
pygal Documentation

Release 2.0.0

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Feb 07, 2018

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CHAPTER 1

Sexy python charting

CHAPTER 2

Simple python charting

```
pygal.Bar()(1, 3, 3, 7)(1, 6, 6, 4).render()
```


3.1 Documentation

3.1.1 First steps

Caution: First you need to install pygal, see [installing](#).

When it's done, you are ready to make your first chart:

```
import pygal                                     # First import
↳pygal
bar_chart = pygal.Bar()                         # Then create a
↳bar graph object
bar_chart.add('Fibonacci', [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55]) # Add some values
bar_chart.render_to_file('bar_chart.svg')       # Save the svg to
↳a file
```

Now you should have a svg file called `bar_chart.svg` in your current directory.

You can open it with various programs such as your web browser, inkscape or any svg compatible viewer.

The resulting chart will be the following:

```
bar_chart = pygal.Bar()
bar_chart.add('Fibonacci', [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55])
bar_chart.render()
```

Caution: pygal relies on svg css styling. This is sadly not fully supported by gnome `librsvg` and therefore can lead to black svg being displayed. This is not a bug in pygal. [See this bugzilla search](#)

To make a multiple series graph just add another one:

```
bar_chart = pygal.Bar()
bar_chart.add('Fibonacci', [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55])
bar_chart.add('Padovan', [1, 1, 1, 2, 2, 3, 4, 5, 7, 9, 12])
bar_chart.render()
```

If you want to stack them, use *StackedBar* instead of *Bar*:

```
bar_chart = pygal.StackedBar()
bar_chart.add('Fibonacci', [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55])
bar_chart.add('Padovan', [1, 1, 1, 2, 2, 3, 4, 5, 7, 9, 12])
bar_chart.render()
```

You can also make it horizontal with *HorizontalStackedBar*:

```
bar_chart = pygal.HorizontalStackedBar()
bar_chart.add('Fibonacci', [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55])
bar_chart.add('Padovan', [1, 1, 1, 2, 2, 3, 4, 5, 7, 9, 12])
bar_chart.render()
```

And finally add a title and some labels:

```
bar_chart = pygal.HorizontalStackedBar()
bar_chart.title = "Remarquable sequences"
bar_chart.x_labels = map(str, range(11))
bar_chart.add('Fibonacci', [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55])
bar_chart.add('Padovan', [1, 1, 1, 2, 2, 3, 4, 5, 7, 9, 12])
bar_chart.render()
```

The public API is chainable and can be simplified as call arguments, the last chart can be also written:

```
bar_chart = pygal.HorizontalStackedBar(
    title="Remarquable sequences", x_labels=map(str, range(11)))(
    0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, title='Fibonacci')(
    1, 1, 1, 2, 2, 3, 4, 5, 7, 9, 12, title='Padovan')
```

3.1.2 Chart types

pygal provides various kinds of charts:

Line

Basic

Basic simple line graph:

```
line_chart = pygal.Line()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
    ↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
    ↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
    ↪ 20.1])
```

```
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.render()
```

Horizontal Line

Same graph but horizontal and with a range of 0-100.

```
line_chart = pygal.HorizontalLine()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.range = [0, 100]
line_chart.render()
```

Stacked

Same graph but with stacked values and filled rendering:

```
line_chart = pygal.StackedLine(fill=True)
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.render()
```

Time

For time related plots, just format your labels or use one variant of xy charts:

```
from datetime import datetime, timedelta
date_chart = pygal.Line(x_label_rotation=20)
date_chart.x_labels = map(lambda d: d.strftime('%Y-%m-%d'), [
    datetime(2013, 1, 2),
    datetime(2013, 1, 12),
    datetime(2013, 2, 2),
    datetime(2013, 2, 22)])
date_chart.add("Visits", [300, 412, 823, 672])
date_chart.render()
```

None values

None values will be skipped. It is also possible to [break lines](#).

Bar

Basic

Basic simple bar graph:

```
bar_chart = pygal.Bar()
bar_chart.title = 'Browser usage evolution (in %)'
bar_chart.x_labels = map(str, range(2002, 2013))
bar_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8, 37.
↪ 1])
bar_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
bar_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
bar_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
bar_chart.render()
```

Stacked

Same graph but with stacked values:

```
bar_chart = pygal.StackedBar()
bar_chart.title = 'Browser usage evolution (in %)'
bar_chart.x_labels = map(str, range(2002, 2013))
bar_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8, 37.
↪ 1])
bar_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
bar_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
bar_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
bar_chart.render()
```

Horizontal

Horizontal bar diagram:

```
bar_chart = pygal.HorizontalBar()
bar_chart.title = 'Browser usage in February 2012 (in %)'
bar_chart.add('IE', 19.5)
bar_chart.add('Firefox', 36.6)
bar_chart.add('Chrome', 36.3)
bar_chart.add('Safari', 4.5)
bar_chart.add('Opera', 2.3)
bar_chart.render()
```

Histogram

Basic

Histogram are special bars that take 3 values for a bar: the ordinate height, the abscissa start and the abscissa end.

```
hist = pygal.Histogram()
hist.add('Wide bars', [(5, 0, 10), (4, 5, 13), (2, 0, 15)])
hist.add('Narrow bars', [(10, 1, 2), (12, 4, 4.5), (8, 11, 13)])
hist.render()
```

XY

Basic

Basic XY lines, drawing cosinus:

```
from math import cos
xy_chart = pygal.XY()
xy_chart.title = 'XY Cosinus'
xy_chart.add('x = cos(y)', [(cos(x / 10.), x / 10.) for x in range(-50, 50, 5)])
xy_chart.add('y = cos(x)', [(x / 10., cos(x / 10.)) for x in range(-50, 50, 5)])
xy_chart.add('x = 1', [(1, -5), (1, 5)])
xy_chart.add('x = -1', [(-1, -5), (-1, 5)])
xy_chart.add('y = 1', [(-5, 1), (5, 1)])
xy_chart.add('y = -1', [(-5, -1), (5, -1)])
xy_chart.render()
```

Scatter Plot

Disabling stroke make a good scatter plot

```
xy_chart = pygal.XY(stroke=False)
xy_chart.title = 'Correlation'
xy_chart.add('A', [(0, 0), (.1, .2), (.3, .1), (.5, 1), (.8, .6), (1, 1.08), (1.3, 1.
↪ 1), (2, 3.23), (2.43, 2)])
xy_chart.add('B', [(0.1, .15), (.12, .23), (.4, .3), (.6, .4), (.21, .21), (.5, .3), (.
↪ 6, .8), (.7, .8)])
xy_chart.add('C', [(0.05, .01), (.13, .02), (1.5, 1.7), (1.52, 1.6), (1.8, 1.63), (1.5,
↪ 1.82), (1.7, 1.23), (2.1, 2.23), (2.3, 1.98)])
xy_chart.render()
```

Dates

You can use these helpers to plot date related charts:

DateTime

```
from datetime import datetime
datetimeline = pygal.DateTimeLine(
    x_label_rotation=35, truncate_label=-1,
    x_value_formatter=lambda dt: dt.strftime('%d, %b %Y at %I:%M:%S %p'))
datetimeline.add("Serie", [
    (datetime(2013, 1, 2, 12, 0), 300),
    (datetime(2013, 1, 12, 14, 30, 45), 412),
    (datetime(2013, 2, 2, 6), 823),
    (datetime(2013, 2, 22, 9, 45), 672)
])
datetimeline.render()
```

Caution: datetime are taken in utc by default (ie: no tzinfo). If you have dates with timezones ensure that all your dates have timezone otherwise you will have incoherences.

Date

```
from datetime import date
dateline = pygal.DateLine(x_label_rotation=25)
dateline.x_labels = [
    date(2013, 1, 1),
    date(2013, 7, 1),
    date(2014, 1, 1),
    date(2014, 7, 1),
    date(2015, 1, 1),
    date(2015, 7, 1)
]
dateline.add("Serie", [
    (date(2013, 1, 2), 213),
    (date(2013, 8, 2), 281),
    (date(2014, 12, 7), 198),
    (date(2015, 3, 21), 120)
])
dateline.render()
```

Time

```
from datetime import time
dateline = pygal.TimeLine(x_label_rotation=25)
dateline.add("Serie", [
    (time(), 0),
    (time(6), 5),
    (time(8, 30), 12),
    (time(11, 59, 59), 4),
    (time(18), 10),
    (time(23, 30), -1),
])
dateline.render()
```

TimeDelta

```
from datetime import timedelta
dateline = pygal.TimeDeltaLine(x_label_rotation=25)
dateline.add("Serie", [
    (timedelta(), 0),
    (timedelta(seconds=6), 5),
    (timedelta(minutes=11, seconds=59), 4),
    (timedelta(days=3, microseconds=30), 12),
    (timedelta(weeks=1), 10),
])
dateline.render()
```

None values

None values will be skipped. It is also possible to [break lines](#).

Pie

Basic

Simple pie:

```
pie_chart = pygal.Pie()
pie_chart.title = 'Browser usage in February 2012 (in %)'
pie_chart.add('IE', 19.5)
pie_chart.add('Firefox', 36.6)
pie_chart.add('Chrome', 36.3)
pie_chart.add('Safari', 4.5)
pie_chart.add('Opera', 2.3)
pie_chart.render()
```

Multi-series pie

Same pie but divided in sub category:

```
pie_chart = pygal.Pie()
pie_chart.title = 'Browser usage by version in February 2012 (in %)'
pie_chart.add('IE', [5.7, 10.2, 2.6, 1])
pie_chart.add('Firefox', [.6, 16.8, 7.4, 2.2, 1.2, 1, 1, 1.1, 4.3, 1])
pie_chart.add('Chrome', [.3, .9, 17.1, 15.3, .6, .5, 1.6])
pie_chart.add('Safari', [4.4, .1])
pie_chart.add('Opera', [.1, 1.6, .1, .5])
pie_chart.render()
```

Donut

It is possible to specify an inner radius to get a donut:

```
pie_chart = pygal.Pie(inner_radius=.4)
pie_chart.title = 'Browser usage in February 2012 (in %)'
pie_chart.add('IE', 19.5)
pie_chart.add('Firefox', 36.6)
pie_chart.add('Chrome', 36.3)
pie_chart.add('Safari', 4.5)
pie_chart.add('Opera', 2.3)
pie_chart.render()
```

or a ring:

```
pie_chart = pygal.Pie(inner_radius=.75)
pie_chart.title = 'Browser usage in February 2012 (in %)'
pie_chart.add('IE', 19.5)
pie_chart.add('Firefox', 36.6)
pie_chart.add('Chrome', 36.3)
pie_chart.add('Safari', 4.5)
pie_chart.add('Opera', 2.3)
pie_chart.render()
```

Half pie

```
pie_chart = pygal.Pie(half_pie=True)
pie_chart.title = 'Browser usage in February 2012 (in %)'
pie_chart.add('IE', 19.5)
pie_chart.add('Firefox', 36.6)
pie_chart.add('Chrome', 36.3)
pie_chart.add('Safari', 4.5)
pie_chart.add('Opera', 2.3)
pie_chart.render()
```

Radar

Basic

Simple Kiviati diagram:

```
radar_chart = pygal.Radar()
radar_chart.title = 'V8 benchmark results'
radar_chart.x_labels = ['Richards', 'DeltaBlue', 'Crypto', 'RayTrace', 'EarleyBoyer',
    ↪ 'RegExp', 'Splay', 'NavierStokes']
radar_chart.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
radar_chart.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
radar_chart.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
radar_chart.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
radar_chart.render()
```


Box

Extremes (default)

By default, the extremes mode is used that is the whiskers are the extremes of the data set, the box goes from the first quartile to the third and the middle line is the median.

```

box_plot = pygal.Box()
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()

```

1.5 interquartile range

Same as above except the whiskers are the first quartile minus 1.5 times the interquartile range and the third quartile plus 1.5 times the interquartile range.

```

box_plot = pygal.Box(box_mode="1.5IQR")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()

```

Tukey

The whiskers are the lowest datum within the 1.5 IQR of the lower quartile and the highest datum still within 1.5 IQR of the upper quartile. The outliers are shown too.

```

box_plot = pygal.Box(box_mode="tukey")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()

```

Standard deviation

The whiskers are defined here by the standard deviation of the data.

```

box_plot = pygal.Box(box_mode="stdev")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()

```

Population standard deviation

The whiskers are defined here by the population standard deviation of the data.

```
box_plot = pygal.Box(box_mode="pstdev")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()
```

Dot

Basic

Punch card like chart:

```
dot_chart = pygal.Dot(x_label_rotation=30)
dot_chart.title = 'V8 benchmark results'
dot_chart.x_labels = ['Richards', 'DeltaBlue', 'Crypto', 'RayTrace', 'EarleyBoyer',
    ↳ 'RegExp', 'Splay', 'NavierStokes']
dot_chart.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
dot_chart.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
dot_chart.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
dot_chart.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
dot_chart.render()
```

Negative

Negative values are also supported, drawing the dot empty:

```
dot_chart = pygal.Dot(x_label_rotation=30)
dot_chart.add('Normal', [10, 50, 76, 80, 25])
dot_chart.add('With negatives', [0, -34, -29, 39, -75])
dot_chart.render()
```

Funnel

Basic

Funnel chart:

```
funnel_chart = pygal.Funnel()
funnel_chart.title = 'V8 benchmark results'
funnel_chart.x_labels = ['Richards', 'DeltaBlue', 'Crypto', 'RayTrace', 'EarleyBoyer',
    ↳ 'RegExp', 'Splay', 'NavierStokes']
funnel_chart.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
funnel_chart.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
funnel_chart.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
funnel_chart.render()
```

SolidGauge

SolidGauge charts

Normal

```

gauge = pygal.SolidGauge(inner_radius=0.70)
percent_formatter = lambda x: '{:.10g}%'.format(x)
dollar_formatter = lambda x: '{:.10g}$'.format(x)
gauge.value_formatter = percent_formatter

gauge.add('Series 1', [{'value': 225000, 'max_value': 1275000}],
          formatter=dollar_formatter)
gauge.add('Series 2', [{'value': 110, 'max_value': 100}])
gauge.add('Series 3', [{'value': 3}])
gauge.add(
    'Series 4', [
        {'value': 51, 'max_value': 100},
        {'value': 12, 'max_value': 100}])
gauge.add('Series 5', [{'value': 79, 'max_value': 100}])
gauge.add('Series 6', 99)
gauge.add('Series 7', [{'value': 100, 'max_value': 100}])
gauge.render()

```

Half

```

gauge = pygal.SolidGauge(
    half_pie=True, inner_radius=0.70,
    style=pygal.style.styles['default'](value_font_size=10))

percent_formatter = lambda x: '{:.10g}%'.format(x)
dollar_formatter = lambda x: '{:.10g}$'.format(x)
gauge.value_formatter = percent_formatter

gauge.add('Series 1', [{'value': 225000, 'max_value': 1275000}],
          formatter=dollar_formatter)
gauge.add('Series 2', [{'value': 110, 'max_value': 100}])
gauge.add('Series 3', [{'value': 3}])
gauge.add(
    'Series 4', [
        {'value': 51, 'max_value': 100},
        {'value': 12, 'max_value': 100}])
gauge.add('Series 5', [{'value': 79, 'max_value': 100}])
gauge.add('Series 6', 99)
gauge.add('Series 7', [{'value': 100, 'max_value': 100}])
gauge.render()

```

Gauge

Basic

Gauge chart:

```
gauge_chart = pygal.Gauge(human_readable=True)
gauge_chart.title = 'DeltaBlue V8 benchmark results'
gauge_chart.range = [0, 10000]
gauge_chart.add('Chrome', 8212)
gauge_chart.add('Firefox', 8099)
gauge_chart.add('Opera', 2933)
gauge_chart.add('IE', 41)
gauge_chart.render()
```

Pyramid

Basic

Population pyramid:

```
ages = [(364381, 358443, 360172, 345848, 334895, 326914, 323053, 312576, 302015,
→301277, 309874, 318295, 323396, 332736, 330759, 335267, 345096, 352685, 368067,
→381521, 380145, 378724, 388045, 382303, 373469, 365184, 342869, 316928, 285137,
→273553, 250861, 221358, 195884, 179321, 171010, 162594, 152221, 148843, 143013,
→135887, 125824, 121493, 115913, 113738, 105612, 99596, 91609, 83917, 75688, 69538,
→62999, 58864, 54593, 48818, 44739, 41096, 39169, 36321, 34284, 32330, 31437, 30661,
→31332, 30334, 23600, 21999, 20187, 19075, 16574, 15091, 14977, 14171, 13687, 13155,
→12558, 11600, 10827, 10436, 9851, 9794, 8787, 7993, 6901, 6422, 5506, 4839, 4144,
→3433, 2936, 2615),
(346205, 340570, 342668, 328475, 319010, 312898, 308153, 296752, 289639, 290466,
→296190, 303871, 309886, 317436, 315487, 316696, 325772, 331694, 345815, 354696,
→354899, 351727, 354579, 341702, 336421, 321116, 292261, 261874, 242407, 229488,
→208939, 184147, 162662, 147361, 140424, 134336, 126929, 125404, 122764, 116004,
→105590, 100813, 95021, 90950, 85036, 79391, 72952, 66022, 59326, 52716, 46582,
→42772, 38509, 34048, 30887, 28053, 26152, 23931, 22039, 20677, 19869, 19026, 18757,
→18308, 14458, 13685, 12942, 12323, 11033, 10183, 10628, 10803, 10655, 10482, 10202,
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types = ['Males single', 'Females single',
         'Males married', 'Females married',
         'Males widowed', 'Females widowed',
         'Males divorced', 'Females divorced']

pyramid_chart = pygal.Pyramid(human_readable=True, legend_at_bottom=True)
pyramid_chart.title = 'England population by age in 2010 (source: ons.gov.uk)'
pyramid_chart.x_labels = map(lambda x: str(x) if not x % 5 else '', range(90))
for type, age in zip(types, ages):
    pyramid_chart.add(type, age)
pyramid_chart.render()

```

Treemap

Basic

Treemap:

```

treemap = pygal.Treemap()
treemap.title = 'Binary TreeMap'
treemap.add('A', [2, 1, 12, 4, 2, 1, 1, 3, 12, 3, 4, None, 9])
treemap.add('B', [4, 2, 5, 10, 3, 4, 2, 7, 4, -10, None, 8, 3, 1])
treemap.add('C', [3, 8, 3, 3, 5, 3, 3, 5, 4, 12])
treemap.add('D', [23, 18])
treemap.add('E', [1, 2, 1, 2, 3, 3, 1, 2, 3,
                  4, 3, 1, 2, 1, 1, 1, 1, 1])
treemap.add('F', [31])
treemap.add('G', [5, 9.3, 8.1, 12, 4, 3, 2])
treemap.add('H', [12, 3, 3])
treemap.render()

```

Maps

Maps are now packaged separately to keep pygal a reasonable sized package.

There are currently 3 available packages:

World map

Installing

The world map plugin can be installed by doing a:

```
pip install pygal_maps_world
```

Countries

Then you will have access to the `pygal.maps.world` module. Now you can plot countries by specifying their code (see below for the big list of supported country codes)

```
worldmap_chart = pygal.maps.world.World()
worldmap_chart.title = 'Some countries'
worldmap_chart.add('F countries', ['fr', 'fi'])
worldmap_chart.add('M countries', ['ma', 'mc', 'md', 'me', 'mg',
                                   'mk', 'ml', 'mm', 'mn', 'mo',
                                   'mr', 'mt', 'mu', 'mv', 'mw',
                                   'mx', 'my', 'mz'])
worldmap_chart.add('U countries', ['ua', 'ug', 'us', 'uy', 'uz'])
worldmap_chart.render()
```

You can also specify a value for a country:

```
worldmap_chart = pygal.maps.world.World()
worldmap_chart.title = 'Minimum deaths by capital punishment (source: Amnesty_↵International)'
worldmap_chart.add('In 2012', {
    'af': 14,
    'bd': 1,
    'by': 3,
    'cn': 1000,
    'gm': 9,
    'in': 1,
    'ir': 314,
    'iq': 129,
    'jp': 7,
    'kp': 6,
    'pk': 1,
    'ps': 6,
    'sa': 79,
    'so': 6,
    'sd': 5,
    'tw': 6,
    'ae': 1,
    'us': 43,
    'ye': 28
})
worldmap_chart.render()
```

Continents

You have also access to continents:

```

supra = pygal.maps.world.SupranationalWorld()
supra.add('Asia', [('asia', 1)])
supra.add('Europe', [('europe', 1)])
supra.add('Africa', [('africa', 1)])
supra.add('North america', [('north_america', 1)])
supra.add('South america', [('south_america', 1)])
supra.add('Oceania', [('oceania', 1)])
supra.add('Antartica', [('antartica', 1)])
supra.render()

```

Coutry code list

The following countries are supported:

code	Country
ad	Andorra
ae	United Arab Emirates
af	Afghanistan
al	Albania
am	Armenia
ao	Angola
aq	Antarctica
ar	Argentina
at	Austria
au	Australia
az	Azerbaijan
ba	Bosnia and Herzegovina
bd	Bangladesh
be	Belgium
bf	Burkina Faso
bg	Bulgaria
bh	Bahrain
bi	Burundi
bj	Benin
bn	Brunei Darussalam
bo	Bolivia, Plurinational State of
br	Brazil
bt	Bhutan
bw	Botswana
by	Belarus
bz	Belize
ca	Canada
cd	Congo, the Democratic Republic of the
cf	Central African Republic
cg	Congo
ch	Switzerland
ci	Cote d'Ivoire
cl	Chile
cm	Cameroon
cn	China

Continued on next page

Table 3.1 – continued from previous page

code	Country
co	Colombia
cr	Costa Rica
cu	Cuba
cv	Cape Verde
cy	Cyprus
cz	Czech Republic
de	Germany
dj	Djibouti
dk	Denmark
do	Dominican Republic
dz	Algeria
ec	Ecuador
ee	Estonia
eg	Egypt
eh	Western Sahara
er	Eritrea
es	Spain
et	Ethiopia
fi	Finland
fr	France
ga	Gabon
gb	United Kingdom
ge	Georgia
gf	French Guiana
gh	Ghana
gl	Greenland
gm	Gambia
gn	Guinea
gq	Equatorial Guinea
gr	Greece
gt	Guatemala
gu	Guam
gw	Guinea-Bissau
gy	Guyana
hk	Hong Kong
hn	Honduras
hr	Croatia
ht	Haiti
hu	Hungary
id	Indonesia
ie	Ireland
il	Israel
in	India
iq	Iraq
ir	Iran, Islamic Republic of
is	Iceland
it	Italy
jm	Jamaica
jo	Jordan

Continued on next page

Table 3.1 – continued from previous page

code	Country
jp	Japan
ke	Kenya
kg	Kyrgyzstan
kh	Cambodia
kp	Korea, Democratic People’s Republic of
kr	Korea, Republic of
kw	Kuwait
kz	Kazakhstan
la	Lao People’s Democratic Republic
lb	Lebanon
li	Liechtenstein
lk	Sri Lanka
lr	Liberia
ls	Lesotho
lt	Lithuania
lu	Luxembourg
lv	Latvia
ly	Libyan Arab Jamahiriya
ma	Morocco
mc	Monaco
md	Moldova, Republic of
me	Montenegro
mg	Madagascar
mk	Macedonia, the former Yugoslav Republic of
ml	Mali
mm	Myanmar
mn	Mongolia
mo	Macao
mr	Mauritania
mt	Malta
mu	Mauritius
mv	Maldives
mw	Malawi
mx	Mexico
my	Malaysia
mz	Mozambique
na	Namibia
ne	Niger
ng	Nigeria
ni	Nicaragua
nl	Netherlands
no	Norway
np	Nepal
nz	New Zealand
om	Oman
pa	Panama
pe	Peru
pg	Papua New Guinea
ph	Philippines

Continued on next page

Table 3.1 – continued from previous page

code	Country
pk	Pakistan
pl	Poland
pr	Puerto Rico
ps	Palestine, State of
pt	Portugal
py	Paraguay
re	Reunion
ro	Romania
rs	Serbia
ru	Russian Federation
rw	Rwanda
sa	Saudi Arabia
sc	Seychelles
sd	Sudan
se	Sweden
sg	Singapore
sh	Saint Helena, Ascension and Tristan da Cunha
si	Slovenia
sk	Slovakia
sl	Sierra Leone
sm	San Marino
sn	Senegal
so	Somalia
sr	Suriname
st	Sao Tome and Principe
sv	El Salvador
sy	Syrian Arab Republic
sz	Swaziland
td	Chad
tg	Togo
th	Thailand
tj	Tajikistan
tl	Timor-Leste
tm	Turkmenistan
tn	Tunisia
tr	Turkey
tw	Taiwan (Republic of China)
tz	Tanzania, United Republic of
ua	Ukraine
ug	Uganda
us	United States
uy	Uruguay
uz	Uzbekistan
va	Holy See (Vatican City State)
ve	Venezuela, Bolivarian Republic of
vn	Viet Nam
ye	Yemen
yt	Mayotte
za	South Africa

Continued on next page

Table 3.1 – continued from previous page

code	Country
zm	Zambia
zw	Zimbabwe

Continent list

code	name
asia	Asia
europa	Europe
africa	Africa
north_america	North America
south_america	South America
oceania	Oceania
antartica	Antartica

French map

Installing

The french map plugin can be installed by doing a:

```
pip install pygal_maps_fr
```

Department

Then you will have access to the `pygal.maps.fr` module.

You can now plot departments (see below for the list):

```
fr_chart = pygal.maps.fr.Departments()
fr_chart.title = 'Some departments'
fr_chart.add('Métropole', ['69', '92', '13'])
fr_chart.add('Corse', ['2A', '2B'])
fr_chart.add('DOM COM', ['971', '972', '973', '974'])
fr_chart.render()
```

Or specify an number for a department:

```
fr_chart = pygal.maps.fr.Departments(human_readable=True)
fr_chart.title = 'Population by department'
fr_chart.add('In 2011', {
    '01': 603827, '02': 541302, '03': 342729, '04': 160959, '05': 138605, '06': 1081244,
    ↪ '07': 317277, '08': 283110, '09': 152286, '10': 303997, '11': 359967, '12': 275813,
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    ↪ '96': 202201, '97': 202201, '98': 202201, '99': 202201, '00': 2
```

```

}))
fr_chart.render()

```

Regions

You can do the same with regions:

```

fr_chart = pygal.maps.fr.Regions()
fr_chart.title = 'Some regions'
fr_chart.add('Métropole', ['82', '11', '93'])
fr_chart.add('Corse', ['94'])
fr_chart.add('DOM COM', ['01', '02', '03', '04'])
fr_chart.render()

```

You can also specify a number for a region and use a department to region aggregation:

```

from pygal.maps.fr import aggregate_regions
fr_chart = pygal.maps.fr.Regions(human_readable=True)
fr_chart.title = 'Population by region'
fr_chart.add('In 2011', aggregate_regions({
    '01': 603827, '02': 541302, '03': 342729, '04': 160959, '05': 138605, '06': 1081244,
    ↪ '07': 317277, '08': 283110, '09': 152286, '10': 303997, '11': 359967, '12': 275813,
    ↪ '13': 1975896, '14': 685262, '15': 147577, '16': 352705, '17': 625682, '18': ↪
    ↪ 311694, '19': 242454, '2A': 145846, '2B': 168640, '21': 525931, '22': 594375, '23': ↪
    ↪ 122560, '24': 415168, '25': 529103, '26': 487993, '27': 588111, '28': 430416, '29': ↪
    ↪ 899870, '30': 718357, '31': 1260226, '32': 188893, '33': 1463662, '34': 1062036, '35
    ↪ ': 996439, '36': 230175, '37': 593683, '38': 1215212, '39': 261294, '40': 387929,
    ↪ '41': 331280, '42': 749053, '43': 224907, '44': 1296364, '45': 659587, '46': 174754,
    ↪ '47': 330866, '48': 77156, '49': 790343, '50': 499531, '51': 566571, '52': 182375,
    ↪ '53': 307031, '54': 733124, '55': 193557, '56': 727083, '57': 1045146, '58': 218341,
    ↪ '59': 2579208, '60': 805642, '61': 290891, '62': 1462807, '63': 635469, '64': ↪
    ↪ 656608, '65': 229228, '66': 452530, '67': 1099269, '68': 753056, '69': 1744236, '70
    ↪ ': 239695, '71': 555999, '72': 565718, '73': 418949, '74': 746994, '75': 2249975,
    ↪ '76': 1251282, '77': 1338427, '78': 1413635, '79': 370939, '80': 571211, '81': ↪
    ↪ 377675, '82': 244545, '83': 1012735, '84': 546630, '85': 641657, '86': 428447, '87
    ↪ ': 376058, '88': 378830, '89': 342463, '90': 143348, '91': 1225191, '92': 1581628,
    ↪ '93': 1529928, '94': 1333702, '95': 1180365, '971': 404635, '972': 392291, '973': ↪
    ↪ 237549, '974': 828581, '976': 212645
}))
fr_chart.render()

```

Department list

code	Department
01	Ain
02	Aisne
03	Allier
04	Alpes-de-Haute-Provence
05	Hautes-Alpes
06	Alpes-Maritimes
07	Ardèche

Continued on next page

Table 3.2 – continued from previous page

code	Department
08	Ardennes
09	Ariège
10	Aube
11	Aude
12	Aveyron
13	Bouches-du-Rhône
14	Calvados
15	Cantal
16	Charente
17	Charente-Maritime
18	Cher
19	Corrèze
2A	Corse-du-Sud
2B	Haute-Corse
21	Côte-d’Or
22	Côtes-d’Armor
23	Creuse
24	Dordogne
25	Doubs
26	Drôme
27	Eure
28	Eure-et-Loir
29	Finistère
30	Gard
31	Haute-Garonne
32	Gers
33	Gironde
34	Hérault
35	Ille-et-Vilaine
36	Indre
37	Indre-et-Loire
38	Isère
39	Jura
40	Landes
41	Loir-et-Cher
42	Loire
43	Haute-Loire
44	Loire-Atlantique
45	Loiret
46	Lot
47	Lot-et-Garonne
48	Lozère
49	Maine-et-Loire
50	Manche
51	Marne
52	Haute-Marne
53	Mayenne
54	Meurthe-et-Moselle
55	Meuse

Continued on next page

Table 3.2 – continued from previous page

code	Department
56	Morbihan
57	Moselle
58	Nièvre
59	Nord
60	Oise
61	Orne
62	Pas-de-Calais
63	Puy-de-Dôme
64	Pyrénées-Atlantiques
65	Hautes-Pyrénées
66	Pyrénées-Orientales
67	Bas-Rhin
68	Haut-Rhin
69	Rhône
70	Haute-Saône
71	Saône-et-Loire
72	Sarthe
73	Savoie
74	Haute-Savoie
75	Paris
76	Seine-Maritime
77	Seine-et-Marne
78	Yvelines
79	Deux-Sèvres
80	Somme
81	Tarn
82	Tarn-et-Garonne
83	Var
84	Vaucluse
85	Vendée
86	Vienne
87	Haute-Vienne
88	Vosges
89	Yonne
90	Territoire de Belfort
91	Essonne
92	Hauts-de-Seine
93	Seine-Saint-Denis
94	Val-de-Marne
95	Val-d'Oise
971	Guadeloupe
972	Martinique
973	Guyane
974	Réunion
975	Saint Pierre et Miquelon
976	Mayotte

Region list

code	Region
11	Île-de-France
21	Champagne-Ardenne
22	Picardie
23	Haute-Normandie
24	Centre
25	Basse-Normandie
26	Bourgogne
31	Nord-Pas-de-Calais
41	Lorraine
42	Alsace
43	Franche-Comté
52	Pays-de-la-Loire
53	Bretagne
54	Poitou-Charentes
72	Aquitaine
73	Midi-Pyrénées
74	Limousin
82	Rhône-Alpes
83	Auvergne
91	Languedoc-Roussillon
93	Provence-Alpes-Côte d'Azur
94	Corse
01	Guadeloupe
02	Martinique
03	Guyane
04	Réunion
05	Saint Pierre et Miquelon
06	Mayotte

Swiss map

Installing

The swiss map plugin can be installed by doing a:

```
pip install pygal_maps_ch
```

Canton

Then you will have access to the `pygal.maps.ch` module.

You can now plot cantons (see below for the list):

```
ch_chart = pygal.maps.ch.Cantons()
ch_chart.title = 'Some cantons'
ch_chart.add('Cantons 1', ['kt-zh', 'kt-be', 'kt-nw'])
```

```
ch_chart.add('Cantons 2', ['kt-ow', 'kt-bs', 'kt-ne'])
ch_chart.render()
```

Canton list

code	Canton
kt-zh	ZH
kt-be	BE
kt-lu	LU
kt-ju	JH
kt-ur	UR
kt-sz	SZ
kt-ow	OW
kt-nw	NW
kt-gl	GL
kt-zg	ZG
kt-fr	FR
kt-so	SO
kt-bl	BL
kt-bs	BS
kt-sh	SH
kt-ar	AR
kt-ai	AI
kt-sg	SG
kt-gr	GR
kt-ag	AG
kt-tg	TG
kt-ti	TI
kt-vd	VD
kt-vs	VS
kt-ne	NE
kt-ge	GE

3.1.3 Styles

There are three ways to style the charts:

Built-in Styles

pygal provides 14 built-in styles:

Default

```
from pygal.style import DefaultStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=DefaultStyle) # ↵
↪ Setting style here is not necessary
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
```



```
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

DarkStyle

```
from pygal.style import DarkStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=DarkStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Neon

```
from pygal.style import NeonStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=NeonStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Dark Solarized

```
from pygal.style import DarkSolarizedStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=DarkSolarizedStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Light Solarized

```
from pygal.style import LightSolarizedStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=LightSolarizedStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Light

```
from pygal.style import LightStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=LightStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Clean

```
from pygal.style import CleanStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=CleanStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Red Blue

```
from pygal.style import RedBlueStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=RedBlueStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Dark Colorized

```
from pygal.style import DarkColorizedStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=DarkColorizedStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Light Colorized

```
from pygal.style import LightColorizedStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=LightColorizedStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
```

```
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Turquoise

```
from pygal.style import TurquoiseStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=TurquoiseStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Light green

```
from pygal.style import LightGreenStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=LightGreenStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Dark green

```
from pygal.style import DarkGreenStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=DarkGreenStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Dark green blue

```
from pygal.style import DarkGreenBlueStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=DarkGreenBlueStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Blue

```
from pygal.style import BlueStyle
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=BlueStyle)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Parametric Styles

pygal provides 5 parametric styles:

Usage

A parametric style is initiated with a default color and the other are generated from this one:

```
from pygal.style import LightenStyle
dark_lighten_style = LightenStyle('#336676')
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_lighten_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

You can set the *step* parameter to tell between how much colors the color modifier will be applied

```
from pygal.style import LightenStyle
dark_lighten_style = LightenStyle('#336676', step=5)
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_lighten_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

and the *max_* to limit the amplitude at a certain value (in % for all color operation except rotate which is 360):

```
from pygal.style import LightenStyle
dark_lighten_style = LightenStyle('#336676', step=5, max_=10)
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_lighten_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

You can tell the style to inheritate all the styles from another theme:

```

from pygal.style import LightenStyle, LightColorizedStyle
dark_lighten_style = LightenStyle('#336676', base_style=LightColorizedStyle)
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_lighten_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()

```

And you can manually set the properties just like any other theme:

```

from pygal.style import LightenStyle, LightColorizedStyle
dark_lighten_style = LightenStyle('#336676', base_style=LightColorizedStyle)
dark_lighten_style.background = '#ffcccc'
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_lighten_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()

```

Styles

Rotate

```

from pygal.style import RotateStyle
dark_rotate_style = RotateStyle('#9e6ffe')
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_rotate_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()

```

```

from pygal.style import RotateStyle, LightColorizedStyle
dark_rotate_style = RotateStyle('#75ff98', base_style=LightColorizedStyle)
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_rotate_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()

```

Lighten

```

from pygal.style import LightenStyle
dark_lighten_style = LightenStyle('#004466')
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=dark_lighten_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])

```

```
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Darken

```
from pygal.style import DarkenStyle
darken_style = DarkenStyle('#ff8723')
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=darken_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Saturate

```
from pygal.style import SaturateStyle
saturate_style = SaturateStyle('#609f86')
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=saturate_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Desaturate

```
from pygal.style import DesaturateStyle
desaturate_style = DesaturateStyle('#8322dd', step=8)
chart = pygal.StackedLine(fill=True, interpolate='cubic', style=desaturate_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Custom Styles

pygal provides 2 ways to customize styles:

Using Style class

You can instantiate the `Style` class with some customizations for quick styling:

```
from pygal.style import Style
custom_style = Style(
    background='transparent',
    plot_background='transparent',
    foreground='#53E89B',
    foreground_strong='#53A0E8',
    foreground_subtle='#630C0D',
    opacity='.6',
    opacity_hover='.9',
    transition='400ms ease-in',
    colors=('#E853A0', '#E8537A', '#E95355', '#E87653', '#E89B53'))

chart = pygal.StackedLine(fill=True, interpolate='cubic', style=custom_style)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])
chart.render()
```

Properties

Style objects supports the following properties:

Properties	Description
plot_background	The color of the chart area background
background	The color of the image background
foreground	The main foreground color
foreground_strong	The emphasis foreground color
foreground_subtle	The subtle foreground color
font_family	The main font family
label_font_family	The label font family
major_label_font_family	The major label font family
value_font_family	The <code>print_values</code> font family
value_label_font_family	The <code>print_labels</code> font family
tooltip_font_family	The tooltip font family
title_font_family	The title font family
legend_font_family	The legend font family
no_data_font_family	The no data text font family
guide_stroke_dasharray	The dasharray for guide line
major_guide_stroke_dasharray	The dasharray for major guide line
label_font_size	The label font size
major_label_font_size	The major label font size
value_font_size	The <code>print_values</code> font size
value_label_font_size	The <code>print_labels</code> font size
tooltip_font_size	The tooltip font size
title_font_size	The title font size
legend_font_size	The legend font size
no_data_font_size	The no data font size
opacity	The opacity of chart element
opacity_hover	The opacity of chart element on mouse hover
transition	Define the global transition property for animation
colors	The serie color list
value_colors	The <code>print_values</code> color list

Google font

It is possible to give a google font to any font family property by specifying the `googlefont :` prefix:

```
style = Style(font_family='googlefont:Raleway')
```

NB: this won't work if you include the svg directly, you have to embed it because the google stylesheet is added in the XML processing instructions. (You could also manually add the google font in your HTML.)

Using a custom css

You can also specify a file containing a custom css for more customization. The `css` option is an array containing included css by default (except from `base.css` which is always included).

It supports local file names and external stylesheet too, just append your URI in the list.

(See the [default css](#))

NB: Now the css rules are prefixed by an unique id, to prevent collisions when including several svg directly into a web page. You can disable it with the `no_prefix` option.


```

from tempfile import NamedTemporaryFile
custom_css = '''
    {{ id }}text {
        fill: green;
        font-family: monospace;
    }
    {{ id }}.legends .legend text {
        font-size: {{ font_sizes.legend }};
    }
    {{ id }}.axis {
        stroke: #666;
    }
    {{ id }}.axis text {
        font-size: {{ font_sizes.label }};
        font-family: sans;
        stroke: none;
    }
    {{ id }}.axis.y text {
        text-anchor: end;
    }
    {{ id }}#tooltip text {
        font-size: {{ font_sizes.tooltip }};
    }
    {{ id }}.dot {
        fill: yellow;
    }
    {{ id }}.color-0 {
        stroke: #ff1100;
        fill: #ff1100;
    }
    {{ id }}.color-1 {
        stroke: #ffee00;
        fill: #ffee00;
    }
    {{ id }}.color-2 {
        stroke: #66bb44;
        fill: #66bb44;
    }
    {{ id }}.color-3 {
        stroke: #88bbdd;
        fill: #88bbdd;
    }
    {{ id }}.color-4 {
        stroke: #0000ff;
        fill: #0000ff;
    }
'''
custom_css_file = '/tmp/pygal_custom_style.css'
with open(custom_css_file, 'w') as f:
    f.write(custom_css)
config = pygal.Config(fill=True, interpolate='cubic')
config.css.append('file://' + custom_css_file)
chart = pygal.StackedLine(config)
chart.add('A', [1, 3, 5, 16, 13, 3, 7])
chart.add('B', [5, 2, 3, 2, 5, 7, 17])
chart.add('C', [6, 10, 9, 7, 3, 1, 0])
chart.add('D', [2, 3, 5, 9, 12, 9, 5])
chart.add('E', [7, 4, 2, 1, 2, 10, 0])

```

```
chart.render()
```

3.1.4 Chart configuration

How

pygal is customized at chart level with the help of the [Config class](#)).

Instance

The config class works this way:

```
from pygal import Config

config = Config()
config.show_legend = False
config.human_readable = True
config.fill = True
chart = pygal.XY(config)
...
```

and you can share the config object between several charts. For one shot chart rendering several shorthand are available:

Attribute

Config values are settable on the chart object.

```
chart = pygal.XY(config)
chart.show_legend = False
chart.human_readable = True
chart.fill = True
...
```

Keyword args

Config values can be given as keyword args at init:

```
chart = pygal.XY(show_legend=False, human_readable=True, fill=True)
```

And at render:

```
chart = pygal.XY()
chart.render(show_legend=False, human_readable=True, fill=True)
```

Options

Sizing

Svg size is configurable with `width` and `height` parameter.

width

```
chart = pygal.Bar(width=200)
chart.add('1', 1)
chart.add('2', 2)
chart.render()
```

height

```
chart = pygal.Bar(height=100)
chart.add('1', 1)
chart.add('2', 2)
chart.render()
```

explicit_size

Size can be written directly to the svg tag to force display of the requested size using `explicit_size`.

spacing

Spacing determines the space between all elements:

```
chart = pygal.Bar(spacing=50)
chart.x_labels = u'αβγδ'
chart.add('line 1', [5, 15, 10, 8])
chart.add('line 2', [15, 20, 8, 11])
chart.render()
```

margin

Margin is the external chart margin:

```
chart = pygal.Bar(margin=50)
chart.x_labels = u'αβγδ'
chart.add('line 1', [5, 15, 10, 8])
chart.add('line 2', [15, 20, 8, 11])
chart.render()
```

Individual margins can also be specified

margin_top

```
chart = pygal.Bar(margin_top=50)
chart.x_labels = u'αβγδ'
chart.add('line 1', [5, 15, 10, 8])
chart.add('line 2', [15, 20, 8, 11])
chart.render()
```

margin_right

```
chart = pygal.Bar(margin_right=50)
chart.x_labels = u'αβγδ'
chart.add('line 1', [5, 15, 10, 8])
chart.add('line 2', [15, 20, 8, 11])
chart.render()
```

margin_bottom

```
chart = pygal.Bar(margin_bottom=50)
chart.x_labels = u'αβγδ'
chart.add('line 1', [5, 15, 10, 8])
chart.add('line 2', [15, 20, 8, 11])
chart.render()
```

margin_left

```
chart = pygal.Bar(margin_left=50)
chart.x_labels = u'αβγδ'
chart.add('line 1', [5, 15, 10, 8])
chart.add('line 2', [15, 20, 8, 11])
chart.render()
```

Titles

title

You can add a title to the chart by setting the `title` option:

```
chart = pygal.Line(title=u'Some points')
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

x_title

You can add a title to the x axis by setting the `x_title` option:

```
chart = pygal.Line(title=u'Some points', x_title='X Axis')
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

y_title

You can add a title to the y axis by setting the `y_title` option:

```
chart = pygal.Line(title=u'Some points', y_title='Y Axis')
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

Labels

You can specify x labels and y labels, depending on the graph type:

x_labels

```
chart = pygal.Line()
chart.x_labels = 'Red', 'Blue', 'Green'
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

It is possible for dual charts to define a custom scale:

```
chart = pygal.XY()
chart.x_labels = (.00012, .00024, .00048, .00096)
chart.add('line', [(.0002, 10), (.0005, 20), (.00035, 15)])
chart.render()
```

And in this case it is possible to set text labels in place of values:

```
chart = pygal.XY()
chart.x_labels = ({
    'label': 'Twelve',
    'value': .00012
}, {
    'label': 'Twenty four',
    'value': .00024
}, {
    'label': 'Forty eight',
    'value': .00048
}, {
    'label': 'Ninety six',
    'value': .00096})
chart.add('line', [(.0002, 10), (.0005, 20), (.00035, 15)])
chart.render()
```

y_labels

```
chart = pygal.Line()
chart.y_labels = .0001, .0003, .0004, .00045, .0005
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

It is now possible to add text to labels values:

```
chart = pygal.Line()
chart.y_labels = [
    {'label': 'One', 'value': .0001},
```

```
{'label': 'Three', 'value': .0003},
{'label': 'Four', 'value': .0004},
{'label': 'Four and a half', 'value': .00045},
{'label': 'Five', 'value': .0005}]
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

show_x_labels

Set this to False to deactivate x labels:

```
chart = pygal.Line(show_x_labels=False)
chart.x_labels = 'Red', 'Blue', 'Green'
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

show_y_labels

Set this to False to deactivate y labels:

```
chart = pygal.Line(show_y_labels=False)
chart.x_labels = 'Red', 'Blue', 'Green'
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

Allow label rotation (in degrees) to avoid axis cluttering:

```
chart = pygal.Line()
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

x_label_rotation

```
chart = pygal.Line(x_label_rotation=20)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

y_label_rotation

```
chart = pygal.Line(y_label_rotation=20)
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

You can alter major minor behaviour of axes thanks to [Arjen Stolk](#)

x_labels_major

```
chart = pygal.Line(x_label_rotation=20)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.x_labels_major = ['This is the first point !', 'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

x_labels_major_every

```
chart = pygal.Line(x_label_rotation=20, x_labels_major_every=3)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

x_labels_major_count

```
chart = pygal.Line(x_label_rotation=20, x_labels_major_count=3)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

show_minor_x_labels

```
chart = pygal.Line(x_label_rotation=20, show_minor_x_labels=False)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
```

```
'This is the fourth point !']
chart.x_labels_major = ['This is the first point !', 'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

y_labels_major

```
chart = pygal.Line(y_label_rotation=-20)
chart.y_labels_major = []
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

```
chart = pygal.Line()
chart.y_labels_major = [.0001, .0004]
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

y_labels_major_every

```
chart = pygal.Line(y_label_rotation=20, y_labels_major_every=3)
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

y_labels_major_count

```
chart = pygal.Line(y_labels_major_count=3)
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

show_minor_y_labels

```
chart = pygal.Line(y_labels_major_every=2, show_minor_y_labels=False)
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

truncate_label

By default long labels are automatically truncated at reasonable length to fit in the graph.

You can override that by setting truncation length with `truncate_label`.

```
chart = pygal.Line(truncate_label=17)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
```



```
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

or disable it by setting this to -1

```
chart = pygal.Line(truncate_label=-1)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

Legend

show_legend

You can remove legend by setting this to False

```
chart = pygal.Line(show_legend=False)
chart.add('Serie 1', [1, 2, 3])
chart.add('Serie 2', [4, 2, 0])
chart.add('Serie 3', [1, -1, 1])
chart.add('Serie 4', [3, 1, 5])
chart.render()
```

legend_at_bottom

You can put legend at bottom by setting legend_at_bottom to True:

```
chart = pygal.Line(legend_at_bottom=True)
chart.add('Serie 1', [1, 2, 3])
chart.add('Serie 2', [4, 2, 0])
chart.add('Serie 3', [1, -1, 1])
chart.add('Serie 4', [3, 1, 5])
chart.render()
```

legend_at_bottom_columns

Force the number of legend columns when set at bottom

```
chart = pygal.Line(legend_at_bottom=True, legend_at_bottom_columns=4)
chart.add('Serie 1', [1, 2, 3])
chart.add('Serie 2', [4, 2, 0])
chart.add('Serie 3', [1, -1, 1])
chart.add('Serie 4', [3, 1, 5])
chart.render()
```

legend_box_size

```
chart = pygal.Line(legend_box_size=18)
chart.add('Serie 1', [1, 2, 3])
chart.add('Serie 2', [4, 2, 0])
chart.add('Serie 3', [1, -1, 1])
chart.add('Serie 4', [3, 1, 5])
chart.render()
```

truncate_legend

By default long legends are automatically truncated at reasonable length to fit in the graph.

You can override that by setting truncation length with `truncate_legend`.

```
chart = pygal.Line(truncate_legend=17)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

or disable it by setting this to -1

```
chart = pygal.Line(truncate_legend=-1)
chart.x_labels = [
    'This is the first point !',
    'This is the second point !',
    'This is the third point !',
    'This is the fourth point !']
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

Axis

include_x_axis

Scales are computed automatically between the min and the max values.

You may want to always have the abscissa in your graph:

```
chart = pygal.Line(include_x_axis=True)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

inverse_y_axis

```
chart = pygal.Line(inverse_y_axis=True)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

range

In pygal you can override automatic scaling by setting `y_labels` to the values you want, but if you want to change the scaling range and keep auto scaling in it, you can set a `range` which is a tuple containing the desired min and max:

```
chart = pygal.Line(range=(.0001, .001))
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

xrange

For xy graph xrange can be used for the x axis.

```
chart = pygal.XY(xrange=(10, 30))
chart.add('line', [(10, .0002), (15, .0005), (12, .00035)])
chart.render()
```

secondary_range

For chart with two axis, the `secondary_range` defines the range for the secondary axis.

```
chart = pygal.Line(secondary_range=(10, 25))
chart.add('primary', [.0002, .0005, .00035])
chart.add('secondary', [10, 15, 12], secondary=True)
chart.render()
```

logarithmic

You can set the scale to be logarithmic:

```
chart = pygal.Line(logarithmic=True)
values = [1, 3, 43, 123, 1231, 23192]
chart.x_labels = map(str, values)
chart.add('log example', values)
chart.render()
```

Caution: Negative values are ignored

min_scale

You can specify the minimum number of scale graduation to generate with auto scaling if possible.

```
chart = pygal.Line(min_scale=12)
chart.add('line', [1, 10, 100, 50, 25])
chart.render()
```

max_scale

You can specify the maximum number of scale graduation to generate with auto scaling if possible.

```
chart = pygal.Line(max_scale=6)
chart.add('line', [1, 10, 100, 50, 25])
chart.render()
```

order_min

You can specify at which precision pygal should stop scaling (in log10) usefull in conjunction of the two previous properties:

```
chart = pygal.Line(order_min=1)
chart.add('line', [1, 10, 100, 50, 25])
chart.render()
```

Interpolations

pygal allow you to interpolate most of line charts. Take this chart for instance:

```
chart = pygal.Line()
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

interpolate

cubic

You can set the cubic interpolation:

```
chart = pygal.Line(interpolate='cubic')
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

quadratic

```
chart = pygal.Line(interpolate='quadratic')
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

lagrange

```
chart = pygal.Line(interpolate='lagrange')
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

trigonometric

```
chart = pygal.Line(interpolate='trigonometric')
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

hermite

```
chart = pygal.Line(interpolate='hermite')
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

interpolation_parameters

For hermite you can also pass additional parameters to configure tangent behaviour:

```
chart = pygal.Line(interpolate='hermite', interpolation_parameters={'type': 'finite_
↪difference'})
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

```
chart = pygal.Line(interpolate='hermite', interpolation_parameters={'type': 'cardinal
↪', 'c': .75})
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

```
chart = pygal.Line(interpolate='hermite', interpolation_parameters={'type': 'kochanek_
↪bartels', 'b': -1, 'c': 1, 't': 1})
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

For more information see the [wikipedia article](#)

interpolation_precision

You can change the resolution of the interpolation with the help of `interpolation_precision`:

```
chart = pygal.Line(interpolate='quadratic')
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

```
chart = pygal.Line(interpolate='quadratic', interpolation_precision=3)
chart.add('line', [1, 5, 17, 12, 5, 10])
chart.render()
```

Data

value_formatter

You can specify how the values are displayed on the tooltip using a lambda function. The code below shows the values to 2 decimal places.

```
chart = pygal.Line()
chart.add('line', [.070106781, 1.414213562, 3.141592654])
chart.value_formatter = lambda x: "%.2f" % x
chart.render()
```

x_value_formatter

Same on x axis for xy like charts:

```
chart = pygal.XY()
chart.add('line', [(12, 31), (8, 28), (89, 12)])
chart.x_value_formatter = lambda x: '%s%%' % x
chart.render()
```

print_values

When using pygal to display static charts for printing for example you can chose to activate this option to print all values as text.

```
from pygal.style import DefaultStyle
chart = pygal.Bar(print_values=True, style=DefaultStyle(
    value_font_family='googlefont:Raleway',
    value_font_size=30,
    value_colors=('white',)))
chart.add('line', [0, 12, 31, 8, -28, 0])
chart.render()
```

dynamic_print_values

Show print_values only on legend hover.

```
from pygal.style import DefaultStyle
chart = pygal.Bar(dynamic_print_values=True, style=DefaultStyle(
    value_font_family='googlefont:Raleway',
    value_font_size=30,
    value_colors=('white',)))
chart.add('line', [0, 12, 31, 8, -28, 0])
chart.render()
```

print_values_position

Change print value position (in bar charts only).

```
chart = pygal.Bar(print_values=True, print_values_position='top')
chart.add('line', [0, 12, 31, 8, -28, 0])
chart.render()
```

```
chart = pygal.Bar(print_values=True, print_values_position='bottom')
chart.add('line', [0, 12, 31, 8, -28, 0])
chart.render()
```

print_zeroes

zero values are shown by default but you can use this option to hide them.

```
chart = pygal.Bar(print_values=True, print_zeroes=False)
chart.add('line', [0, 12, 31, 8, -28, 0])
chart.render()
```

print_labels

You can activate value label display:

```
chart = pygal.Bar(print_labels=True)
chart.add('line', [
    0,
    {'value': 12, 'label': 'Twelve'},
    31,
    {'value': 8, 'label': 'eight'},
    28,
    0
])
chart.render()
```

Displaying both is also possible:

```
chart = pygal.Bar(print_labels=True, print_values=True)
chart.add('line', [
    0,
    {'value': 12, 'label': 'Twelve'},
    31,
    {'value': 8, 'label': 'eight'},
    28,
    0
])
chart.render()
```

human_readable

Display values in human readable form:

```
1 230 000 -> 1.23M
.00 098 7 -> 987µ
```

```
chart = pygal.Line(human_readable=True)
chart.add('line', [0, .0002, .0005, .00035])
chart.render()
```

no_data_text

Text to display instead of the graph when no data is supplied:

```
chart = pygal.Line()
chart.add('line', [])
chart.render()
```

```
from pygal.style import DefaultStyle
chart = pygal.Line(no_data_text='No result found',
                  style=DefaultStyle(no_data_font_size=40))
chart.add('line', [])
chart.render()
```

Tooltip

Tooltips are displayed when the pygal javascript is used.

tooltip_border_radius

```
chart = pygal.Line(tooltip_border_radius=10)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

Rendering

stroke

On line graphs you can disable line stroking:

```
chart = pygal.Line(stroke=False)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

fill

And enable line filling:

```
chart = pygal.Line(fill=True)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```


zero

To fill to an other reference than zero:

```
chart = pygal.Line(fill=True, zero=.0004)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

show_dots

You can remove dots by setting `show_dots` at `False`

```
chart = pygal.Line(show_dots=False)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

show_only_major_dots

You can remove minor x-labelled dots by setting `show_only_major_dots` at `True`

```
chart = pygal.Line(show_only_major_dots=True)
chart.add('line', range(12))
chart.x_labels = map(str, range(12))
chart.x_labels_major = ['2', '4', '8', '11']
chart.render()
```

dots_size

You can change the dot size

```
chart = pygal.Line(dots_size=5)
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

stroke_style

It is possible to set a default style for lines with the `stroke_style` dictionary.

```
chart = pygal.Line(stroke_style={'width': 5, 'dasharray': '3, 6', 'linecap': 'round',
↪ 'linejoin': 'round'})
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

show_x_guides

You can force the display of x guides

```
chart = pygal.Line(show_x_guides=True)
chart.x_labels = ['alpha', 'beta', 'gamma']
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

show_y_guides

Or disable y guides:

```
chart = pygal.Line(show_y_guides=False)
chart.x_labels = ['alpha', 'beta', 'gamma']
chart.add('line', [.0002, .0005, .00035])
chart.render()
```

style

see [styles](#)

You can add or replace css/js files in pygal using the *css* and *js* array options. These lists contain absolute filenames and/or external URI. (Relative filenames are relative to pygal internal files)

All config lists now support the use of ellipsis as an extender. For instance:

```
config = Config()
config.css.append('style.css')
chart = pygal.Line(config)
```

can now be replaced with:

```
chart = pygal.Line(css=(..., 'style.css'))
```

or if you are still using python from the last decade:

```
from pygal.compat import _ellipsis
chart = pygal.Line(css=(_ellipsis, 'style.css'))
```

CSS

Default:

```
css = ['file://style.css', 'file://graph.css']
```

Css can also be specified inline by prepending *inline:* to the css:

```
css = ['inline:.rect { fill: blue; }']
```

classes

You can alter pygal svg node classes with the *classes* option:

```
chart = pygal.Line(classes=(..., 'flex'))
```

defs

You can add defs like `linearGradient`, `radialGradient`, `pattern` to the defs config:

```
config = pygal.Config()
config.style = pygal.style.DarkStyle
config.defs.append('''
    <linearGradient id="gradient-0" x1="0" x2="0" y1="0" y2="1">
        <stop offset="0%" stop-color="#ff5995" />
        <stop offset="100%" stop-color="#feed6c" />
    </linearGradient>
''')
config.defs.append('''
    <linearGradient id="gradient-1" x1="0" x2="0" y1="0" y2="1">
        <stop offset="0%" stop-color="#b6e354" />
        <stop offset="100%" stop-color="#8cedff" />
    </linearGradient>
''')
config.css.append(''inline:
    .color-0 {
        fill: url(#gradient-0) !important;
        stroke: url(#gradient-0) !important;
    }''')
config.css.append(''inline:
    .color-1 {
        fill: url(#gradient-1) !important;
        stroke: url(#gradient-1) !important;
    }''')
chart = pygal.Line(config)
chart.add('1', [1, 3, 12, 3, 4, None, 9])
chart.add('2', [7, -4, 10, None, 8, 3, 1])
chart.x_labels = ('a', 'b', 'c', 'd', 'e', 'f', 'g')
chart.legend_at_bottom = True
chart.interpolate = 'cubic'
chart.render()
```

js

```
js = [
    '//kozea.github.io/pygal.js/2.0.x/pygal-tooltips.min.js'
]
```

See `pygal.js`

force_uri_protocol

In case of rendering the svg as a data uri, it is mandatory to specify a protocol.

It can be set to `http` or `https` and will be used for `'//domain/'` like uri.

It is used along with `render_data_uri`.

Misc

pretty_print

You can enable pretty print if you want to edit the source by hand (look at this frame source):

```
chart = pygal.Bar(pretty_print=True)
chart.add('values', [3, 10, 7, 2, 9, 7])
chart.render()
```

disable_xml_declaration

When you want to embed directly your SVG in your html, this option disables the xml prolog in the output.

Since no encoding is declared, the result will be in unicode instead of bytes.

no_prefix

Normally pygal set an unique id to the chart and use it to style each chart to avoid collisions when svg are directly embedded in html. This can be a problem if you use external styling overriding the prefixed css. You can set this to True in order to prevent that behaviour.

strict

This activates strict value mode which disable some data adapting and filters. This will make a logarithmic chart crash on negative values for example.

Specific options

These options are specific for certain chart types.

rounded_bars

You can add a round effect to bar diagrams with `rounded_bars`:

```
chart = pygal.Bar(rounded_bars=20)
chart.add('values', [3, 10, 7, 2, 9, 7])
chart.render()
```

half_pie

```
pie_chart = pygal.Pie(half_pie=True)
pie_chart.title = 'Browser usage in February 2012 (in %)'
pie_chart.add('IE', 19.5)
pie_chart.add('Firefox', 36.6)
pie_chart.add('Chrome', 36.3)
pie_chart.add('Safari', 4.5)
```

```
pie_chart.add('Opera', 2.3)
pie_chart.render()
```

inner_radius

Donut like pies

```
pie_chart = pygal.Pie(inner_radius=.6)
pie_chart.title = 'Browser usage in February 2012 (in %)'
pie_chart.add('IE', 19.5)
pie_chart.add('Firefox', 36.6)
pie_chart.add('Chrome', 36.3)
pie_chart.add('Safari', 4.5)
pie_chart.add('Opera', 2.3)
pie_chart.render()
```

box_mode

box plot has several modes:

extremes

```
box_plot = pygal.Box(box_mode="extremes")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()
```

1.5IQR

```
box_plot = pygal.Box(box_mode="1.5IQR")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()
```

tukey

```
box_plot = pygal.Box(box_mode="tukey")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
```

```
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()
```

stdev

```
box_plot = pygal.Box(box_mode="stdev")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()
```

pstdev

```
box_plot = pygal.Box(box_mode="pstdev")
box_plot.title = 'V8 benchmark results'
box_plot.add('Chrome', [6395, 8212, 7520, 7218, 12464, 1660, 2123, 8607])
box_plot.add('Firefox', [7473, 8099, 11700, 2651, 6361, 1044, 3797, 9450])
box_plot.add('Opera', [3472, 2933, 4203, 5229, 5810, 1828, 9013, 4669])
box_plot.add('IE', [43, 41, 59, 79, 144, 136, 34, 102])
box_plot.render()
```

stack_from_top

You can reverse the stacking order for StackedBar and StackedLine

```
line_chart = pygal.StackedLine(fill=True)
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8, ↵
↵ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↵ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↵ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↵ 7.5])
line_chart.render()
```

```
line_chart = pygal.StackedLine(stack_from_top=True, fill=True)
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8, ↵
↵ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↵ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↵ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↵ 7.5])
line_chart.render()
```

```

line_chart = pygal.StackedBar()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.render()

```

```

line_chart = pygal.StackedBar(stack_from_top=True)
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.render()

```

missing_value_fill_truncation

Filled series with missing x and/or y values at the end of a series are closed at the first value with a missing. ‘x’ is default.

3.1.5 Serie configuration

How

Series are customized using keyword args set in the add or call function:

```

chart = pygal.Line()
chart(1, 2, 3, fill=True)
chart.add(' ', [3, 2, 1], dot=False)

```

Options

- *secondary*
- *stroke*
- *fill*
- *show_dots*

- *show_only_major_dots*
- *dots_size*
- *stroke_style*
- *rounded_bars*
- *inner_radius*
- *allow_interruptions*
- *formatter*

secondary

You can plot your values to 2 separate axes, thanks to [wiktor](#) This is the only serie only option.

```
chart = pygal.Line(title=u'Some different points')
chart.x_labels = ('one', 'two', 'three')
chart.add('line', [.0002, .0005, .00035])
chart.add('other line', [1000, 2000, 7000], secondary=True)
chart.render()
```

stroke

```
xy_chart = pygal.XY(stroke=False)
xy_chart.title = 'Correlation'
xy_chart.add('A', [(0, 0), (.1, .2), (.3, .1), (.5, 1), (.8, .6), (1, 1.08), (1.3, 1.
↪ 1), (2, 3.23), (2.43, 2)])
xy_chart.add('B', [(0.1, .15), (.12, .23), (.4, .3), (.6, .4), (.21, .21), (.5, .3), (.
↪ 6, .8), (.7, .8)])
xy_chart.add('C', [(0.05, .01), (.13, .02), (1.5, 1.7), (1.52, 1.6), (1.8, 1.63), (1.5,
↪ 1.82), (1.7, 1.23), (2.1, 2.23), (2.3, 1.98)])
xy_chart.add('Correl', [(0, 0), (2.8, 2.4)], stroke=True)
xy_chart.render()
```

fill

```
chart = pygal.Line()
chart.add('line', [.0002, .0005, .00035], fill=True)
chart.add('line', [.0004, .0009, .001])
chart.render()
```

show_dots

```
chart = pygal.Line()
chart.add('line', [.0002, .0005, .00035], show_dots=False)
chart.add('line', [.0004, .0009, .001])
chart.render()
```


show_only_major_dots

```
chart = pygal.Line()
chart.add('line', range(12))
chart.add('line', range(12)[::-1], show_only_major_dots=True)
chart.x_labels = map(str, range(12))
chart.x_labels_major = ['2', '4', '8', '11']
chart.render()
```

dots_size

```
chart = pygal.Line()
chart.add('line', [.0002, .0005, .00035], dots_size=4)
chart.add('line', [.0004, .0009, .001], dots_size=12)
chart.render()
```

stroke_style

```
chart = pygal.Line()
chart.add('line', [.0002, .0005, .00035], stroke_style={'width': 5, 'dasharray': '3, 6
↪', 'linecap': 'round', 'linejoin': 'round'})
chart.add('line', [.0004, .0009, .001], stroke_style={'width': 2, 'dasharray': '3, 6, 12, 24'
↪'})
chart.render()
```

rounded_bars

```
chart = pygal.Bar()
for i in range(10):
    chart.add(str(i), i, rounded_bars=2 * i)
chart.render()
```

inner_radius

```
chart = pygal.Pie()
for i in range(10):
    chart.add(str(i), i, inner_radius=(10 - i) / 10)
chart.render()
```

allow_interruptions

You can set `allow_interruptions` to `True` in order to break lines on `None` values.

```
interrupted_chart = pygal.Line()
interrupted_chart.add(
    'Temperature', [22, 34, 43, 12, None, 12, 55, None, 56],
    allow_interruptions=True)
```

```
interrupted_chart.add(
    'Temperature', [11, 17, 21.5, 6, None, 6, 27.5, None, 28])
interrupted_chart.render()
```

formatter

You can add a *formatter* function for this serie values. It will be used for value printing and tooltip. (Not for axis.)

```
chart = pygal.Bar(print_values=True, value_formatter=lambda x: '{}$'.format(x))
chart.add('bar', [.0002, .0005, .00035], formatter=lambda x: '<%s>' % x)
chart.add('bar', [.0004, .0009, .001])
chart.render()
```

3.1.6 Value configuration

How

Values are customized by replacing the value with a dictionary containing the value as 'value':

```
chart = pygal.Line()
chart.add(' ', [1, {'value': 2, 'label': 'two'}, 3])
chart.add(' ', [3, 2, 1])
```

Labels

You can add per value metadata like labels, by specifying a dictionary instead of a value:

```
chart = pygal.Bar()
chart.add('First', [{'value': 2, 'label': 'This is the first'}])
chart.add('Second', [{'value': 4, 'label': 'This is the second'}])
chart.add('Third', 7)
chart.add('Fourth', [{'value': 5}])
chart.add('Fifth', [{'value': 3, 'label': 'This is the fifth'}])
chart.render()
```

Style

You can force the color of a value by specifying a color key:

```
chart = pygal.Bar()
chart.add('Serie', [
    {'value': 2}, 3, 4,
    {'value': 10, 'color': 'red'},
    {'value': 11, 'color': 'rgba(255, 45, 20, .6)'}, 4, 2
])
chart.render()
```

The color key set the fill and the stroke style. You can also set the css style manually:

```

chart = pygal.Bar()
chart.add('Serie', [
    {'value': 2}, 3, 4,
    {'value': 10, 'style': 'fill: red; stroke: black; stroke-width: 4'},
    {'value': 11, 'style': 'fill: rgba(255, 45, 20, .6); stroke: black; stroke-
→dasharray: 15, 10, 5, 10, 15'},
    4, 2
])
chart.render()

```

Value formatting

You can add a *formatter* metadata for a specific value.

```

chart = pygal.Bar(print_values=True, value_formatter=lambda x: '{}${}'.format(x))
chart.add('bar', [.0002, .0005, .00035], formatter=lambda x: '< %s>' % x)
chart.add('bar', [.0004, {'value': .0009, 'formatter': lambda x: '<< %s>' % x}, .001])
chart.render()

```

Node attributes

It is possible to pass svg attribute to the node representing value.

```

chart = pygal.Line()
chart.add('Serie', [
    {'value': 1, 'node': {'r': 2}},
    {'value': 2, 'node': {'r': 4}},
    {'value': 3, 'node': {'r': 6}},
    {'value': 4, 'node': {'r': 8}}
])
chart.render()

```

Links

Basic

You can also add hyper links:

```

chart = pygal.Bar()
chart.add('First', [{
    'value': 2,
    'label': 'This is the first',
    'xlink': 'http://en.wikipedia.org/wiki/First'}])

chart.add('Second', [{
    'value': 4,
    'label': 'This is the second',
    'xlink': 'http://en.wikipedia.org/wiki/Second'}])

chart.add('Third', 7)

chart.add('Fourth', [{
    'value': 5,

```

```
'xlink': 'http://en.wikipedia.org/wiki/Fourth'}}])

chart.add('Fifth', [{
    'value': 3,
    'label': 'This is the fifth',
    'xlink': 'http://en.wikipedia.org/wiki/Fifth'}}])
chart.render()
```

Advanced

You can specify a dictionary to xlink with all links attributes:

```
chart = pygal.Bar()
chart.add('First', [{
    'value': 2,
    'label': 'This is the first',
    'xlink': {'href': 'http://en.wikipedia.org/wiki/First'}}])

chart.add('Second', [{
    'value': 4,
    'label': 'This is the second',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Second',
        'target': '_top'}
    }])

chart.add('Third', 7)

chart.add('Fourth', [{
    'value': 5,
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Fourth',
        'target': '_blank'}
    }])

chart.add('Fifth', [{
    'value': 3,
    'label': 'This is the fifth',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Fifth',
        'target': '_self'}
    }])
chart.render()
```

Legend

Finally legends can be link with the same mechanism:

```
chart = pygal.Bar()
chart.add({
    'title': 'First',
    'tooltip': 'It is the first actually',
    'xlink': {'href': 'http://en.wikipedia.org/wiki/First'}
}, [{
```

```

    'value': 2,
    'label': 'This is the first',
    'xlink': {'href': 'http://en.wikipedia.org/wiki/First'}
  })

chart.add({
    'title': 'Second',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Second',
        'target': '_top'
    }
}, [{
    'value': 4,
    'label': 'This is the second',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Second',
        'target': '_top'
    }
}])

chart.add('Third', 7)

chart.add({
    'title': 'Fourth',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Fourth',
        'target': '_blank'
    }
}, [{
    'value': 5,
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Fourth',
        'target': '_blank'
    }
}])

chart.add({
    'title': 'Fifth',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Fifth',
        'target': '_self'
    }
}, [{
    'value': 3,
    'label': 'This is the fifth',
    'xlink': {
        'href': 'http://en.wikipedia.org/wiki/Fifth',
        'target': '_self'
    }
}])
chart.render()

```

Confidence Intervals

```

chart = pygal.Bar(style=pygal.style.styles['default'](ci_colors=(
    'black', 'blue')))
chart.add('First', [{ 'value': 2, 'ci': {
    'type': 'continuous', 'sample_size': 50, 'stddev': .5, 'confidence': .95}}])
chart.add('Second', [{ 'value': 4, 'ci': {'low': 2, 'high': 5}}])

```

```
chart.add('Third', 7)
chart.add('Fourth', [{'value': 5}])
chart.add('Fifth', [{'value': 3, 'ci': {
    'type': 'dichotomous', 'sample_size': 1000}}])
chart.render()
```

3.1.7 Sparklines

pygal provides a simple way to get beautiful sparklines.

Basic

```
chart = pygal.Line()
chart.add('', [1, 3, 5, 16, 13, 3, 7])
chart.render_sparkline()
```

Options

Sparklines support the same options as normal charts but for those that are overridden by sparkline settings, pass them to the `render_sparkline` method:

```
chart = pygal.Line(interpolate='cubic')
chart.add('', [1, 3, 5, 16, 13, 3, 7])
chart.render_sparkline()
```

```
from pygal.style import LightSolarizedStyle
chart = pygal.Line(style=LightSolarizedStyle)
chart.add('', [1, 3, 5, 16, 13, 3, 7, 9, 2, 1, 4, 9, 12, 10, 12, 16, 14, 12, 7, 2])
chart.render_sparkline(width=500, height=25, show_dots=True)
```

With labels:

```
chart = pygal.Line()
chart.add('', [1, 3, 5, 16, 13, 3, 7])
chart.x_labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g']
chart.render_sparkline(show_x_labels=True, show_y_labels=True)
```

Sparktext

If you want to get a simple sparktext, use the `render_sparktext` function:

```
chart = pygal.Line()
chart.add('', [1, 3, 5, 16, 13, 3, 7])
chart.render_sparktext()
```

→

You can also specify an explicit minimum for the values:

```
chart = pygal.Line()
chart.add('', [1, 3, 5, 16, 13, 3, 7])
chart.render_sparktext(relative_to=0)
```

→

3.1.8 Table

pygal also supports a html table export of given data using the `render_table` option:

```
line_chart = pygal.Bar()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.value_formatter = lambda x: '%.2f%%' % x if x is not None else ''
line_chart.render()
```

Default

```
line_chart = pygal.Bar()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.value_formatter = lambda x: '%.2f%%' % x if x is not None else ''
line_chart.render_table()
```

Style

```
line_chart = pygal.Bar()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8,
↪ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8,
↪ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6,
↪ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8,
↪ 7.5])
line_chart.value_formatter = lambda x: '%.2f%%' % x if x is not None else ''
line_chart.render_table(style=True)
```

Total

```
line_chart = pygal.Bar()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8, ↵
↵ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8, ↵
↵ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6, ↵
↵ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8, ↵
↵ 7.5])
line_chart.value_formatter = lambda x: '%.2f%%' % x if x is not None else ''
line_chart.render_table(style=True, total=True)
```

Transposed

```
line_chart = pygal.Bar()
line_chart.title = 'Browser usage evolution (in %)'
line_chart.x_labels = map(str, range(2002, 2013))
line_chart.add('Firefox', [None, None, 0, 16.6, 25, 31, 36.4, 45.5, 46.3, 42.8, ↵
↵ 37.1])
line_chart.add('Chrome', [None, None, None, None, None, None, 0, 3.9, 10.8, 23.8, ↵
↵ 35.3])
line_chart.add('IE', [85.8, 84.6, 84.7, 74.5, 66, 58.6, 54.7, 44.8, 36.2, 26.6, ↵
↵ 20.1])
line_chart.add('Others', [14.2, 15.4, 15.3, 8.9, 9, 10.4, 8.9, 5.8, 6.7, 6.8, ↵
↵ 7.5])
line_chart.value_formatter = lambda x: '%.2f%%' % x if x is not None else ''
line_chart.render_table(style=True, total=True, transpose=True)
```

3.1.9 Output

pygal can generate multiple output formats.

SVG

String

The obvious output is the vectorial output in svg format:

```
chart = pygal.Line()
...
chart.render() # Return the svg as bytes
```

It can be rendered as unicode when specifying `is_unicode=True` or when `disable_xml_declaration` is used

```
chart = pygal.Line()
...
chart.render(is_unicode=True) # Return the svg as a unicode string
```


File

You can also write the chart to a file using `render_to_file`:

```

chart = pygal.Line()
...
chart.render_to_file('/tmp/chart.svg')  # Write the chart in the specified file

```

PNG

With `cairosvg` installed you can directly get the png file using `render_to_png`:

```

chart = pygal.Line()
...
chart.render_to_png('/tmp/chart.png')  # Write the chart in the specified file

```

In case of rendered image turning up black, installing `lxml`, `tinycss` and `cssselect` should fix the issue.

Etree

It is possible to get the xml etree root element of the chart (or lxml etree node if lxml is installed) by calling the `render_tree` method:

```

chart = pygal.Line()
...
chart.render_tree()  # Return the svg root etree node

```

Base 64 data URI

You can directly output a base 64 encoded data uri for `<embed>` or `<image>` inclusion:

```

chart = pygal.Line()
...
chart.render_data_uri()  # Return `data:image/svg+xml;charset=utf-8;base64,...`

```

Browser

With `lxml` installed you can use the `render_in_browser` method to magically make your chart appear in your default browser.

```

chart = pygal.Line()
...
chart.render_in_browser()

```

PyQuery

If `pyquery` is installed you can get the `pyquery` object wrapping the chart by calling `render_pyquery`:

(This is mainly used for testing)

```
chart = pygal.Line()
...
chart.render_pyquery() # Return pyquery object
```

Flask App

If you are using pygal in a flask app the `render_response` may come in handy:

```
@app.route('/charts/line.svg')
def line_route():
    chart = pygal.Line()
    ...
    return chart.render_response()
```

An other way is to use a Base 64 data URI for your flask app.

In python file:

```
@app.route('/charts/')
def line_route():
    chart = pygal.Line()
    ...
    chart = chart.render_data_uri()

    return render_template('charts.html', chart = chart)
```

In HTML file:

```
<!-- Don't forget the "|safe"! -->
<div id="chart">
    <embed type="image/svg+xml" src= {{ chart|safe }} />
</div>
```

Django response

Same thing for django with `render_django_response`.

3.1.10 Embedding in a web page

Within an embed tag

First set up an url entry point for your svg: `/mysvg.svg` don't forget to set the mime-type to `image/svg+xml`. (If you are using flask you can use the `render_response` method.)

Then in your html put an embed tag like this:

```
<!DOCTYPE html>
<html>
  <head>
    <!-- ... -->
  </head>
  <body>
    <figure>
      <embed type="image/svg+xml" src="/mysvg.svg" />
    </figure>
  </body>
</html>
```

```

</figure>
</body>
</html>

```

You can also use an `iframe` tag, but automatic sizing with `width: 100%` will not work.

Directly in the html

You can insert it directly in a html page with the use of `disable_xml_declaration`. You have to put the javascript manually in you webpage, for instance:

```

<!DOCTYPE html>
<html>
  <head>
    <script type="text/javascript" src="http://kozea.github.com/pygal.js/latest/pygal-
    ↳ tooltips.min.js"></script>
    <!-- ... -->
  </head>
  <body>
    <figure>
      <!-- Pygal render() result: -->
      <svg
        xmlns:xlink="http://www.w3.org/1999/xlink"
        xmlns="http://www.w3.org/2000/svg"
        id="chart-e6700c90-7a2b-4602-961c-83ccf5e59204"
        class="pygal-chart"
        viewBox="0 0 800 600">
        <!--Generated with pygal 1.0.0 @Kozea 2011-2013 on 2013-06-25-->
        <!--http://pygal.org-->
        <!--http://github.com/Kozea/pygal-->
        <defs>
          <!-- ... -->
        </defs>
        <title>Pygal</title>
        <g class="graph bar-graph vertical">
          <!-- ... -->
        </g>
      </svg>
      <!-- End of Pygal render() result: -->
    </figure>
  </body>
</html>

```

You can use `explicit_size` to set the svg size from the width, height properties.

3.2 Installing

pygal is available for python 2.7 and 3.2, 3.3, 3.4, 3.5 and pypy.

3.2.1 PyPI

pygal is available on PyPI. To install, just type as superuser:

```
pip install pygal
```

3.2.2 Dependencies

There are no required dependency.

Optional dependencies are as follow:

- `lxml` which can improve rendering speed (except on pypy).
- `cairosvg`, `tinycss`, `cssselect` to render png.

3.2.3 Git Repository

If you want the development version of pygal, take a look at the [git repository on GitHub](#), or clone it with:

```
git clone git://github.com/Kozea/pygal.git
```

You can also download [the development snapshot from github](#).

3.2.4 Linux Distribution Packages

Pygal has been packaged for:

- [Fedora](#)
- [Gentoo](#)
- [Ubuntu](#)
- [Debian](#)
- [Arch Linux](#)

If you are interested in creating packages for Linux distributions, [contact us](#).

3.3 Contributing

3.3.1 Github

Submit your bug reports and feature requests to the [github bug tracker](#).

3.3.2 Code style

The pygal code tries to respect the [pep8](#) please keep that in mind when writing code for pygal. (The code style is checked along with the unit tests, see next paragraph).

3.3.3 Testing

Before submitting a pull request, please check that all tests still pass.

To do this install `py.test` and then run `py.test` in the root of your pygal clone:

```
[dev@dev pygal/]$ py.test --flake8
```

Even better if you have several python versions installed you can run `tox`.

3.3.4 Continuous Integration

The current build status can be seen at our [ymci](#)

3.4 Changelog

3.4.1 2.4.0

- Generalized fix solidgauge squares algorithm (thanks @Necrote #385)
- Fix secondary series 'stroke_style' property (thanks @Yuliang-Lee #359)
- Fix wrong label colors when there are more series than colors (thanks @Brandhor #350)
- Show y guides in horizontal chart (thanks @yossisal #349)
- Fix nomenclature of Taiwan (thanks @pierrrrrrre #344)
- Better None values handling in logarithmic charts (thanks @ShuaiQin #343)

3.4.2 2.3.1

This is a micro release and I have very little time on my hands right now **sorry**

- Fix crash with no values when the `print_values_position` param is set (thanks @cristen)

3.4.3 2.3.0

- New call API: `chart = Line(fill=True); chart.add('title', [1, 3, 12]); chart.render()` can now be replaced with `Line(fill=True)(1, 3, 12, title='title').render()`
- Drop python 2.6 support

3.4.4 2.2.3

- Fix bar static value positioning (#315)
- Add `stroke_opacity` style (#321)
- Remove useless js in sparklines. (#312)

3.4.5 2.2.2

- Add *classes* option.
- Handle ellipsis in list type configs to auto-extend parent. (Viva python3)

3.4.6 2.2.0

- Support interruptions in line charts (thanks @piotrmaslanka #300)
- Fix confidence interval reactivity (thanks @chartique #296)
- Add horizontal line charts (thanks @chartique #301)
- There is now a *formatter* config option to format values as specified. The formatter callable may or may not take *chart*, *serie* and *index* as argument. The default value formatting is now chart dependent and is *value_formatter* for most graph but could be a combination of *value_formatter* and *x_value_formatter* for dual charts.
- The *human_readable* option has been removed. Now you have to use the `pygal.formatters.human_readable` formatter (*value_formatter=human_readable* instead of *human_readable=True*)
- New chart type: SolidGauge (thanks @chartique #295)
- Fix range option for some Charts (#297 #298)
- Fix timezones for DateTimeLine for python 2 (#306, #302)
- Set default uri protocol to https (should fix a lot of “no tooltips” bugs).

3.4.7 2.1.1

- Import scipy as a last resort in stats.py (should workaround bugs like #294 if scipy is installed but not used)

3.4.8 2.1.0

- Bar print value positioning with *print_values_position*. Can be *top*, *center* or *bottom* (thanks @chartique #291)
[ci doc](#)
- Confidence intervals (thanks @chartique #292) [data doc](#)

3.4.9 2.0.12

- Use custom *xml_declaration* avoiding conflict with processing instructions

3.4.10 2.0.11

- lxml 3.5 compatibility (#282)

3.4.11 2.0.10

- Fix *transposable_node* in case all attributes are not there. (thanks @yobuntu).

3.4.12 2.0.9

- Add *dynamic_print_values* to show *print_values* on legend hover. (#279)
- Fix *unparse_color* for python 3.5+ compatibility (thanks @felixonmars, @sjourdois)
- Process major labels as labels. (#263)
- Fix labels rotation > 180 (#257)
- Fix secondary axis
- Don't forget secondary series in table rendering (#260)
- Add *defs* config option to allow adding gradients and patterns.

3.4.13 2.0.8

- Fix value overwrite in map. (#275)

3.4.14 2.0.7

- Fixing to checks breaking rendering of *DateTimeLine* and *TimeDeltaLine* (#264) (thanks @mmrose)
- Fix *render_in_browser*. (#266) (#268) (thanks @waixwong)

3.4.15 2.0.6

- Avoid x label formatting when label is a string

3.4.16 2.0.5

- Fix x label formatting

3.4.17 2.0.4

- Fix map coloration

3.4.18 2.0.3

- Fix label adaptation. (#256)
- Fix wrong radar truncation. (#255)

3.4.19 2.0.2

- Fix view box differently to avoid getting a null height on huge numbers. (#254)
- Fix broken *font_family* default
- Fix non namespaced svg (without embed) javascript by adding *uuid* in config object. (config is in *window.pygal* now).

3.4.20 2.0.1

- Fix the missing title on `x_labels` with labels.
- Auto cast to str x labels in non dual charts (#178)
- Add `print_labels` option to print label too. (#197)
- Add `value_label_font_family` and `value_label_font_size` style options for `print_labels`.
- Default `print_zeroes` to True
- (Re)Add `xlink` in desc to show on tooltip
- Activate element on tooltip hovering. (#106)
- Fix radar axis behaviour (#247)
- Add tooltip support in metadata to add a title (#249).
- Take config class options in account too.

3.4.21 2.0.0

- Rework the ghost mechanism to come back to a more object oriented behavior, storing all state in a state object which is created on every render. (#161)
- Refactor maps
- Add world continents
- Add swiss cantons map (thanks @sergedroz)
- Add `inverse_y_axis` options to reverse graph (#24)
- Fix `DateTimeLine` time data loss (#193)
- Fix no data for graphs with only zeroes (#148)
- Support value formatter for pie graphs (#218) (thanks @never-eat-yellow-snow)
- Add new Box plot modes and outliers and set extremes as default (#226 #121 #149) (thanks @djezar)
- Add `secondary_range` option to set range for secondary values. (#203)
- Maps are now plugins, they are removed from pygal core and moved to packages (`pygal_maps_world`, `pygal_maps_fr`, `pygal_maps_ch`, ...) (#225)
- Dot now supports negative values
- Fix dot with log scale (#201)
- Fix `y_labels` behaviour for lines
- Fix `x_labels` and `y_labels` behaviour for xy like
- Improve gauge a bit
- Finally allow call chains on add
- Transform `min_scale` and `max_scale` as options
- `mode` option has been renamed to a less generic name: `box_mode`
- fix `stack_from_top` for stacked lines
- Add flake8 test to `py.test` in tox

- Remove stroke style in style and set it as a global / serie configuration.
- Fix None values in tables
- Fix timezones in DateTimeLine
- Rename in Style foreground_light as foreground_strong
- Rename in Style foreground_dark as foreground_subtle
- Add a render_data_uri method (#237)
- Move font_size config to style
- Add font_family for various elements in style
- Add googlefont:font support for style fonts
- Add tooltip_fancy_mode to revert to old tooltips
- Add auto_print_value color + a configurable value_colors list in style
- Add guide_stroke_dasharray and guide_stroke_dasharray in style to customize guides (#242) (thanks @cbergmiller)
- Refactor label processing in a _compute_x_labels and _compute_y_labels method. Handle both string and numbers for all charts. Create a Dual base chart for dual axis charts. (#236)
- Better js integration in maps. Use the normal tooltip.

3.4.22 1.7.0

- Remove DateY and replace it by real XY datetime, date, time and timedelta support. (#188)
- Introduce new XY configuration options: xrange, x_value_formatter.
- Add show_x_labels option to remove them and the x axis.
- Set print_values to False by default.
- Fix secondary serie text values when None in data. (#192)

3.4.23 1.6.2

- Add margin_top, margin_right, margin_bottom, margin_left options which defaults to margin. (thanks @djt)
- Update django mime parameter from mimetype to content_type. (thanks @kswiat)
- Allow a color and a style parameter to value metadata.

3.4.24 1.6.1

- Fix Decimal incompatibility

3.4.25 1.6.0

- Adds config option missing_value_fill_truncation. (thanks @sirlark)
- Avoid HTTP 301 Moved Permanently (thanks @jean)
- Add a Django response method (thanks @inlanger)

- Fix setup.py (#170)
- Fix format error on list like in table
- Add `legend_at_bottom_columns` option to specify number of columns in legend when at bottom. (#157)
- Fix secondary interpolation (#165)
- Adds an extra class (axis) to horizontal guides if the label is “0” (#147) (thanks @sirlark)
- Add line stroke customization parameters to style.py (#154) (thanks @blakev)

3.4.26 1.5.1

- Add `stack_from_top` option to reverse stack graph data order
- Minor fix for empty logarithmic chart
- Reorders axes in SVG output. Fix #145 (thanks @sirlark)

3.4.27 1.5.0

- Add per serie configuration
- Add half pie (thanks @philt2001)
- Make lxml an optionnal dependency (huge speed boost in pypy)
- Add `render_table` (WIP)
- Support colors in rgb / rgba for parametric styles

3.4.28 1.4.6

- Add support for n separated multiline titles (thanks @sirlark)
- New `show_only_major_dots` option (thanks @Le-Stagiaire)
- Remove 16 colors limitation
- Fix 0 in range (thanks @elpaso)

3.4.29 1.4.5

- Fix `y_labels` map iterator exhaustion in python 3

3.4.30 1.4.4

- Fix division by zero in spark text (thanks @laserpony)
- Fix config metaclass problem in python 3
- Fix `-version` in `pygal_gen`

3.4.31 1.4.3

- Allow arbitrary number of x-labels on line plot (thanks @nsmgr8)

3.4.32 1.4.2

- Fix broken tests

3.4.33 1.4.1

- Fix value formatting in maps

3.4.34 1.4.0

- Finally a changelog !
- Hopefully fix weird major scale algorithm
- Add options to customize major labels (`y_labels_major`, `y_labels_major_every`, `y_labels_major_count`)
- Css can now be inline with the “inline:” prefix
- Visited links bug fixed
- Add french maps by department and region (This will be externalized in an extension later)

3.4.35 1.3.x

- Whisker Box Plot
- Python 3 fix
- DateY X axis formatting (`x_label_format`)

3.5 API

3.5.1 pygal package

Main pygal package.

This package holds all available charts in pygal, the Config class and the maps extensions namespace module.

class `pygal.PluginImportFixer`

Bases: `object`

Allow external map plugins to be imported from `pygal.maps` package.

It is a `sys.meta_path` loader.

find_module (*fullname*, *path=None*)

Tell if the module to load can be loaded by the `load_module` function, ie: if it is a `pygal.maps.*` module.

load_module (*name*)

Load the `pygal.maps.name` module from the previously loaded plugin

Subpackages

pygal.graph package

Graph package containing all builtin charts

Submodules

pygal.graph.bar module

Bar chart that presents grouped data with rectangular bars with lengths proportional to the values that they represent.

class `pygal.graph.bar.Bar` (*config=None*, ***kwargs*)

Bases: `pygal.graph.graph.Graph`

Bar graph class

bar (*serie*, *rescale=False*)

Draw a bar graph for a serie

pygal.graph.base module

Base for pygal charts

class `pygal.graph.base.BaseGraph` (*config=None*, ***kwargs*)

Bases: `object`

Chart internal behaviour related functions

prepare_values (*raw*, *offset=0*)

Prepare the values to start with sane values

setup (***kwargs*)

Set up the transient state prior rendering

teardown ()

Remove the transient state after rendering

pygal.graph.box module

Box plot: a convenient way to display series as box with whiskers and outliers. Different types are available through the `box_mode` option.

class `pygal.graph.box.Box` (*config=None*, ***kwargs*)

Bases: `pygal.graph.graph.Graph`

Box plot. For each series, shows the median value, the 25th and 75th percentiles, and the values within 1.5 times the interquartile range of the 25th and 75th percentiles.

See http://en.wikipedia.org/wiki/Box_plot

pygal.graph.dot module

Dot chart displaying values as a grid of dots, the bigger the value the bigger the dot

class pygal.graph.dot.**Dot** (*config=None*, ***kwargs*)

Bases: *pygal.graph.graph.Graph*

Dot graph class

dot (*serie*, *r_max*)

Draw a dot line

pygal.graph.dual module

Dual chart base. Dual means a chart with 2 scaled axis like xy

class pygal.graph.dual.**Dual** (*config=None*, ***kwargs*)

Bases: *pygal.graph.graph.Graph*

pygal.graph.funnel module

Funnel chart: Represent values as a funnel

class pygal.graph.funnel.**Funnel** (*config=None*, ***kwargs*)

Bases: *pygal.graph.graph.Graph*

Funnel graph class

funnel (*serie*)

Draw a funnel slice

pygal.graph.gauge module

Gauge chart representing values as needles on a polar scale

class pygal.graph.gauge.**Gauge** (*config=None*, ***kwargs*)

Bases: *pygal.graph.graph.Graph*

Gauge graph class

needle (*serie*)

Draw a needle for each value

needle_width = 0.05

pygal.graph.graph module

Chart properties and drawing

class pygal.graph.graph.**Graph** (*config=None*, ***kwargs*)

Bases: *pygal.graph.public.PublicApi*

Graph super class containing generic common functions

add_squares (*squares*)

all_series

Getter for all series (nomal and secondary)

pygal.graph.histogram module

Histogram chart: like a bar chart but with data plotted along a x axis as bars of varying width.

class `pygal.graph.histogram.Histogram` (*config=None*, ***kwargs*)

Bases: `pygal.graph.dual.Dual`, `pygal.graph.bar.Bar`

Histogram chart class

bar (*serie*, *rescale=False*)

Draw a bar graph for a serie

xvals

All x values

yvals

All y values

pygal.graph.horizontal module

Horizontal graph mixin

class `pygal.graph.horizontal.HorizontalGraph` (**args*, ***kwargs*)

Bases: `pygal.graph.graph.Graph`

Horizontal graph mixin

pygal.graph.horizontalbar module

Horizontal bar graph

class `pygal.graph.horizontalbar.HorizontalBar` (**args*, ***kwargs*)

Bases: `pygal.graph.horizontal.HorizontalGraph`, `pygal.graph.bar.Bar`

Horizontal Bar graph

pygal.graph.horizontalline module

Horizontal line graph

class `pygal.graph.horizontalline.HorizontalLine` (**args*, ***kwargs*)

Bases: `pygal.graph.horizontal.HorizontalGraph`, `pygal.graph.line.Line`

Horizontal Line graph

pygal.graph.horizontalstackedbar module

Horizontal stacked graph

```
class pygal.graph.horizontalstackedbar.HorizontalStackedBar(*args, **kwargs)
    Bases: pygal.graph.horizontal.HorizontalGraph, pygal.graph.stackedbar.StackedBar
```

Horizontal Stacked Bar graph

pygal.graph.horizontalstackedline module

Horizontal Stacked Line graph

```
class pygal.graph.horizontalstackedline.HorizontalStackedLine(*args, **kwargs)
    Bases: pygal.graph.horizontal.HorizontalGraph, pygal.graph.stackedline.StackedLine
```

Horizontal Stacked Line graph

pygal.graph.line module

Line chart: Display series of data as markers (dots) connected by straight segments

```
class pygal.graph.line.Line(*args, **kwargs)
    Bases: pygal.graph.graph.Graph
```

Line graph class

```
line (serie, rescale=False)
    Draw the line serie
```

pygal.graph.map module

pygal contains no map but a base class to create extension see the `pygal_maps_world` package to get an exemple.
https://github.com/Kozea/pygal_maps_world

```
class pygal.graph.map.BaseMap(config=None, **kwargs)
    Bases: pygal.graph.graph.Graph
```

Base class for maps

```
adapt_code (area_code)
    Hook to change the area code
```

```
enumerate_values (serie)
    Hook to replace default enumeration on values
```

pygal.graph.pie module

Pie chart: A circular chart divided into slice to illustrate proportions It can be made as a donut or a half pie.

```
class pygal.graph.pie.Pie(config=None, **kwargs)
    Bases: pygal.graph.graph.Graph
```

Pie graph class

```
slice (serie, start_angle, total)
    Make a serie slice
```

pygal.graph.public module

pygal public api functions

```
class pygal.graph.public.PublicApi (config=None, **kwargs)
```

Bases: `pygal.graph.base.BaseGraph`

Chart public functions

```
add (title, values, **kwargs)
```

Add a serie to this graph, compat api

```
add_xml_filter (callback)
```

Add an xml filter for in tree post processing

```
render (is_unicode=False, **kwargs)
```

Render the graph, and return the svg string

```
render_data_uri (**kwargs)
```

Output a base 64 encoded data uri

```
render_django_response (**kwargs)
```

Render the graph, and return a Django response

```
render_in_browser (**kwargs)
```

Render the graph, open it in your browser with black magic

```
render_pyquery (**kwargs)
```

Render the graph, and return a pyquery wrapped tree

```
render_response (**kwargs)
```

Render the graph, and return a Flask response

```
render_sparkline (**kwargs)
```

Render a sparkline

```
render_sparktext (relative_to=None)
```

Make a mini text sparkline from chart

```
render_table (**kwargs)
```

Render the data as a html table

```
render_to_file (filename, **kwargs)
```

Render the graph, and write it to filename

```
render_to_png (filename=None, dpi=72, **kwargs)
```

Render the graph, convert it to png and write it to filename

```
render_tree (**kwargs)
```

Render the graph, and return (l)xml etree

pygal.graph.pyramid module

Pyramid chart: Stacked bar chart containing only positive values divided by two axes, generally gender for age pyramid.

```
class pygal.graph.pyramid.Pyramid (*args, **kwargs)
```

Bases: `pygal.graph.horizontal.HorizontalGraph`, `pygal.graph.pyramid.VerticalPyramid`

Horizontal Pyramid graph class like the one used by age pyramid


```
class pygal.graph.pyramid.VerticalPyramid (config=None, **kwargs)
    Bases: pygal.graph.stackedbar.StackedBar

    Vertical Pyramid graph class
```

pygal.graph.radar module

Radar chart: As known as kiviart chart or spider chart is a polar line chart useful for multivariate observation.

```
class pygal.graph.radar.Radar (*args, **kwargs)
    Bases: pygal.graph.line.Line

    Rada graph class
```

pygal.graph.solidgauge module

Solid Guage For each series a solid guage is shown on the plot area.

```
class pygal.graph.solidgauge.SolidGauge (config=None, **kwargs)
    Bases: pygal.graph.graph.Graph

    gaugify (serie, squares, sq_dimensions, current_square)
```

pygal.graph.stackedbar module

Stacked Bar chart: Like a bar chart but with all series stacking on top of the others instead of being displayed side by side.

```
class pygal.graph.stackedbar.StackedBar (config=None, **kwargs)
    Bases: pygal.graph.bar.Bar

    Stacked Bar graph class
```

pygal.graph.stackedline module

Stacked Line chart: Like a line chart but with all lines stacking on top of the others. Used along fill=True option.

```
class pygal.graph.stackedline.StackedLine (*args, **kwargs)
    Bases: pygal.graph.line.Line

    Stacked Line graph class
```

pygal.graph.time module

XY time extensions: handle conversion of date, time, datetime, timedelta into float for xy plot and back to their type for display

```
class pygal.graph.time.DateLine (*args, **kwargs)
    Bases: pygal.graph.time.DateTimeLine

    Date abscissa xy graph class

class pygal.graph.time.DateTimeLine (*args, **kwargs)
    Bases: pygal.graph.xy.XY

    DateTime abscissa xy graph class
```

class pygal.graph.time.TimeDeltaLine(*args, **kwargs)

Bases: [pygal.graph.xy.XY](#)

TimeDelta abscissa xy graph class

class pygal.graph.time.TimeLine(*args, **kwargs)

Bases: [pygal.graph.time.DateTimeLine](#)

Time abscissa xy graph class

pygal.graph.time.date_to_datetime(x)

Convert a date into a datetime

pygal.graph.time.datetime_to_time(x)

Convert a datetime into a time

pygal.graph.time.datetime_to_timestamp(x)

Convert a datetime into a utc float timestamp

pygal.graph.time.seconds_to_time(x)

Convert a number of second into a time

pygal.graph.time.time_to_datetime(x)

Convert a time into a datetime

pygal.graph.time.time_to_seconds(x)

Convert a time in a seconds sum

pygal.graph.time.timedelta_to_seconds(x)

Convert a timedelta into an amount of seconds

pygal.graph.treemap module

Treemap chart: Visualize data using nested recangles

class pygal.graph.treemap.Treemap(config=None, **kwargs)

Bases: [pygal.graph.graph.Graph](#)

Treemap graph class

pygal.graph.xy module

XY Line graph: Plot a set of couple data points (x, y) connected by straight segments.

class pygal.graph.xy.XY(*args, **kwargs)

Bases: [pygal.graph.line.Line](#), [pygal.graph.dual.Dual](#)

XY Line graph class

xvals

All x values

yvals

All y values

pygal.maps package

Maps extensions namespace module

pygal.test package

Pygal test package

`pygal.test.adapt(chart, data)`

Adapt data to chart type

`pygal.test.get_data(i)`

Return sample test data for an index

`pygal.test.make_data(chart, datas)`

Add sample data to the test chart

Submodules

pygal.test.conftest module

pytest fixtures

`pygal.test.conftest.etreefx(request)`

Fixture allowing to test with builtin etree and lxml

`pygal.test.conftest.pytest_generate_tests(metafunc)`

Generate the tests for etree and lxml

pygal.test.test_bar module

Bar chart related tests

`pygal.test.test_bar.test_simple_bar()`

Simple bar test

pygal.test.test_box module

Box chart related tests

`pygal.test.test_box.test_quartiles()`

Test box points for the 1.5IQR computation method

`pygal.test.test_box.test_quartiles_min_extremes()`

Test box points for the extremes computation method

`pygal.test.test_box.test_quartiles_stdev()`

Test box points for the stdev computation method

`pygal.test.test_box.test_quartiles_tukey()`

Test box points for the tukey computation method

`pygal.test.test_box.test_simple_box()`

Simple box test

pygal.test.test_colors module

Color utility functions tests

```
pygal.test.test_colors.test_darken()  
    Test darken color function  
pygal.test.test_colors.test_desaturate()  
    Test color desaturation function  
pygal.test.test_colors.test_hsl_to_rgb_part_0()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_1()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_10()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_11()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_12()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_13()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_14()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_15()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_16()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_17()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_18()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_2()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_3()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_4()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_5()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_6()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_7()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_8()  
    Test hsl to rgb color function  
pygal.test.test_colors.test_hsl_to_rgb_part_9()  
    Test hsl to rgb color function
```

```
pygal.test.test_colors.test_lighten()  
    Test lighten color function  
  
pygal.test.test_colors.test_parse_color()  
    Test color parse function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_0()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_1()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_10()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_11()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_12()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_13()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_14()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_15()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_16()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_17()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_18()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_2()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_3()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_4()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_5()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_6()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_7()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_8()  
    Test rgb to hsl color function  
  
pygal.test.test_colors.test_rgb_to_hsl_part_9()  
    Test rgb to hsl color function
```

`pygal.test.test_colors.test_rotate()`
Test color rotation function

`pygal.test.test_colors.test_saturate()`
Test color saturation function

`pygal.test.test_colors.test_unparse_color()`
Test color unparse function

pygal.test.test_config module

Various config options tested on one chart type or more

`pygal.test.test_config.test_classes(Chart)`
Test classes option

`pygal.test.test_config.test_config_alterations_class()`
Assert a config can be changed on config class

`pygal.test.test_config.test_config_alterations_instance()`
Assert a config can be changed on instance

`pygal.test.test_config.test_config_alterations_kwargs()`
Assert a config can be changed with keyword args

`pygal.test.test_config.test_config_behaviours()`
Test that all different way to set config produce same results

`pygal.test.test_config.test_css(Chart)`
Test css file option

`pygal.test.test_config.test_fill(Chart)`
Test fill option

`pygal.test.test_config.test_formatters(Chart)`
Test custom formatters

`pygal.test.test_config.test_human_readable()`
Test human readable option

`pygal.test.test_config.test_include_x_axis(Chart)`
Test x axis inclusion option

`pygal.test.test_config.test_inline_css(Chart)`
Test inline css option

`pygal.test.test_config.test_interpolation(Chart)`
Test interpolation option

`pygal.test.test_config.test_label_rotation(Chart)`
Test label rotation option

`pygal.test.test_config.test_legend_at_bottom(Chart)`
Test legend at bottom option

`pygal.test.test_config.test_logarithmic()`
Test logarithmic option

`pygal.test.test_config.test_logarithmic_bad_interpolation()`
Test interpolation option with a logarithmic chart

```
pygal.test.test_config.test_logarithmic_big_scale()
    Test logarithmic option with a large range of value
pygal.test.test_config.test_logarithmic_small_scale()
    Test logarithmic with a small range of values
pygal.test.test_config.test_meta_config()
    Test config metaclass
pygal.test.test_config.test_no_data()
    Test no data and no data text option
pygal.test.test_config.test_no_data_interpolation(Chart)
    Test interpolation option with no data
pygal.test.test_config.test_no_data_with_empty_series_interpolation(Chart)
    Test interpolation option with an empty series
pygal.test.test_config.test_no_y_labels(Chart)
    Test no y labels chart
pygal.test.test_config.test_range(Chart)
    Test y label major option
pygal.test.test_config.test_render_data_uri(Chart)
    Test the render data uri
pygal.test.test_config.test_show_dots()
    Test show dots option
pygal.test.test_config.test_show_legend()
    Test show legend option
pygal.test.test_config.test_value_formatter()
    Test value formatter option
pygal.test.test_config.test_x_label_major(Chart)
    Test x label major option
pygal.test.test_config.test_x_y_title(Chart)
    Test x title and y title options
pygal.test.test_config.test_y_label_major(Chart)
    Test y label major option
```

pygal.test.test_date module

Date related charts tests

```
pygal.test.test_date.test_date()
    Test a simple dateline
pygal.test.test_date.test_date_labels()
    Test dateline with xrange
pygal.test.test_date.test_date_xrange()
    Test dateline with xrange
pygal.test.test_date.test_datetime()
    Test a simple datetimeline
```

```
pygal.test.test_date.test_time()
    Test a simple timeline
pygal.test.test_date.test_timedelta()
    Test a simple timedeltaline
pygal.test.test_date.test_utc_timestamping()
```

pygal.test.test_formatters module

Test formatters

```
pygal.test.test_formatters.test_human_readable()
    Test human_readable formatter
pygal.test.test_formatters.test_human_readable_custom()
    Test human_readable formatter option
pygal.test.test_formatters.test_significant()
    Test significant formatter
```

pygal.test.test_graph module

Generate tests for different chart types with different data

```
pygal.test.test_graph.test_empty_lists(Chart)
    Test chart rendering with an empty serie
pygal.test.test_graph.test_empty_lists_with_nones(Chart)
    Test chart rendering with a None filled serie
pygal.test.test_graph.test_ipython_notebook(Chart, datas)
    Test ipython notebook
pygal.test.test_graph.test_iterable_types(Chart)
    Test serie as various iterable
pygal.test.test_graph.test_labels_with_links(Chart)
    Test values with links
pygal.test.test_graph.test_long_title(Chart, datas)
    Test chart rendering with a long title
pygal.test.test_graph.test_metadata(Chart)
    Test metadata values
pygal.test.test_graph.test_multi_render(Chart, datas)
    Check that a chart always render the same
pygal.test.test_graph.test_no_data_with_empty_serie(Chart)
    Test no data for empty serie
pygal.test.test_graph.test_no_data_with_empty_series(Chart)
    Test no data for 2 empty series
pygal.test.test_graph.test_no_data_with_list_of_none(Chart)
    Test no data for a None containing serie
pygal.test.test_graph.test_no_data_with_lists_of_nones(Chart)
    Test no data for several None containing series
```



```

pygal.test.test_graph.test_no_data_with_no_values(Chart)
    Test no data
pygal.test.test_graph.test_no_data_with_no_values_with_include_x_axis(Chart)
    Test no data and include_x_axis
pygal.test.test_graph.test_no_data_with_none(Chart)
    Test no data for a None containing serie
pygal.test.test_graph.test_non_iterable_value(Chart)
    Test serie as non iterable
pygal.test.test_graph.test_only_one_value(Chart)
    Test chart rendering with only one value
pygal.test.test_graph.test_only_one_value_intrp(Chart)
    Test interpolated chart rendering with only one value
pygal.test.test_graph.test_only_one_value_log(Chart)
    Test logarithmic chart rendering with only one value
pygal.test.test_graph.test_render_to_file(Chart, datas)
    Test in file rendering
pygal.test.test_graph.test_render_to_png(Chart, datas)
    Test in file png rendering
pygal.test.test_graph.test_secondary(Chart)
    Test secondary chart
pygal.test.test_graph.test_sparkline(Chart, datas)
    Test sparkline
pygal.test.test_graph.test_unicode_labels_decode(Chart)
    Test unicode labels
pygal.test.test_graph.test_unicode_labels_python2(Chart)
    Test unicode labels in python 2
pygal.test.test_graph.test_unicode_labels_python3(Chart)
    Test unicode labels in python 3
pygal.test.test_graph.test_values_by_dict(Chart)
    Test serie as dict

```

pygal.test.test_histogram module

Histogram chart related tests

```

pygal.test.test_histogram.test_histogram()
    Simple histogram test

```

pygal.test.test_interpolate module

Interpolations tests

```

pygal.test.test_interpolate.test_cubic(Chart, datas)
    Test cubic interpolation

```

```
pygal.test.test_interpolate.test_cubic_prec(Chart, datas)
    Test cubic interpolation precision
pygal.test.test_interpolate.test_hermite(Chart, datas)
    Test hermite interpolation
pygal.test.test_interpolate.test_hermite_cardinal(Chart, datas)
    Test hermite cardinal interpolation
pygal.test.test_interpolate.test_hermite_catmull_rom(Chart, datas)
    Test hermite catmull rom interpolation
pygal.test.test_interpolate.test_hermite_finite(Chart, datas)
    Test hermite finite difference interpolation
pygal.test.test_interpolate.test_hermite_kochanek_bartels(Chart, datas)
    Test hermite kochanek bartels interpolation
pygal.test.test_interpolate.test_lagrange(Chart, datas)
    Test lagrange interpolation
pygal.test.test_interpolate.test_quadratic(Chart, datas)
    Test quadratic interpolation
pygal.test.test_interpolate.test_trigonometric(Chart, datas)
    Test trigonometric interpolation
```

pygal.test.test_line module

Line chart related tests

```
pygal.test.test_line.test_int_x_labels()
    Test x_labels
pygal.test.test_line.test_line()
    Another simple line test
pygal.test.test_line.test_line_secondary()
    Test line with a secondary serie
pygal.test.test_line.test_no_dot()
    Line test with an empty serie
pygal.test.test_line.test_no_dot_at_all()
    Line test with no value
pygal.test.test_line.test_not_equal_x_labels()
    Test x_labels
pygal.test.test_line.test_one_dot()
    Line test with an unique value
pygal.test.test_line.test_only_major_dots()
    Test major dots with specified major labels
pygal.test.test_line.test_only_major_dots_count()
    Test major dots with a major label count
pygal.test.test_line.test_only_major_dots_every()
    Test major dots
```

```
pygal.test.test_line.test_only_major_dots_no_labels()  
    Test major dots with no labels
```

```
pygal.test.test_line.test_simple_line()  
    Simple line test
```

pygal.test.test_line_log_none_max_solved module

pygal.test.test_maps module

Map plugins tests are imported here

pygal.test.test_pie module

Donut chart related tests

```
pygal.test.test_pie.test_donut()  
    Test a donut pie chart
```

```
pygal.test.test_pie.test_half_pie()  
    Test a half pie chart
```

```
pygal.test.test_pie.test_multiseries_donut()  
    Test a donut pie chart with multiserie
```

pygal.test.test_serie_config module

Test per serie configuration

```
pygal.test.test_serie_config.test_global_config()  
    Test global configuration
```

```
pygal.test.test_serie_config.test_no_serie_config()  
    Test per serie no configuration
```

```
pygal.test.test_serie_config.test_serie_config()  
    Test per serie configuration
```

```
pygal.test.test_serie_config.test_serie_precedence_over_global_config()  
    Test that per serie configuration override global configuration
```

pygal.test.test_sparktext module

Test sparktext rendering

```
pygal.test.test_sparktext.test_all_sparktext()  
    Test all character sparktext
```

```
pygal.test.test_sparktext.test_another_sparktext()  
    Test that same data produces same sparktext
```

```
pygal.test.test_sparktext.test_basic_sparktext()  
    Test basic sparktext
```

```
pygal.test.test_sparktext.test_negative_and_float_sparktext()  
    Test negative values
```

```
pygal.test.test_sparktext.test_no_data_sparktext()
```

Test no data sparktext

```
pygal.test.test_sparktext.test_same_max_and_relative_values_sparktext()
```

Test flat sparktexts

```
pygal.test.test_sparktext.test_shifted_sparktext()
```

Test relative_to option in sparktext

pygal.test.test_stacked module

Stacked chart related tests

```
pygal.test.test_stacked.test_stacked_line()
```

Test stacked line

```
pygal.test.test_stacked.test_stacked_line_interpolate()
```

Test interpolated stacked line

```
pygal.test.test_stacked.test_stacked_line_log()
```

Test logarithmic stacked line

```
pygal.test.test_stacked.test_stacked_line_reverse()
```

Test stack from top stacked line

pygal.test.test_style module

Style related tests

```
pygal.test.test_style.test_parametric_styles()
```

Test that no parametric produce the same result

```
pygal.test.test_style.test_parametric_styles_with_parameters()
```

Test a parametric style with parameters

pygal.test.test_table module

Box chart related tests

```
pygal.test.test_table.test_pie_table()
```

Test rendering a table for a pie

pygal.test.test_util module

Utility functions tests

```
pygal.test.test_util.test_format()
```

Test format function

```
pygal.test.test_util.test_majorize()
```

Test majorize function

```
pygal.test.test_util.test_mergextend()
```

Test mergextend function

```
pygal.test.test_util.test_minify_css()
```

Test css minifier function

```
pygal.test.test_util.test_round_to_float()
    Test round to float function
```

```
pygal.test.test_util.test_round_to_int()
    Test round to int function
```

```
pygal.test.test_util.test_swap_curly()
    Test swap curly function
```

```
pygal.test.test_util.test_truncate()
    Test truncate function
```

pygal.test.test_view module

View related tests

```
pygal.test.test_view.test_all_logarithmic(Chart)
    Test logarithmic view rendering
```

pygal.test.test_xml_filters module

Xml filter tests

```
class pygal.test.test_xml_filters.ChangeBarsXMLFilter(a, b)
    Bases: object
    xml filter that insert a subplot
```

```
pygal.test.test_xml_filters.test_xml_filters_changeBars()
    Test the use a xml filter
```

```
pygal.test.test_xml_filters.test_xml_filters_round_trip()
    Ensure doing nothing does nothing
```

pygal.test.utils module

Tests helpers

```
pygal.test.utils.texts(i, e)
    Helper for getting the text of an element
```

Submodules

pygal.adapters module

Value adapters to use when a chart doesn't accept all value types

```
pygal.adapters.decimal_to_float(x)
    Cast Decimal values to float
```

```
pygal.adapters.none_to_zero(x)
    Return 0 if value is None
```

```
pygal.adapters.not_zero(x)
    Return None if value is zero
```

`pygal.adapters.positive(x)`
Return zero if value is negative

pygal.colors module

This package is an utility package oriented on color alteration. This is used by the `pygal.style` package to generate parametric styles.

`pygal.colors.adjust(color, attribute, percent)`
Adjust an attribute of color by a percent

`pygal.colors.darken(color, percent)`
Darken a color by decreasing its lightness by percent

`pygal.colors.desaturate(color, percent)`
Desaturate a color by decreasing its saturation by percent

`pygal.colors.hsl_to_rgb(h, s, l)`
Convert a color in h, s, l to a color in r, g, b

`pygal.colors.is_foreground_light(color)`
Determine if the background color need a light or dark foreground color

`pygal.colors.lighten(color, percent)`
Lighten a color by increasing its lightness by percent

`pygal.colors.normalize_float(f)`
Round float errors

`pygal.colors.parse_color(color)`
Take any css color definition and give back a tuple containing the r, g, b, a values along with a type which can be: #rgb, #rgba, #rrggb, #rrggbaa, rgb, rgba

`pygal.colors.rgb_to_hsl(r, g, b)`
Convert a color in r, g, b to a color in h, s, l

`pygal.colors.rotate(color, percent)`
Rotate a color by changing its hue value by percent

`pygal.colors.saturate(color, percent)`
Saturate a color by increasing its saturation by percent

`pygal.colors.unparse_color(r, g, b, a, type)`
Take the r, g, b, a color values and give back a type css color string. This is the inverse function of `parse_color`

pygal.config module

Config module holding all options and their default values.

class `pygal.config.BaseConfig(**kwargs)`
Bases: `pygal.config.ConfigBase`

This class holds the common method for configs.

A config object can be instantiated with keyword arguments and updated on call with keyword arguments.

copy()
Copy this config object into another

`to_dict()`

Export a JSON serializable dictionary of the config

class `pygal.config.CommonConfig(**kwargs)`

Bases: `pygal.config.BaseConfig`

Class holding options used in both chart and serie configuration

`allow_interruptions` = Type: `bool` Default: `False` Break lines on None values

`dots_size` = Type: `float` Default: `2.5` Radius of the dots

`fill` = Type: `bool` Default: `False` Fill areas under lines

`formatter` = Type: `function` Default: `None` A function to convert raw value to string

`inner_radius` = Type: `float` Default: `0` Piechart inner radius (donut), must be less than outer radius

`rounded_bars` = Type: `int` Default: `None` Set this to the desired radius in pixels

`show_dots` = Type: `bool` Default: `True` Set to false to remove dots

`show_only_major_dots` = Type: `bool` Default: `False` Set to true to show only major dots

`stroke` = Type: `bool` Default: `True` Line dots (set it to false to get a scatter plot)

`stroke_style` = Type: `dict` Default: `None` Stroke style of serie element. This is a dict with 'dash' and 'width' keys

class `pygal.config.Config(**kwargs)`

Bases: `pygal.config.CommonConfig`

Class holding config values

`box_mode` = Type: `str` Default: `'extremes'` Sets the mode to be used. (Current modes: extremes, range, minmax)

`classes` = Type: `list` Default: `('pygal-chart',)` Classes of the root svg node

`css` = Type: `list of str` Default: `('file://style.css', 'file://graph.css')` CSS files

`defs` = Type: `list of str` Default: `[]` Extraneous defs to be inserted in svg

`disable_xml_declaration` = Type: `bool` Default: `False` Don't write xml declaration

`dynamic_print_values` = Type: `bool` Default: `False` Show values only on hover

`explicit_size` = Type: `bool` Default: `False` Write width and height attributes

`force_uri_protocol` = Type: `str` Default: `'https'` Default uri protocol Default: 'https'

`half_pie` = Type: `bool` Default: `False` Create a half-pie chart

`height` = Type: `int` Default: `600` Graph height

`include_x_axis` = Type: `bool` Default: `False` Always include x axis

`inner_radius` = Type: `float` Default: `0` Piechart inner radius (donut), must be less than outer radius

`interpolate` = Type: `str` Default: `None` Interpolation May be lagrange or cubic

`interpolation_parameters` = Type: `dict of int` Default: `{}` Various parameters for interpolation

`interpolation_precision` = Type: `int` Default: `250` Number of interpolated points

`inverse_y_axis` = Type: `bool` Default: `False` Inverse Y axis direction

`js` = Type: `list of str` Default: `('//kozea.github.io/pygal.js/2.0.x/pygal-tooltips.js')` JS files

`legend_at_bottom` = Type: `bool` Default: `False` Set to true to position legend at bottom

`legend_at_bottom_columns` = Type: `int` Default: `None` Set to true to position legend at bottom

<code>legend_box_size</code>	= Type: int	Default: 12	Size of legend boxes
<code>logarithmic</code>	= Type: bool	Default: False	Display values in logarithmic scale
<code>margin</code>	= Type: int	Default: 20	Margin around chart
<code>margin_bottom</code>	= Type: int	Default: None	Margin around bottom of chart
<code>margin_left</code>	= Type: int	Default: None	Margin around left of chart
<code>margin_right</code>	= Type: int	Default: None	Margin around right of chart
<code>margin_top</code>	= Type: int	Default: None	Margin around top of chart
<code>max_scale</code>	= Type: int	Default: 16	Maximum number of scale graduation for axis
<code>min_scale</code>	= Type: int	Default: 4	Minimum number of scale graduation for axis
<code>missing_value_fill_truncation</code>	= Type: str	Default: 'x'	Filled series with missing values
<code>no_data_text</code>	= Type: str	Default: 'No data'	Text to display when no data is present
<code>no_prefix</code>	= Type: bool	Default: False	Don't prefix css classes
<code>order_min</code>	= Type: int	Default: None	Minimum order of scale, defaults to None
<code>pretty_print</code>	= Type: bool	Default: False	Pretty print the svg
<code>print_labels</code>	= Type: bool	Default: False	Display value labels
<code>print_values</code>	= Type: bool	Default: False	Display values as text over plot
<code>print_values_position</code>	= Type: str	Default: 'center'	Customize position of values
<code>print_zeroes</code>	= Type: bool	Default: True	Display zero values as well
<code>range</code>	= Type: list of int	Default: None	Explicitly specify min and max of range
<code>roundedBars</code>	= Type: int	Default: None	Set this to the desired radius in pixels
<code>secondary_range</code>	= Type: list of int	Default: None	Explicitly specify min and max of secondary range
<code>showLegend</code>	= Type: bool	Default: True	Set to false to remove legend
<code>showMinorXLabels</code>	= Type: bool	Default: True	Set to false to hide x-labels
<code>showMinorYLabels</code>	= Type: bool	Default: True	Set to false to hide y-labels
<code>showXGuides</code>	= Type: bool	Default: False	Set to true to always show x guide lines
<code>showXLabels</code>	= Type: bool	Default: True	Set to false to hide x-labels
<code>showYGuides</code>	= Type: bool	Default: True	Set to false to hide y guide lines
<code>showYLabels</code>	= Type: bool	Default: True	Set to false to hide y-labels
<code>spacing</code>	= Type: int	Default: 10	Space between titles/legend/axes
<code>stackFromTop</code>	= Type: bool	Default: False	Stack from top to zero, this may be useful for pie charts
<code>strict</code>	= Type: bool	Default: False	If True don't try to adapt / filter wrong data
<code>style</code>	= Type: Style	Default: <pygal.style.RotateStyle object>	Style holding styling information
<code>title</code>	= Type: str	Default: None	Graph title. Leave it to None to disable title
<code>tooltipBorderRadius</code>	= Type: int	Default: 0	Tooltip border radius
<code>tooltipFancyMode</code>	= Type: bool	Default: True	Fancy tooltips Print legend, values and labels
<code>truncateLabel</code>	= Type: int	Default: None	Label string length truncation threshold


```

truncate_legend = Type:  int          Default:  None          Legend string length truncation
value_formatter = Type:  function      Default:  <pygal.formatters.Default object>
width = Type:  int          Default:  800          Graph width
x_label_rotation = Type:  int          Default:  0          Specify x labels rotation angles in
x_labels = Type:  list of str          Default:  None          X labels, must have same len th
x_labels_major = Type:  list of str          Default:  None          X labels that will be mar
x_labels_major_count = Type:  int          Default:  None          Mark n evenly distributed l
x_labels_major_every = Type:  int          Default:  None          Mark every n-th x label as m
x_title = Type:  str          Default:  None          Graph X-Axis title. Leave it to None to c
x_value_formatter = Type:  function      Default:  <pygal.formatters.Default object>
xrange = Type:  list of int          Default:  None          Explicitly specify min and max of
y_label_rotation = Type:  int          Default:  0          Specify y labels rotation angles in
y_labels = Type:  list of float          Default:  None          You can specify explicit y lab
y_labels_major = Type:  list of str          Default:  None          Y labels that will be mar
y_labels_major_count = Type:  int          Default:  None          Mark n evenly distributed y
y_labels_major_every = Type:  int          Default:  None          Mark every n-th y label as m
y_title = Type:  str          Default:  None          Graph Y-Axis title. Leave it to None to c
zero = Type:  int          Default:  0          Set the ordinate zero value Useful for filling

```

```
class pygal.config.Key (default_value, type_, category, doc, subdoc="", subtype=None)
```

Bases: `object`

Represents a config parameter.

A config parameter has a name, a default value, a type, a category, a documentation, an optional longer documentation and an optional subtype for list style option.

Most of these informations are used in cabaret to auto generate forms representing these options.

coerce (*value*)

Cast a string into this key type

is_boolean

Return *True* if this parameter is a boolean

is_dict

Return *True* if this parameter is a mapping

is_list

Return *True* if this parameter is a list

is_numeric

Return *True* if this parameter is numeric (int or float)

is_string

Return *True* if this parameter is a string

```
class pygal.config.MetaConfig
```

Bases: `type`

Config metaclass. Used to get the key name and set it on the value.

```
class pygal.config.SerieConfig(**kwargs)
    Bases: pygal.config.CommonConfig

    Class holding serie config values

    secondary = Type:  bool           Default:  False           Set it to put the serie in a second
    title = Type:  str           Default:  None           Serie title. Leave it to None to disable t
```

pygal.etree module

Wrapper for seamless lxml.etree / xml.etree usage depending on whether lxml is installed or not.

```
class pygal.etree.Etree
    Bases: object

    Etree wrapper using lxml.etree or standard xml.etree

    to_etree()
        Force xml.etree to be used

    to_lxml()
        Force lxml.etree to be used
```

pygal.formatters module

Formatters to use with *value_formatter* and *x_value_formatter* configs

```
class pygal.formatters.Default(precision=10)
    Bases: pygal.formatters.Significant, pygal.formatters IsoDateTime, pygal.
    formatters.Raw

    Try to guess best format from type

class pygal.formatters.Formatter
    Bases: object

class pygal.formatters.HumanReadable(none_char='')
    Bases: pygal.formatters.Formatter

    Format a number to engineer scale

    ORDERS = 'yzafpnµm kMGTPeZY'

class pygal.formatters.Integer
    Bases: pygal.formatters.Formatter

    Cast number to integer

class pygal.formatters.IsoDateTime
    Bases: pygal.formatters.Formatter

    Iso format datetimes

class pygal.formatters.Raw
    Bases: pygal.formatters.Formatter

    Cast everything to string

class pygal.formatters.Significant(precision=10)
    Bases: pygal.formatters.Formatter
```

Show precision significant digit of float

pygal.interpolate module

Interpolation functions

These functions takes two lists of points x and y and returns an iterator over the interpolation between all these points with *precision* interpolated points between each of them

`pygal.interpolate.cubic_interpolate(x, y, precision=250, **kwargs)`

Interpolate x, y using a cubic algorithm https://en.wikipedia.org/wiki/Spline_interpolation

`pygal.interpolate.hermite_interpolate(x, y, precision=250, type='cardinal', c=None, b=None, t=None)`

Interpolate x, y using the hermite method. See https://en.wikipedia.org/wiki/Cubic_Hermite_spline

This interpolation is configurable and contain 4 subtypes:

- Catmull Rom
- Finite Difference
- Cardinal
- Kochanek Bartels

The cardinal subtype is customizable with a parameter:

- c: tension (0, 1)

This last type is also customizable using 3 parameters:

- c: continuity (-1, 1)
- b: bias (-1, 1)
- t: tension (-1, 1)

`pygal.interpolate.lagrange_interpolate(x, y, precision=250, **kwargs)`

Interpolate x, y using Lagrange polynomials https://en.wikipedia.org/wiki/Lagrange_polynomial

`pygal.interpolate.quadratic_interpolate(x, y, precision=250, **kwargs)`

Interpolate x, y using a quadratic algorithm [https://en.wikipedia.org/wiki/Spline_\(mathematics\)](https://en.wikipedia.org/wiki/Spline_(mathematics))

`pygal.interpolate.trigonometric_interpolate(x, y, precision=250, **kwargs)`

Interpolate x, y using trigonometric As per http://en.wikipedia.org/wiki/Trigonometric_interpolation

pygal.serie module

Serie property holder

class `pygal.serie.Serie(index, values, config, metadata=None)`

Bases: `object`

Serie class containing title, values and the graph serie index

safe_values

Property containing all values that are not None

pygal.state module

Class holding state during render

```
class pygal.state.State(graph, **kwargs)  
    Bases: object
```

Class containing config values overridden by chart values overridden by keyword args

pygal.stats module

```
pygal.stats.confidence_interval_continuous(point_estimate, stddev, sample_size, confidence=0.95, **kwargs)
```

Continuous confidence interval from sample size and standard error

```
pygal.stats.confidence_interval_dichotomous(point_estimate, sample_size, confidence=0.95, bias=False, percentage=True, **kwargs)
```

Dichotomous confidence interval from sample size and maybe a bias

```
pygal.stats.confidence_interval_manual(point_estimate, low, high)
```

```
pygal.stats.erfinv(x, a=0.147)
```

Approximation of the inverse error function https://en.wikipedia.org/wiki/Error_function #Approximation_with_elementary_functions

```
pygal.stats.norm_ppf(x)
```

```
pygal.stats.ppf(x, n)
```

pygal.style module

Charts styling classes

```
class pygal.style.BlueStyle(**kwargs)  
    Bases: pygal.style.Style
```

A blue style

```
background = '#f0f0f0'
```

```
colors = ('#00b2f0', '#43d9be', '#0662ab', '#00668a', '#98eadb', '#97d959', '#033861',
```

```
foreground = 'rgba(0, 0, 0, 0.9)'
```

```
foreground_strong = 'rgba(0, 0, 0, 0.9)'
```

```
foreground_subtle = 'rgba(0, 0, 0, 0.6)'
```

```
opacity = '.5'
```

```
opacity_hover = '.9'
```

```
plot_background = '#f8f8f8'
```

```
transition = '250ms ease-in'
```

```
class pygal.style.CleanStyle(**kwargs)  
    Bases: pygal.style.Style
```

A rather clean style


```
    foreground_subtle = 'rgba(255, 255, 255, 0.6)'  
    opacity = '.6'  
    opacity_hover = '.9'  
    plot_background = '#201a01'  
    transition = '250ms ease-in'
```

class `pygal.style.DarkSolarizedStyle(**kwargs)`
Bases: `pygal.style.Style`
Dark solarized popular theme

```
    background = '#073642'  
    colors = ('#b58900', '#cb4b16', '#dc322f', '#d33682', '#6c71c4', '#268bd2', '#2aa198',  
    foreground = '#839496'  
    foreground_strong = '#fdf6e3'  
    foreground_subtle = '#657b83'  
    opacity = '.66'  
    opacity_hover = '.9'  
    plot_background = '#002b36'  
    transition = '500ms ease-in'
```

class `pygal.style.DarkStyle(**kwargs)`
Bases: `pygal.style.Style`
A dark style (old default)

```
    background = 'black'  
    colors = ('#ff5995', '#b6e354', '#feed6c', '#8cedff', '#9e6ffe', '#899ca1', '#f8f8f2',  
    foreground = '#999'  
    foreground_strong = '#eee'  
    foreground_subtle = '#555'  
    opacity = '.8'  
    opacity_hover = '.4'  
    plot_background = '#111'  
    transition = '250ms'
```

class `pygal.style.DarkenStyle(color, step=10, max_=None, base_style=None, **kwargs)`
Bases: `pygal.style.ParametricStyleBase`
Create a style by darkening the given color

`pygal.style.DefaultStyle`
alias of `Style`

class `pygal.style.DesaturateStyle(color, step=10, max_=None, base_style=None, **kwargs)`
Bases: `pygal.style.ParametricStyleBase`
Create a style by desaturating the given color

```

class pygal.style.LightColorizedStyle(**kwargs)
    Bases: pygal.style.Style
    A light colorized style
    background = '#f8f8f8'
    colors = ('#fe9592', '#534f4c', '#3ac2c0', '#a2a7a1', '#fd4b46', '#7b7571', '#73d5d4',
    foreground = '#333'
    foreground_strong = '#666'
    foreground_subtle = 'rgba(0, 0 , 0, 0.5)'
    opacity = '.5'
    opacity_hover = '.9'
    plot_background = '#ffffff'
    transition = '250ms ease-in'

class pygal.style.LightGreenStyle(**kwargs)
    Bases: pygal.style.Style
    A light green style
    background = '#fbfbfb'
    colors = ('#7dcf30', '#247fab', '#97d959', '#ccc', '#579122', '#ddd', '#2f9ed3', '#175
    foreground = '#333333'
    foreground_strong = '#666'
    foreground_subtle = '#222222'
    opacity = '.5'
    opacity_hover = '.9'
    plot_background = '#fff'
    transition = '250ms ease-in'

class pygal.style.LightSolarizedStyle(**kwargs)
    Bases: pygal.style.DarkSolarizedStyle
    Light solarized popular theme
    background = '#fdf6e3'
    foreground = '#657b83'
    foreground_strong = '#073642'
    foreground_subtle = '#073642'
    plot_background = '#eee8d5'

class pygal.style.LightStyle(**kwargs)
    Bases: pygal.style.Style
    A light style
    background = 'white'
    colors = ('#242424', '#9f6767', '#92ac68', '#d0d293', '#9aacc3', '#bb77a4', '#77bbb5',

```

```
    foreground = 'rgba(0, 0, 0, 0.7)'
    foreground_strong = 'rgba(0, 0, 0, 0.9)'
    foreground_subtle = 'rgba(0, 0, 0, 0.5)'
    plot_background = 'rgba(0, 0, 255, 0.1)'

class pygal.style.LightenStyle(color, step=10, max_=None, base_style=None, **kwargs)
    Bases: pygal.style.ParametricStyleBase

    Create a style by lightening the given color

class pygal.style.NeonStyle(**kwargs)
    Bases: pygal.style.DarkStyle

    Similar to DarkStyle but with more opacity and effects

    opacity = '.1'
    opacity_hover = '.75'
    transition = '1s ease-out'

class pygal.style.ParametricStyleBase(color, step=10, max_=None, base_style=None,
                                       **kwargs)
    Bases: pygal.style.Style

    Parametric Style base class for all the parametric operations

class pygal.style.RedBlueStyle(**kwargs)
    Bases: pygal.style.Style

    A red and blue theme

    background = '#f9f9fa'
    colors = ('#d94e4c', '#e5884f', '#39929a', '#e27876', '#245d62', '#f0bb9b', '#c82d2a',
    foreground = 'rgba(0, 0, 0, 0.9)'
    foreground_strong = 'rgba(0, 0, 0, 0.9)'
    foreground_subtle = 'rgba(0, 0, 0, 0.5)'
    opacity = '.6'
    opacity_hover = '.9'
    plot_background = '#ffffff'

class pygal.style.RotateStyle(color, step=10, max_=None, base_style=None, **kwargs)
    Bases: pygal.style.ParametricStyleBase

    Create a style by rotating the given color

class pygal.style.SaturateStyle(color, step=10, max_=None, base_style=None, **kwargs)
    Bases: pygal.style.ParametricStyleBase

    Create a style by saturating the given color

class pygal.style.SolidColorStyle(**kwargs)
    Bases: pygal.style.Style

    A light style with strong colors

    background = '#FFFFFF'
    colors = ('#FF9900', '#DC3912', '#4674D1', '#109618', '#990099', '#0099C6', '#DD4477',
```



```

foreground = '#000000'
foreground_strong = '#000000'
foreground_subtle = '#828282'
opacity = '.8'
opacity_hover = '.9'
plot_background = '#FFFFFF'
transition = '400ms ease-in'
class pygal.style.Style(**kwargs)
    Bases: object
    Styling class containing colors for the css generation
    background = 'rgba(249, 249, 249, 1)'
    ci_colors = ()
    colors = ('#F44336', '#3F51B5', '#009688', '#FFC107', '#FF5722', '#9C27B0', '#03A9F4',
font_family = 'Consolas, "Liberation Mono", Menlo, Courier, monospace'
foreground = 'rgba(0, 0, 0, .87)'
foreground_strong = 'rgba(0, 0, 0, 1)'
foreground_subtle = 'rgba(0, 0, 0, .54)'
get_colors(prefix, len_)
    Get the css color list
guide_stroke_dasharray = '4,4'
label_font_family = None
label_font_size = 10
legend_font_family = None
legend_font_size = 14
major_guide_stroke_dasharray = '6,6'
major_label_font_family = None
major_label_font_size = 10
no_data_font_family = None
no_data_font_size = 64
opacity = '.7'
opacity_hover = '.8'
plot_background = 'rgba(255, 255, 255, 1)'
stroke_opacity = '.8'
stroke_opacity_hover = '.9'
title_font_family = None
title_font_size = 16

```

```

to_dict ()
    Convert instance to a serializable mapping.

tooltip_font_family = None
tooltip_font_size = 14
transition = '150ms'
value_background = 'rgba(229, 229, 229, 1) '
value_colors = ()
value_font_family = None
value_font_size = 16
value_label_font_family = None
value_label_font_size = 10

class pygal.style.TurquoiseStyle (**kwargs)
    Bases: pygal.style.Style
    A turquoise style

    background = '#0e4448'
    colors = ('#93d2d9', '#ef940f', '#8C6243', '#fff', '#48b3be', '#f4b456', '#b68866', '#
    foreground = 'rgba(255, 255, 255, 0.9) '
    foreground_strong = 'rgba(255, 255, 255, 0.9) '
    foreground_subtle = 'rgba(255, 255 , 255, 0.5) '
    opacity = '.5'
    opacity_hover = '.9'
    plot_background = '#0d3c40'
    transition = '250ms ease-in'

```

pygal.svg module

Svg helper

```
class pygal.svg.Svg(graph)
    Bases: object

    Svg related methods

    add_scripts()
        Add the js to the svg

    add_styles()
        Add the css to the svg

    confidence_interval(node, x, low, high, width=7)

    draw_no_data()
        Write the no data text to the svg

    gauge_background(serie_node, start_angle, center, radius, small_radius, end_angle, half_pie,
                     max value)
```

get_strokes ()
Return a css snippet containing all stroke style options

line (*node, coords, close=False, **kwargs*)
Draw a svg line

node (*parent=None, tag='g', attrib=None, **extras*)
Make a new svg node

ns = 'http://www.w3.org/2000/svg'

pre_render ()
Last things to do before rendering

render (*is_unicode=False, pretty_print=False*)
Last thing to do before rendering

serie (*serie*)
Make serie node

slice (*serie_node, node, radius, small_radius, angle, start_angle, center, val, i, metadata*)
Draw a pie slice

solid_gauge (*serie_node, node, radius, small_radius, angle, start_angle, center, val, i, metadata, half_pie, end_angle, max_value*)
Draw a solid gauge slice and background slice

transposable_node (*parent=None, tag='g', attrib=None, **extras*)
Make a new svg node which can be transposed if horizontal

xlink_ns = 'http://www.w3.org/1999/xlink'

pygal.table module

HTML Table maker.

This class is used to render an html table from a chart data.

class pygal.table.**HTML**

Bases: `object`

Lower case adapter of lxml builder

class pygal.table.**Table** (*chart*)

Bases: `object`

Table generator class

render (*total=False, transpose=False, style=False*)

Render the HTML table of the chart.

total can be specified to include data sums *transpose* make labels becomes columns *style* include scoped style for the table

pygal.util module

Various utility functions

pygal.util.**alter** (*node, metadata*)

Override nodes attributes from metadata node mapping

```
class pygal.util.cached_property (getter, doc=None)
    Bases: object
    Memoize a property

pygal.util.compose (f, g)
    Chain functions

pygal.util.compute_logarithmic_scale (min_, max_, min_scale, max_scale)
    Compute an optimal scale for logarithmic

pygal.util.compute_scale (min_, max_, logarithmic, order_min, min_scale, max_scale)
    Compute an optimal scale between min and max

pygal.util.coord_abs_project (center, rho, theta)

pygal.util.coord_diff (x, y)

pygal.util.coord_dual (r)

pygal.util.coord_format (x)

pygal.util.coord_project (rho, alpha)

pygal.util.cut (list_, index=0)
    Cut a list by index or arg

pygal.util.decorate (svg, node, metadata)
    Add metedata next to a node

pygal.util.deg (radiants)
    Convert radiants in degrees

pygal.util.filter_kwargs (fun, kwargs)

pygal.util.float_format (number)
    Format a float to a precision of 3, without zeroes or dots

pygal.util.get_text_box (text, fs)
    Approximation of text bounds

pygal.util.get_texts_box (texts, fs)
    Approximation of multiple texts bounds

pygal.util.ident (x)

pygal.util.majorize (values)
    Filter sequence to return only major considered numbers

pygal.util.merge (dict1, dict2)

pygal.util.mergextend (list1, list2)

pygal.util.minify_css (css)
    Little css minifier

pygal.util.rad (degrees)
    Convert degrees in radiants

pygal.util.reverse_text_len (width, fs)
    Approximation of text length

pygal.util.round_to_float (number, precision)
    Round a float to a precision
```

`pygal.util.round_to_int` (*number, precision*)
Round a number to a precision

`pygal.util.round_to_scale` (*number, precision*)
Round a number or a float to a precision

`pygal.util.safe_enumerate` (*iterable*)
Enumerate which does not yield None values

`pygal.util.split_title` (*title, width, title_fs*)
Split a string for a specified width and font size

`pygal.util.swap` (*tuple_*)

`pygal.util.template` (*string, **kwargs*)
Format a string using double braces

`pygal.util.text_len` (*length, fs*)
Approximation of text width

`pygal.util.truncate` (*string, index*)
Truncate a string at index and add ...

pygal.view module

Projection and bounding helpers

class `pygal.view.Box` (*xmin=0, ymin=0, xmax=1, ymax=1*)
Bases: `object`

Chart boundings

fix (*with_margin=True*)
Correct box when no values and take margin in account

height
Helper for box height

margin = 0.02

set_polar_box (*rmin=0, rmax=1, tmin=0, tmax=6.283185307179586*)
Helper for polar charts

swap ()
Return the box (for horizontal graphs)

width
Helper for box width

xmax
X maximum getter

xmin
X minimum getter

ymax
Y maximum getter

ymin
Y minimum getter

```
class pygal.view.HorizontalLogView (width, height, box)
    Bases: pygal.view.XLogView

    Transposed Logarithmic projection

    x (x)
        Project x as y

    y (y)
        Project y as x

class pygal.view.HorizontalView (width, height, box)
    Bases: pygal.view.View

    Same as view but transposed

    x (x)
        Project x as y

    y (y)
        Project y as x

class pygal.view.LogView (width, height, box)
    Bases: pygal.view.View

    Y Logarithmic projection

    y (y)
        Project y

class pygal.view.Margin (top, right, bottom, left)
    Bases: object

    Class representing a margin (top, right, left, bottom)

    x
        Helper for total x margin

    y
        Helper for total y margin

class pygal.view.PolarLogView (width, height, box)
    Bases: pygal.view.View

    Logarithmic polar projection

class pygal.view.PolarThetaLogView (width, height, box, aperture=1.0471975511965976)
    Bases: pygal.view.View

    Logarithmic polar projection

class pygal.view.PolarThetaView (width, height, box, aperture=1.0471975511965976)
    Bases: pygal.view.View

    Logarithmic polar projection

class pygal.view.PolarView (width, height, box)
    Bases: pygal.view.View

    Polar projection for pie like graphs

class pygal.view.ReverseView (width, height, box)
    Bases: pygal.view.View

    Same as view but reversed vertically
```

y (*y*)
Project reversed y

class `pygal.view.View` (*width, height, box*)

Bases: `object`

Projection base class

x (*x*)
Project x

y (*y*)
Project y

class `pygal.view.XLogView` (*width, height, box*)

Bases: `pygal.view.View`

X logarithmic projection

x (*x*)
Project x

class `pygal.view.XYLogView` (*width, height, box*)

Bases: `pygal.view.XLogView`, `pygal.view.LogView`

X and Y logarithmic projection

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