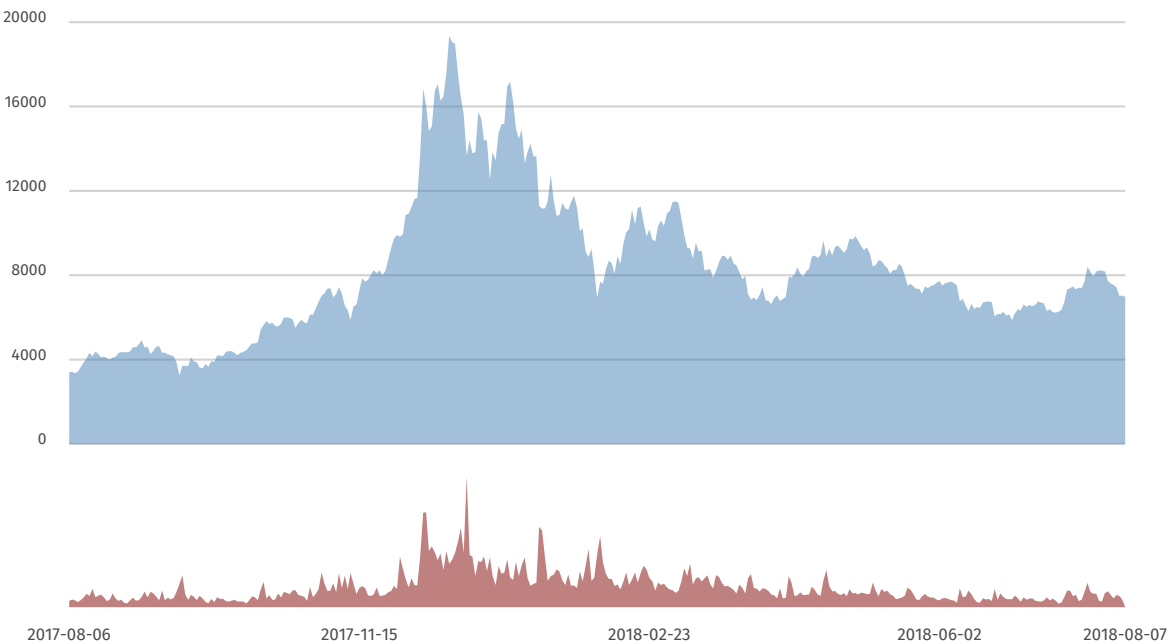
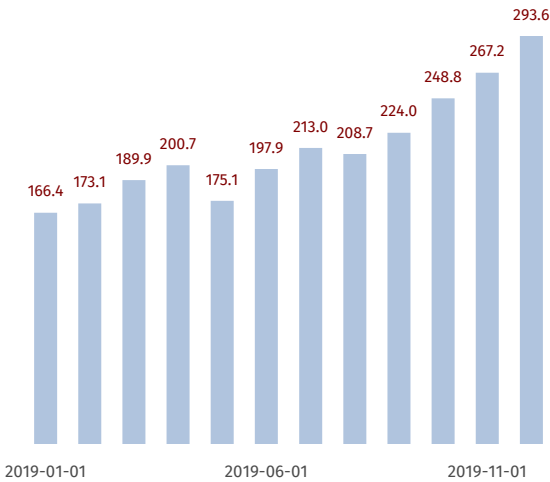


dchart: charts for deck/decksh

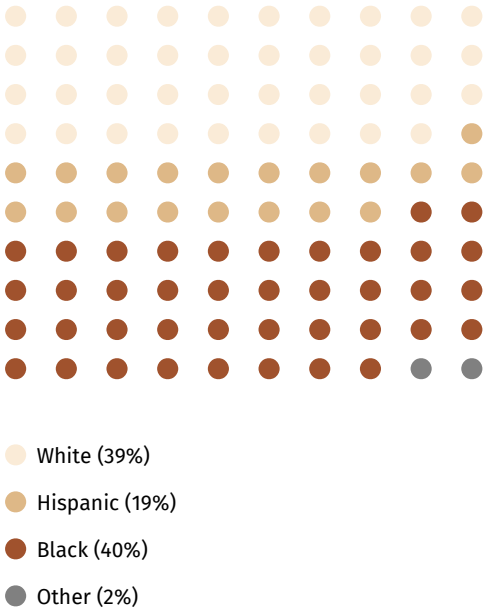
Bitcoin to USD



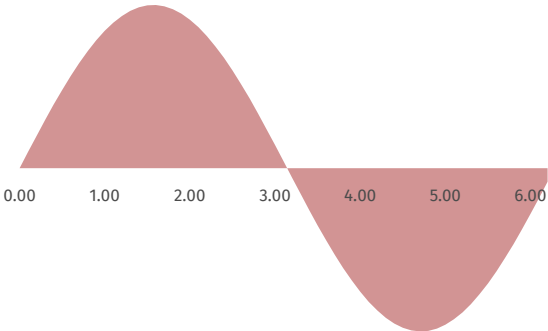
AAPL Closing Price



US Incarceration Rate



$y=\sin(x)$

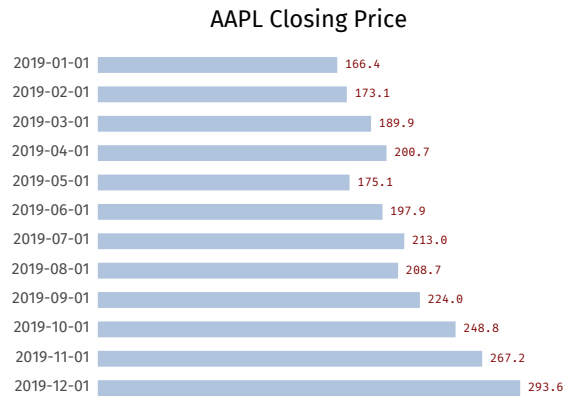


Browser Market Share Dec 2016-Dec 2017

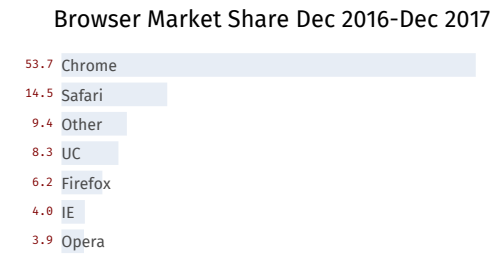




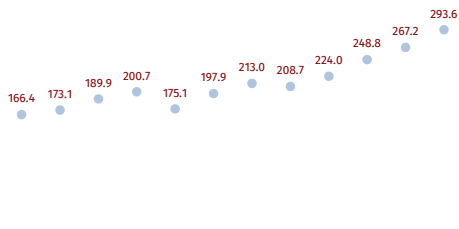
Column



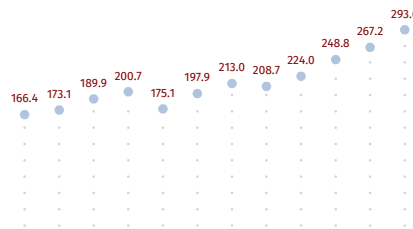
Bar



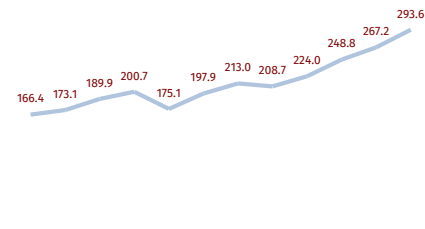
Word Bar



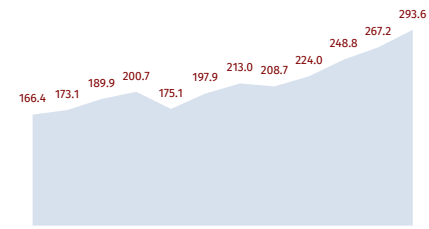
Dot



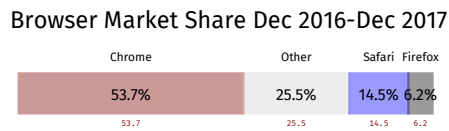
Scatter



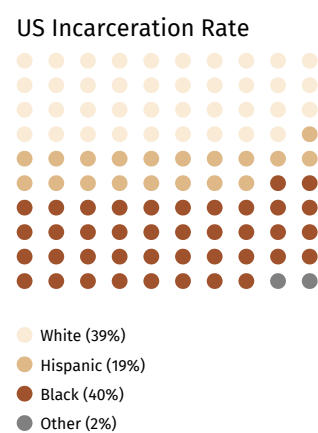
Line



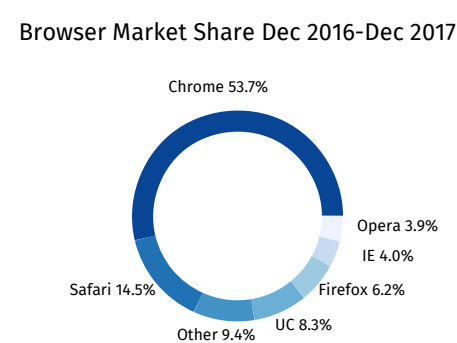
Area



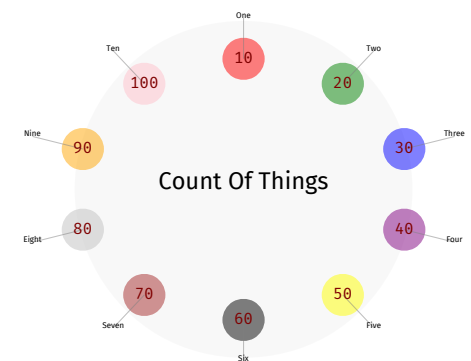
Proportional Map



Proportional Grid



Donut/Pie



Radial

Data

Tab-Separated

| X Label | Y Value |
|----------------------|------------|
| # AAPL Closing Price | |
| 2019-01-01 | 166.440002 |
| 2019-02-01 | 173.149994 |
| 2019-03-01 | 189.949997 |
| 2019-04-01 | 200.669998 |
| 2019-05-01 | 175.070007 |
| 2019-06-01 | 197.919998 |
| 2019-07-01 | 213.039993 |
| 2019-08-01 | 208.740005 |
| 2019-09-01 | 223.970001 |
| 2019-10-01 | 248.759995 |
| 2019-11-01 | 267.250000 |
| 2019-12-01 | 293.649994 |

Comma-Separated (CSV)

| Columns (pick two) |
|---|
| Date,Open,High,Low,Close,Adj Close,Volume |
| 2019-01-01,154.889999,169.000000,142.000000,166.440002,163.587997,828087400 |
| 2019-02-01,166.960007,175.869995,165.929993,173.149994,170.183029,472540600 |
| 2019-03-01,174.279999,197.690002,169.500000,189.949997,187.495865,650981400 |
| 2019-04-01,191.639999,208.479996,188.380005,200.669998,198.077362,506117700 |
| 2019-05-01,209.880005,215.309998,174.990005,175.070007,172.808105,739456600 |
| 2019-06-01,175.600006,201.570007,170.270004,197.919998,196.115219,515187300 |
| 2019-07-01,203.169998,221.369995,198.410004,213.039993,211.097366,473957000 |
| 2019-08-01,213.899994,218.029999,192.580002,208.740005,206.836563,681074600 |
| 2019-09-01,206.429993,226.419998,204.220001,223.970001,222.770889,542567100 |
| 2019-10-01,225.070007,249.750000,215.130005,248.759995,247.428162,608302700 |
| 2019-11-01,249.539993,268.000000,249.160004,267.250000,265.819183,448331500 |
| 2019-12-01,267.269989,293.970001,256.290009,293.649994,292.954712,597198700 |

Data to Chart

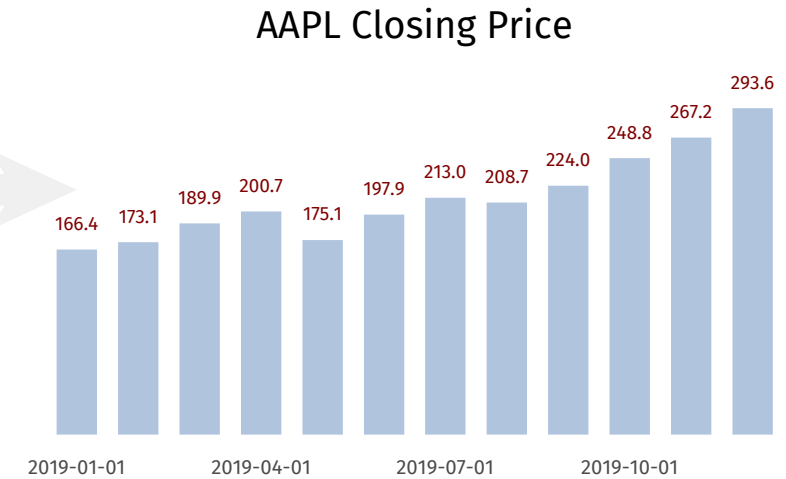
Data

```
# AAPL Closing Price
2019-01-01 166.440002
2019-02-01 173.149994
2019-03-01 189.949997
2019-04-01 200.669998
2019-05-01 175.070007
2019-06-01 197.919998
2019-07-01 213.039993
2019-08-01 208.740005
2019-09-01 223.970001
2019-10-01 248.759995
2019-11-01 267.250000
2019-12-01 293.649994
```

Markup

```
<deck>
  <canvas width="0" height="0" />
  <slide bg="white">
    <text ...>AAPL Volume</text>
    <line ... color="lightsteelblue" />
    <text ... color="rgb(127,0,0)">563.1</text>
    <text ... color="rgb(75,75,75)">2017-01-01</text>
    .
    .
    .
  </slide>
</deck>
```

PDF Rendition



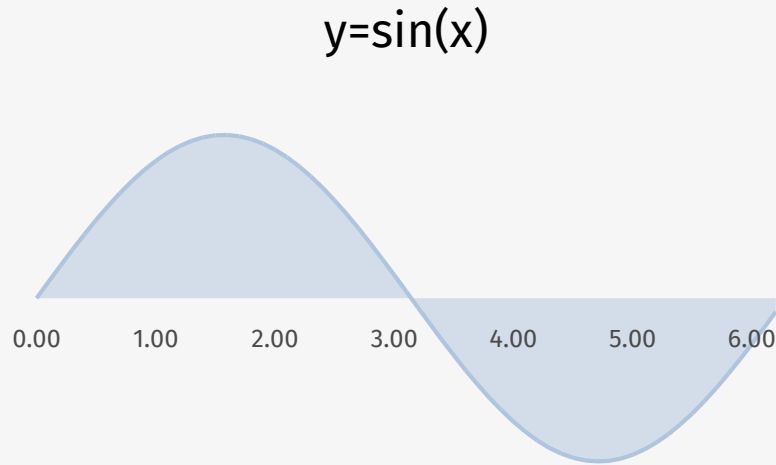
dchart AAPL.d | pdf

Generating data for charts

```
package main
```

```
import (  
    "fmt"  
    "math"  
)
```

```
func main() {  
    fmt.Println("# y=sin(x)")  
    for x := 0.0; x < math.Pi*2; x += 0.1 {  
        fmt.Printf("%.2f\t%.4f\n", x, math.Sin(x))  
    }  
}
```

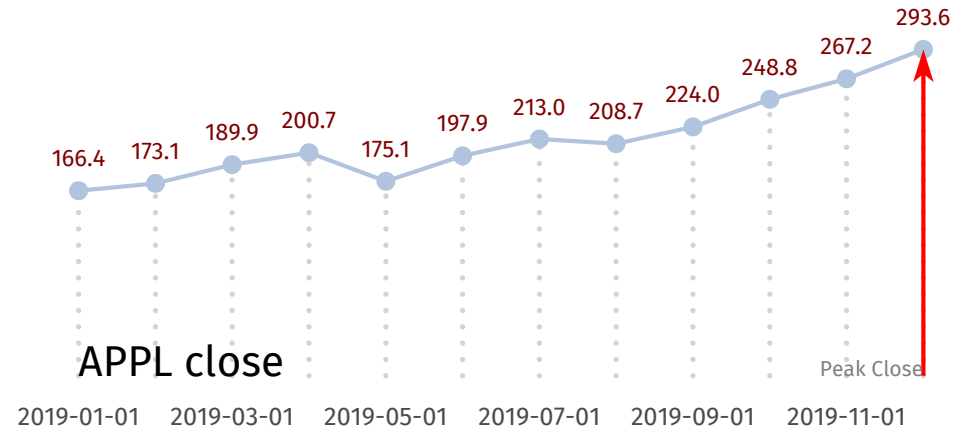
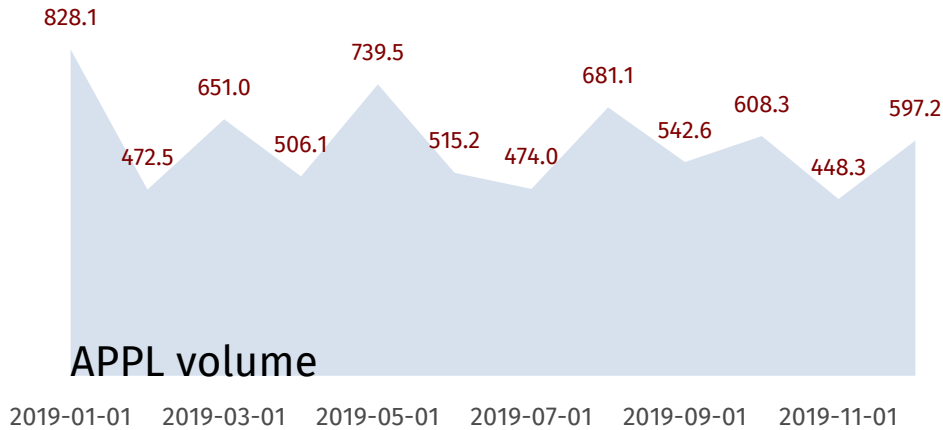


y=sin(x)

| | |
|------|---------|
| 0.00 | 0.0000 |
| 0.10 | 0.0998 |
| 0.20 | 0.1987 |
| 0.30 | 0.2955 |
| 0.40 | 0.3894 |
| 0.50 | 0.4794 |
| 0.60 | 0.5646 |
| 0.70 | 0.6442 |
| 0.80 | 0.7174 |
| . | |
| . | |
| 5.80 | -0.4646 |
| 5.90 | -0.3739 |
| 6.00 | -0.2794 |
| 6.10 | -0.1822 |
| 6.20 | -0.0831 |

```
go run sine.go |  
dchart -bar=f -val=f -xlabel=10 -line -vol -bottom=50 |  
pdfdeck -stdout - > sine.pdf
```

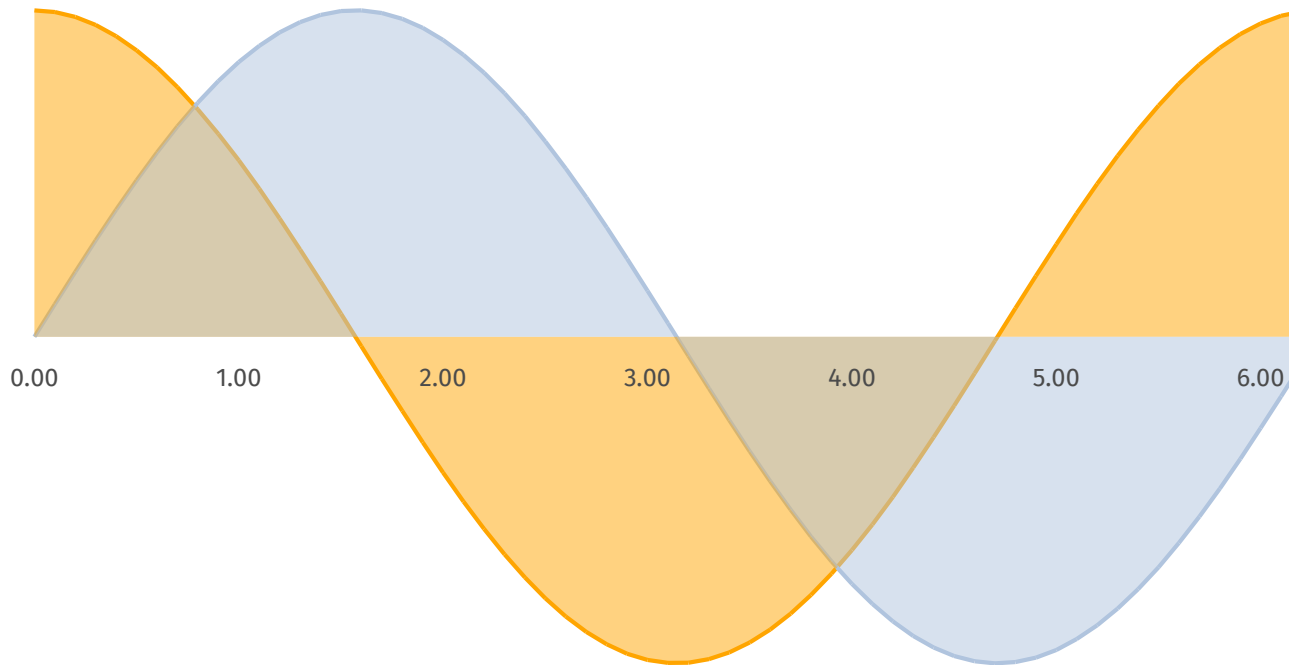
Using dchart with decksh



```
cw=40          // chart width
t=80           // top
b=t-20         // bottom
l1=5           // volume chart left
r1=l1+cw       // volume chart right
l2=r1+10       // close chart left
r2=l2+cw       // close chart right

opts="-fulldeck=f -xlabel=2 -title=f -bar=f"
copts="-dot -line -csv -csvcol Date,Close"
dchart opts -vol -top t -bottom b -left l1 -right r1 code/AAPL-vol.d
dchart opts copts -top t -bottom b -left l2 -right r2 code/AAPL.csv
text "APPL volume" l1 b 2
text "APPL close" l2 b 2
arrow r2 b r2 t 0.2 2 1 "red"
etext "Peak Close" r2 b 1 "sans" "gray"
```

Composite Charts



```
// go run mfunc.go -f cos > code/cos.d
// go run mfunc.go -f sin > code/sin.d
opts="-top=80 -bottom=60 -left=20 -right=80 -fulldeck=f -title=f -val=f -bar=f -line -vol"
dchart opts -xlabel=10 -color orange code/cos.d
dchart opts -xlabel=0 code/sin.d
```

Command Line Options

Chart Types

| | | |
|----------|-------|----------------------|
| -bar | true | bar chart |
| -wbar | false | word bar chart |
| -hbar | false | horizontal bar chart |
| -donut | false | donut chart |
| -dot | false | dot chart |
| -line | false | line chart |
| -pgrid | false | proportional grid |
| -pmap | false | proportional map |
| -radial | false | radial chart |
| -scatter | false | scatter chart |
| -vol | false | volume (area) chart |

Position and Scaling

| | | |
|---------|----------|----------------------------|
| -top | 80 | top of the chart |
| -bottom | 30 | bottom of the chart |
| -left | 20 | left margin |
| -right | 80 | right margin |
| -min | data min | set the minimum data value |
| -max | data max | set the maximum data value |

Chart Elements

| | | |
|------------|---------------------------|--------------------------------|
| -csv | false | read CSV files |
| -frame | false | show a colored frame |
| -fulldeck | true | generate full deck markup |
| -grid | false | show gridlines on the y axis |
| -note | true | show annotations |
| -pct | false | show computed percentage |
| -rline | false | show a regression line |
| -solidpmap | false | show solid pmap colors |
| -spokes | false | show spokes in radial chart |
| -title | true | show the title |
| -val | true | show values |
| -xlast | false | show the last x label |
| -xstagger | false | stagger x axis labels |
| -yaxis | false | show a y axis |
| -chartitle | override title in data | specify the title |
| -datacond | low,high,color | conditional data colors |
| -hline | value,label | label horizontal line at value |
| -valpos | t=top, b=bottom, m=middle | value position |
| -xlabel | default=1, 0 to suppress | x axis label interval |
| -yrange | min,max.step | specify the y axis label range |

Measures and Attributes

| | | |
|-------------|---------------------------|----------------------------|
| -bgcolor | white | background color |
| -barwidth | computed from data size | barwidth |
| -color | lightsteelblue | data color |
| -csvcol | label1,label2 | specify csv columns |
| -datafmt | %.1f | data format for values |
| -dmin | false | use data minimum, not zero |
| -framecolor | rgb(127,127,127) | frame color |
| -lcolor | rgb(75,75,75) | label color |
| -linewidth | 0.2 | linewidth |
| -ls | 2.4 | linespacing |
| -noteloc | c=center, r=right, l=left | annotation location |
| -pmlen | 20 | pmap label length |
| -psize | 30 | diameter of the donut |
| -pwidth | 3 | width of the donut or pmap |
| -rlcolor | rgb(127,0,0) | regression line color |
| -textsize | 1.5 | text size |
| -xlabrot | 0 | xlabel rotation (deg.) |
| -vcolor | rgb(127,0,0) | value color |
| -volop | 50 | volume opacity % |

Command Examples

AAPL Closing Price

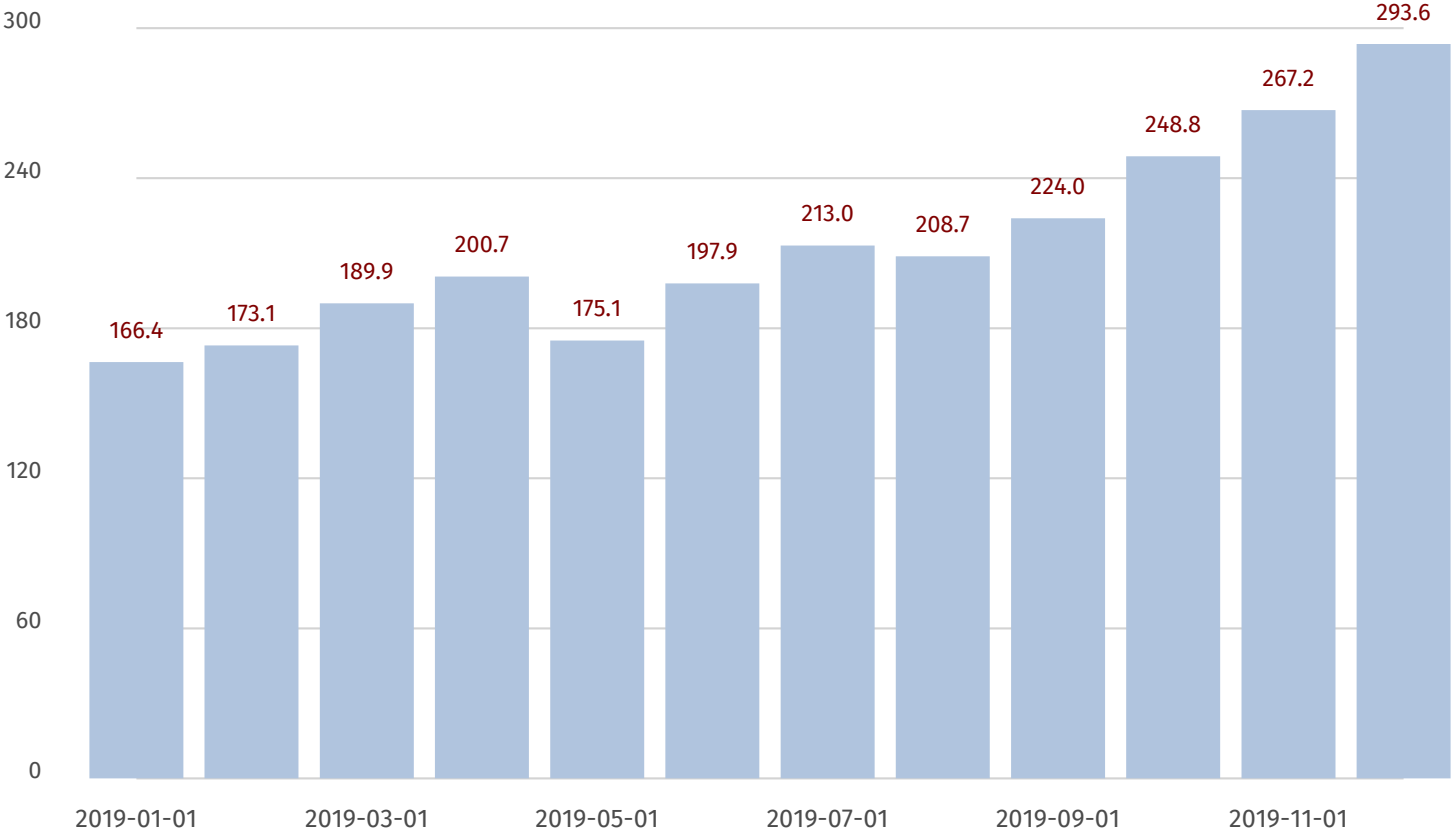
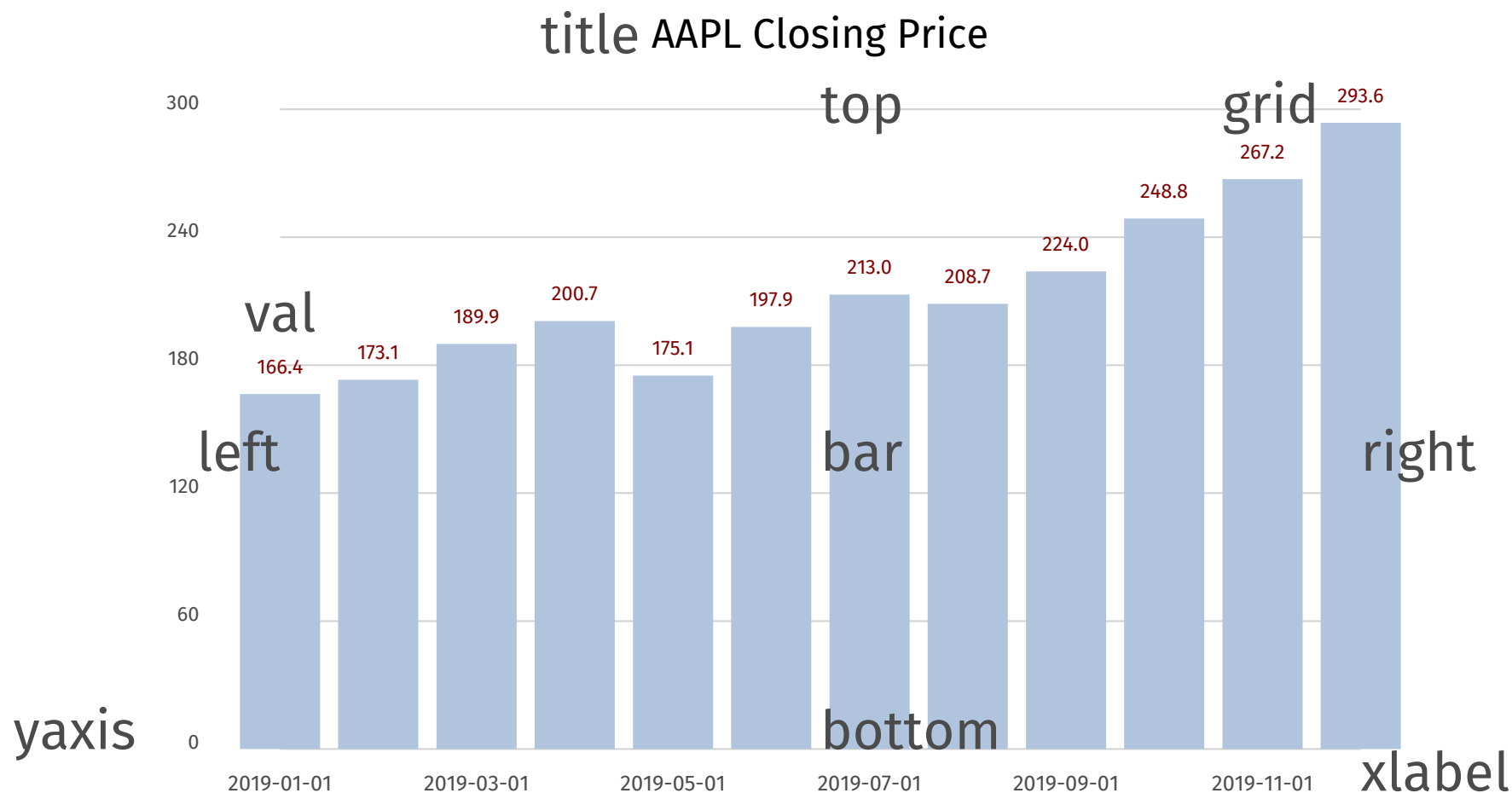
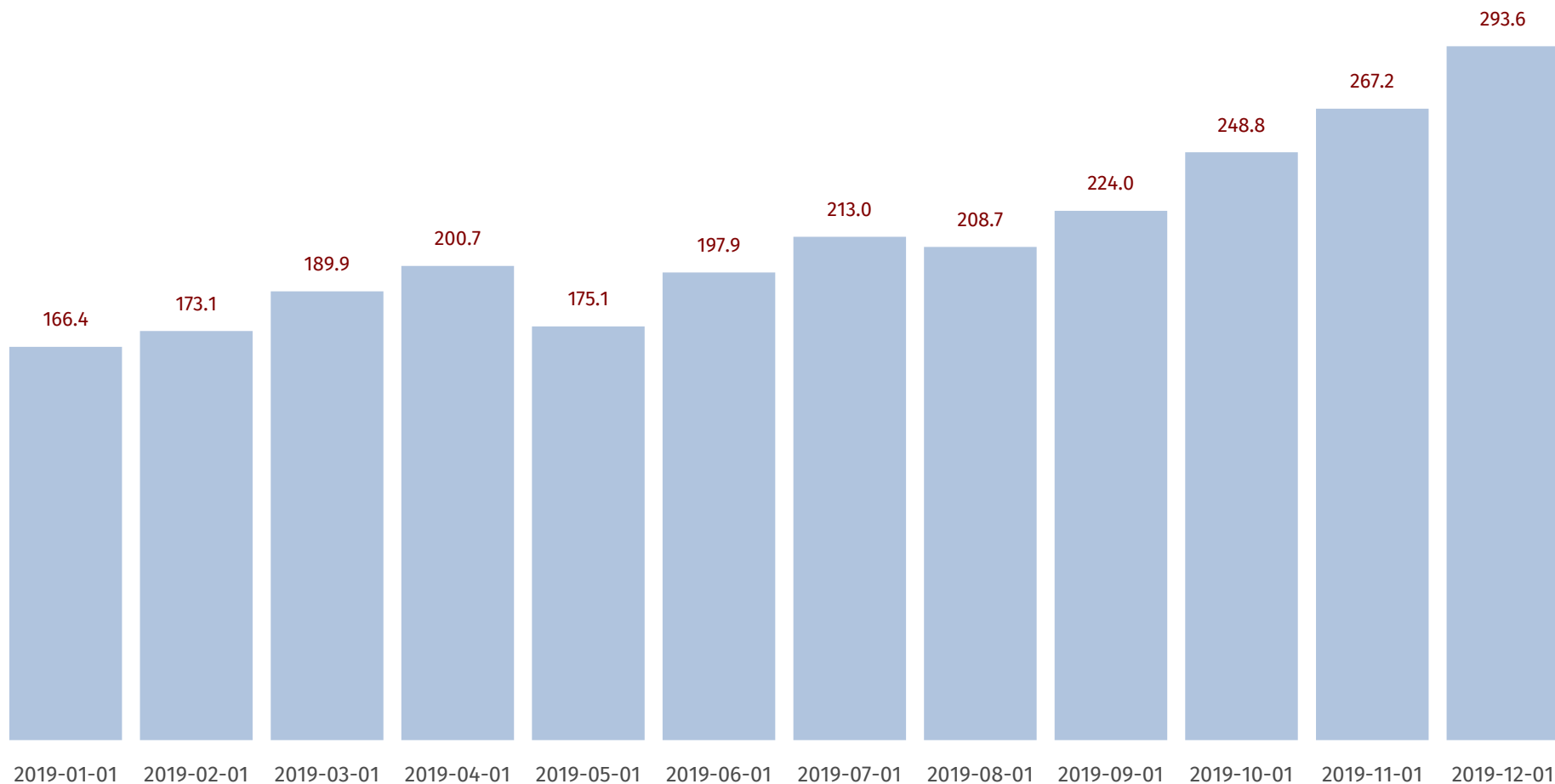


Chart Attributes



```
dchart -left=20 -right=80 -top=75 -bottom=30 -yaxis -grid -xlabel=2 -val AAPL.d
```

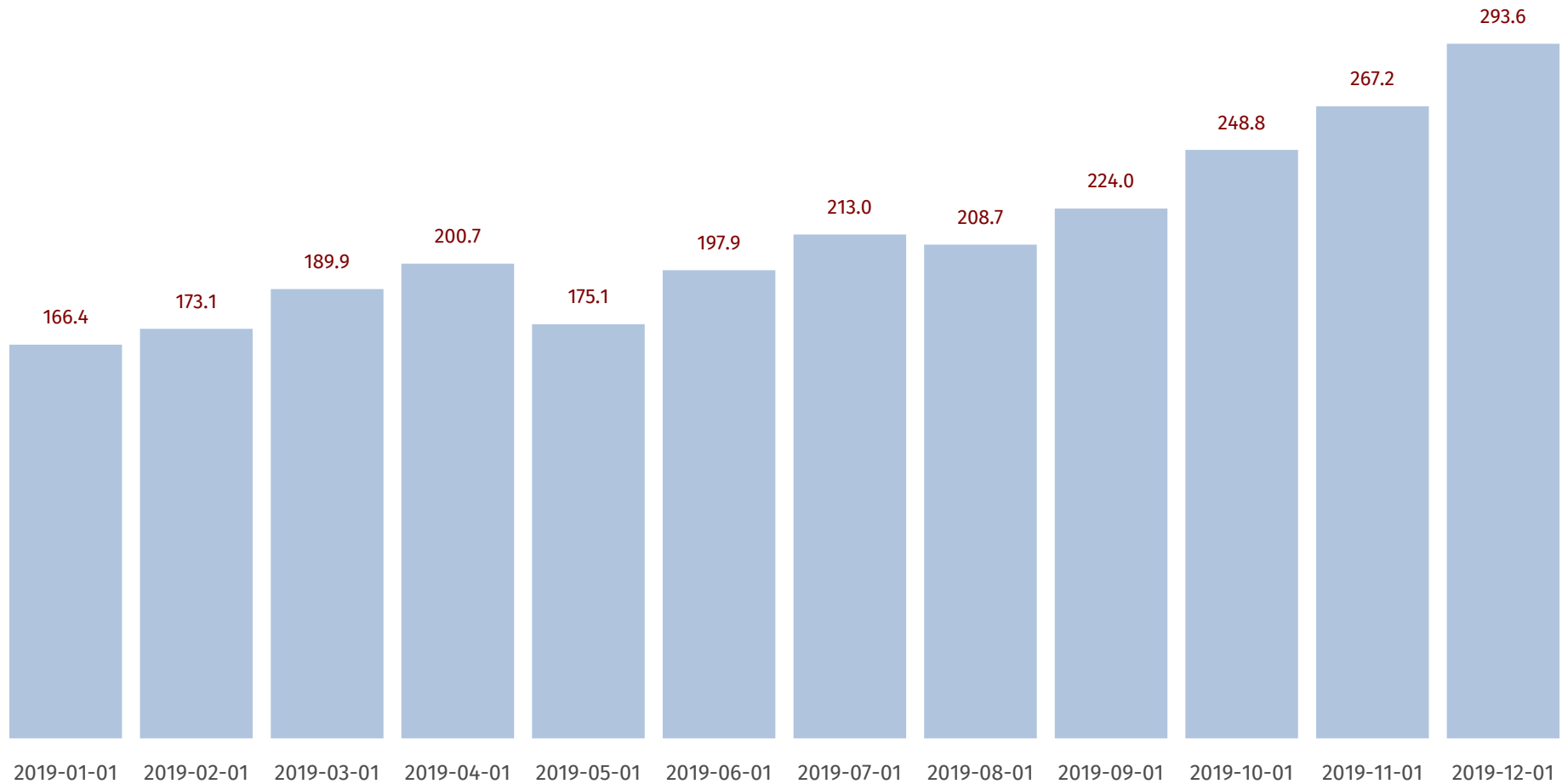
AAPL Closing Price



Default Bar Chart

dchart AAPL.d

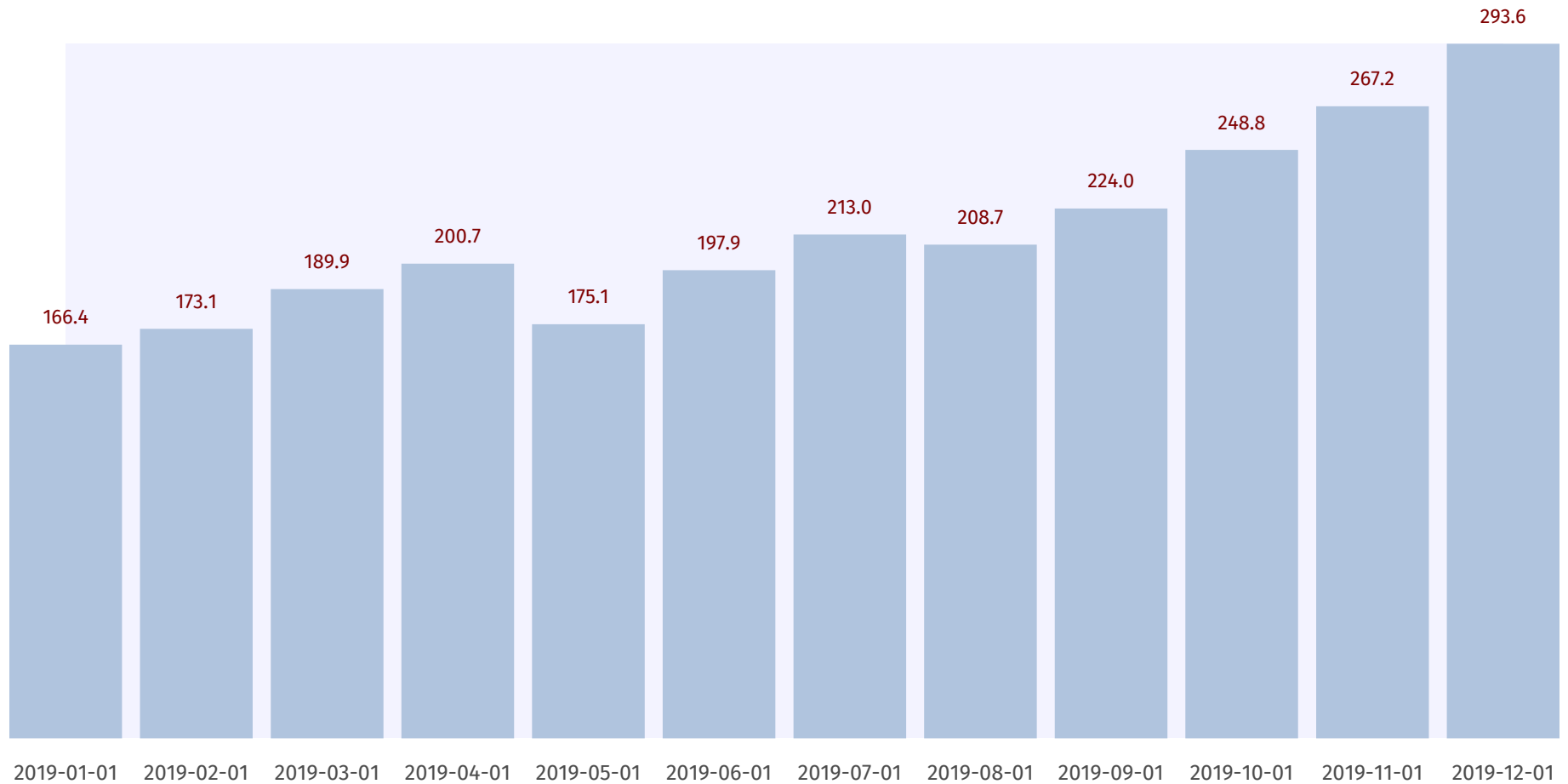
Close



Reading CSV files

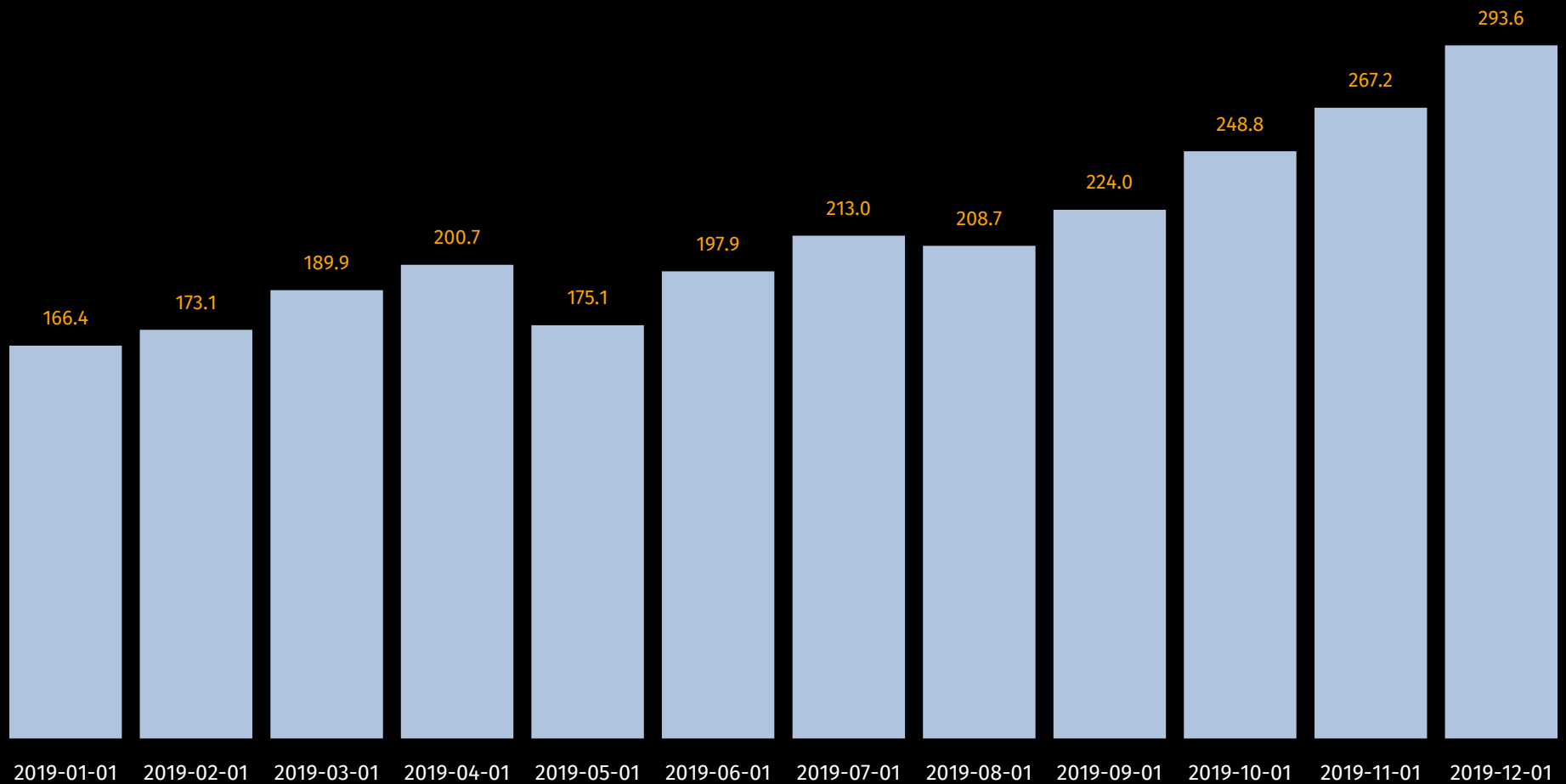
```
dchart -csv -csvcol=Date,Close AAPL.csv
```

AAPL Closing Price



Frame, Frame Color

```
dchart -frame=t -framecolor=blue AAPL.d
```



Background, Label, Value Color

```
dchart -bgcolor=black -lcolor=white -vcolor=orange AAPL.d
```

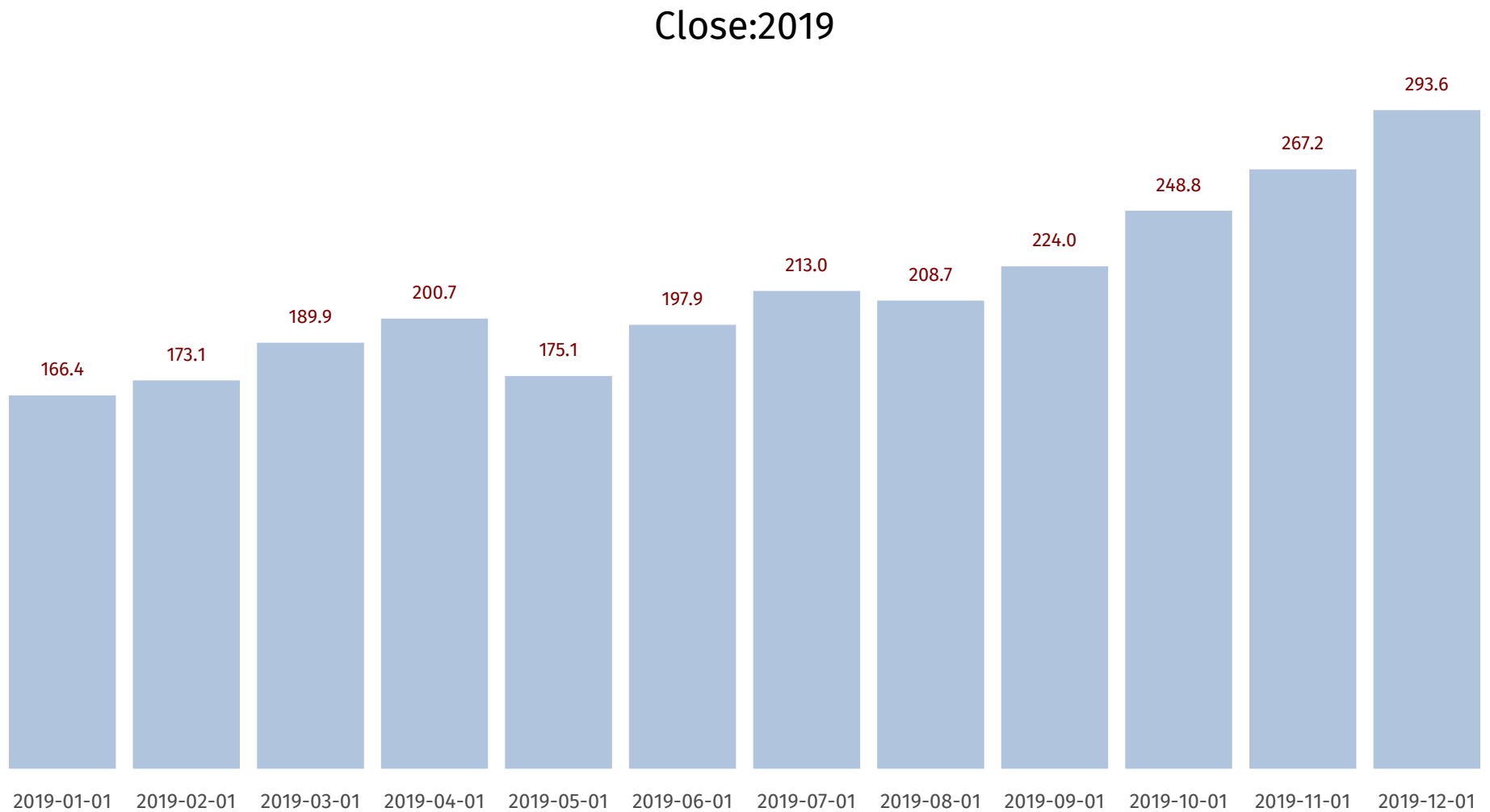
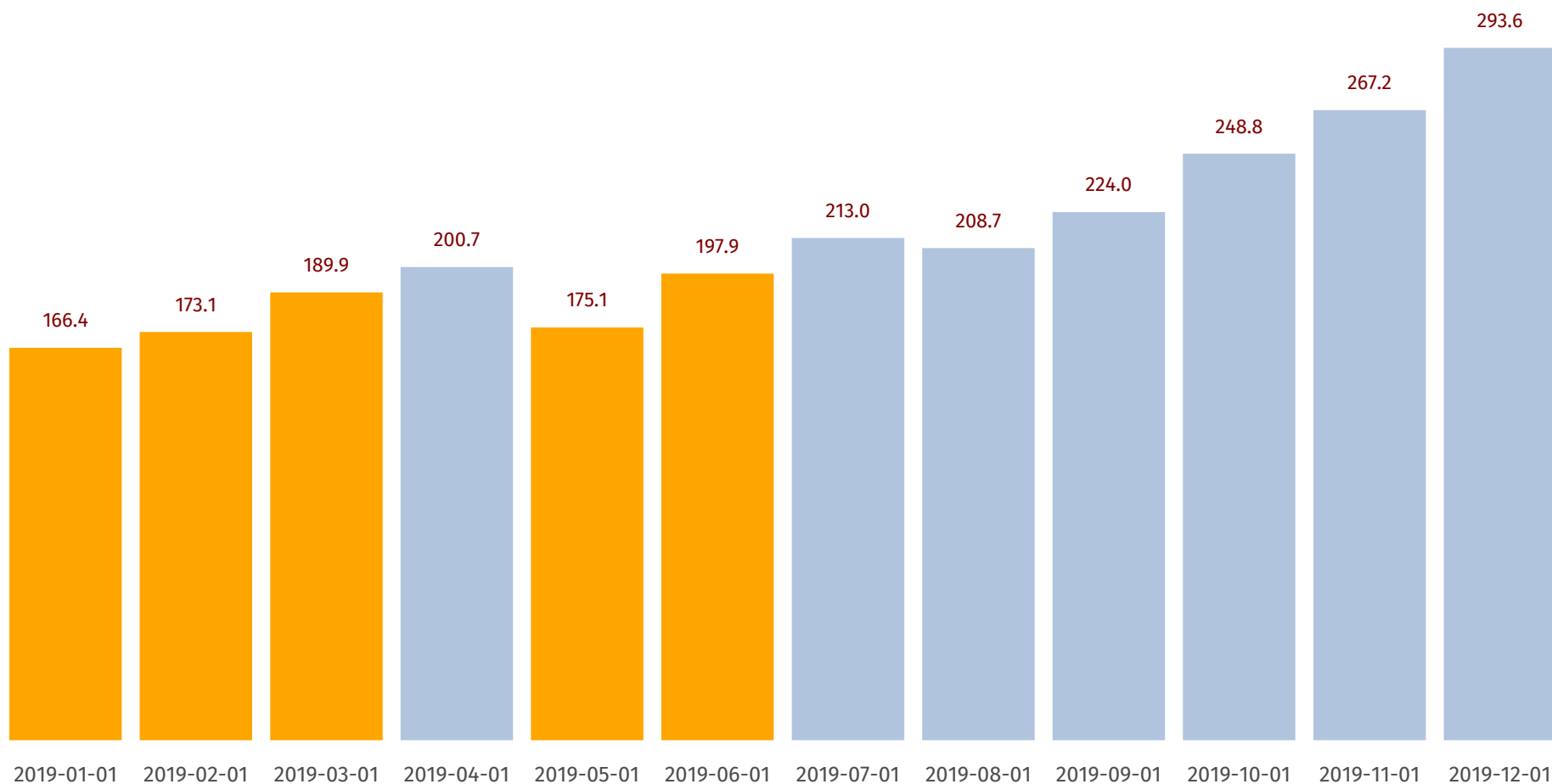



Chart Title

```
dchart -charttitle="Close:2019" AAPL.d
```

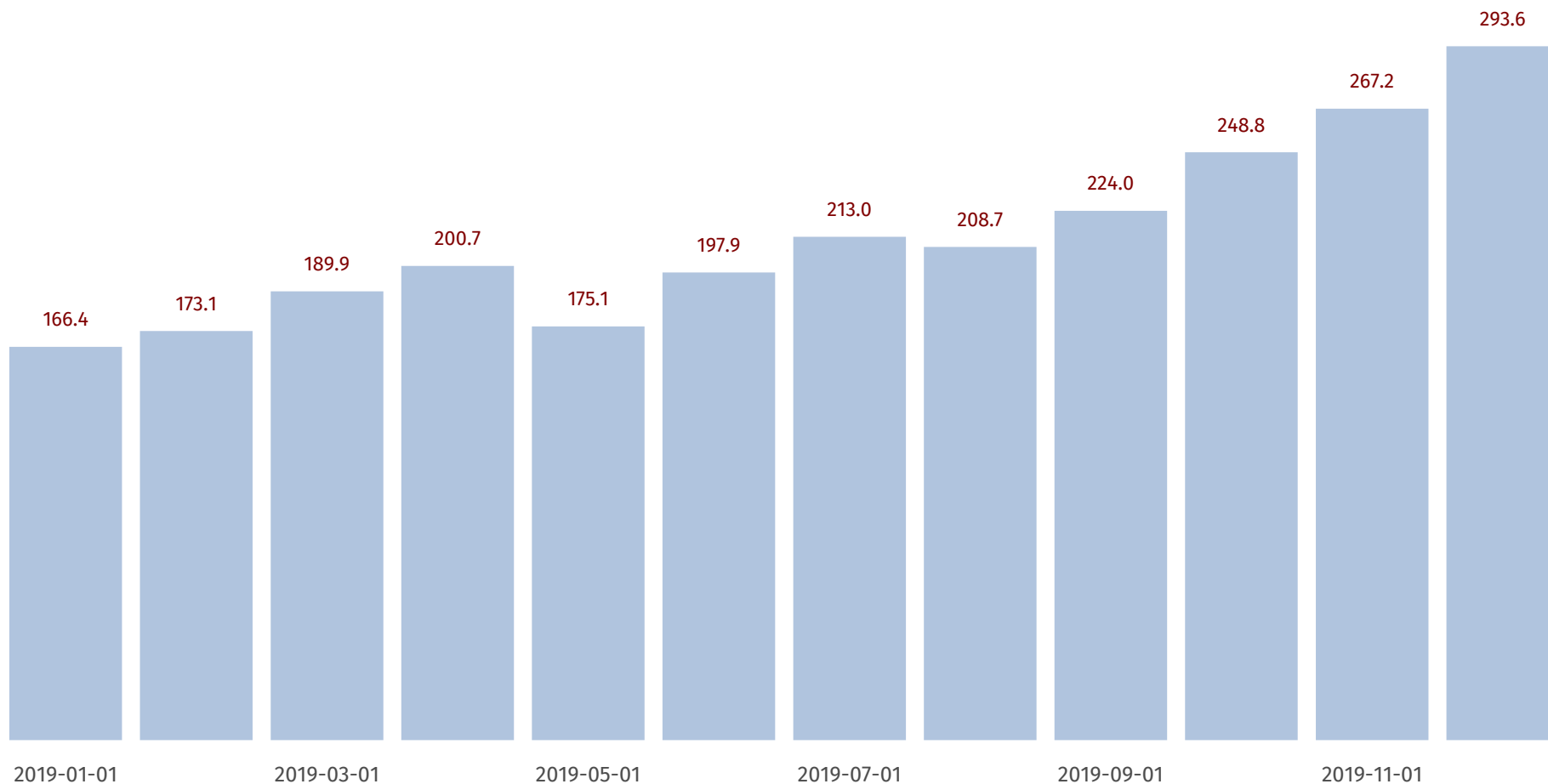
AAPL Closing Price



Data Conditions

dchart -datacond=150,200,orange AAPL.d

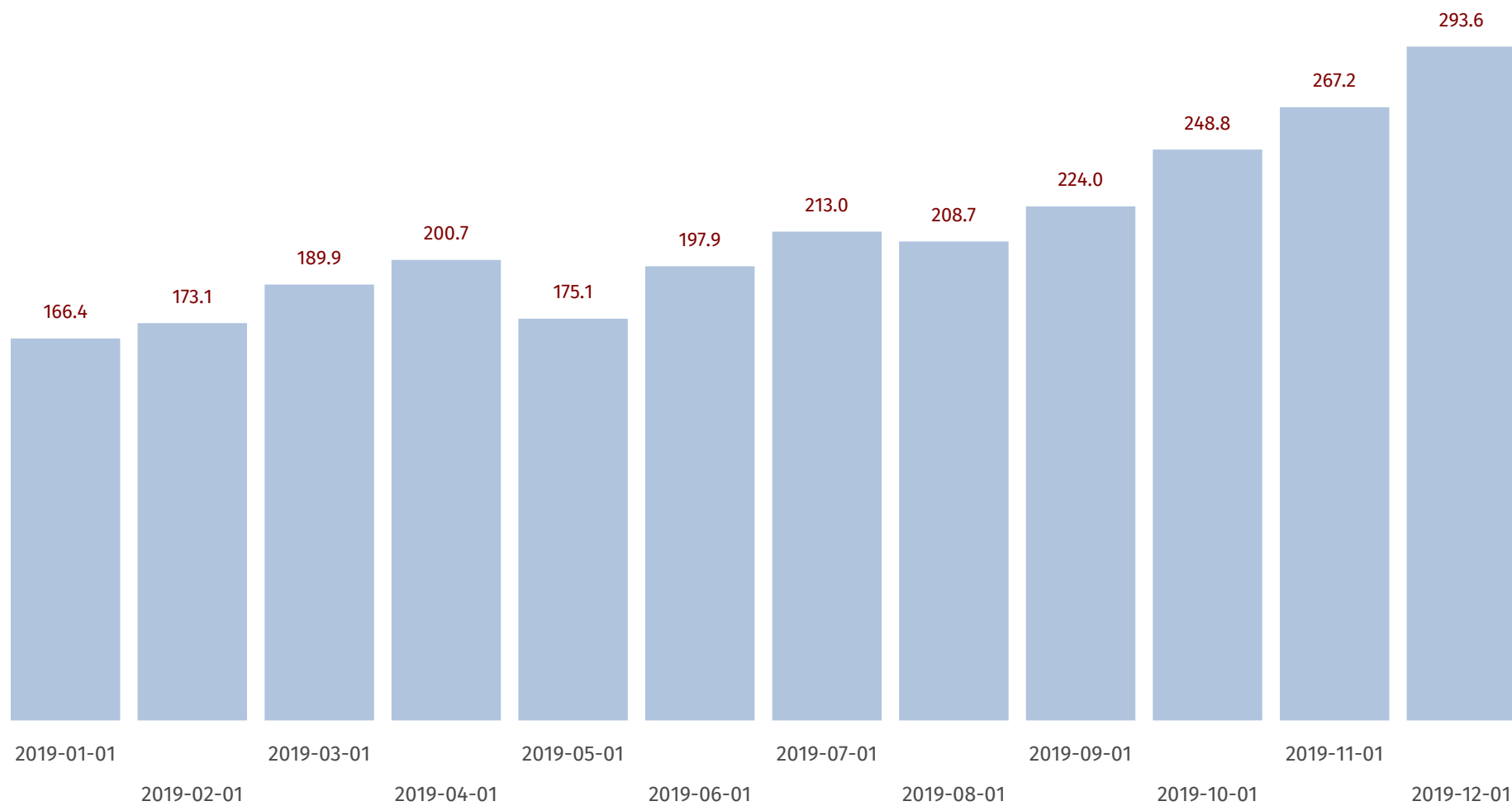
AAPL Closing Price



X-Axis Label Interval

```
dchart -xlabel=2 AAPL.d
```

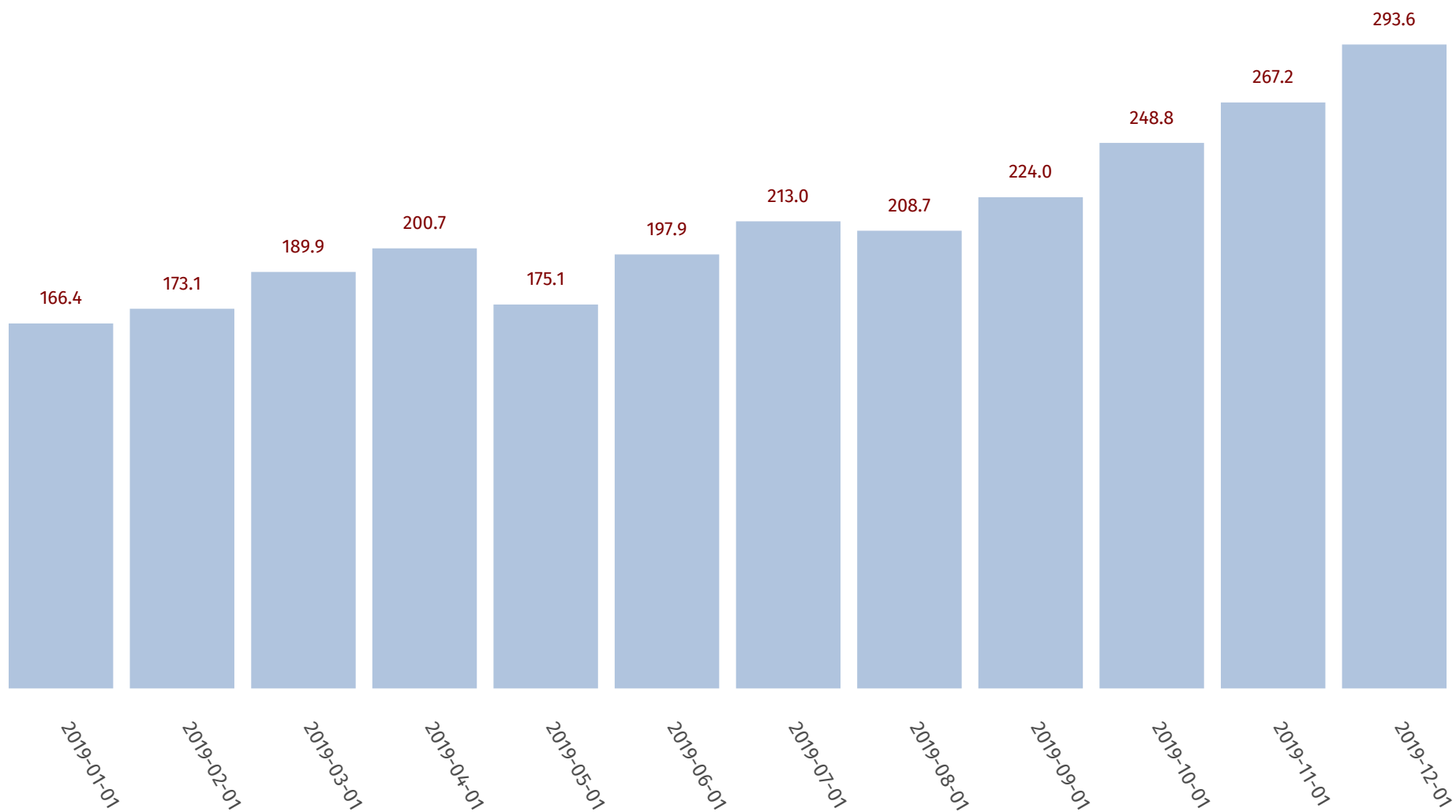
AAPL Closing Price



Stagger X-Axis Labels

```
dchart -xstagger AAPL.d
```

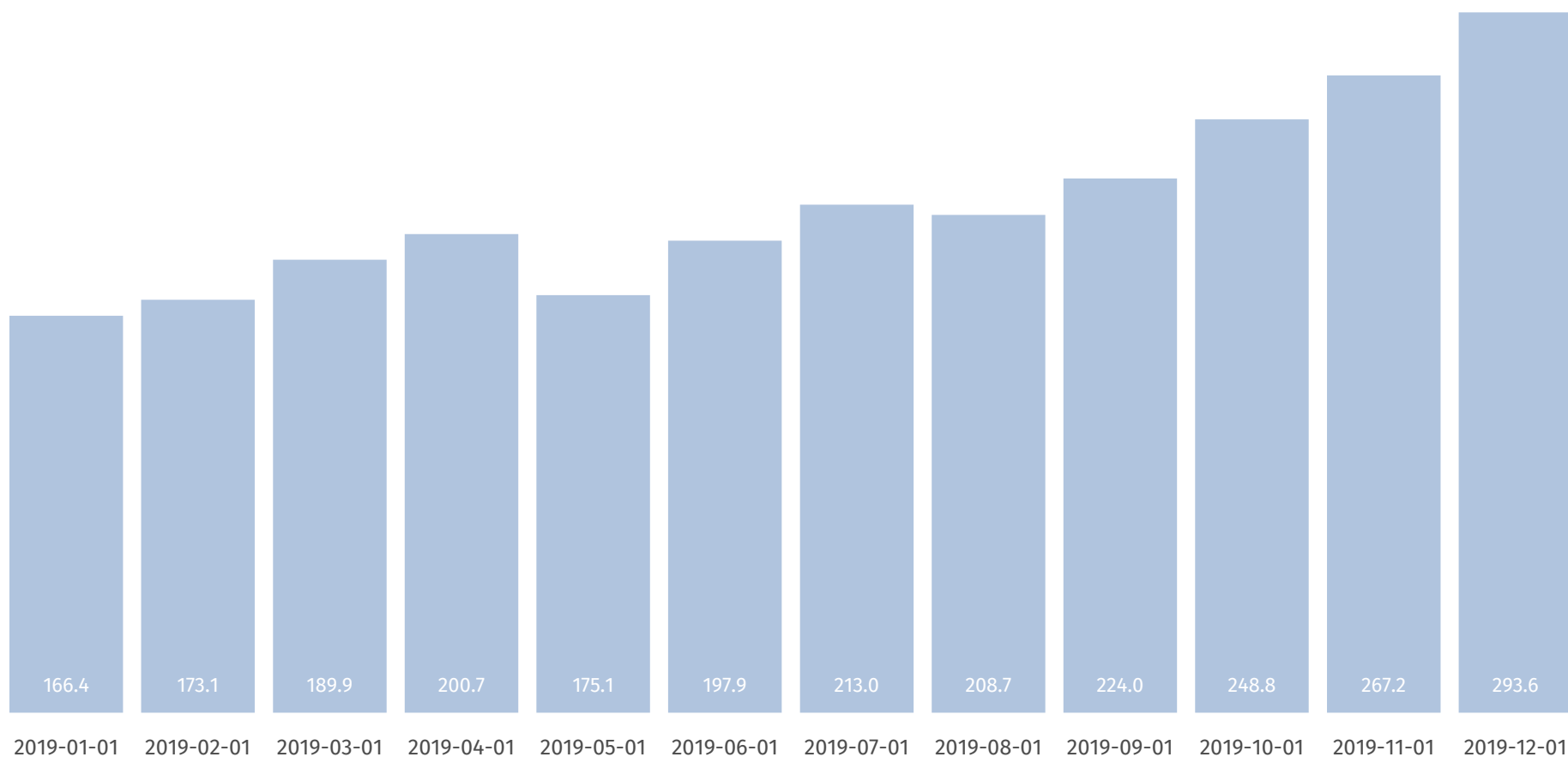
AAPL Closing Price



X-Axis Label Rotation

```
dchart -xlabrot=300 AAPL.d
```

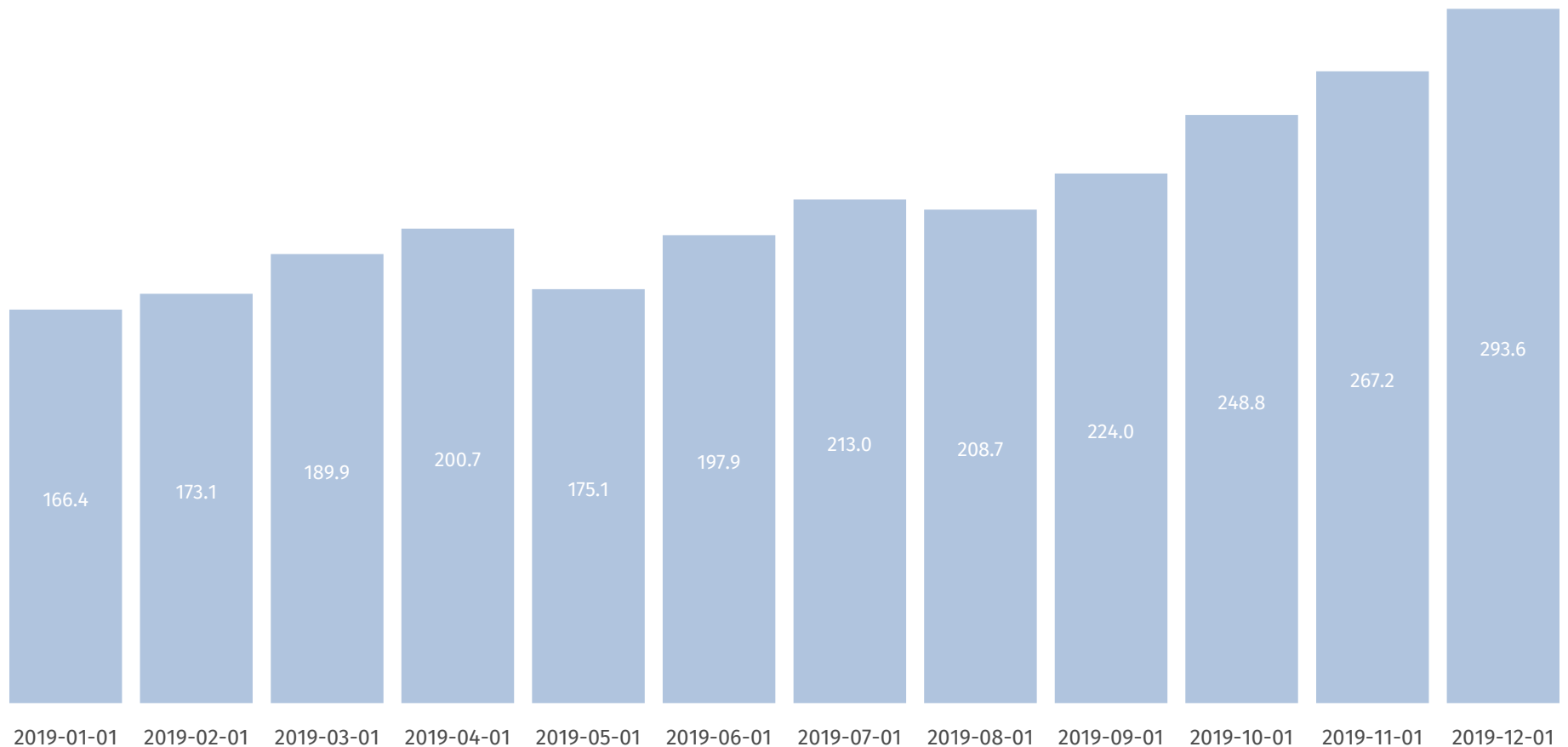
AAPL Closing Price



Value Color, Value Position Bottom

```
dchart -vcolor=white -valpos=b AAPL.d
```

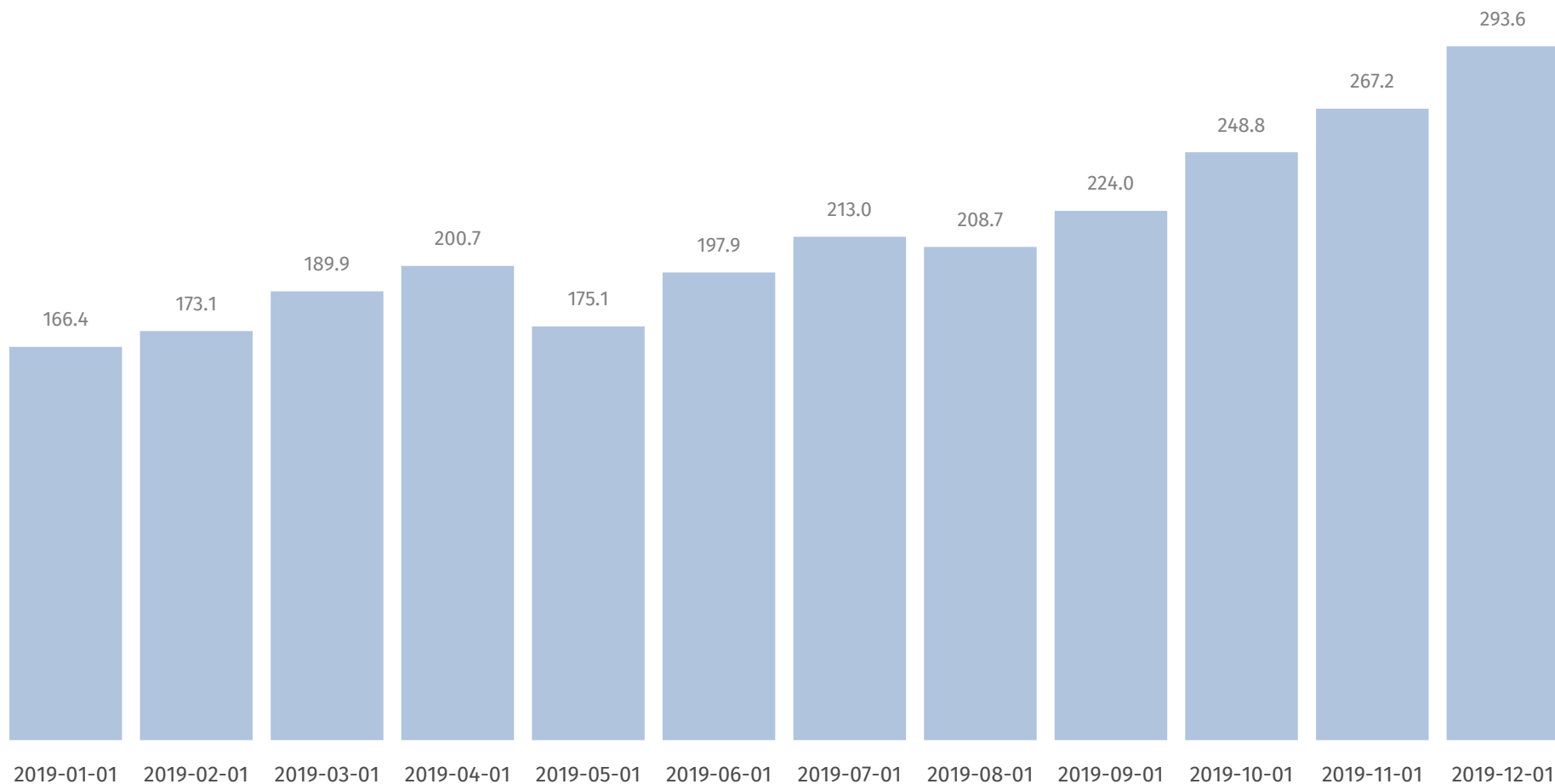
AAPL Closing Price



Value Color, Value Position Middle

```
dchart -vcolor=white -valpos=m AAPL.d
```

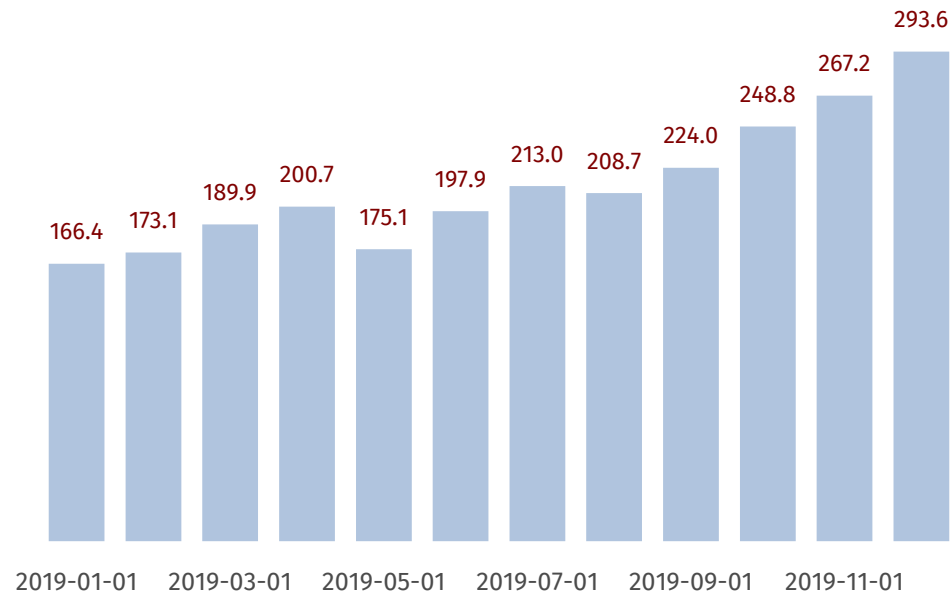
AAPL Closing Price



Value Color, Value Position Top

dchart -vcolor=gray AAPL.d

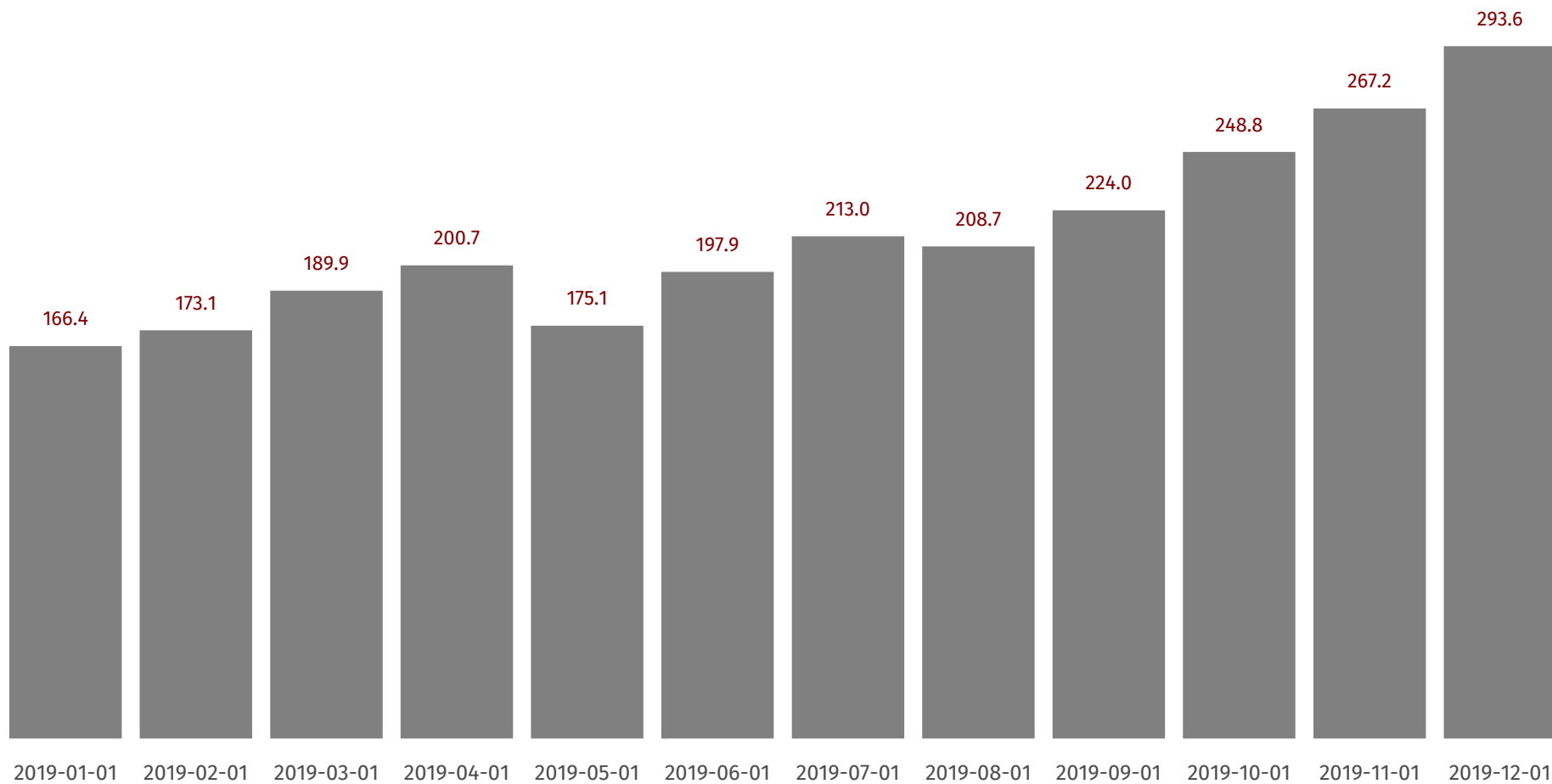
AAPL Closing Price



Scaling

```
dchart -xlabel=2 -left 30 -right 70 -top 70 -bottom 40 AAPL.d
```

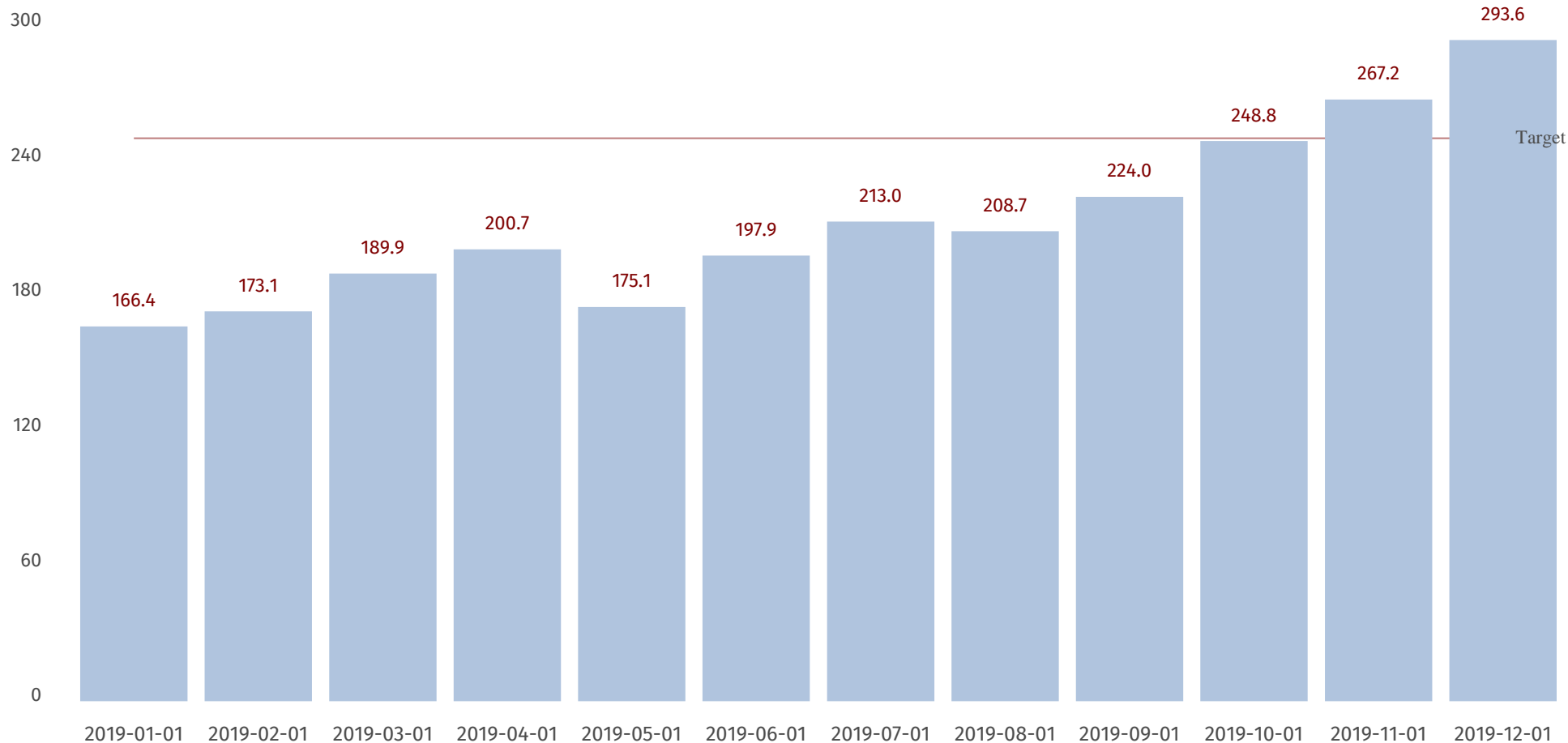
AAPL Closing Price



Color

```
dchart -color gray AAPL.d
```

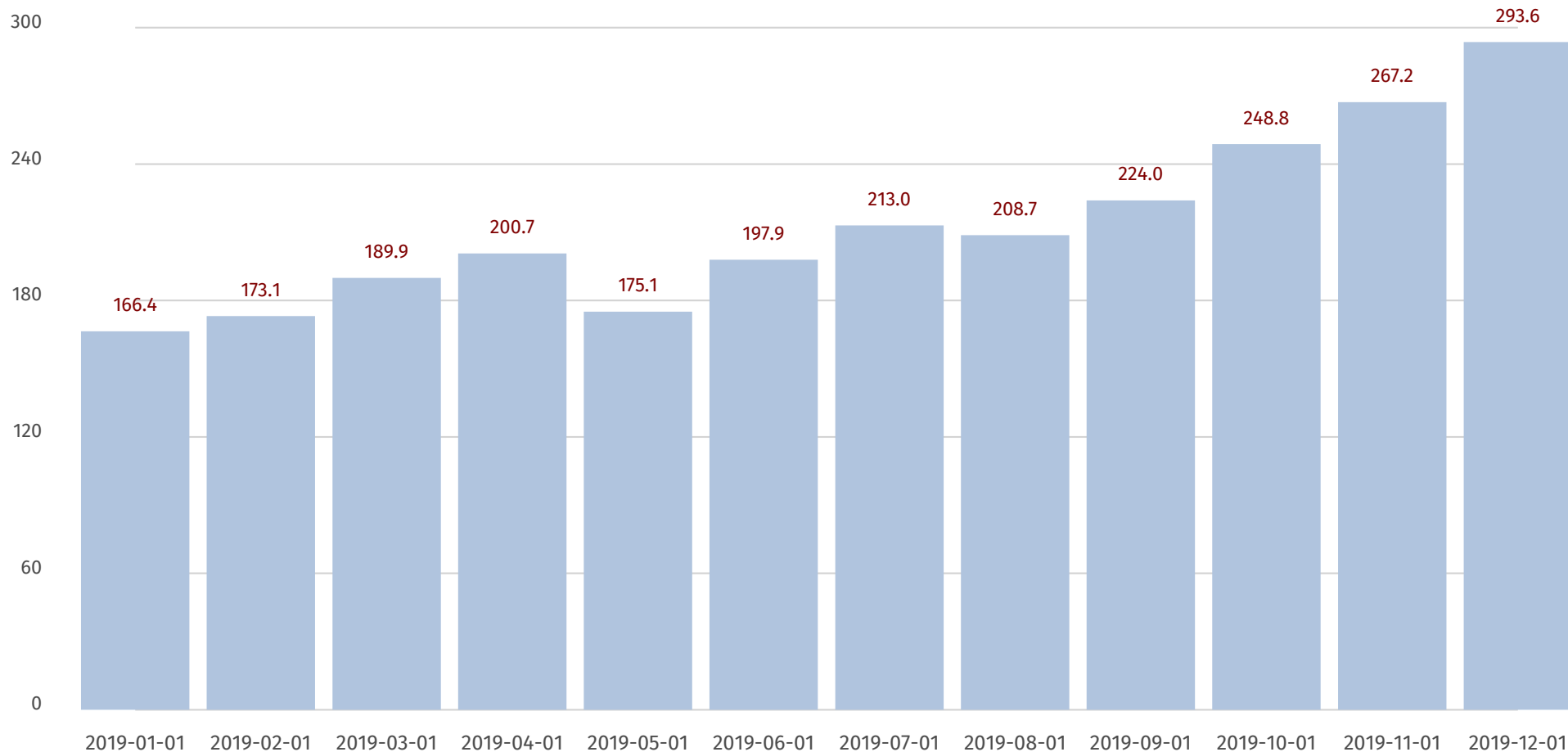
AAPL Closing Price



Target Line, Y-Axis

```
dchart -hline=250,Target -yaxis AAPL.d
```

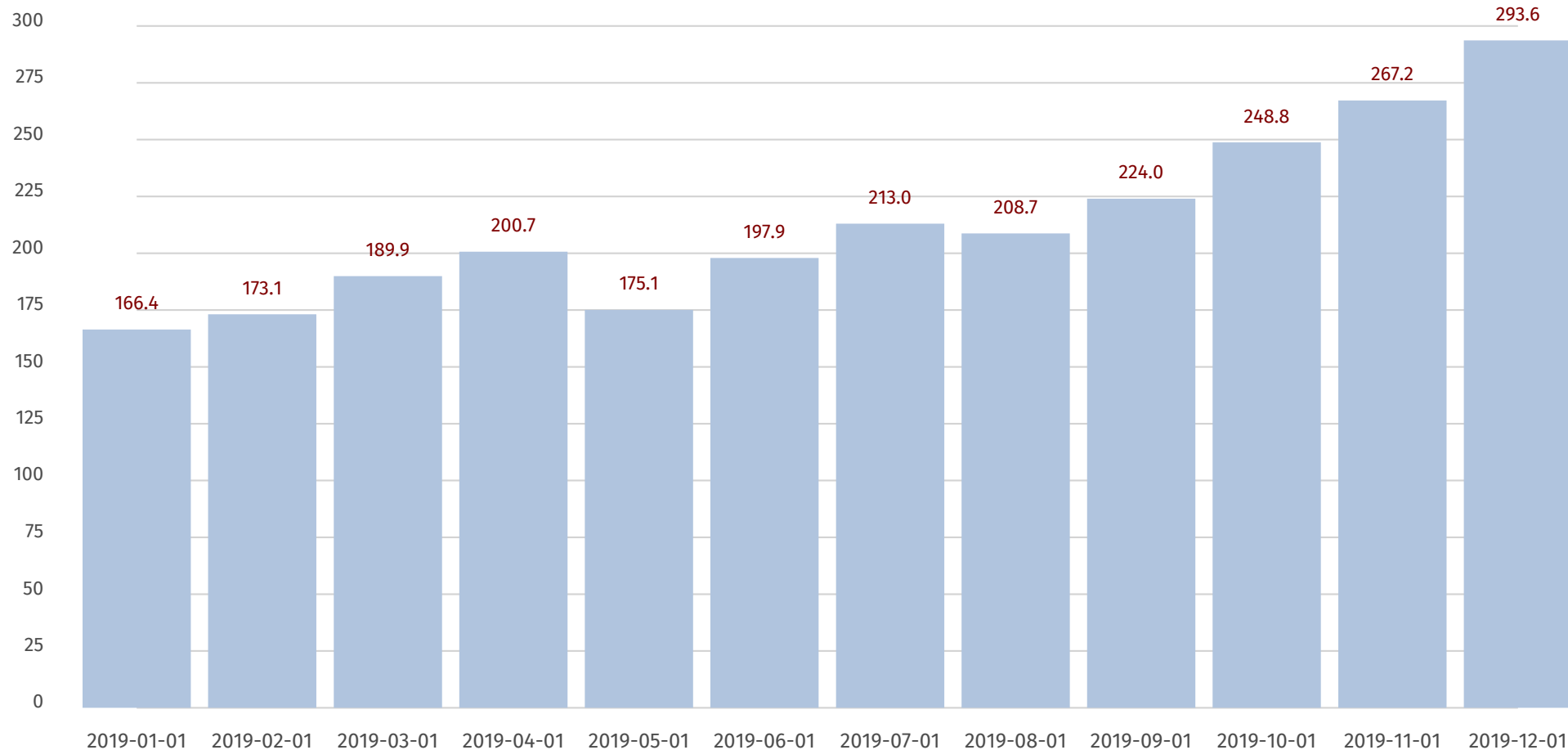
AAPL Closing Price



Y-Axis, Grid

```
dchart -grid -yaxis AAPL.d
```

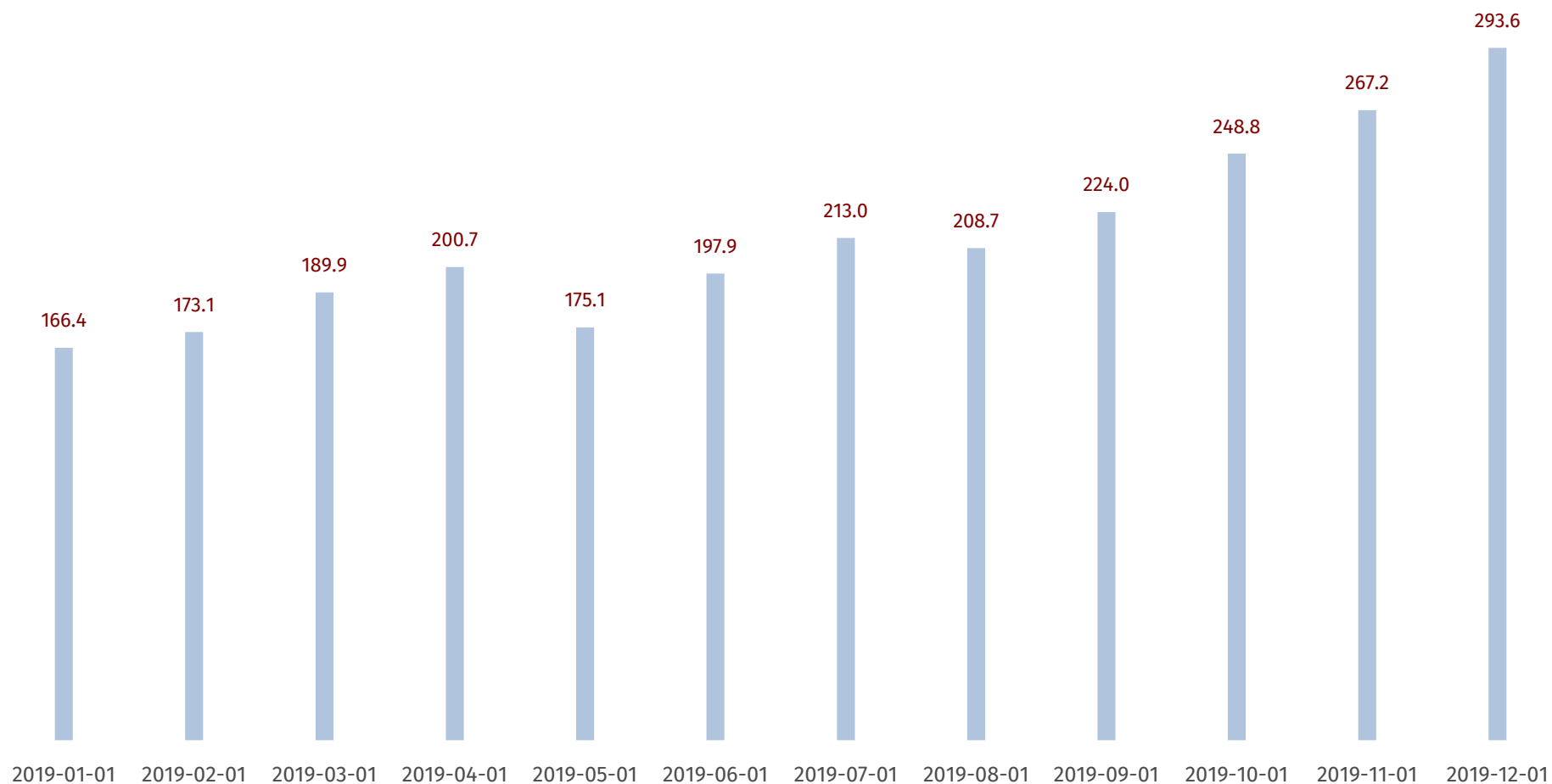
AAPL Closing Price



Y-Range

```
dchart -yrange=0,300,25 -grid -yaxis AAPL.d
```

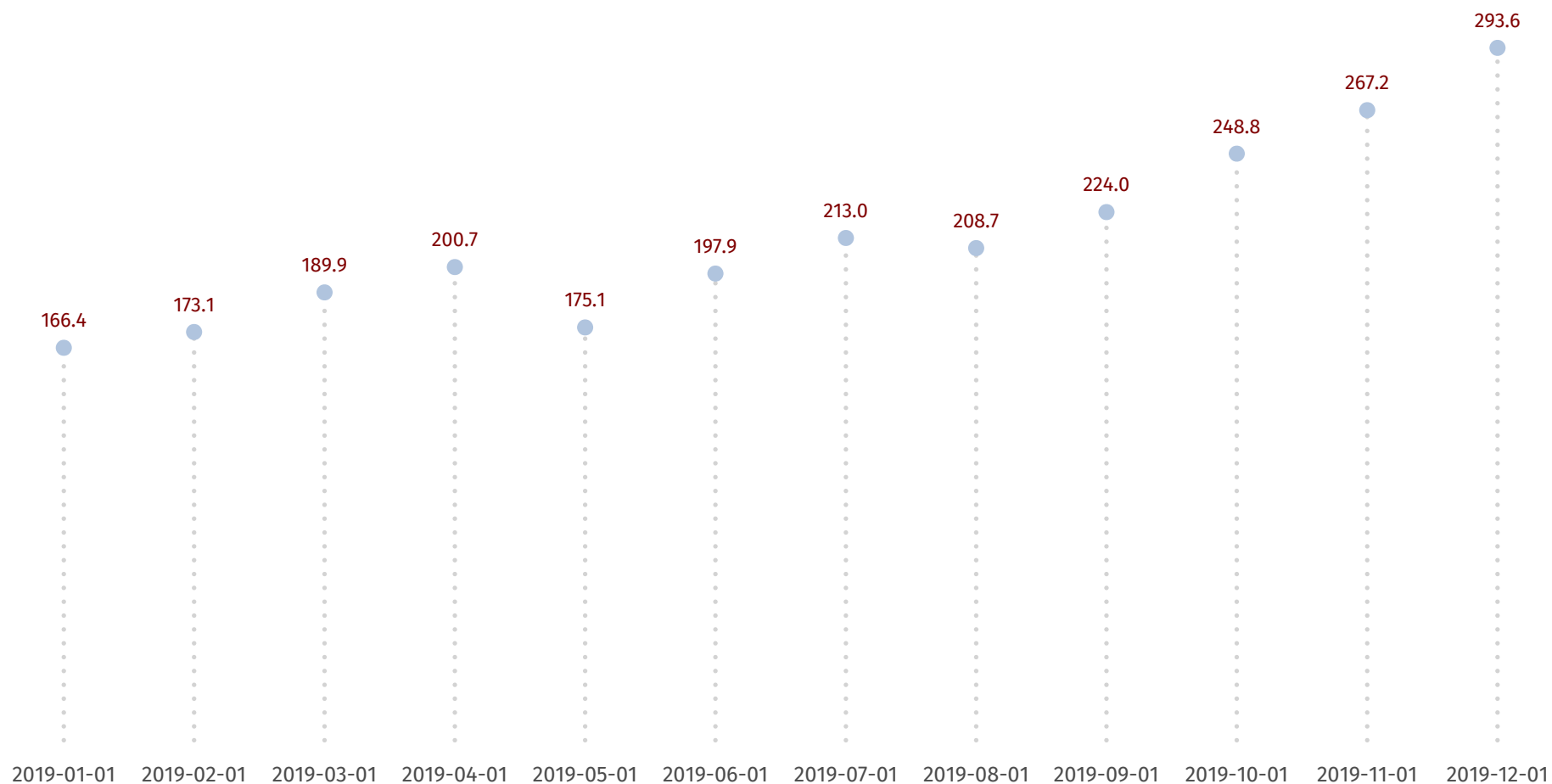
AAPL Closing Price



Adjusting Bar Width

```
dchart -barwidth=1 AAPL.d
```

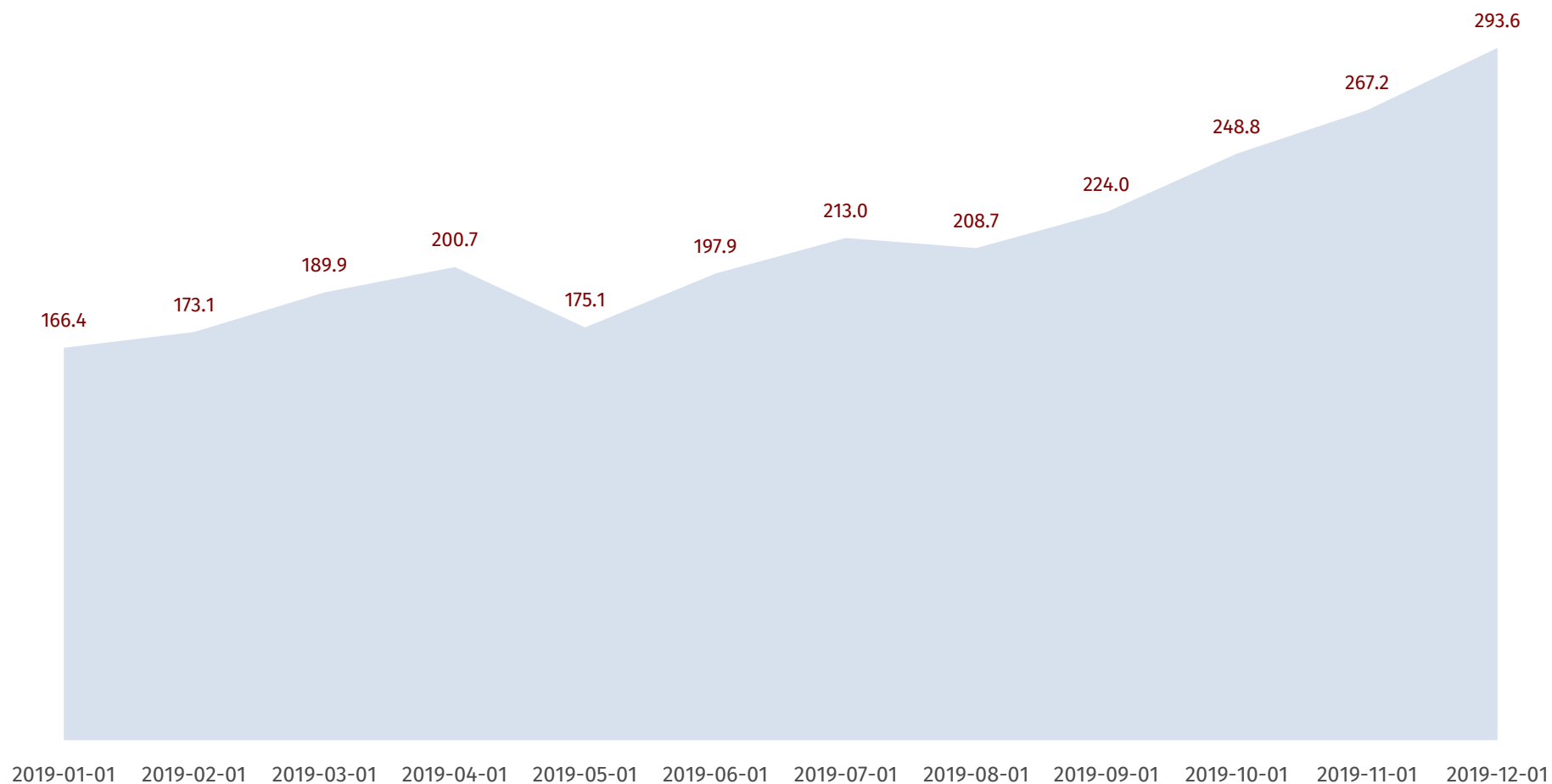
AAPL Closing Price



Dot Chart

```
dchart -bar=f -dot AAPL.d
```

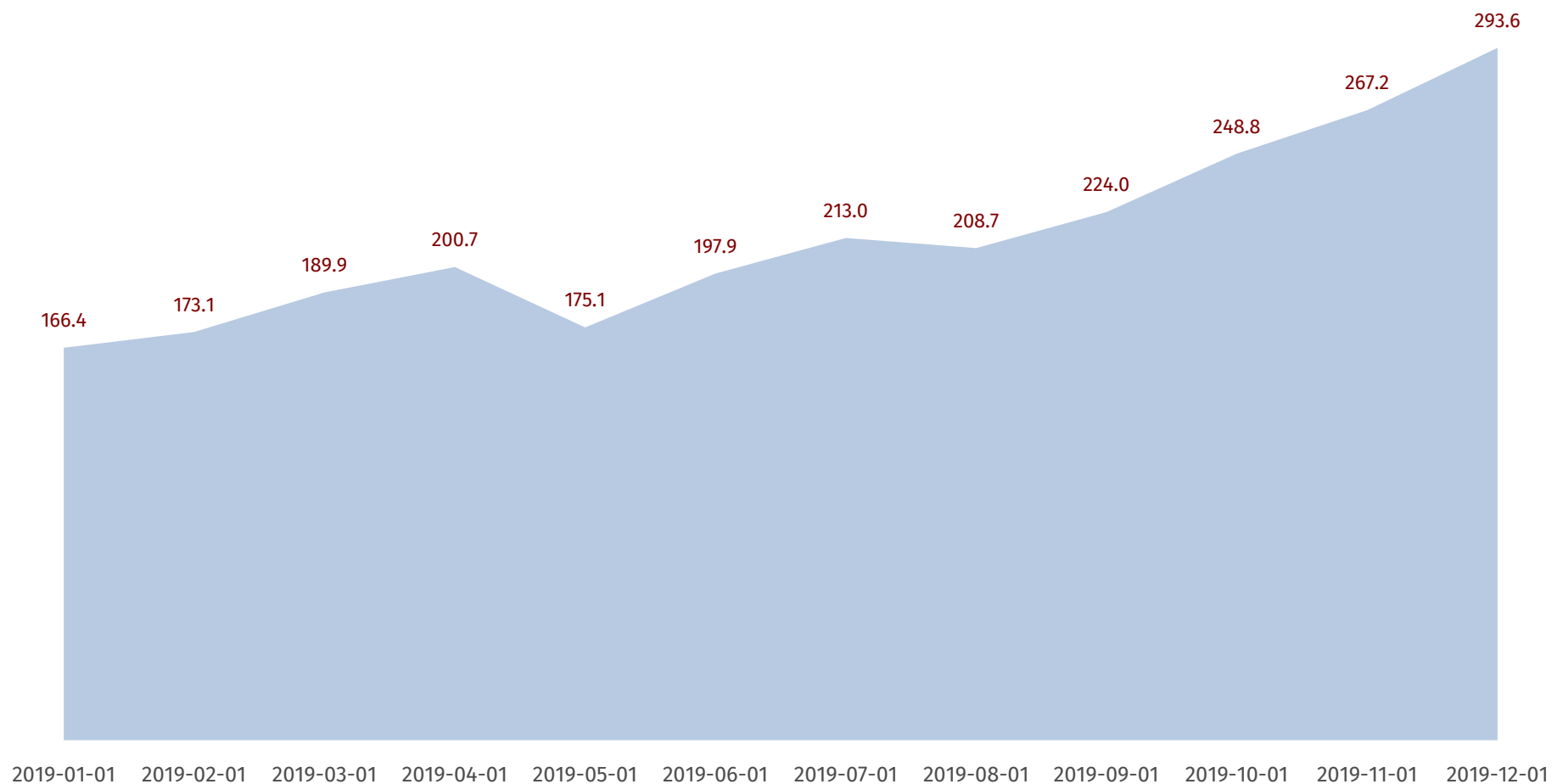
AAPL Closing Price



Area Chart

```
dchart -bar=f -vol AAPL.d
```

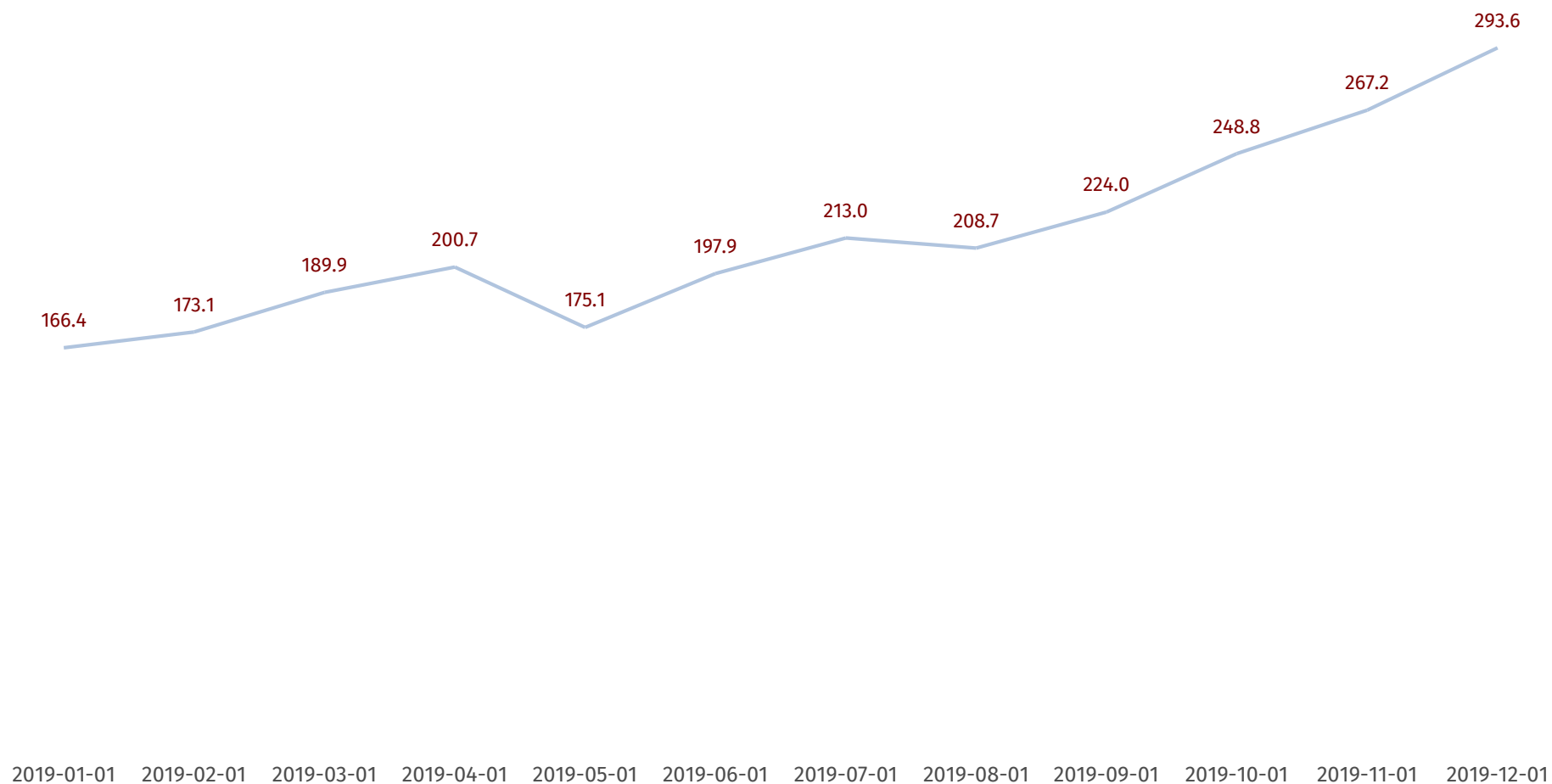

AAPL Closing Price



Area Chart, Opacity

```
dchart -bar=f -vol -volop=90 AAPL.d
```

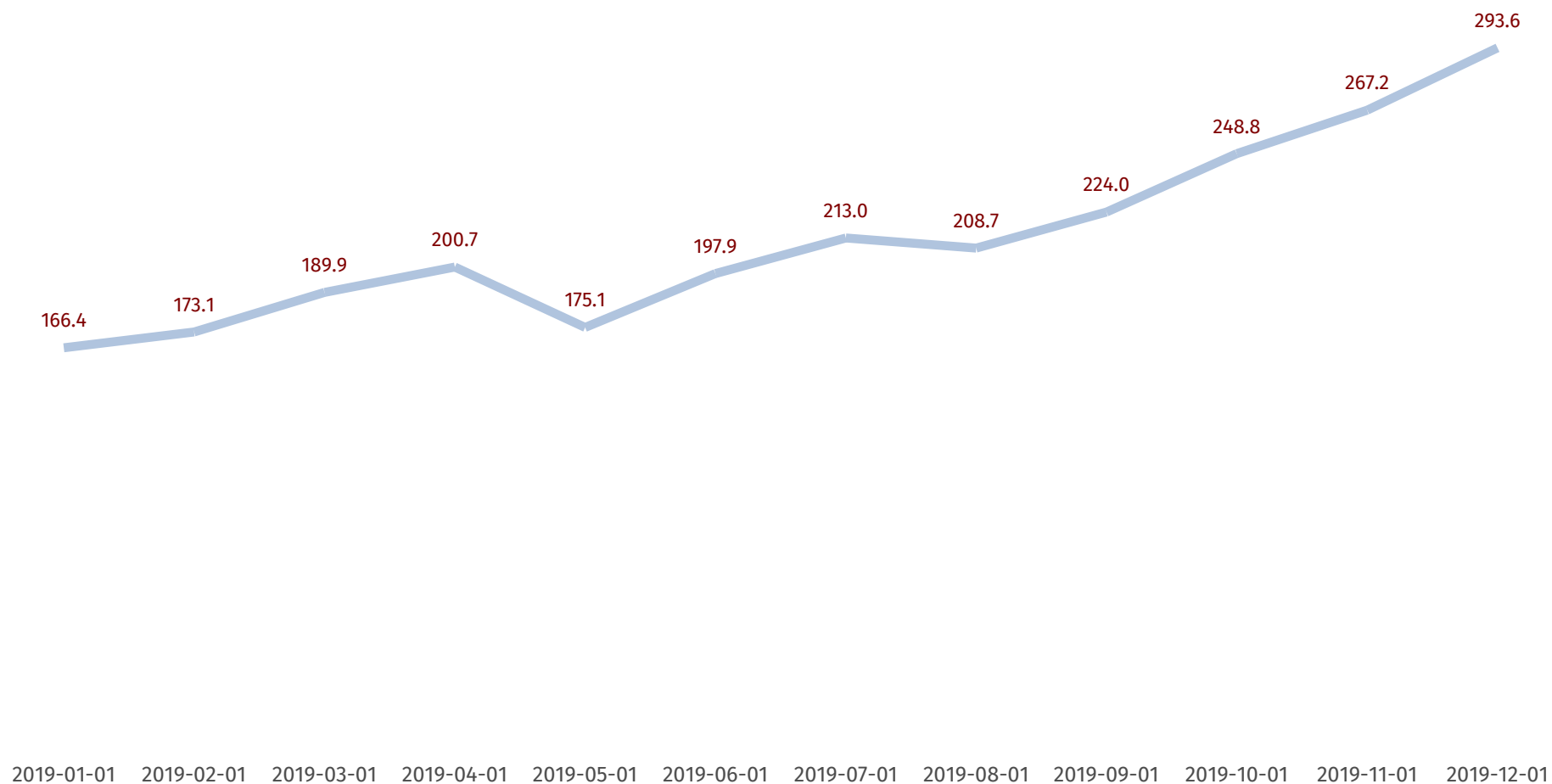
AAPL Closing Price



Line Chart

```
dchart -bar=f -line AAPL.d
```

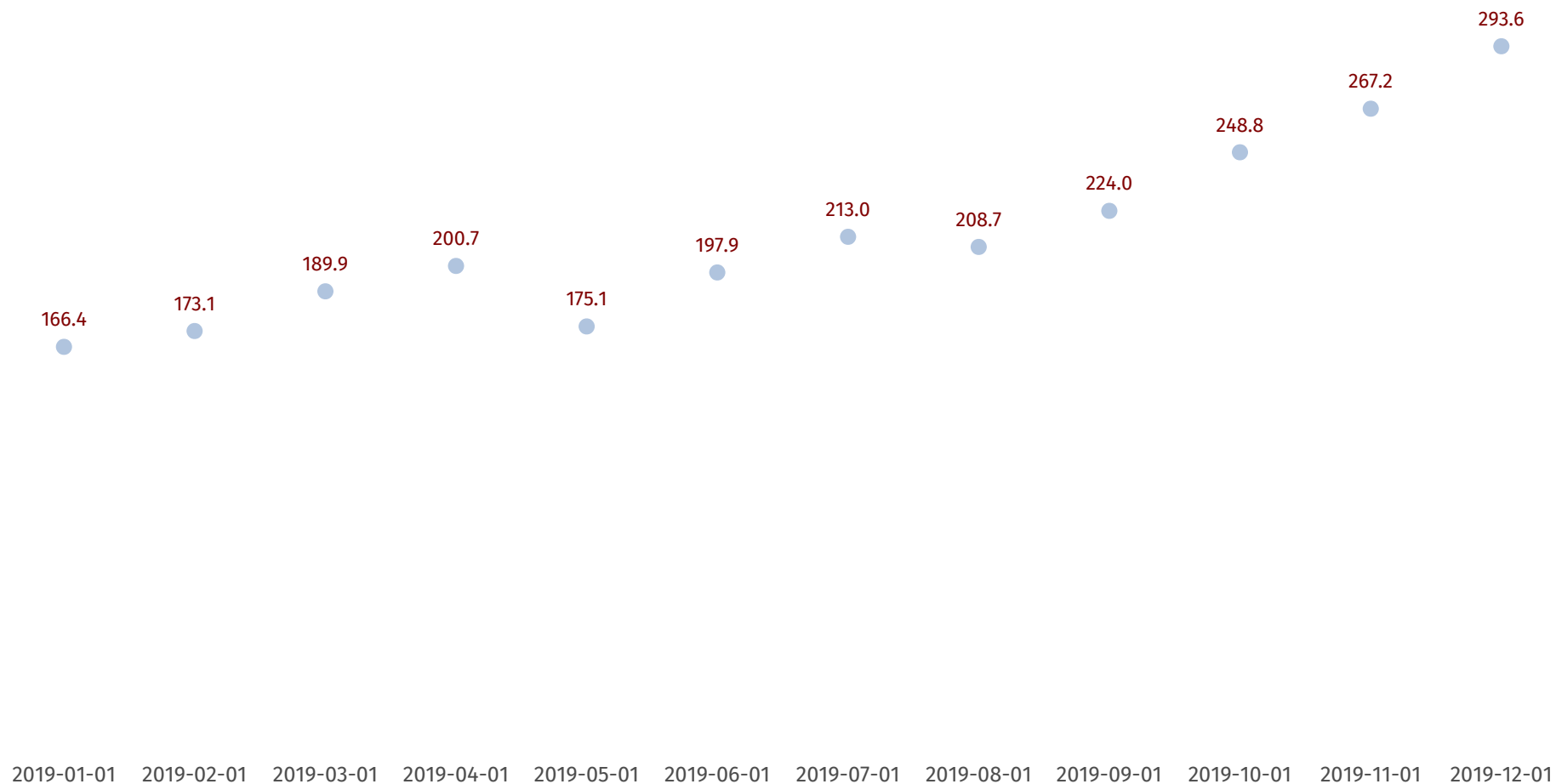
AAPL Closing Price



Line Chart, Line Width

```
dchart -bar=f -line -linewidth=0.5 AAPL.d
```

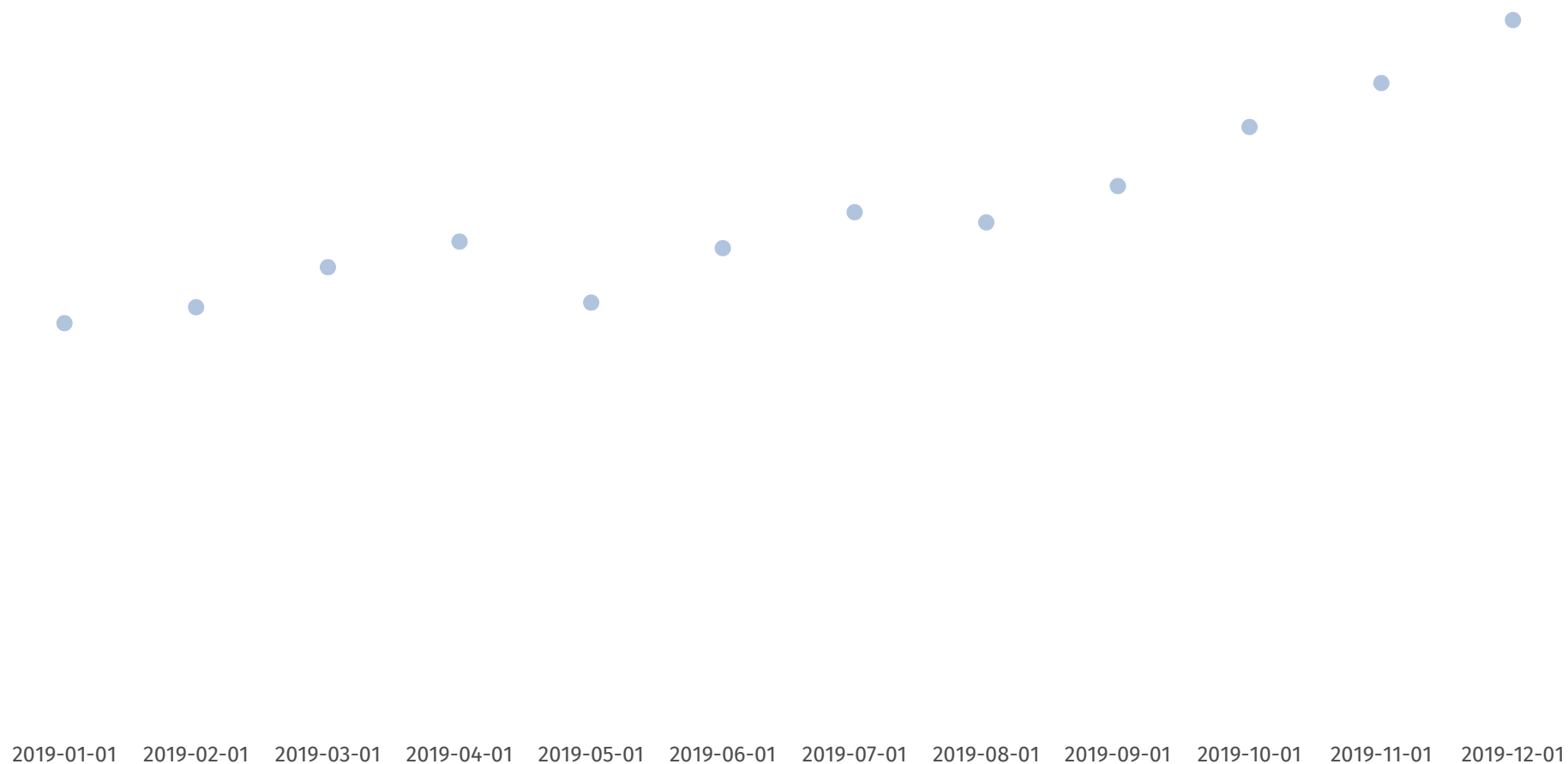
AAPL Closing Price



Scatter Chart

```
dchart -bar=f -scatter AAPL.d
```

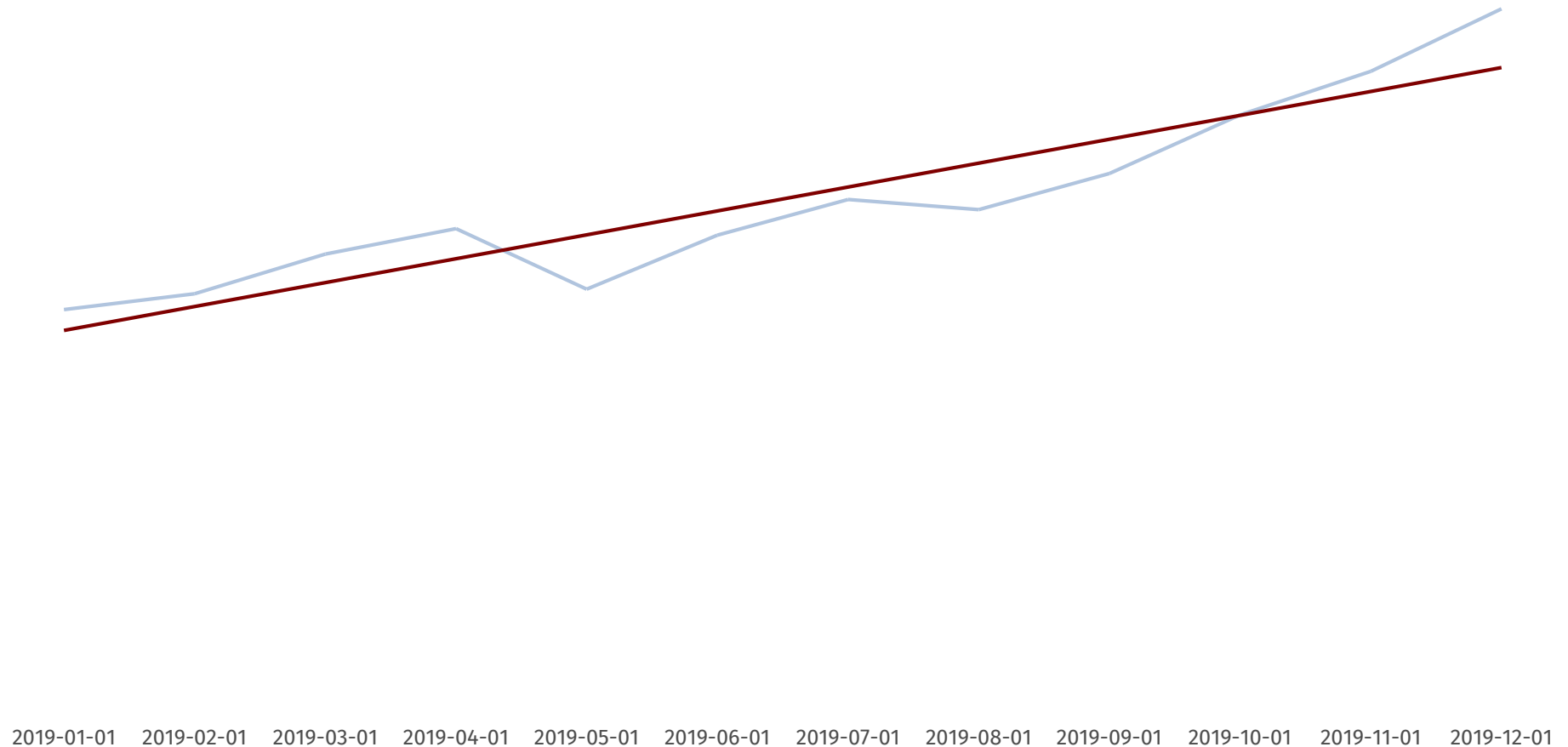
AAPL Closing Price



Scatter Chart, No Values

```
dchart -bar=f -scatter -val=f AAPL.d
```

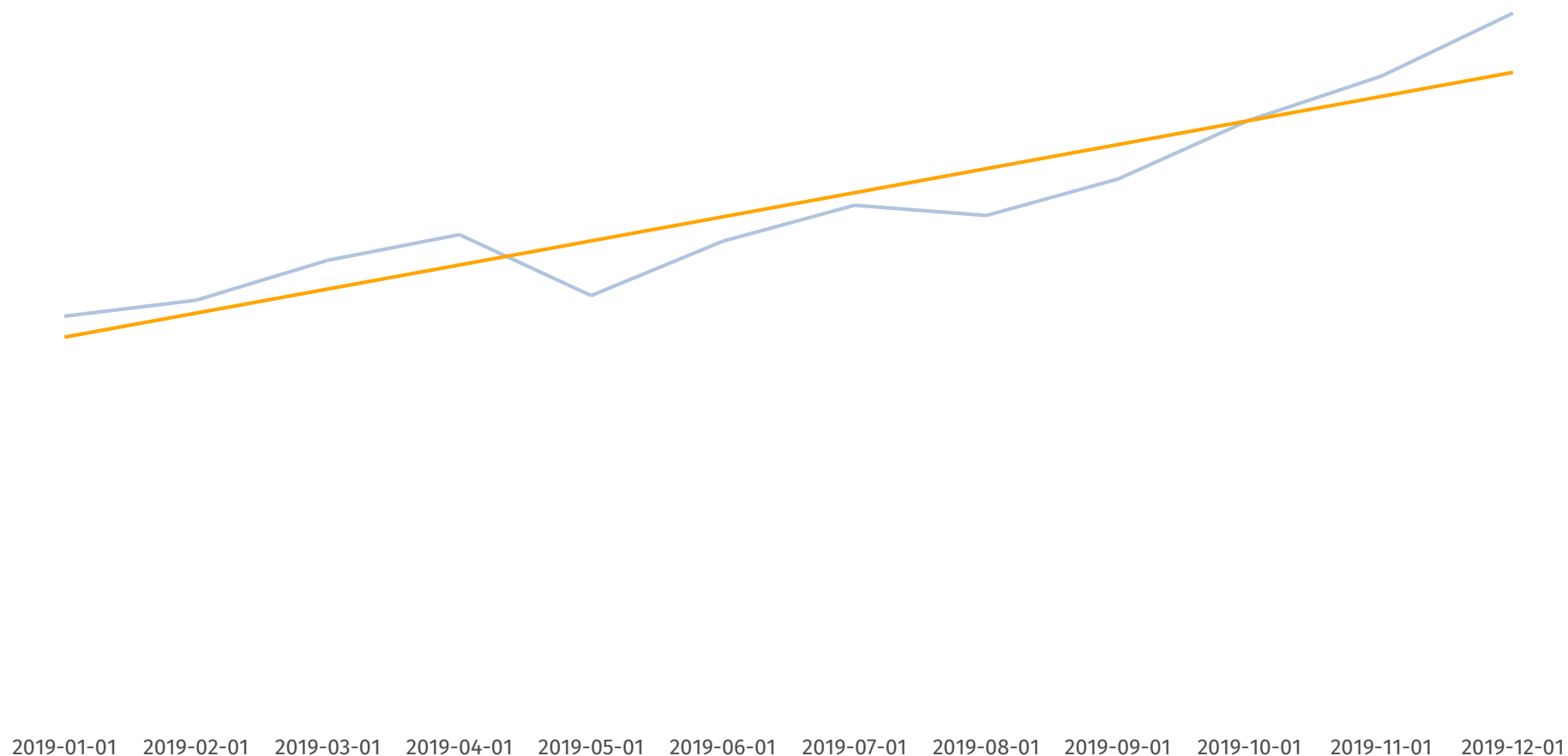
AAPL Closing Price



Line Chart, No Values, Regression Line

```
dchart -bar=f -line -val=f -rline AAPL.d
```

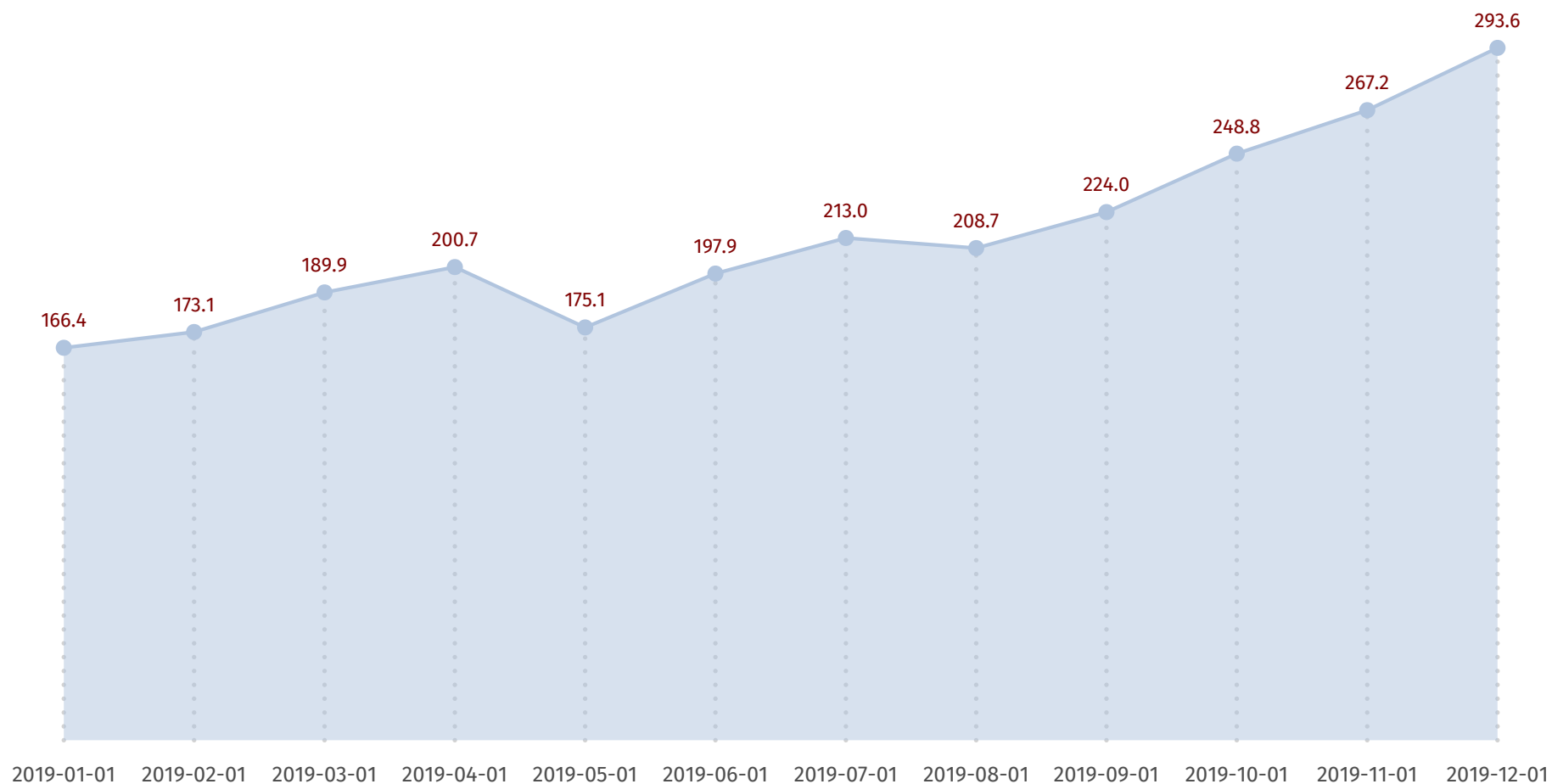
AAPL Closing Price



Line Chart, No Values, Regression Line Color

```
dchart -bar=f -line -val=f -rlcolor=orange AAPL.d
```

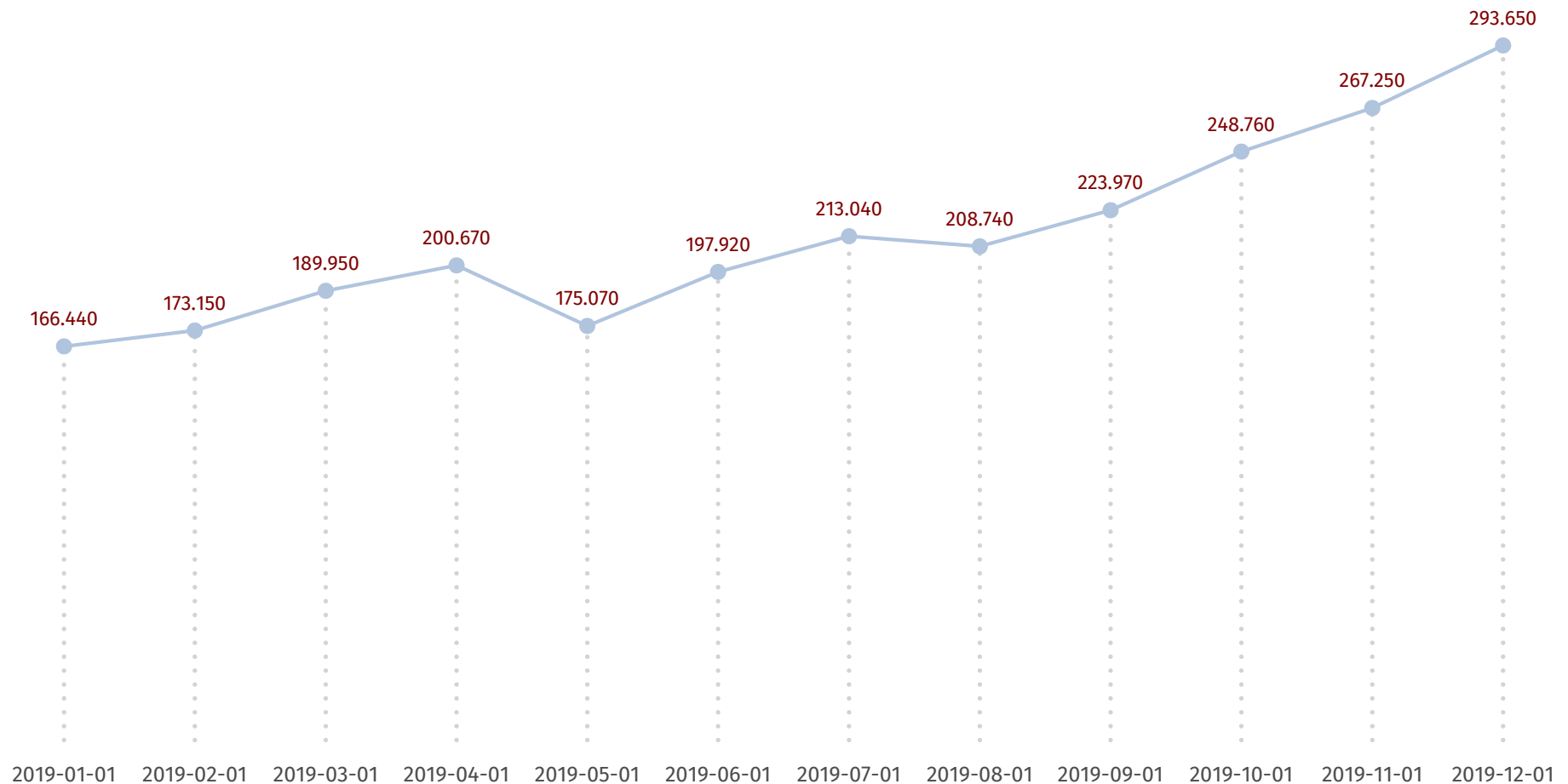
AAPL Closing Price



Volume, Line, Dot

```
dchart -bar=f -line -vol -dot AAPL.d
```

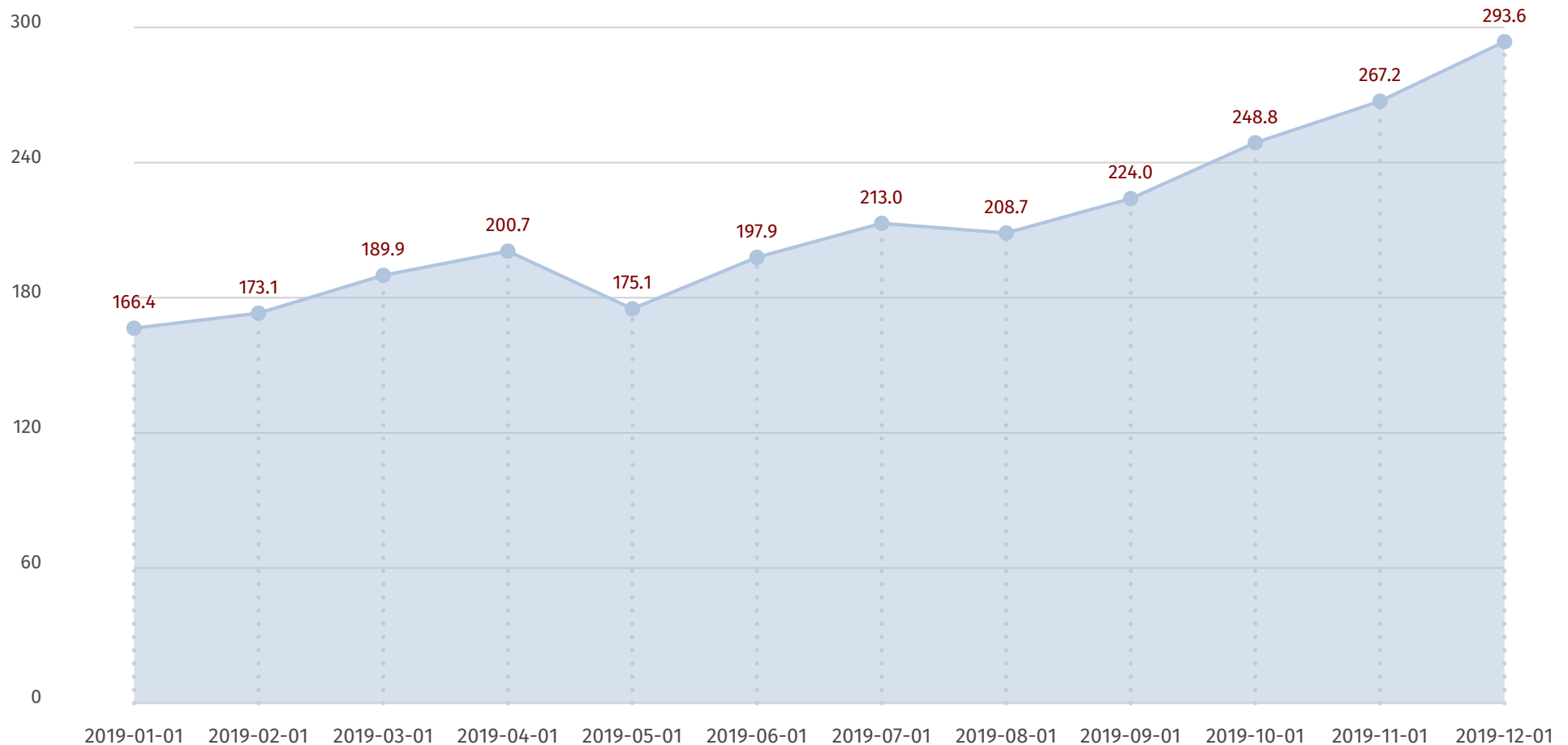

AAPL Closing Price



Dot, Line, Data Format

```
dchart -datafmt %0.3f -bar=f -dot -line AAPL.d
```

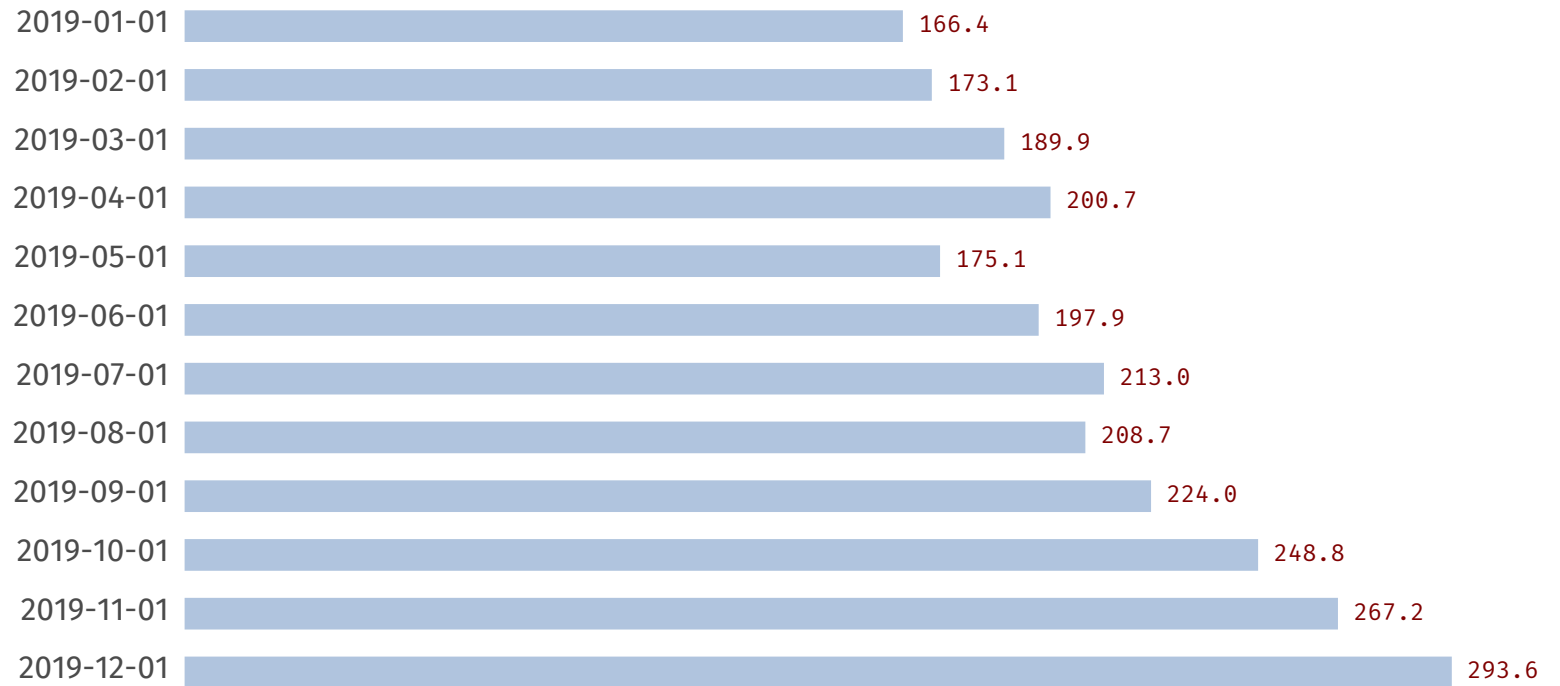
AAPL Closing Price



Line, Area, Dot, Y-Axis, Grid

```
dchart -bar=f -line -vol -dot -grid -yaxis AAPL.d
```

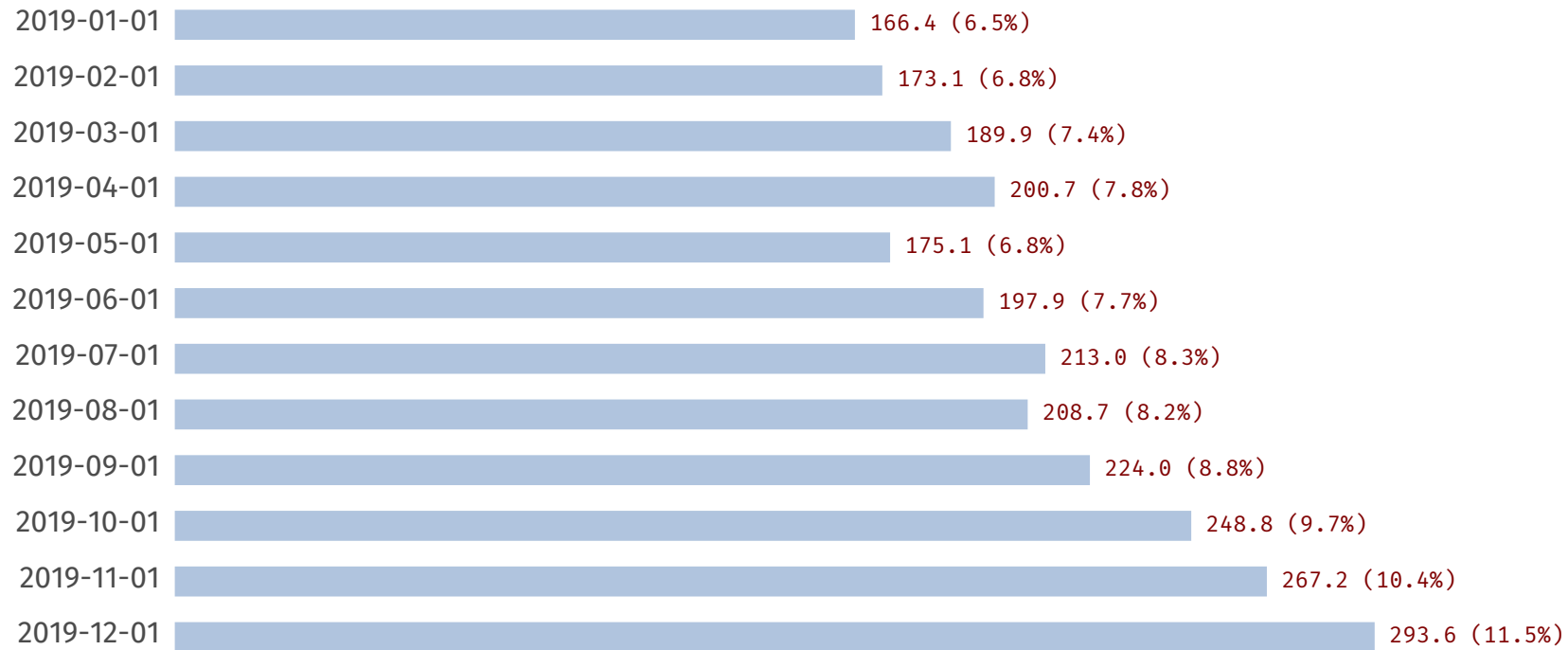
AAPL Closing Price



Horizontal Bar

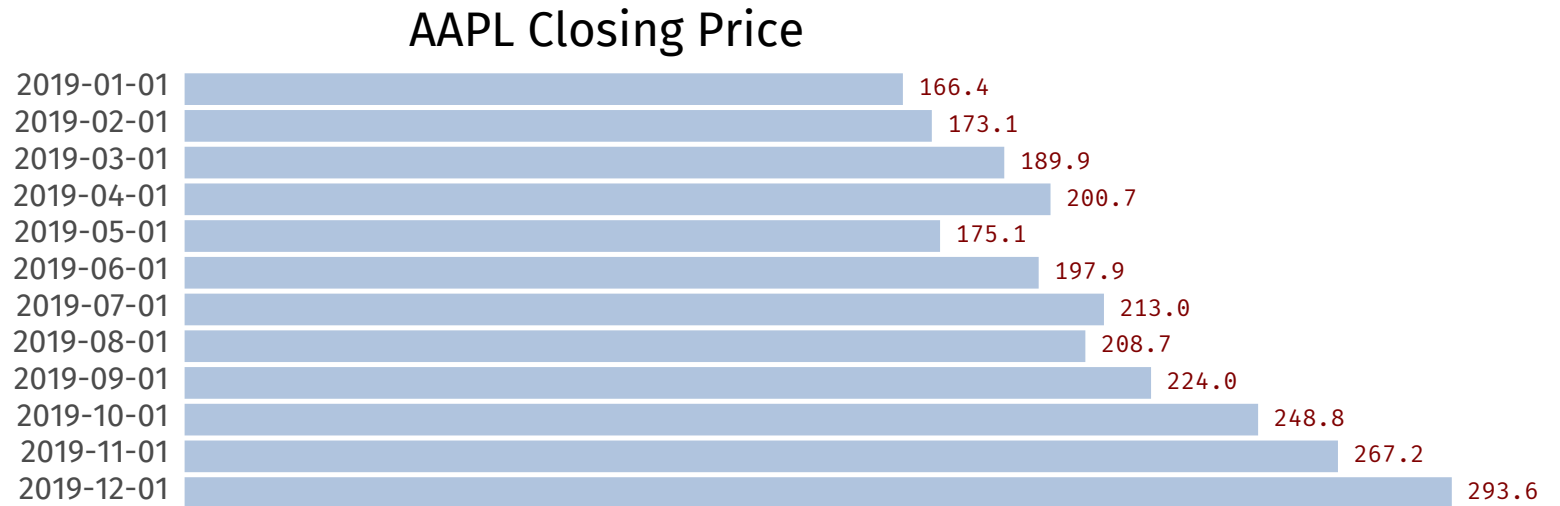
```
dchart -hbar AAPL.d
```

AAPL Closing Price



Horizontal Bar, Show Percentages

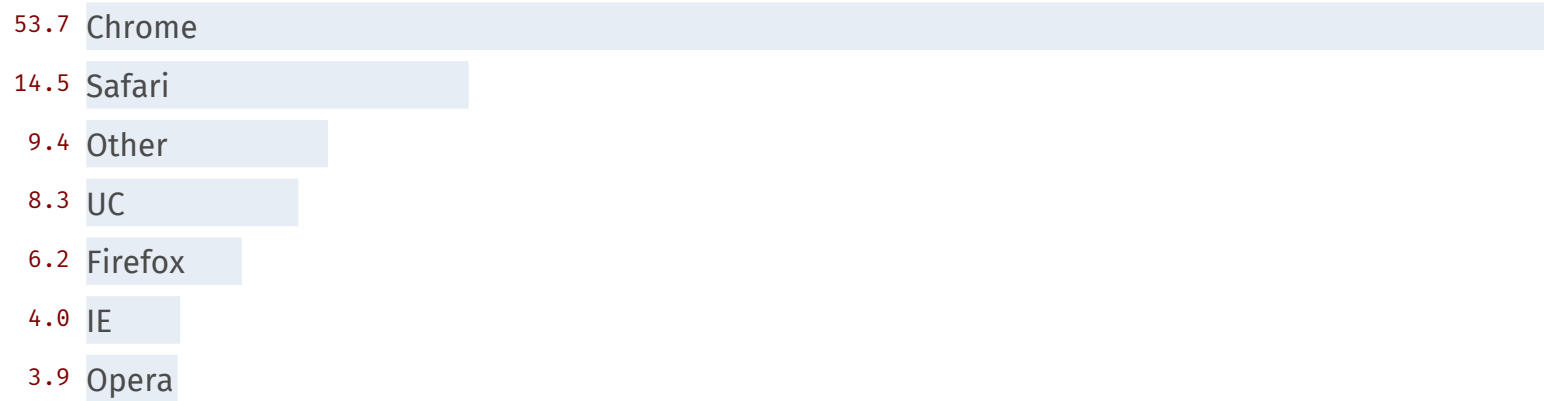
```
dchart -hbar -pct AAPL.d
```



Horizontal Bar, Line Spacing

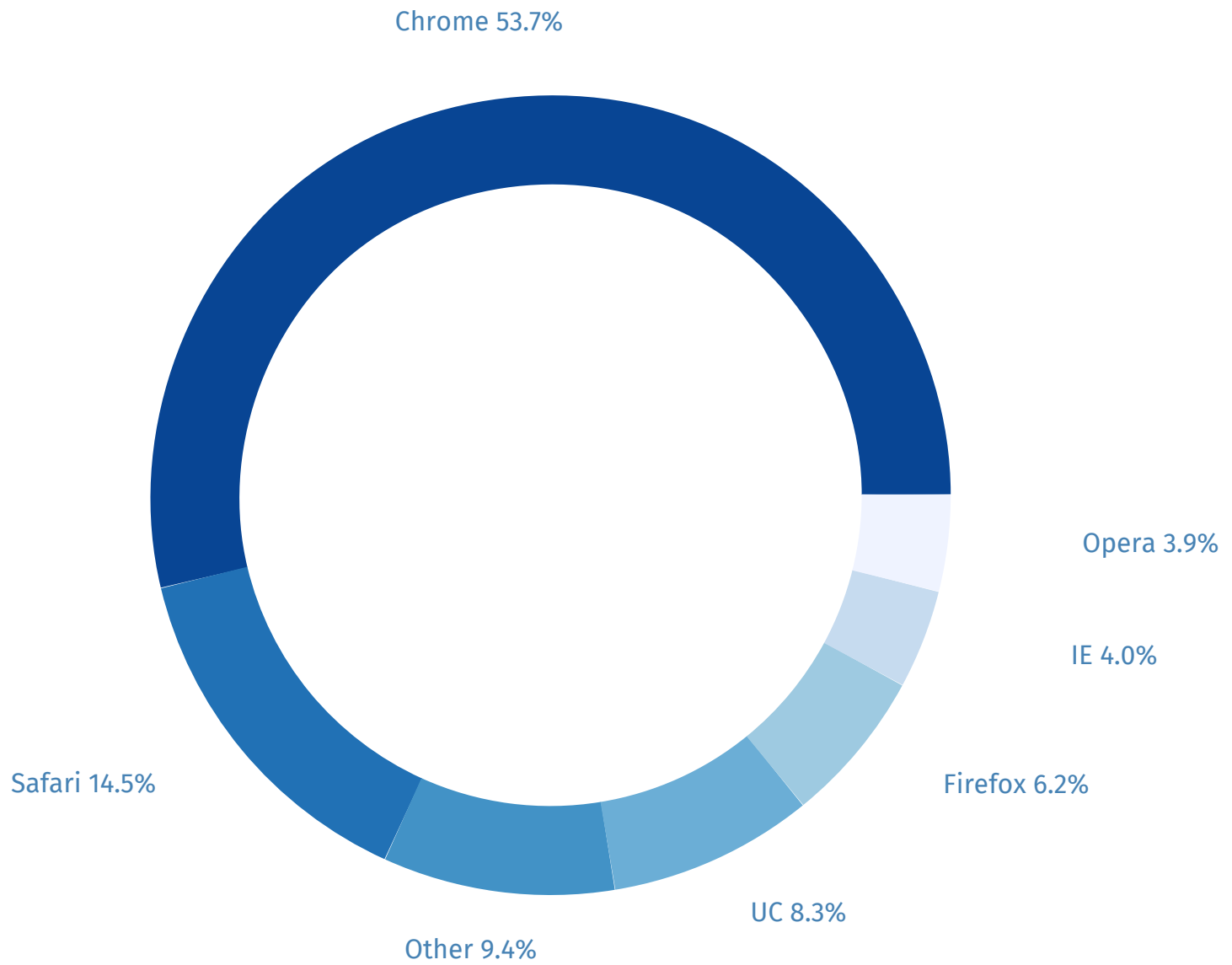
```
dchart -hbar -ls 1.5 AAPL.d
```

Browser Market Share Dec 2016-Dec 2017



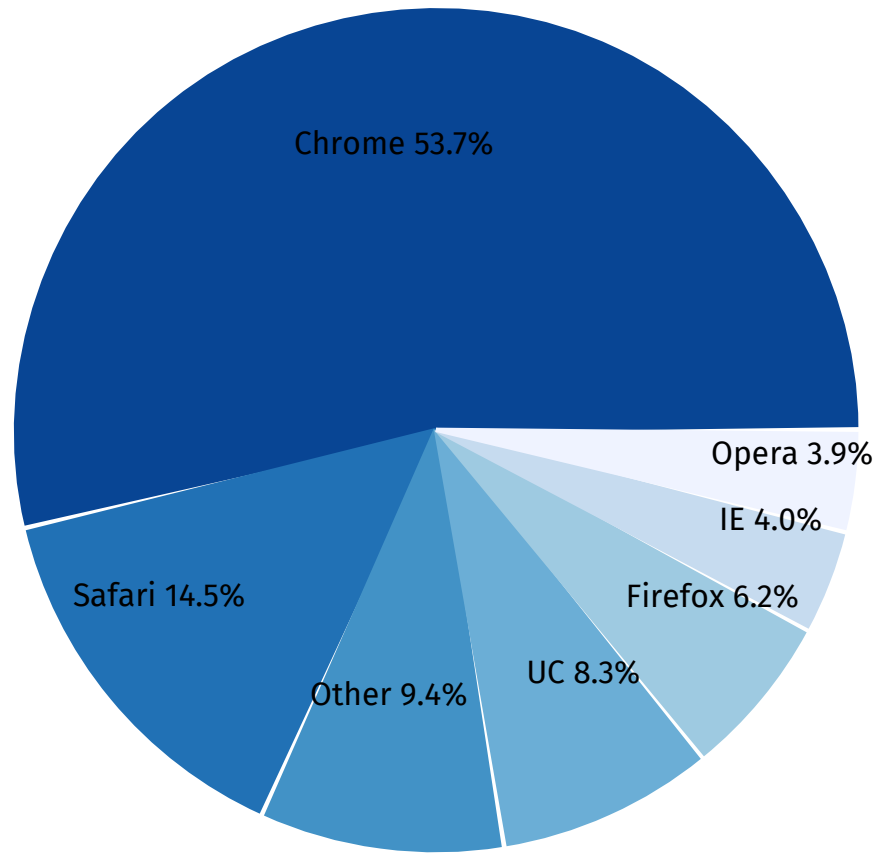
Word Bar

```
dchart -wbar AAPL.d
```



Donut

```
dchart -donut -color=std -pwidth=5 browser.d
```



Pie

```
dchart -donut -color=std -title=f -top=70 -pwidth=20 -psize=20 browser.d
```


Browser Market Share Dec 2016-Dec 2017



Pmap

```
dchart -pmap -pwidth=5 -textsize=1 browser.d
```

Browser Market Share Dec 2016-Dec 2017



Pmap with Solid Colors

```
dchart -pmap -pwidth=5 -textsize=1 -solidpmap browser.d
```

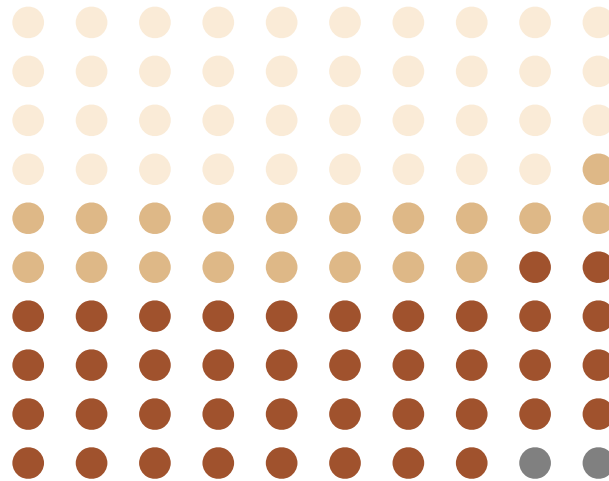
Browser Market Share Dec 2016-Dec 2017



Pmap with Solid Colors, Length Threshold

```
dchart -pmap -pwidth=5 -textsize=1 -solidpmap -pmlen=30 browser.d
```

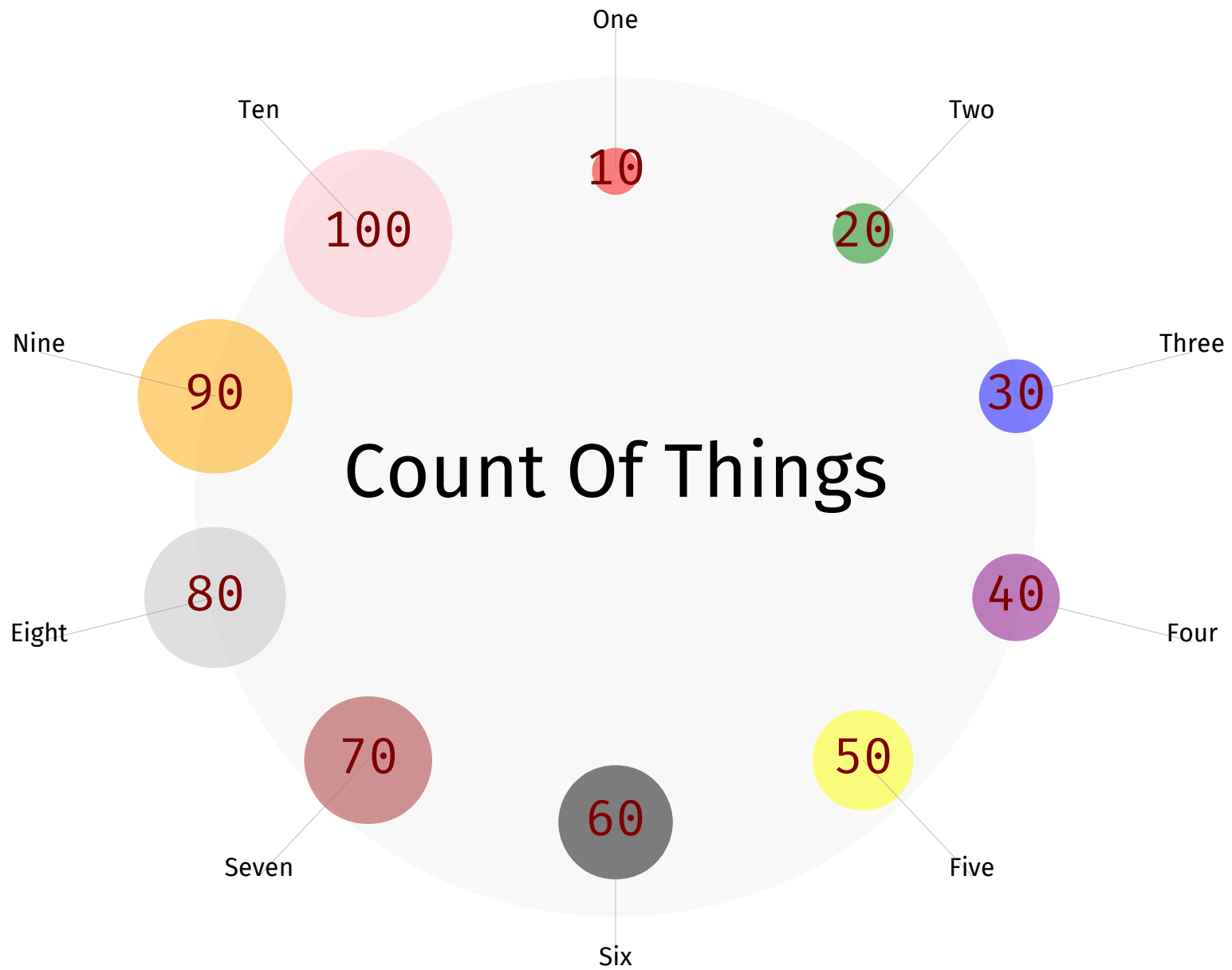
US Incarceration Rate



- White (39%)
- Hispanic (19%)
- Black (40%)
- Other (2%)

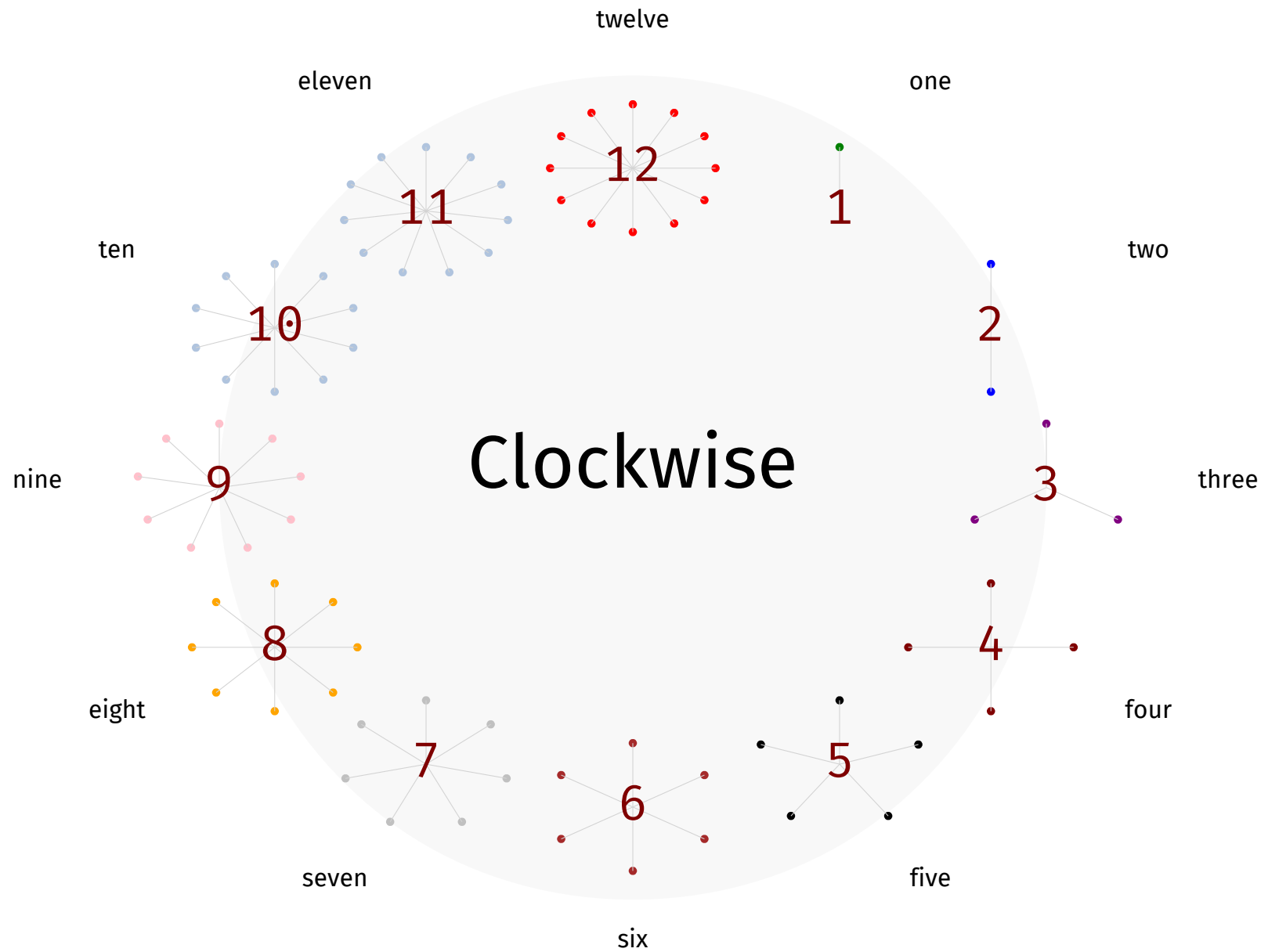
Pgrid

```
dchart -left 35 -top 80 -ls 3 -pgrid -val=f incar.d
```



Radial

```
dchart -radial -psize=10 -pwidth=25 -top=60 -textsize=3 count.d
```



Radial with Spokes

```
dchart -radial -psize=10 -pwidth=25 -top=60 -textsize=3 -spokes clock.d
```