

decksh

a little language for decks



Anthony Starks
@ajstarks

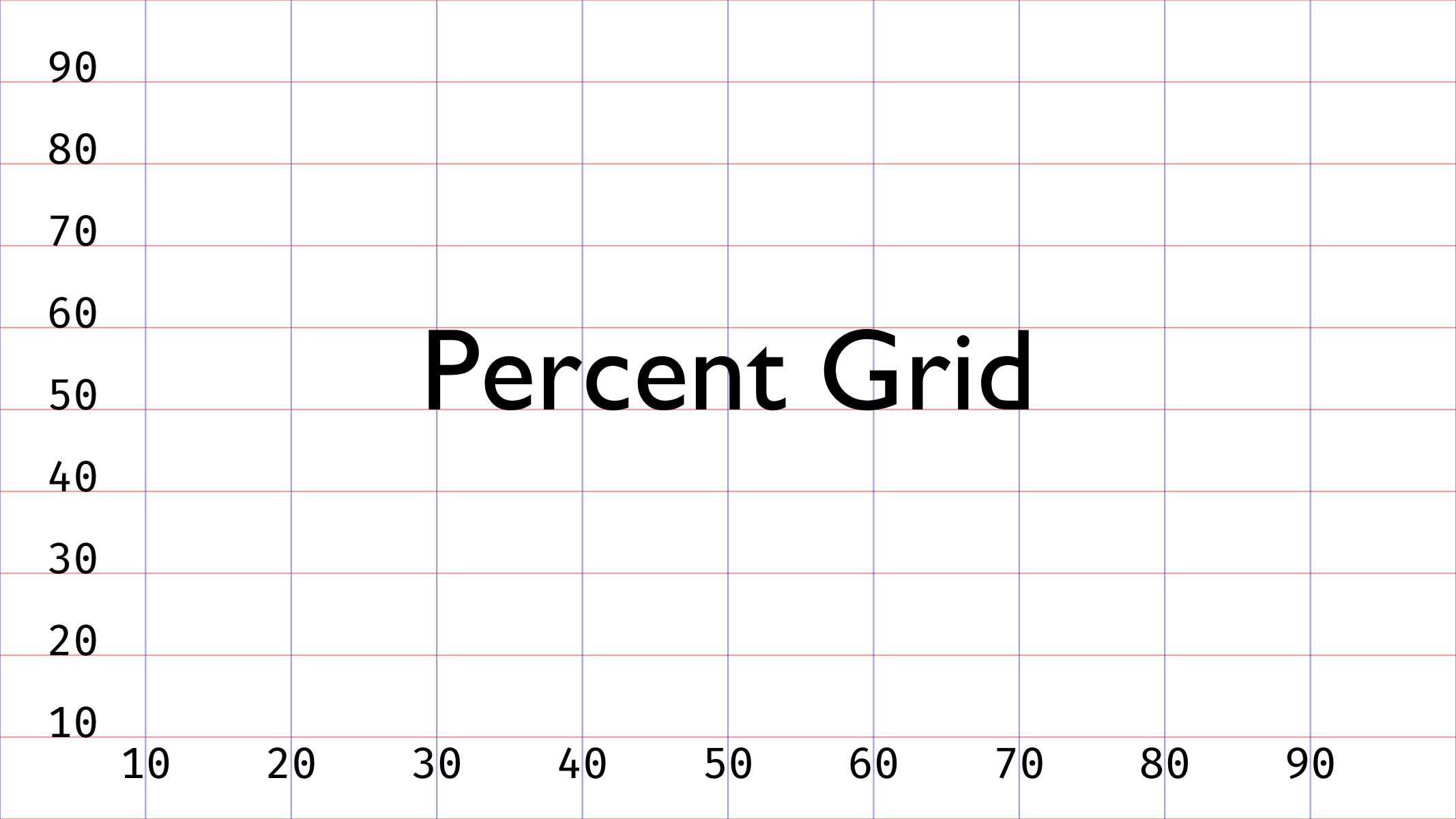
a language is any mechanism to express intent, and the input to many programs can be viewed profitably as statements in a language. This column is about those “little languages.”

Jon Bentley, Little Languages, Communications of the ACM, August 1986

Deck



a Go package for presentations



decksh → deck markup → SVG PDF PNG

```

deck
slide "rgb(250,250,250)" "black"
  ctext  "Deck elements" 50 90 5
  image  "follow.jpg"   70 50 640 480 50
  blist  10 75 3
    li "text, image, list"
    li "rect, ellipse, polygon"
    li "line, arc, curve"
  elist

  gy=10
  rect   15 gy 8 6           "rgb(127,0,0)"
  ellipse 27.5 gy 8 6        "rgb(0,127,0)"
  line   50 gy 60 gy
  curve  80 gy 95 30 90 gy
  arc    70 gy 10 8 0 180 0.1 "rgb(0,0,127)"
  polygon 37 37 45" "13 7 10" "rgb(0,0,127)"

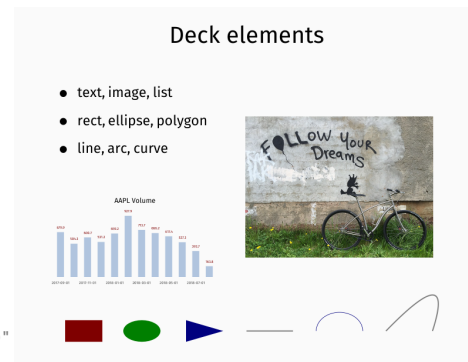
  opts="-fulldeck=f -textsize 1 -xlabel=2 -barwidth 1.5"
  dchart -left 10 -right 42 -top 42 -bottom 25 opts AAPL.d
eslide
edeck

```

```

<deck>
<slide bg="rgb(250,250,250)" fg="black">
<text align="c" xp="50" yp="90" sp="5">Deck elements</text>
<image name="follow.jpg" xp="70" yp="50" width="640" height="480" scale="50" />
<list type="bullet" xp="10" yp="75" sp="3">
<li>text, image, list</li>
<li>rect, ellipse, polygon</li>
<li>line, arc, curve</li>
</list>
<rect xp="15" yp="10" wp="8" hp="6" color="rgb(127,0,0)" />
<ellipse xp="27.5" yp="10" wp="8" hp="6" color="rgb(0,127,0)" />
<line xp1="50" yp1="10" xp2="60" yp2="10" />
<curve xp1="80" yp1="10" xp2="95" yp2="30" xp3="90" yp3="10" />
<arc xp="70" yp="10" wp="10" hp="8" a1="0" a2="180" sp="0.1" color="rgb(0,0,127)" />
<polygon xc="37 37 45" yc="13 7 10" color="rgb(0,0,127)" />
<text xp="26.00" yp="45.60" sp="1.50" align="center" wp="0.00" font="sans" opacity="100.00"
color="black" type="">AAPL Volume</text>
<line xp1="10.00" yp1="25.00" xp2="10.00" yp2="37.46" sp="1.50" opacity="100.00"
color="lightsteelblue" />
<text xp="10.00" yp="38.46" sp="0.75" align="center" wp="0.00" font="sans" opacity="100.00"
color="rgb(127,0,0)" type="">679.9</text>
<text xp="10.00" yp="23.00" sp="0.80" align="center" wp="0.00" font="sans" opacity="100.00"
color="rgb(75,75,75)" type="">2017-09-01</text>
<line xp1="12.91" yp1="25.00" xp2="12.91" yp2="34.24" sp="1.50" opacity="100.00"
color="lightsteelblue" />
<text xp="12.91" yp="35.24" sp="0.75" align="center" wp="0.00" font="sans" opacity="100.00"
color="rgb(127,0,0)" type="">504.3</text>
...
</slide>
</deck>

```



```
// hello world
```

```
deck
```

```
  slide "black" "white"
```

```
    ctext "hello, world" 50 25 10
```

```
    circle 50 0 100 "blue"
```

```
  eslide
```

```
edeck
```

hello, world

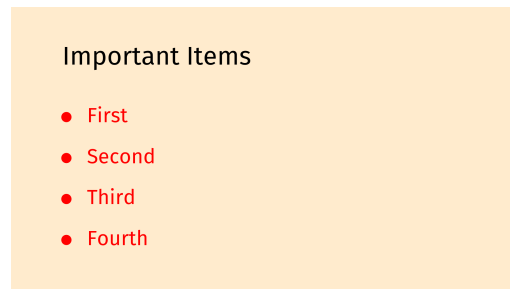
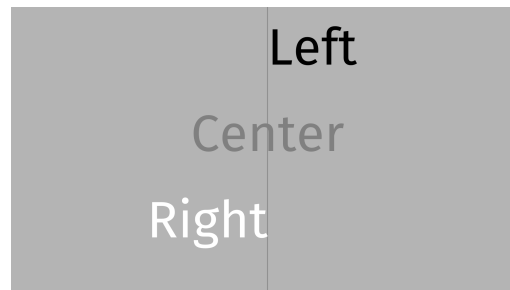
deck

```
// text alignment
slide "rgb(180,180,180)"
  text "Left" 50 80 10 "sans" "black"
  ctext "Center" 50 50 10 "sans" "gray"
  etext "Right" 50 20 10 "sans" "white"
  vline 50 0 100 0.2 "black" 20
eslide

// list
slide "blanchedalmond" "black"
  text "Important Items" 10 80 5
  blist 10 60 4 "sans" "red"
    li "First"
    li "Second"
    li "Third"
    li "Fourth"
  elist
eslide

// picture with text annotation
slide
  quote="Tony Stark was able to build this in a cave. With a box of scraps!"
  image "cave.jpg" 50 50 1920 1080 100 "https://youtu.be/MtntTvuv8Aw"
  rect 70 60 40 40 "black" 40
  textblock quote 45 70 45 5 "sans" "white"
eslide
```

edeck



Running decksh

decksh

read from stdin, write to stdout

decksh in.dsh

read from file, write to stdout

decksh -o out.xml

read from stdin, write to file

decksh -o out.xml in.dsh

read from file, write to file

chmod +x in.dsh; ./in.dsh

executable deck with #!/path/to/decksh

Keywords and arguments

`text "string...." x y n [font][color][op]`

`text "hello, world" 80 50 2` *hello, world*

`text "hello, world" 80 40 2 "serif"` *hello, world*

`text "hello, world" 80 30 2 "serif" "red"` *hello, world*

`text "hello, world" 80 20 2 "serif" "red" 50` *hello, world*

Keywords

Structure

deck
edeck
slide
eslide
canvas

Loop

for
efor

Text

text
ctext
etext
textblock
textfile
textcode

Lists

list
blist
nlist
li
elist

Graphics and Arrows

rect	arc	arrow
square	curve	crarrow
ellipse	line	clarrow
circle	hline	cuarrow
polygon	vline	cdarrow

Images

image
cimage

Charts

dchart
legend

Variables and Assignments

```
x=10                                // number assignment
y=20
factor=2
what="hello world"                 // string assignment

size=x/factor                      // assignment with binop
text what x y size                 // text "hello world" 10 20 5

y-=10                              // assignment operation
size+=factor                       // assignment op, substitute
text what x y size                // text "hello world" 10 10 7

for v=0 100 5                      // loop from 0 to 100 by 5
    line 100 v 0 v 0.1 "blue"      // blue horizontal lines
    line v 100 v 0 0.1 "red"       // red vertical lines
efor
```

Text

.hello world

text

x y size [font] [color] [op] [link]

The quick brown fox
jump over the lazy
dog

textblock

"text" x y width size [font] [color] [op] [link]

hello .world

ctext

x y size [font] [color] [op] [link]

This is the contents
of a file

textfile

"file" x y size [font] [color] [op] [sp]

hello world .

etext

x y size [font] [color] [op] [link]

```
package main

import "fmt"

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

textcode

"filename" x y width size [color]

Lists

One

Two

Three

Four

- One

- Two

- Three

- Four

1. One

2. Two

3. Three

4. Four

list

x y size [font] [color] [opacity] [spacing]

blist

x y size [font] [color] [opacity] [spacing]

nlist

x y size [font] [color] [opacity] [spacing]

Graphics



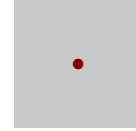
rect

x y w h [color] [op]



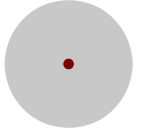
ellipse

x y w h [color] [op]



square

x y w [color] [opacity]



circle

x y w [color] [op]



polygon

"xc" "yc" [color] [op]



arc

x y w h a1 a2 [lw] [color] [op]



curve

x1 y2 x2 y2 x3 y3 [color] [op]



line

x1 y2 x2 y2 [lw] [color] [op]



hline

x y len [lw] [color] [op]



vline

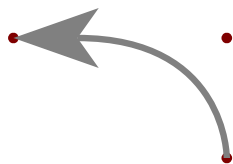
x y len [lw] [color] [op]

Arrows



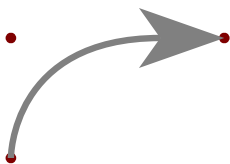
arrow

x1 y1 x2 y2 [linewidth] [aw] [ah] [color] [op]



lcarrow

x1 y1 x2 y2 x3 y3 [lw] [aw] [ah] [color] [op]



rcarrow

...



ucarrow

...



dcarrow

...

Images



image

"file" x y w h [scale] [link]

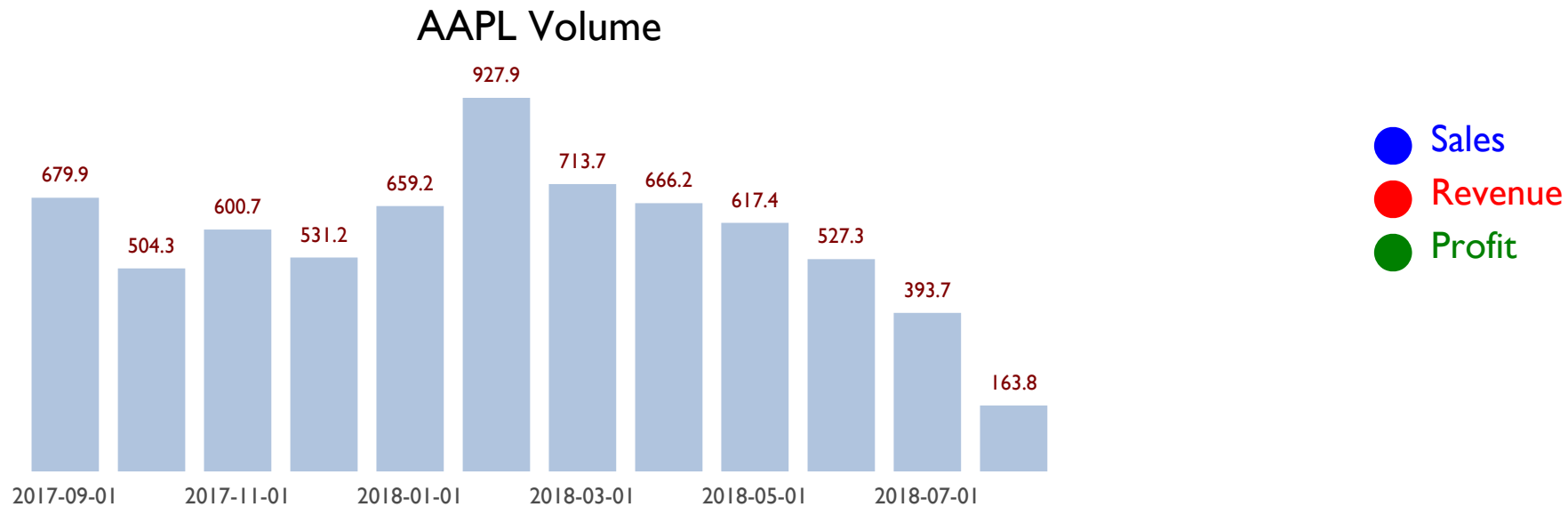


Up in the clouds

cimage

"file" "caption" x y w h [scale] [link]

Charts



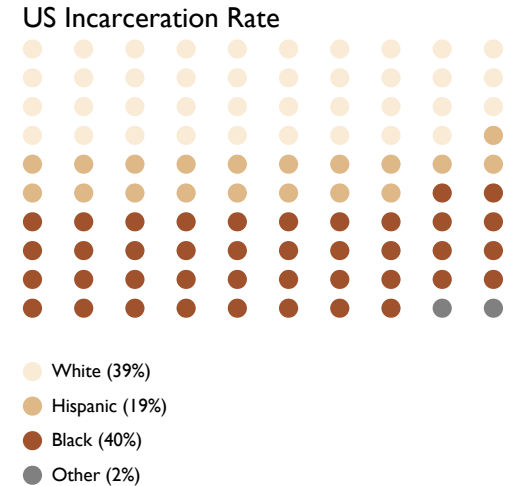
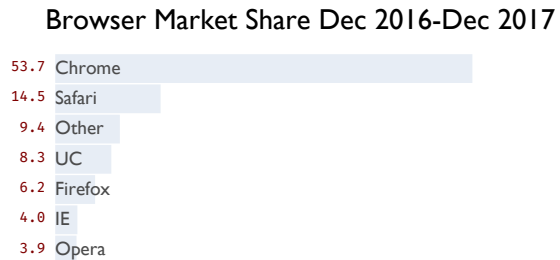
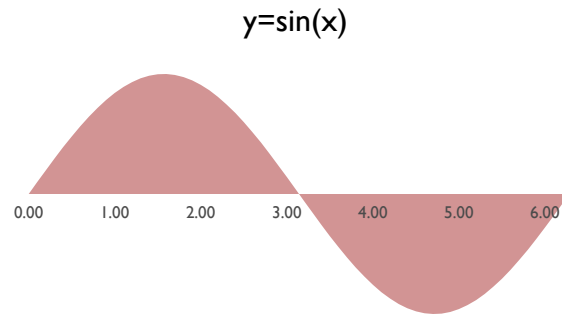
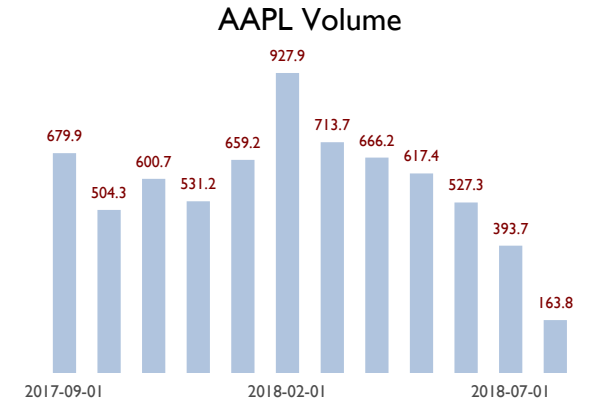
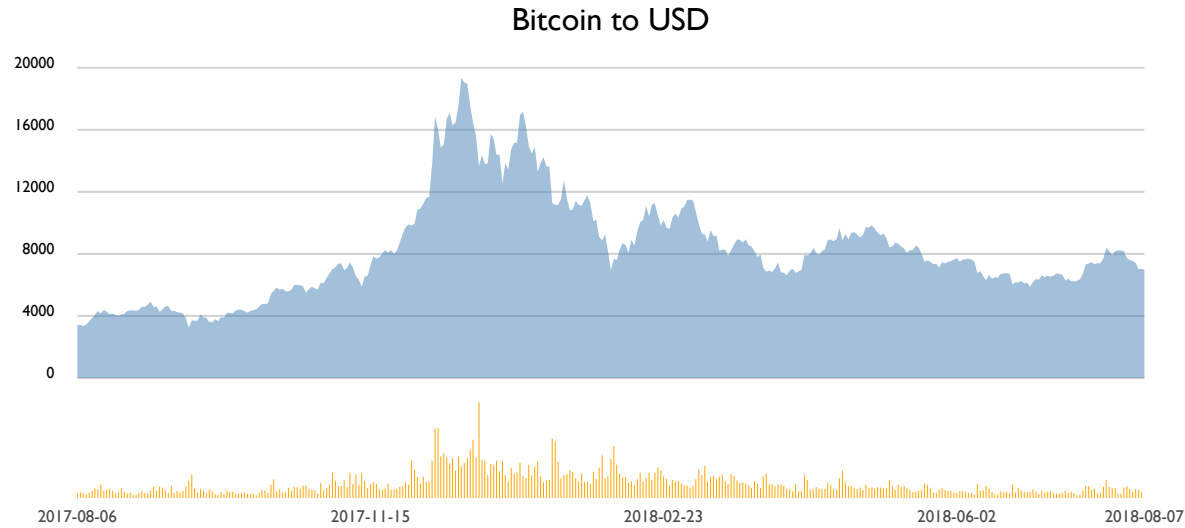
dchart

[args]

legend

x y size [font] [color]

dchart: charts for deck



deck

```
slide "rgb(250,250,250)" "black"
  ctext "Deck elements" 50 90 5
  image "follow.jpg" 70 50 640 480 50
  blist 10 75 3
    li "text, image, list"
    li "rect, ellipse, polygon"
    li "line, arc, curve"
  elist

  gy=10
  rect 15 gy 8 6 "rgb(127,0,0)"
  ellipse 27.5 gy 8 6 "rgb(0,127,0)"
  line 50 gy 60 gy
  curve 80 gy 95 30 90 gy
  arc 70 gy 10 8 0 180 0.1 "rgb(0,0,127)"
  polygon "37 37 45" "13 7 10" "rgb(0,0,127)"

  opts="-fulldeck=f -textsize 1 -xlabel=2 -barwidth 1.5"
  dchart -left 10 -right 42 -top 42 -bottom 25 opts AAPL.d
```

eslide

edek

Deck elements

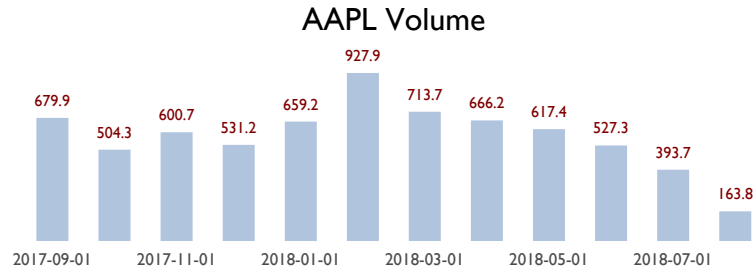
- text, image, list
- rect, ellipse, polygon
- line, arc, curve



decksh example.dsh | pdf

Deck elements

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

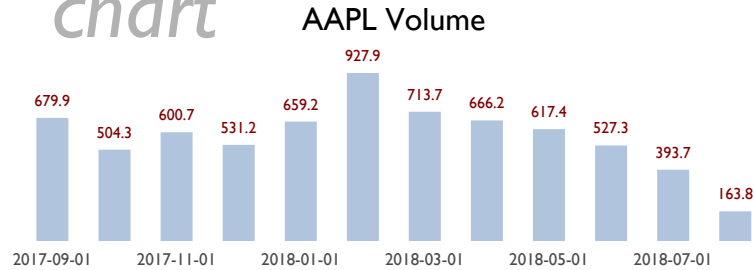


Deck elements

list

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

chart



rect



ellipse



polygon



line



arc



curve



image



Examples



Anthony J. Starks

Art + Code



+1 908.548.3403



ajstarks@gmail.com



@ajstarks



github.com/ajstarks



speakerdeck.com/ajstarks

```

deck
  mx=50          // midpoint
  tx=30          // text left
  ix=20          // image left
  ts=10          // base text size
  ss=ts*0.85     // sub-head text size
  cs=ts*0.55     // contact info text size
  ly=58          // line y

  slide "white" "rgb(100,100,100)"
    image "starx.png"          mx 87 512 512 7.5
    ctext "Anthony J. Starks"   mx 70 ts "sans" "black"
    ctext "Art + Code"          mx 62 ss "sans" "maroon"
    line  ix ly 80 ly 0.3 "maroon"

    image "phone.png"          ix 50 1200 1200 1.2
    image "email.png"          ix 40 1200 1200 1.2
    image "twitter.png"        ix 30 1200 1200 1.2
    image "github.png"         ix 20 120 120 10
    image "sd.png"             ix 10 512 512 2.5

    text "+1 908.548.3403"      tx 49 cs
    text "ajstarks@gmail.com"   tx 39 cs
    text "@ajstarks"           tx 29 cs
    text "github.com/ajstarks"  tx 19 cs
    text "speakerdeck.com/ajstarks" tx 9 cs
  eslide
edeck

```



Anthony J. Starks

Art + Code



+1 908.548.3403



ajstarks@gmail.com



@ajstarks



github.com/ajstarks



speakerdeck.com/ajstarks


```

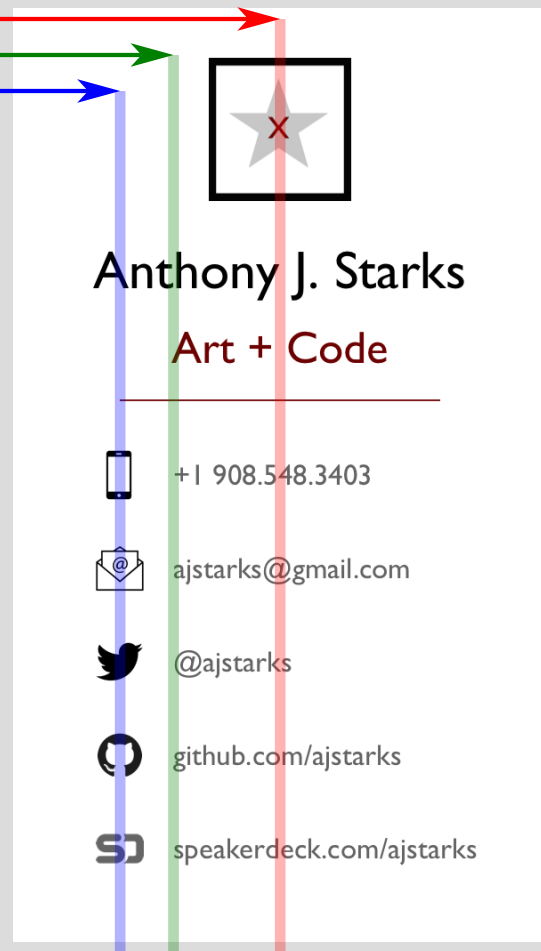
deck
  mx=50          // midpoint
  tx=30          // text left
  ix=20          // image left
  ts=10          // base text size
  ss=ts*0.85     // sub-head text size
  cs=ts*0.55     // contact info text size
  ly=58          // line y

  slide "white" "rgb(100,100,100)"
    image "starx.png"          mx 87 512 512 7.5
    ctext "Anthony J. Starks"  mx 70 ts "sans" "black"
    ctext "Art + Code"         mx 62 ss "sans" "maroon"
    line  ix ly 80 ly 0.3 "maroon"

    image "phone.png"          ix 50 1200 1200 1.2
    image "email.png"          ix 40 1200 1200 1.2
    image "twitter.png"        ix 30 1200 1200 1.2
    image "github.png"         ix 20 120 120 10
    image "sd.png"             ix 10 512 512 2.5

    text "+1 908.548.3403"      tx 49 cs
    text "ajstarks@gmail.com"   tx 39 cs
    text "@ajstarks"           tx 29 cs
    text "github.com/ajstarks"  tx 19 cs
    text "speakerdeck.com/ajstarks" tx 9 cs
  eslide
edeck

```



```

deck
  mx=50          // midpoint
  tx=30          // text left
  ix=20          // image left
  ts=10          // base text size
  ss=ts*0.85     // sub-head text size
  cs=ts*0.55     // contact info text size
  ly=58          // line y

  slide "white" "rgb(100,100,100)"
    image "starx.png"          mx 87 512 512 7.5
    ctext "Anthony J. Starks"  mx 70 ts "sans" "black"
    ctext "Art + Code"         mx 62 ss "sans" "maroon"
    line  ix ly 80 ly 0.3 "maroon"

    image "phone.png"          ix 50 1200 1200 1.2
    image "email.png"          ix 40 1200 1200 1.2
    image "twitter.png"        ix 30 1200 1200 1.2
    image "github.png"         ix 20 120 120 10
    image "sd.png"             ix 10 512 512 2.5

    text "+1 908.548.3403"      tx 49 cs
    text "ajstarks@gmail.com"   tx 39 cs
    text "@ajstarks"           tx 29 cs
    text "github.com/ajstarks"  tx 19 cs
    text "speakerdeck.com/ajstarks" tx 9  cs
  eslide
edeck

```



Anthony J. Starks

Art + Code



+1 908.548.3403



ajstarks@gmail.com



@ajstarks



github.com/ajstarks



speakerdeck.com/ajstarks

```

deck
  mx=25          // midpoint
  tx=62          // text left
  ix=57          // image left
  ts=6           // base text size
  ss=ts*0.85     // sub-head text size
  cs=ts*0.50     // contact info text size
  lx=50          // line x

  slide "white" "rgb(100,100,100)"
    image "starx.png"          mx 75 512 512 7.5
    ctext "Anthony J. Starks"  mx 35 ts "sans" "black"
    ctext "Art + Code"         mx 22 ss "sans" "maroon"
    line lx 90 lx 10 0.3 "maroon"

    image "phone.png"          ix 80 1200 1200 1.2
    image "email.png"          ix 65 1200 1200 1.2
    image "twitter.png"        ix 50 1200 1200 1.2
    image "github.png"         ix 35 120 120 10
    image "sd.png"             ix 20 512 512 2.5

    text "+1 908.548.3403"      tx 79 cs
    text "ajstarks@gmail.com"   tx 64 cs
    text "@ajstarks"           tx 49 cs
    text "github.com/ajstarks"  tx 34 cs
    text "speakerdeck.com/ajstarks" tx 19 cs
  eslide
edeck

```



Anthony J. Starks
Art + Code



+1 908.548.3403



ajstarks@gmail.com



@ajstarks

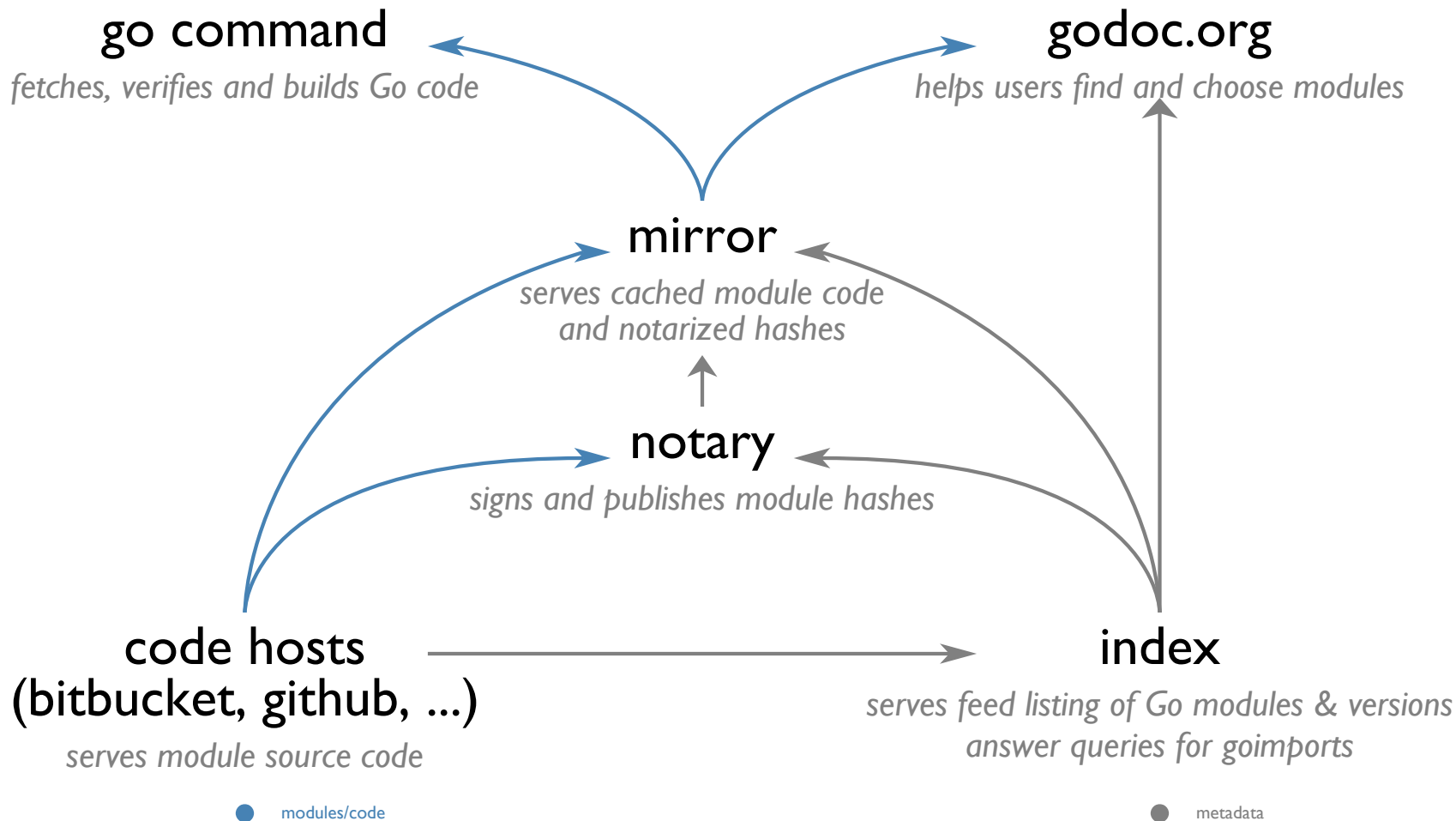


github.com/ajstarks



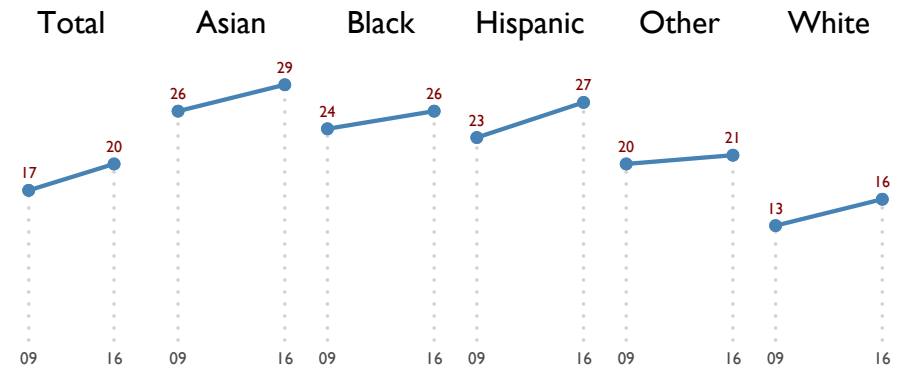
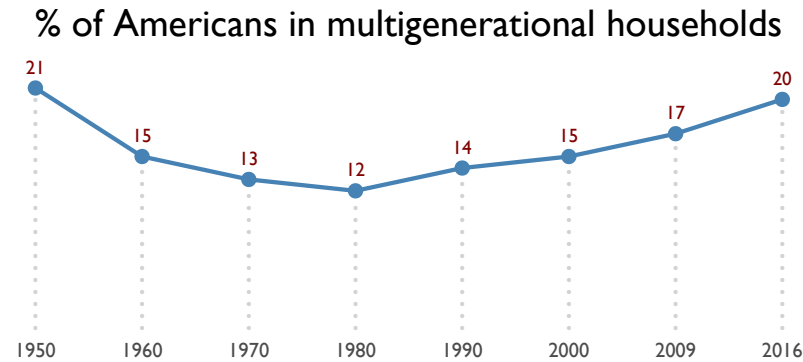
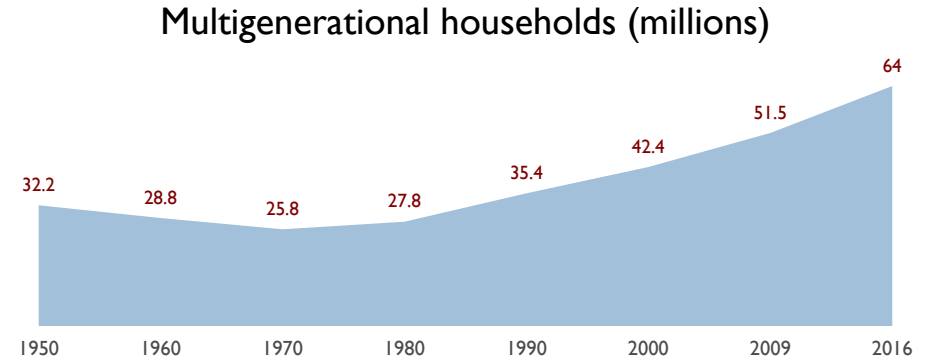
speakerdeck.com/ajstarks

Go Module Information Flows



A record 64 million Americans live in multigenerational households

The number and share of Americans living in multi-generational family households have continued to rise, despite improvements in the U.S. economy since the Great Recession. In 2016, a record 64 million people, or 20% of the U.S. population, lived with multiple generations under one roof, according to a new Pew Research Center analysis of census data.





Pichai



+38.19%



Nadella



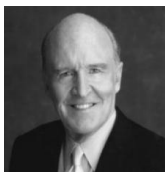
+66.79%



Cook



+68.56%



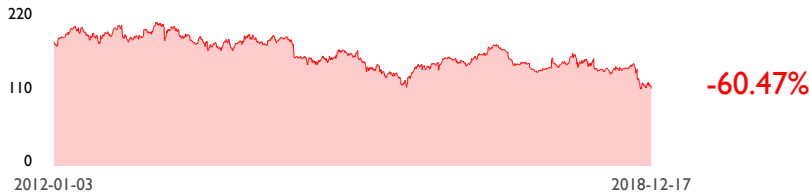
Welch



+96.56%



Rometty



The first woman to lead IBM, Rometty shifted IBM away from shrinking businesses such as computers and operating system software, and into higher-growth areas like artificial intelligence. Her tenure has also been met by fierce criticism relating to executive compensation bonuses, layoffs, outsourcing, and presiding over 24 consecutive quarters of revenue decline.



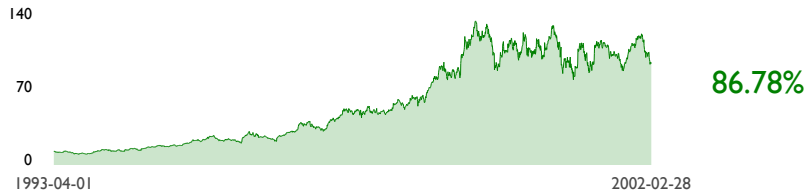
Palmisano



Palmisano's mandate was to move into new unique businesses with high profit margins and potential for innovation. This included purchasing PWC Consulting in 2002, so that IBM could go beyond selling computers and software and help customers use technology to solve business challenges in areas such as marketing, procurement and manufacturing.



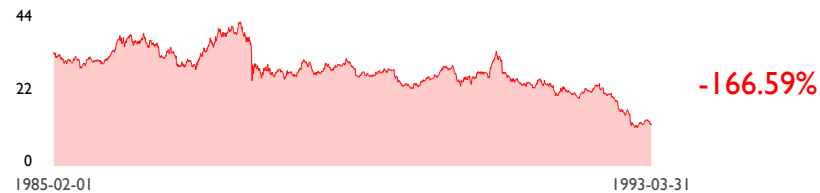
Gerstner



Gerstner's choice to keep the company together was the defining decision of his tenure, as these gave IBM the capabilities to deliver complete IT solutions to customers. Services could be sold as an add-on to companies that had already bought IBM computers, while barely profitable pieces of hardware were used to open the door to more profitable deals.

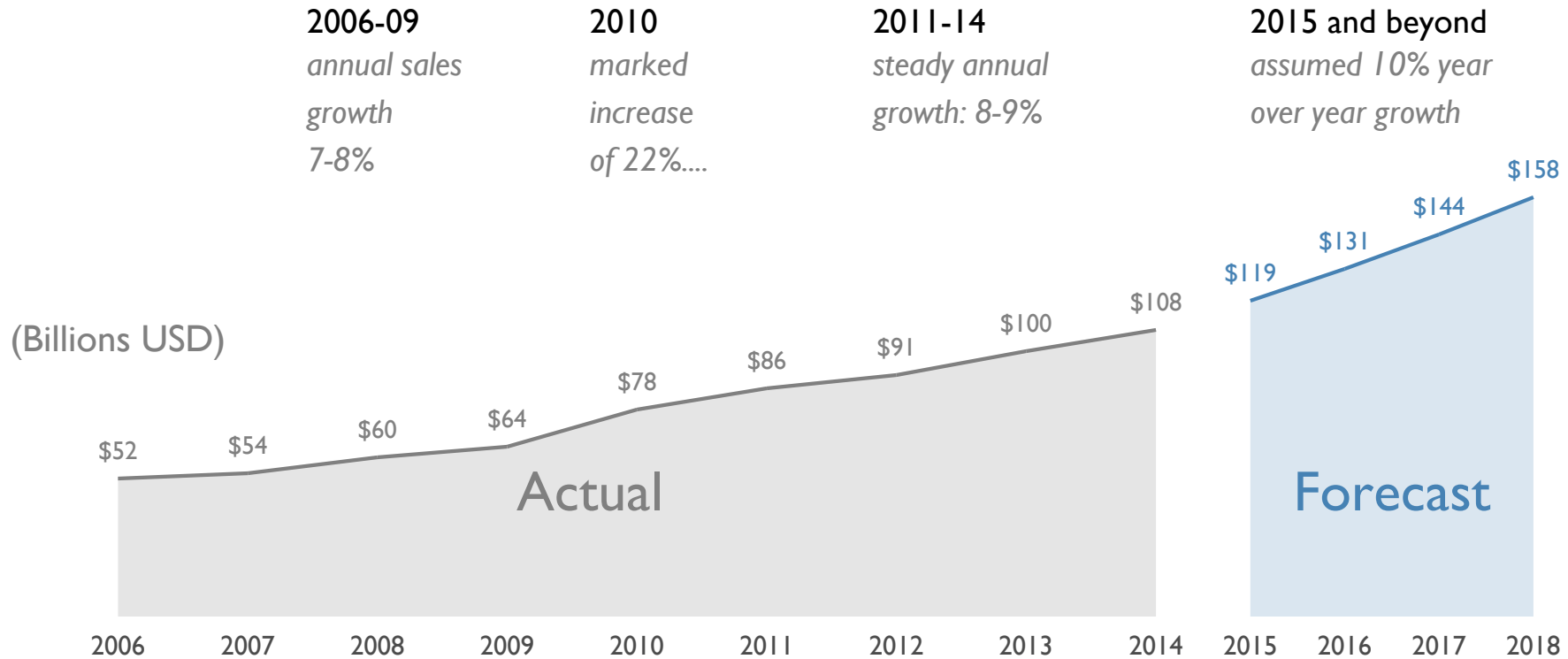


Akers

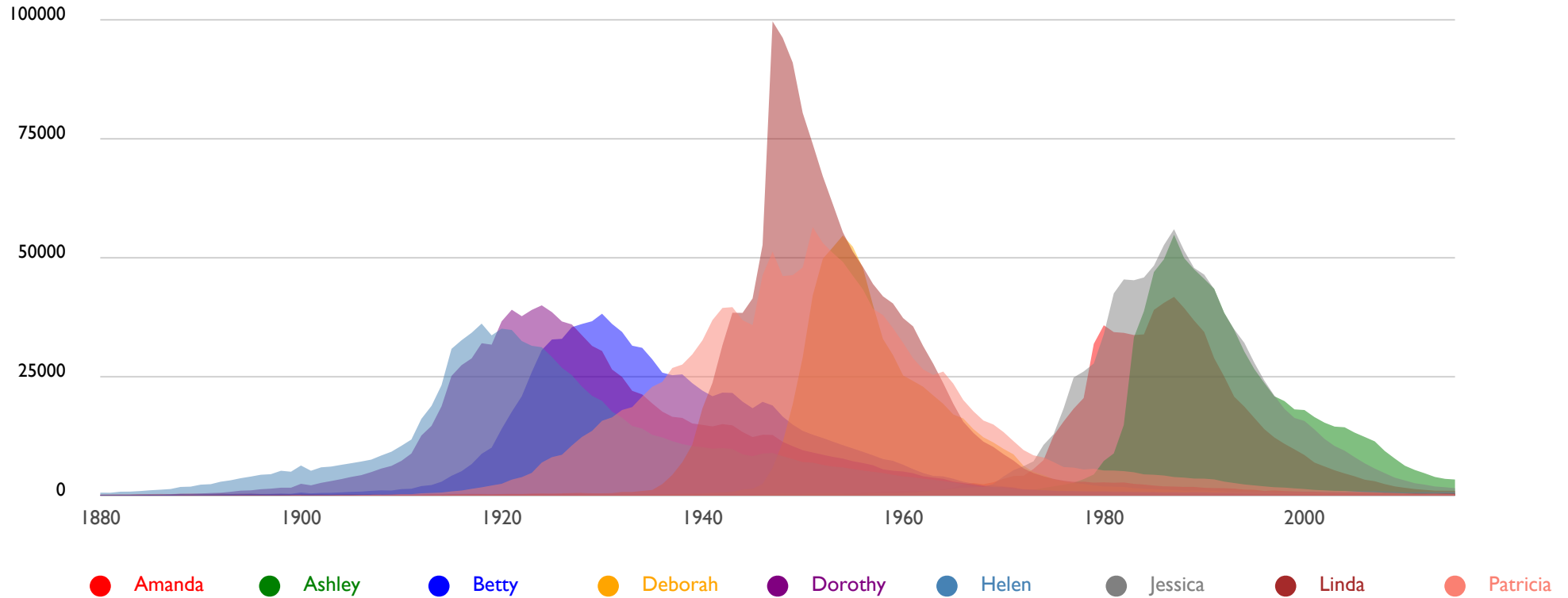


Akers was credited with simplifying the company's bureaucracy to focus more on profits. In a restructuring intended to reverse three years of disappointing performance, he created five new, autonomous organizations responsible for the company's innovation, design and manufacturing. Akers was forced to resign, after the company posted an unprecedented \$5 billion annual loss.

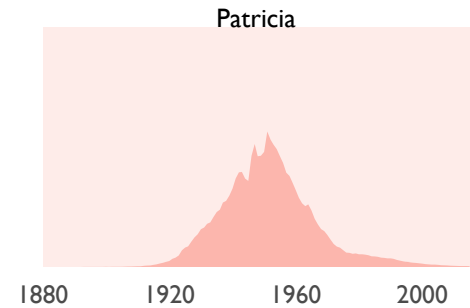
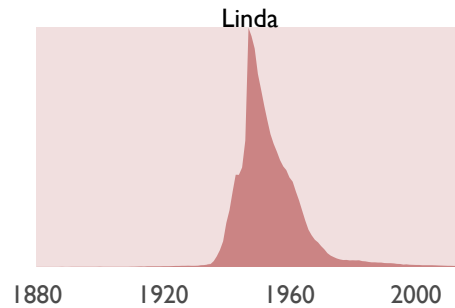
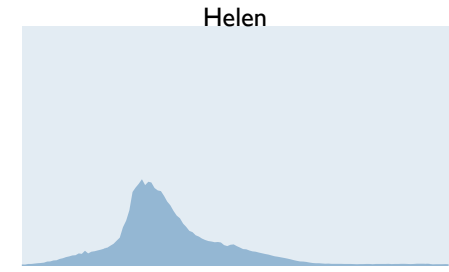
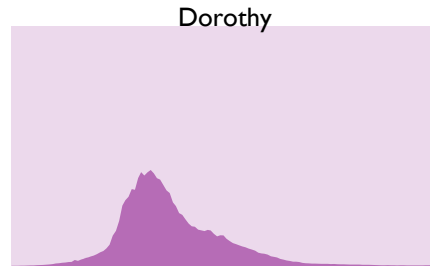
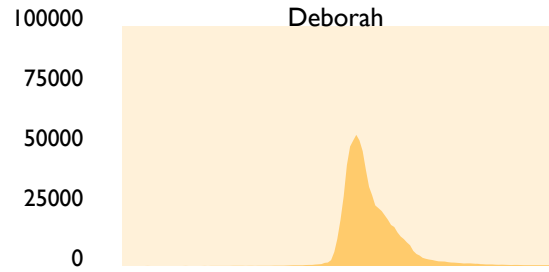
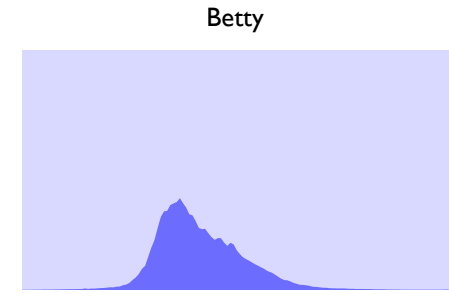
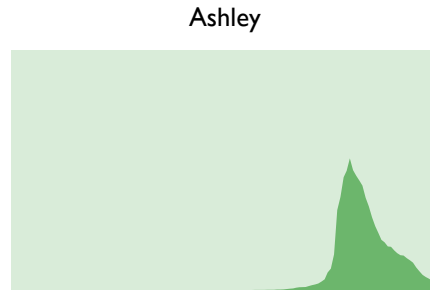
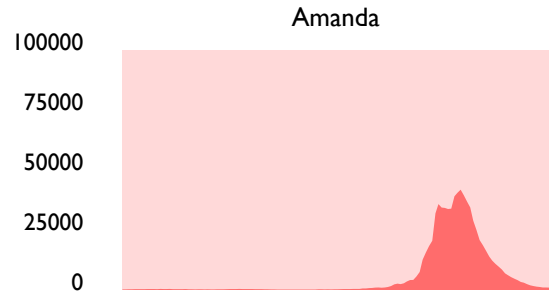
Sales over time



Evolution of Baby Names in the US: 1880-2015

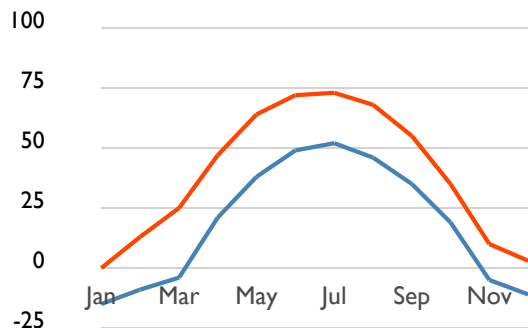


Evolution of Baby Names in the US: 1880-2015

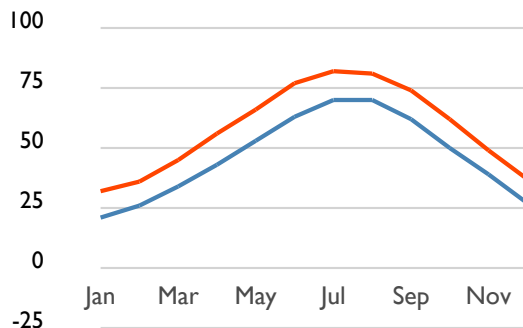


Average High/Low Temperatures (°F)

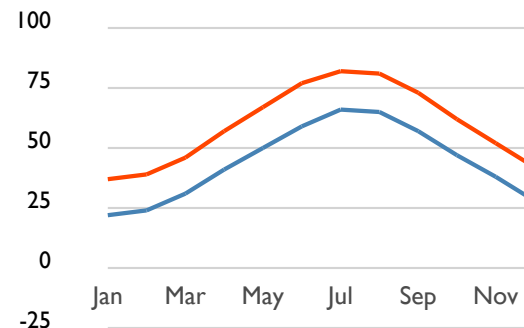
Fairbanks



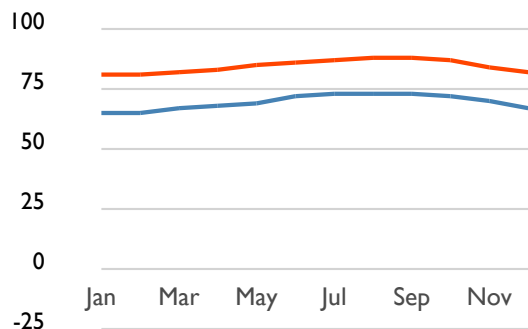
Chicago



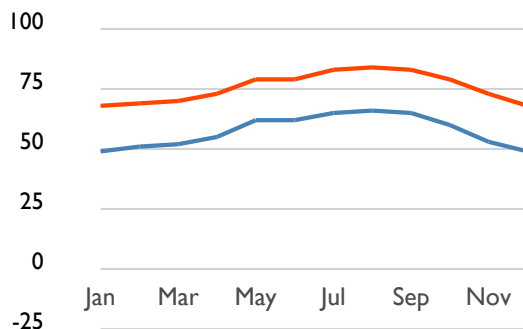
Boston



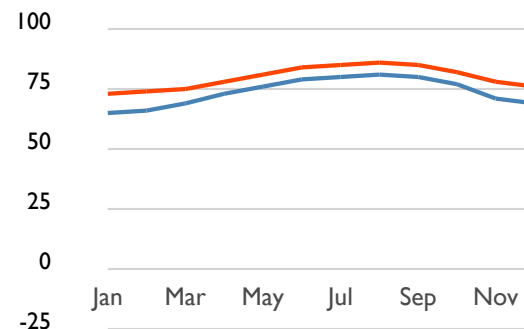
Honolulu



Los Angeles



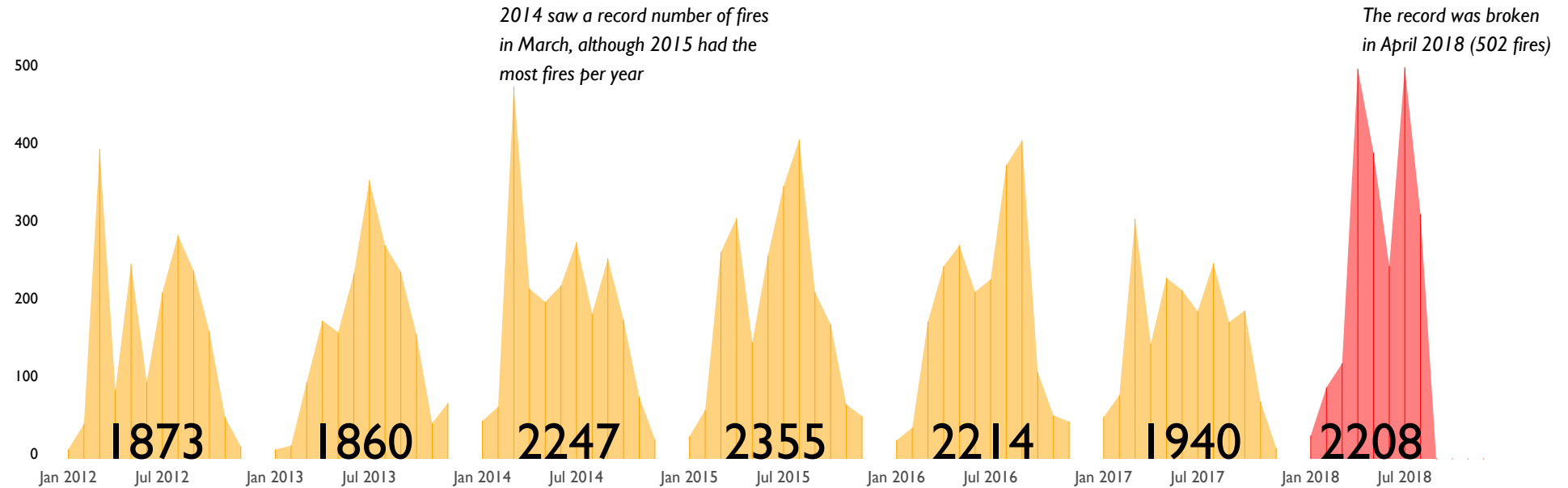
Miami



● Avg. High

● Avg. Low

German Wildfires 2012-2018



How does Go help?

fmt

text/scanner

errors

go get it

deck

`github.com/ajstarks/deck`

decksh

`github.com/ajstarks/deck/cmd/decksh`

pdfdeck

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

dchart

`github.com/ajstarks/deck/cmd/dchart`

deck fonts

`github.com/ajstarks/deckfonts`