

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

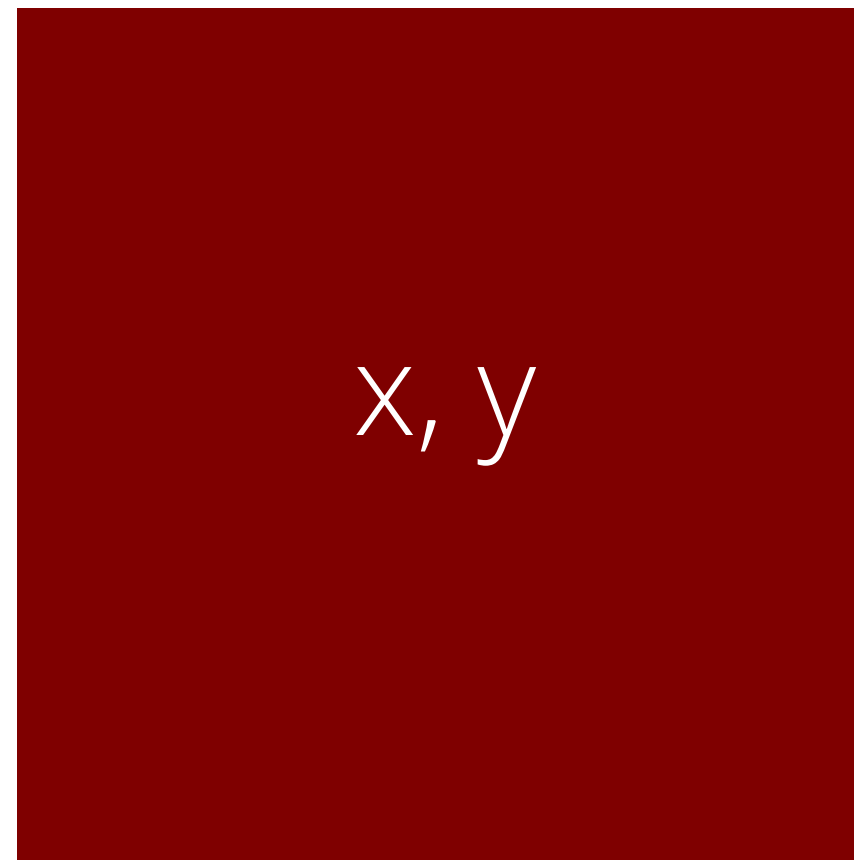


width

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

rect element

height (relative
to element
or canvas
width)

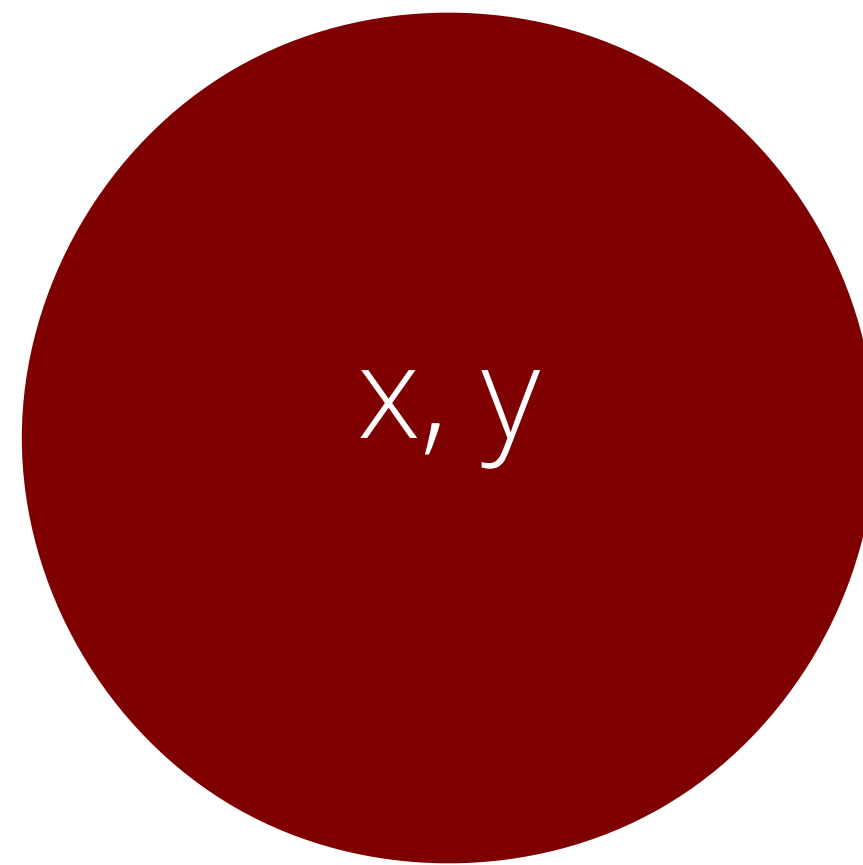


width

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

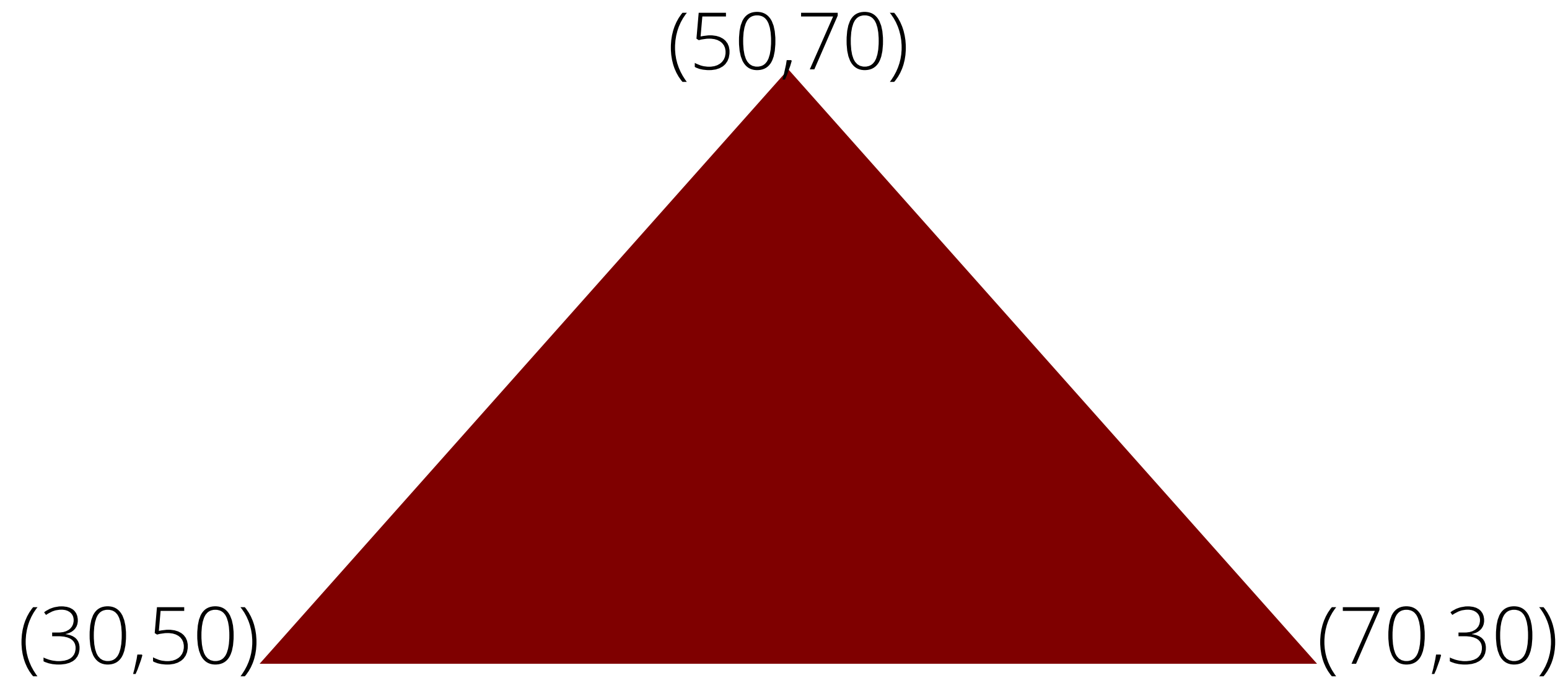
ellipse element

height (relative
to element
or canvas
width)



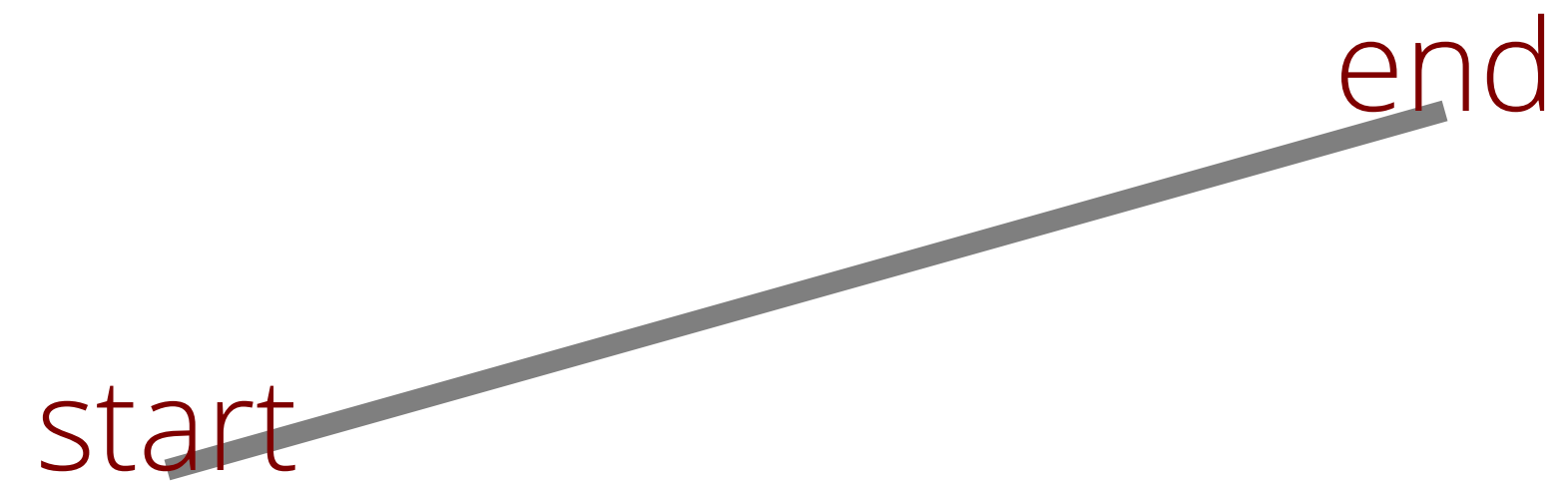
```
<ellipse xp="50" yp="50" wp="20" hr="100"/>
```


polygon element



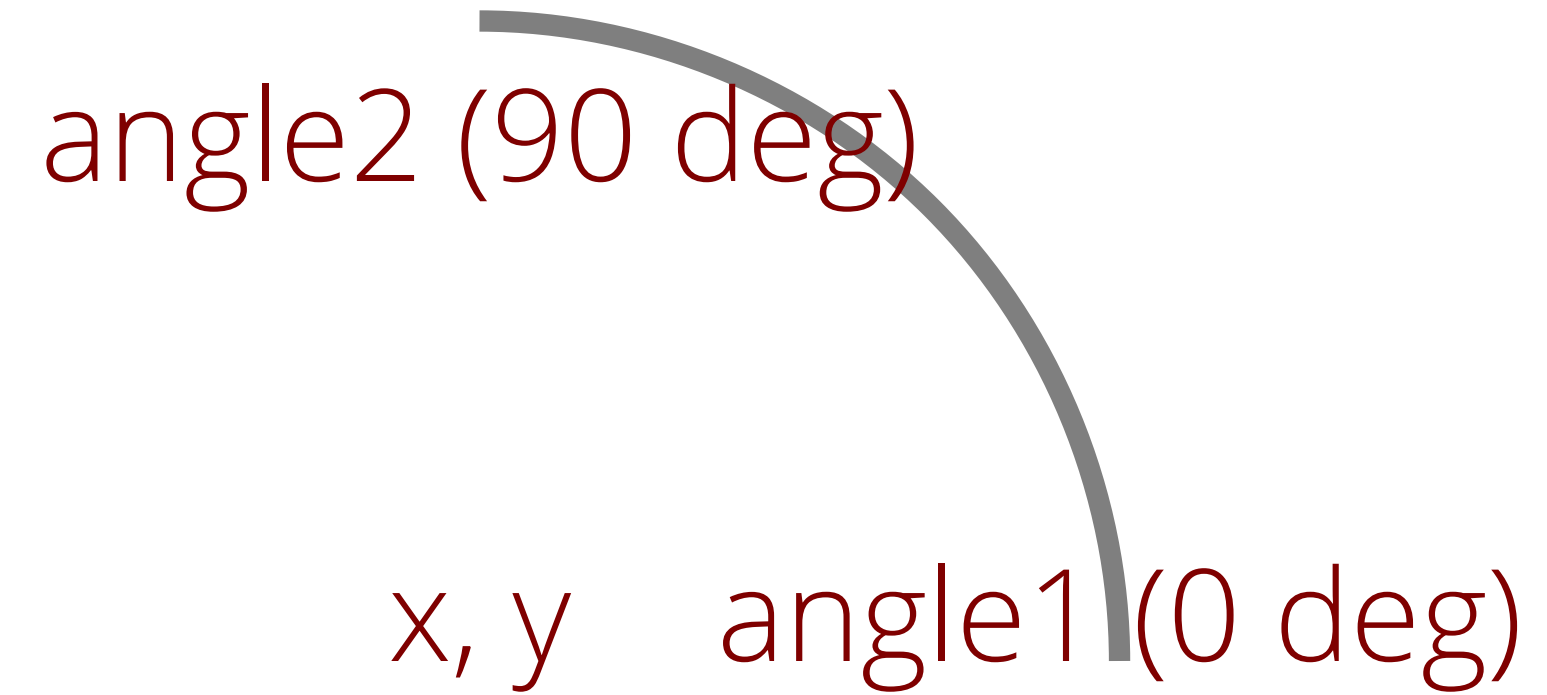
```
<polygon xc="30 50 70" yc="30 70 30"/>
```

line element



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

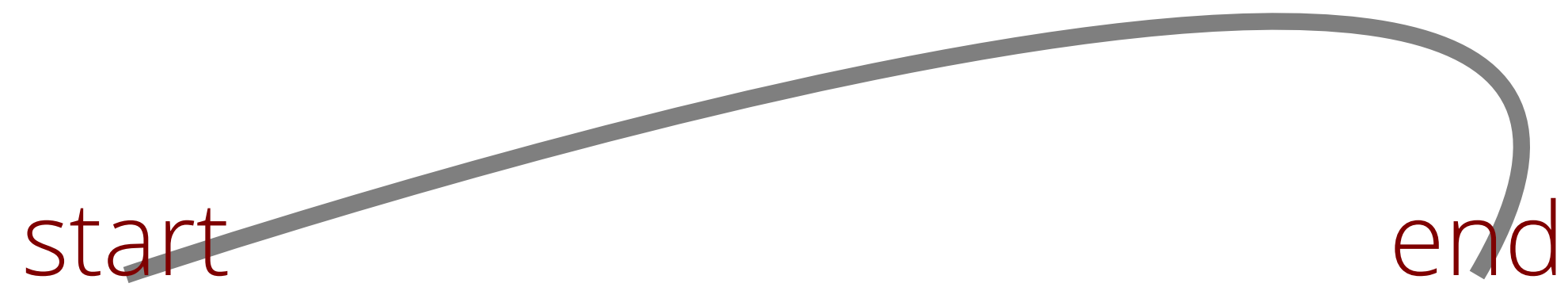
arc element



```
<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

Set the canvas size

Begin a slide

Place an image

Draw some text

Make a bullet list

End the list

Draw a line

Draw a rectangle

Draw an ellipse

Draw an arc

Draw a quadratic bezier

Draw a polygon

End the slide

End of the deck

```
<deck>

  <canvas width="1024" height="768" />

  <slide bg="white" fg="black">

    <image xp="70" yp="60" width="256" height="179" name="work.png" caption="Desk"/>

    <text  xp="20" yp="80" sp="3" link="http://goo.gl/Wm05Ex">Deck elements</text>

    <list  xp="20" yp="70" sp="2" type="bullet">

      <li>text, list, image</li>

      <li>line, rect, ellipse</li>

      <li>arc, curve, polygon</li>

    </list>

    <line    xp1="20" yp1="10" xp2="30" yp2="10"/>

    <rect    xp="35"  yp="10" wp="4" hr="75" color="rgb(127,0,0)"/>

    <ellipse xp="45"  yp="10" wp="4" hr="75" color="rgb(0,127,0)"/>

    <arc     xp="55"  yp="10" wp="4" hp="3" a1="0" a2="180" color="rgb(0,0,127)"/>

    <curve   xp1="60" yp1="10" xp2="75" yp2="20" xp3="70" yp3="10" />

    <polygon xc=75 75 80" yc="8 12 10" color="rgb(0,0,127)"/>

  </slide>

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

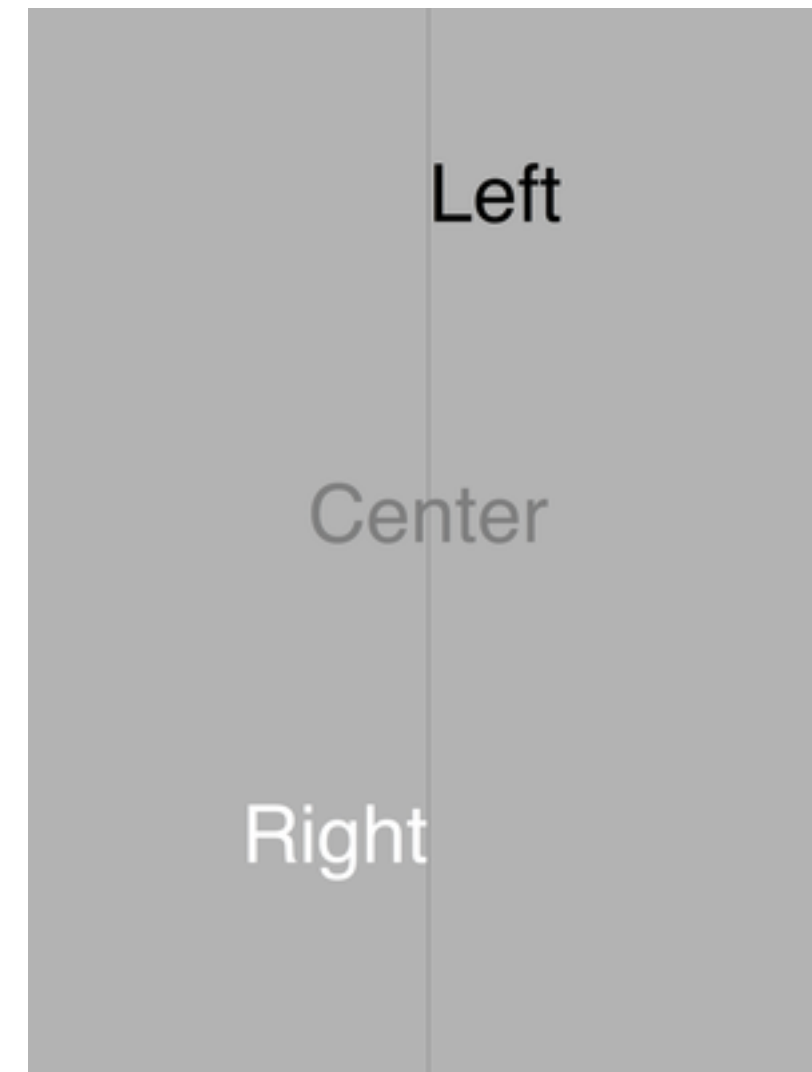

Common Attributes for text and list

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



Landscape



Portrait

[illegible]

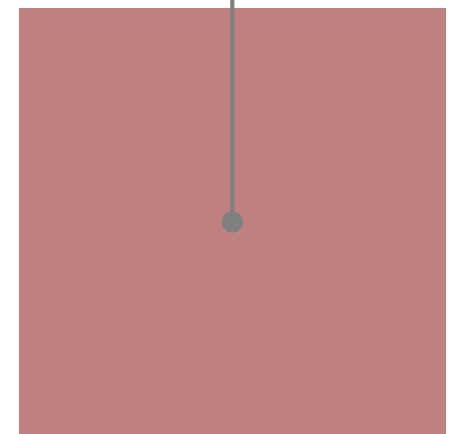
10%, 50%

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

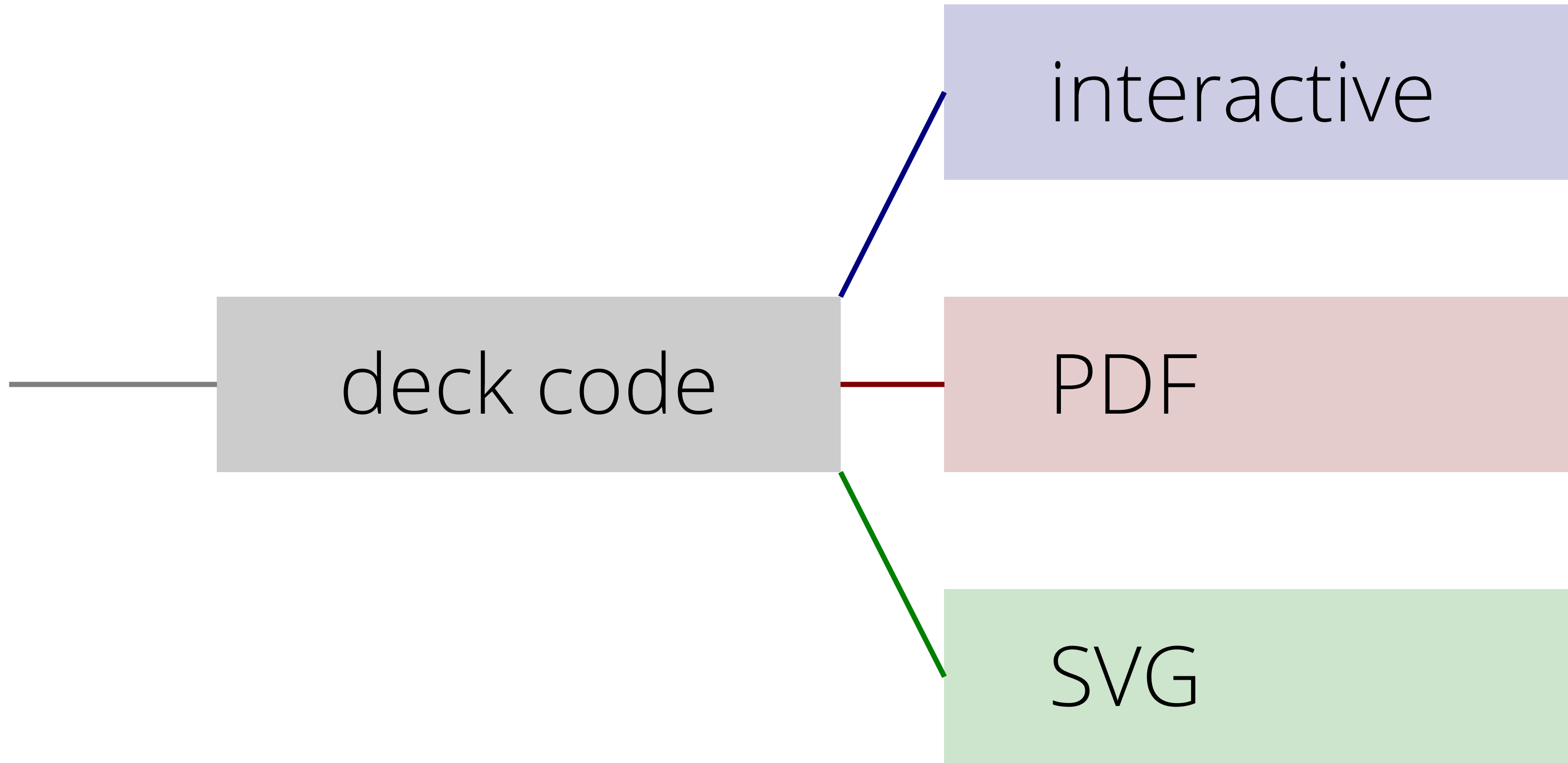
Process

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

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

Deck Web API

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

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



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 := svgo.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.

The Go Programming Language

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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



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

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is as little design as possible



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