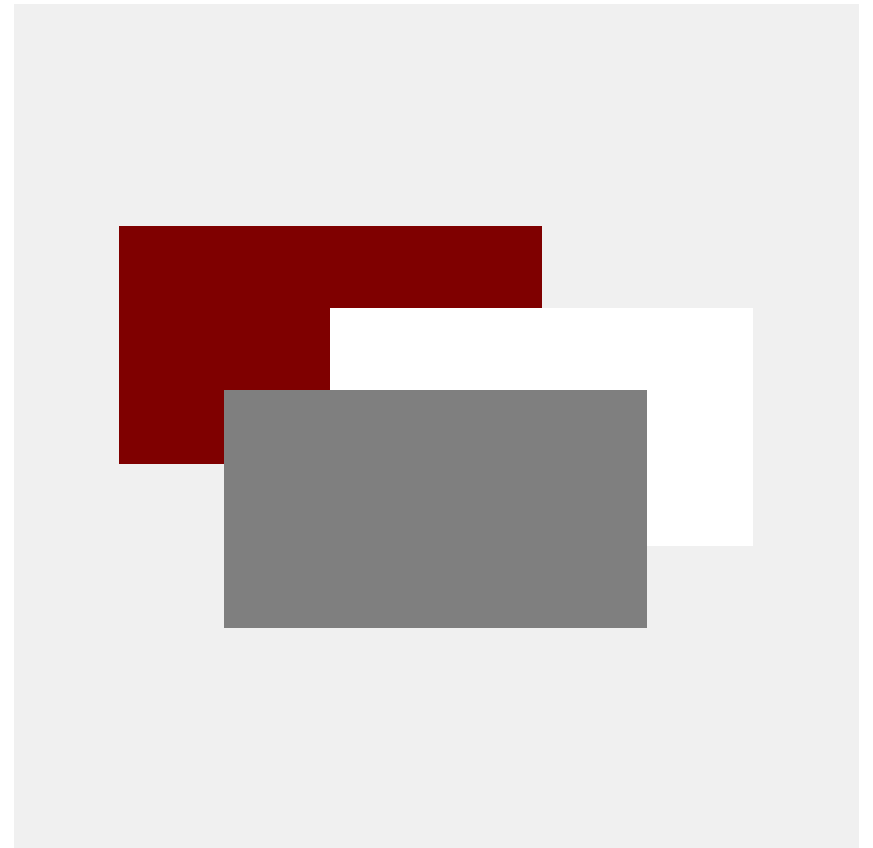# Deck

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 the size, font, line spacing, color,
and opacity.

```
package main

import "fmt"

func main() {
    fmt.Println("hello, world")
}
```

list element

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

First item

Second item

The third item

the last thing

1. This
2. That
3. The other
4. One more

```
<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>
```

```
<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>
```

```
<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>
```
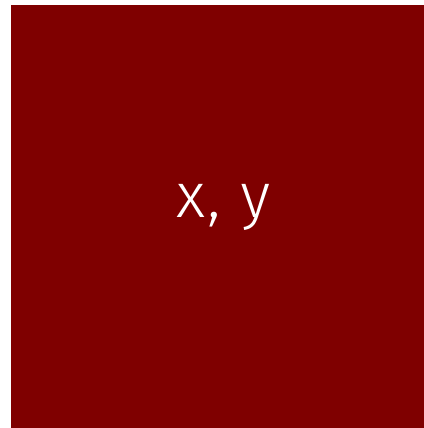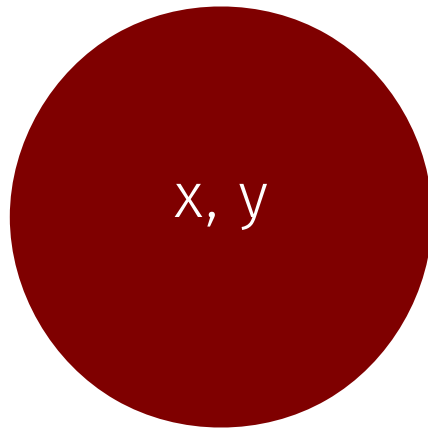
image element

height

x, y

width

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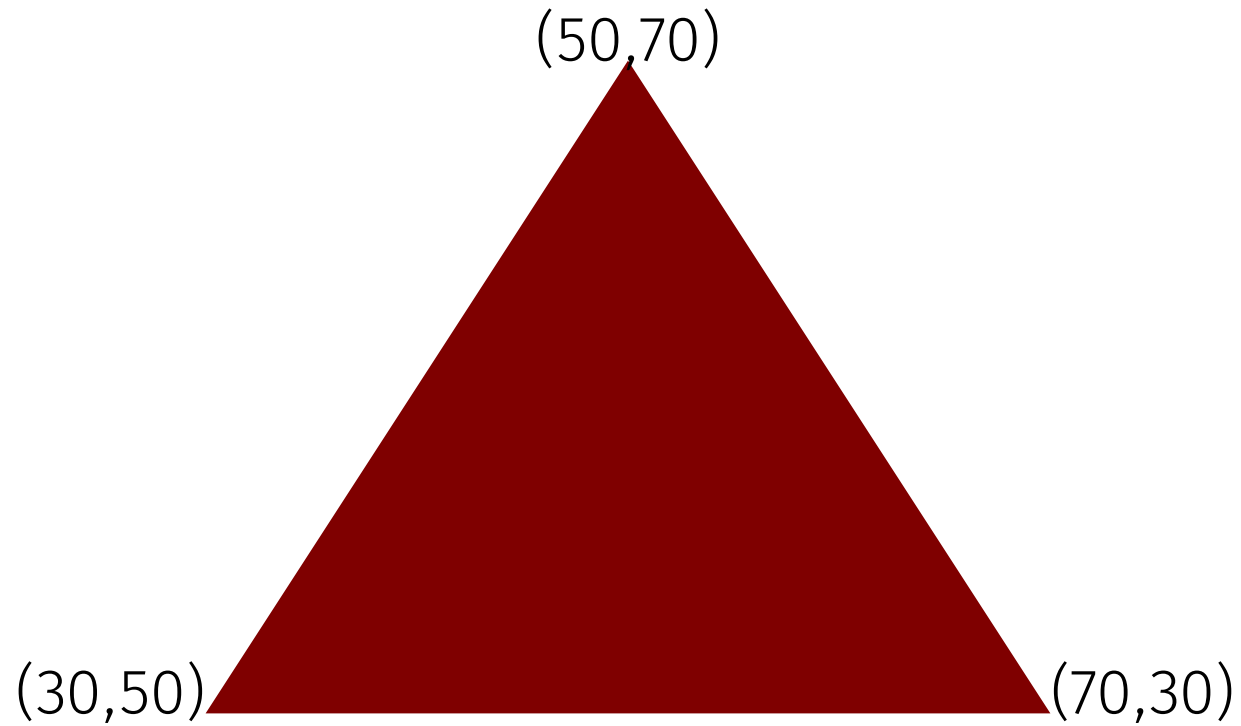
rect element

height (relative
to element
or canvas
width)

x, y

width

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

ellipse element

height (relative
to element
or canvas
width)

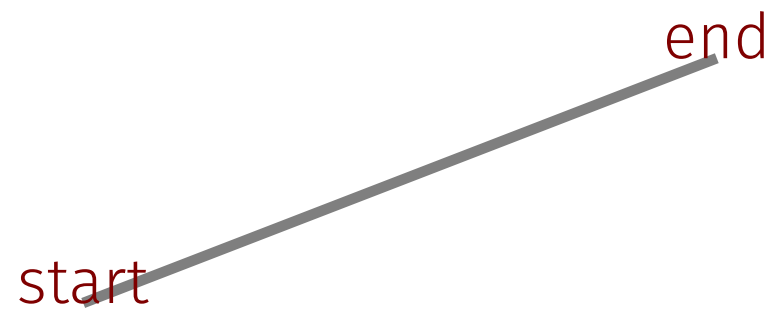x, y

width

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

polygon element

(50,70)

(30,50)   (70,30)

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

line element


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

arc element

angle2 (90 deg)

x, y   angle1 (0 deg)

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

curve element

start   end

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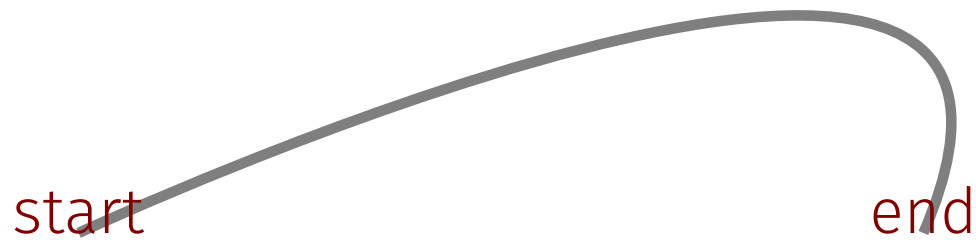
Markup and Layout

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
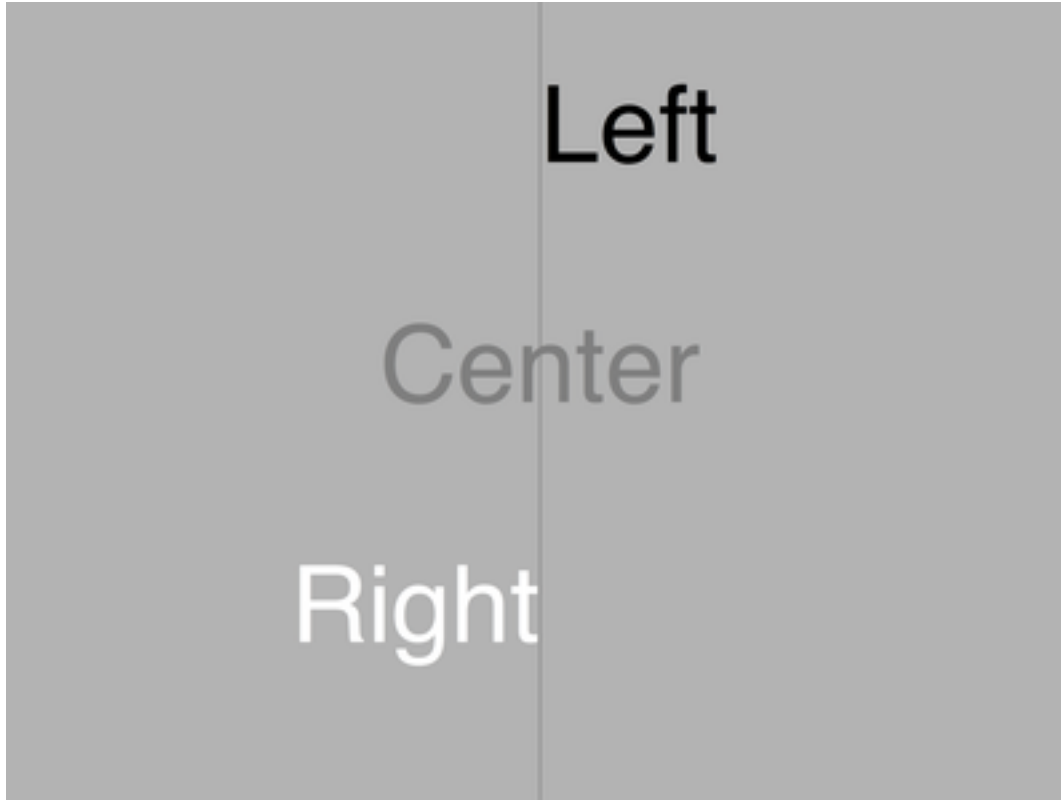
- arc, curve, polygon

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="...">`

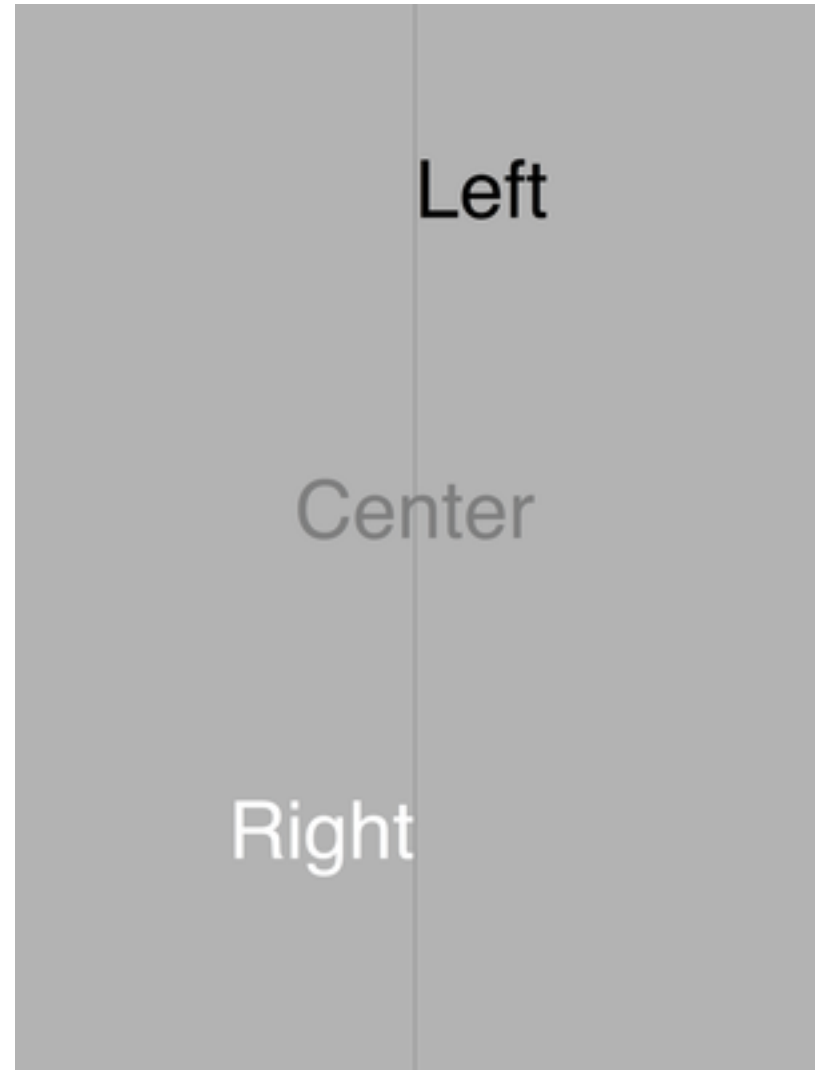|	
Position, size	`<list xp="..." yp="..." sp="...">`
Bullet list	`<list ... type="bullet">`
Numbered list	`<list ... type="number">`
Attributes	`<list ... color="..." opacity="..." font="..." align="..." link="...">`

Common Attributes for text and list

`xp`   horizontal percentage

`yp`   vertical percentage

`sp`   font size percentage

`type`   "bullet", "number" (list), "block", "code" (text)

`align`   "left", "middle", "end"

`color`   SVG names ("maroon"), or RGB "rgb(127,0,0)"

`opacity`   percent opacity (0-100, transparent - opaque)

`font`   "sans", "serif", "mono"

`link`   URL

Scaling the canvas

Left

Center

Right

Landscape

Left

Center

Right
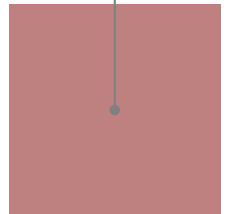
Portrait

Percent Grid

10%, 50%

50%, 50%

90%, 50%

Hello


Percentage-based layout

Clients

```go
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
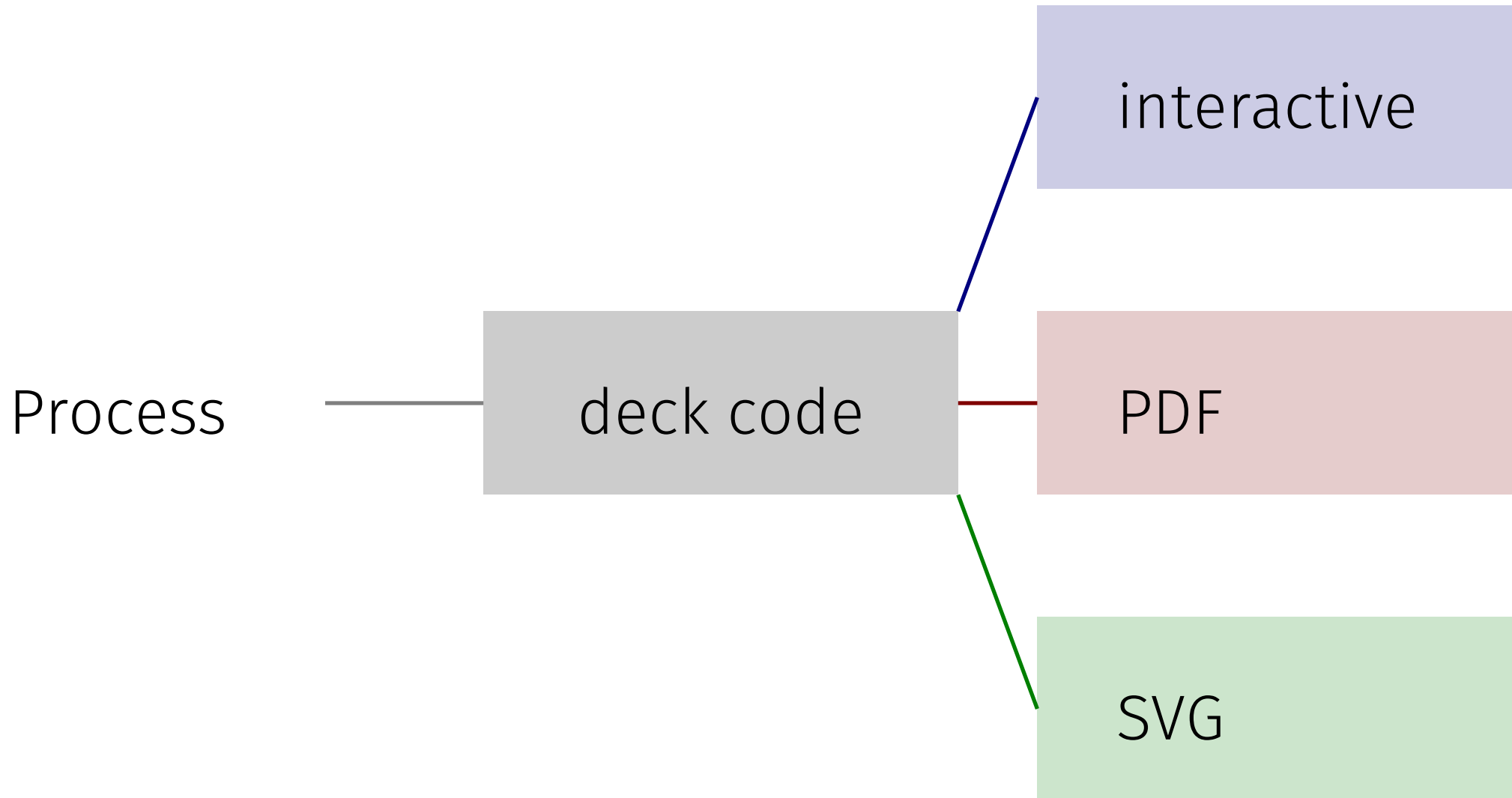
Generating a Barchart
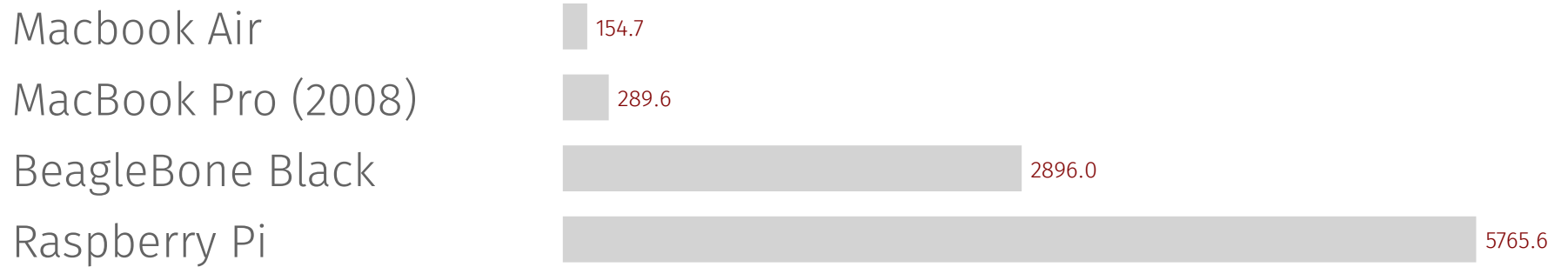
```go
package main

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()
}
```
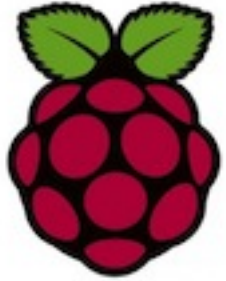
Go 1.1.2 Build and Test Times

Macbook Air   154.7
MacBook Pro (2008)   289.6
BeagleBone Black   2896.0
Raspberry Pi   5765.6

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

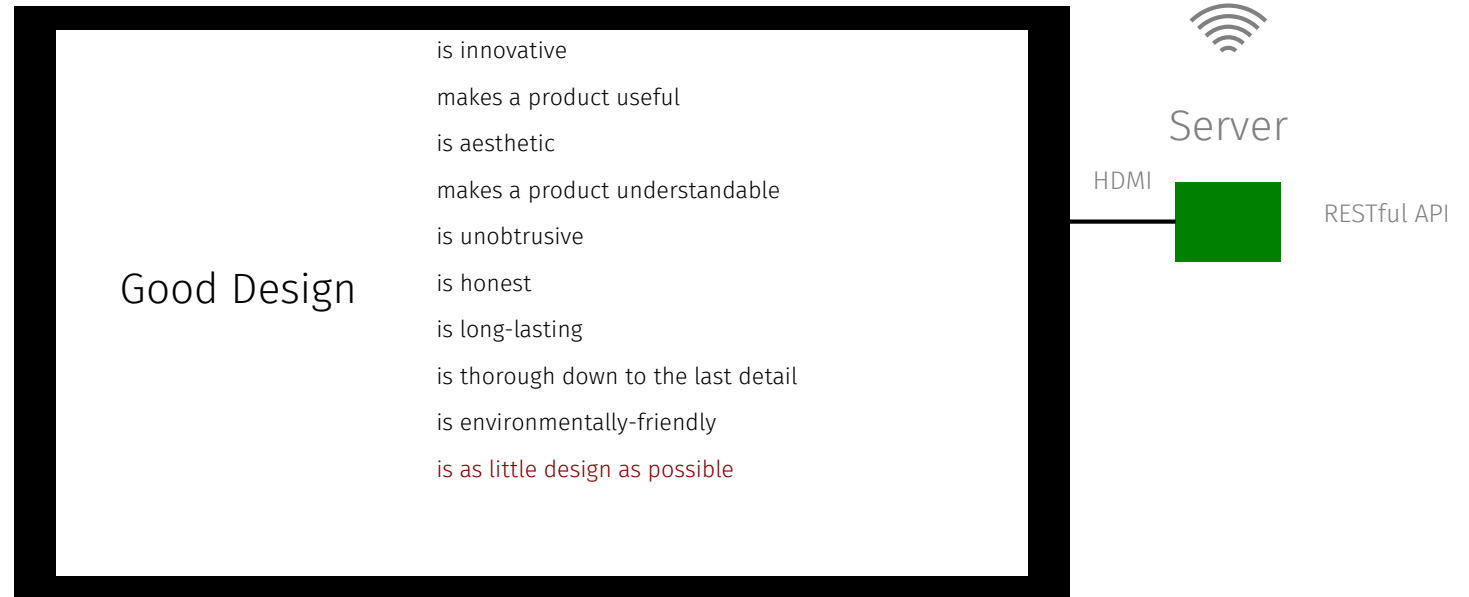|	
`+, Ctrl-N, [Return]`	Next slide
`-, Ctrl-P, [Backspace]`	Previous slide
`^, Ctrl-A`	First slide
`$, Ctrl-E`	Last slide
`r, Ctrl-R`	Reload
`x, Ctrl-X`	X-Ray
`/, Ctrl-F [text]`	Search
`s, Ctrl-S`	Save
`q`	Quit

Deck Web API

GET	/	List the API
GET	/deck/	List the content on the server
GET	/deck/?filter=[type]	List content filtered by deck, image, video
POST	/deck/content.xml?cmd=1s	Play a deck with the specified duration
POST	/deck/content.xml?cmd=stop	Stop playing a deck
POST	/deck/content.xml?slide=[num]	Play deck starting at a slide number
DELETE	/deck/content.xml	Remove content
POST	/upload/ Deck:content.xml	Upload content
POST	/table/ Deck:content.txt	Generate a table from a tab-separated list
POST	/table/?textsize=[size]	Specify the text size of the table
POST	/media/ Media:content.mov	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

Five

Six

Seven

Eight

Tree and Sky

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

```go
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()
}
```
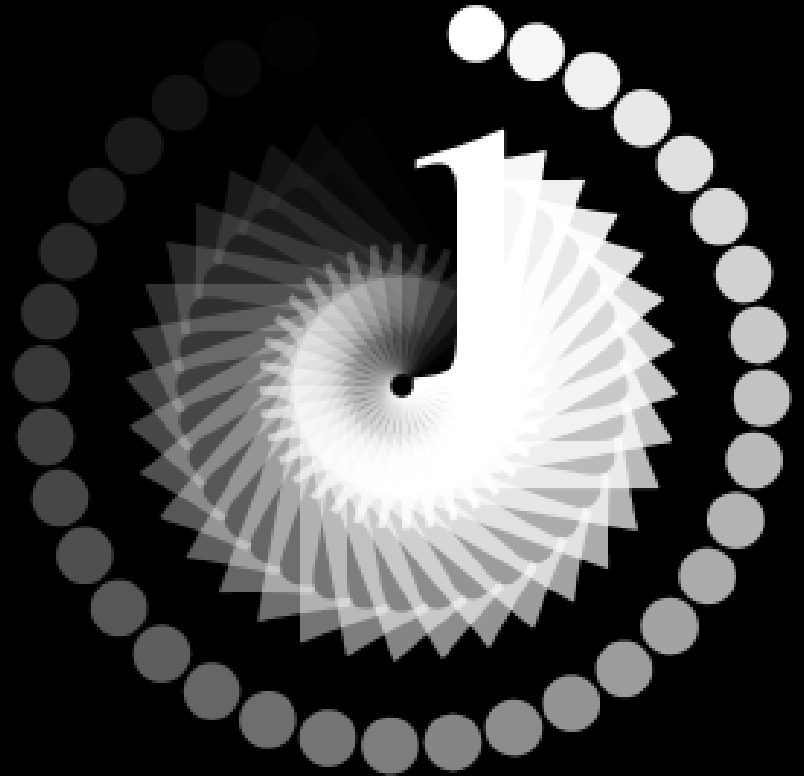
So, the next time you're about to
make a subclass, think hard and
ask yourself

what would Go do

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

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

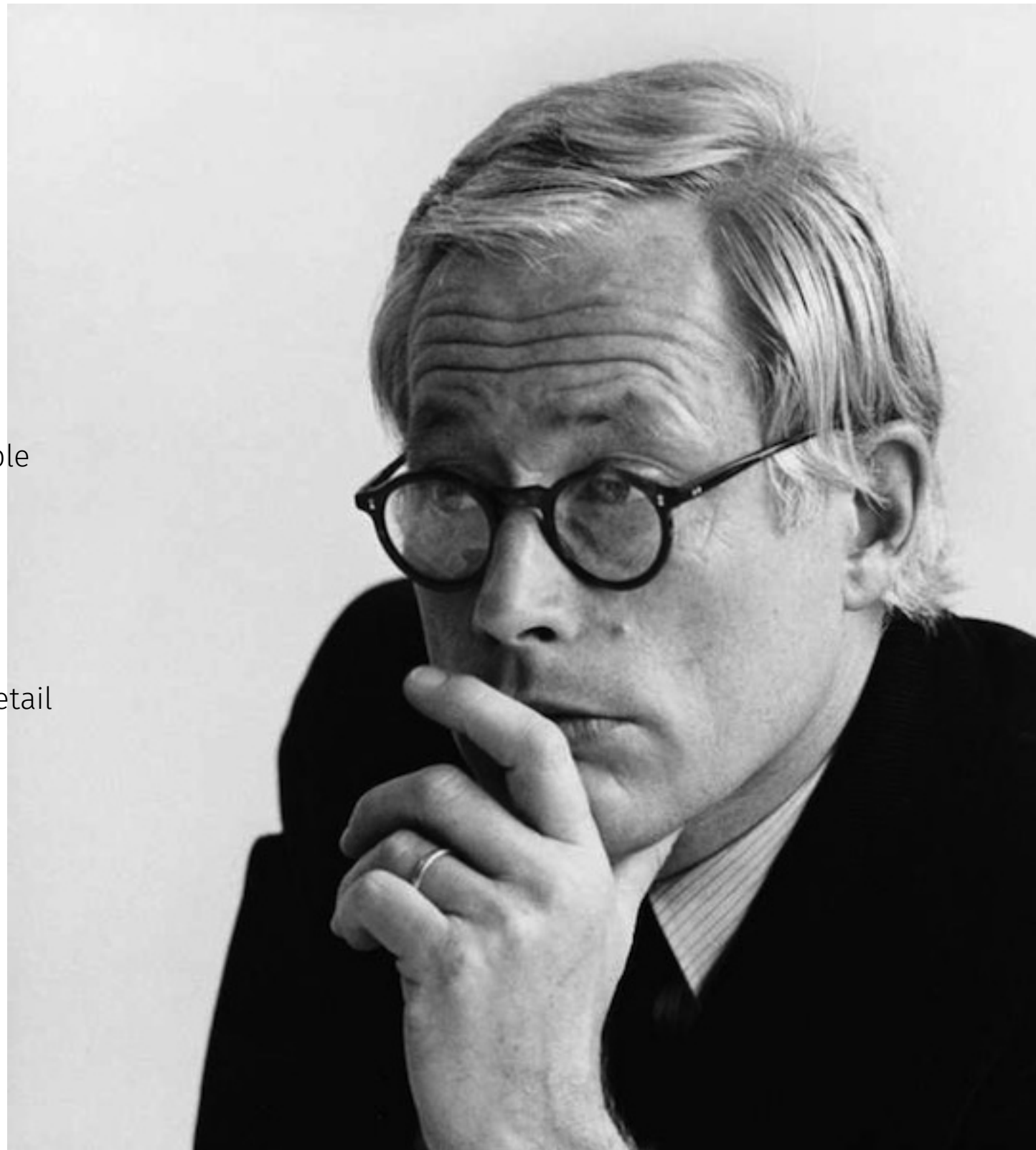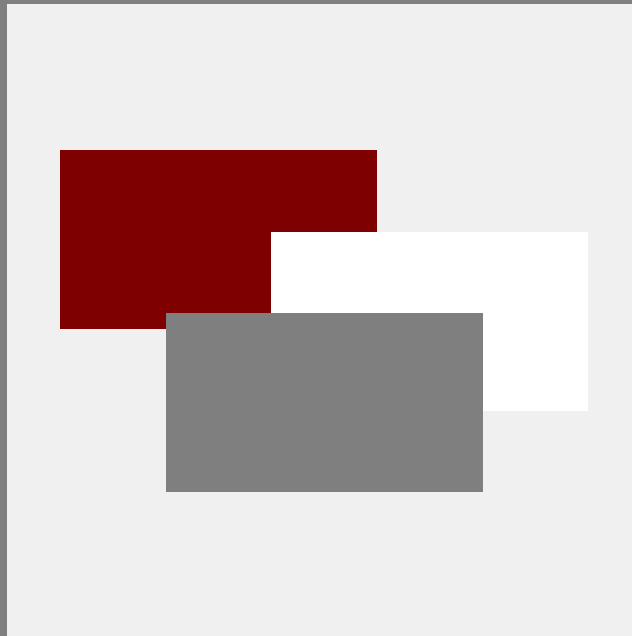makes a product understandable

is unobtrusive

is honest

is long-lasting

is thorough down to the last detail

is environmentally-friendly

is as little design as possible

github.com/ajstarks/deck

ajstarks@gmail.com

@ajstarks