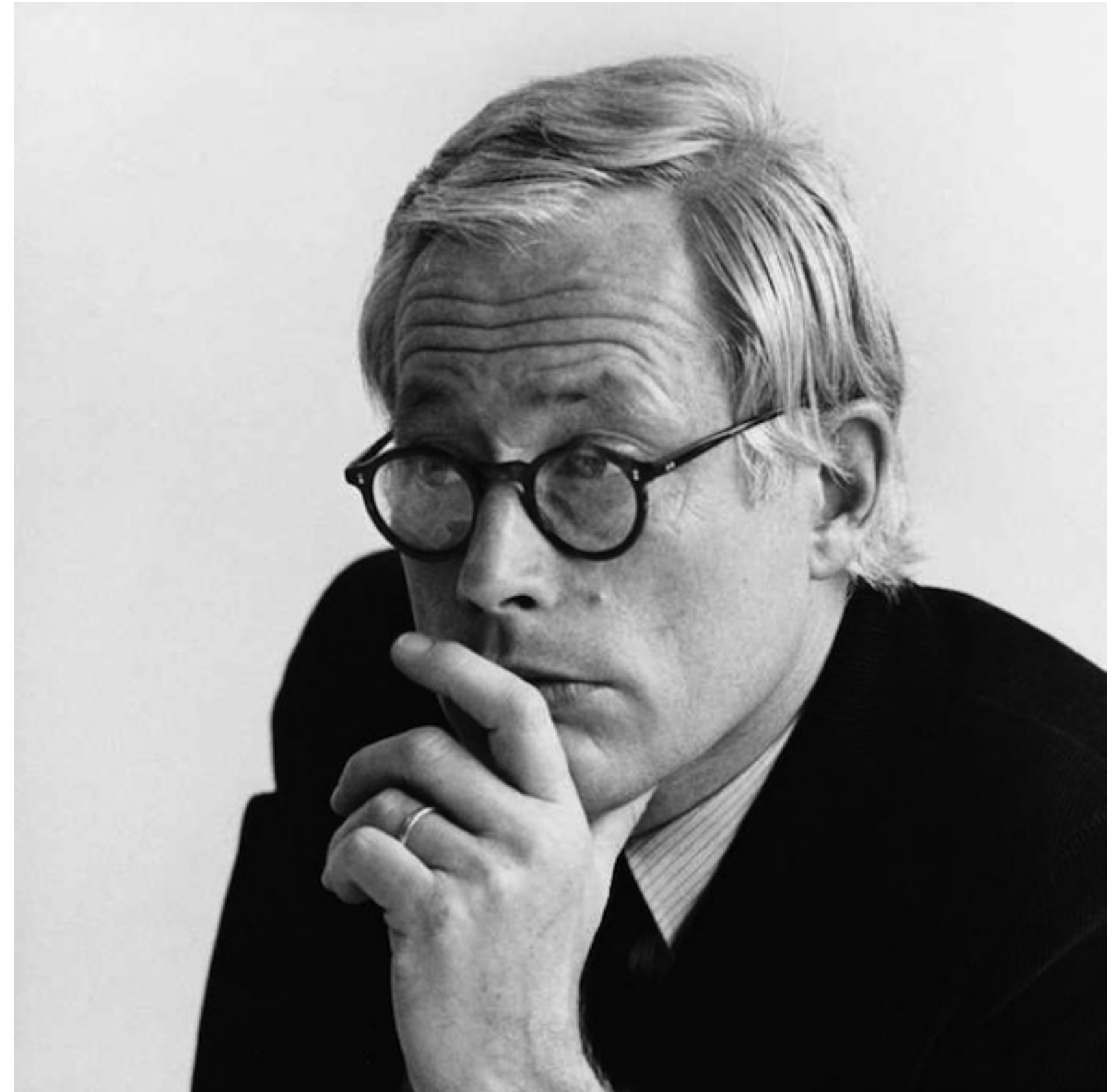
is honest

is long-lasting

is thorough down to the last detail

is environmentally-friendly

is as little design as possible



Dieter Rams

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



[ajstarks@gmail.com](mailto:ajstarks@gmail.com)  
[@ajstarks](#)