Python: Data Analysis and Data Visualization

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Learning Targets

- Import data and pre process

  - formats, parse data, use suited data structures

- Aggregate

  - Perform basic analysis

  - descriptive statistics

  - text analysis

- Visualization types

  - Tables, x-y Plot, Normal distribution, Pie chart, Spider diagram, Word cluster, Histogram, 3D Plot

Schedule Today

- Continue with population.io   ~ 180min
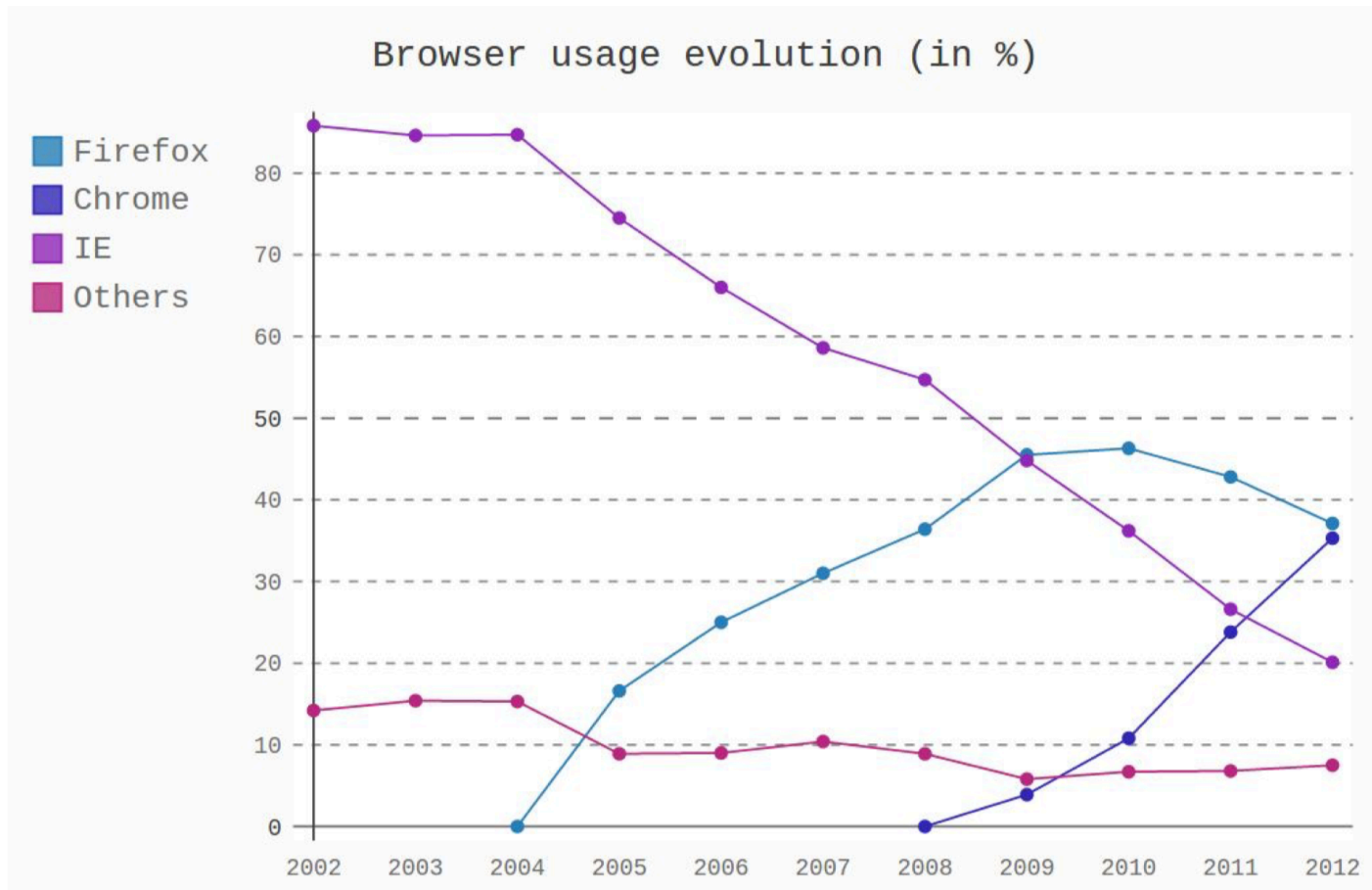
Schedule Today

- Continue with population.io   ~ 180min

Pygal Line Plot

```python
import pygal

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()
```
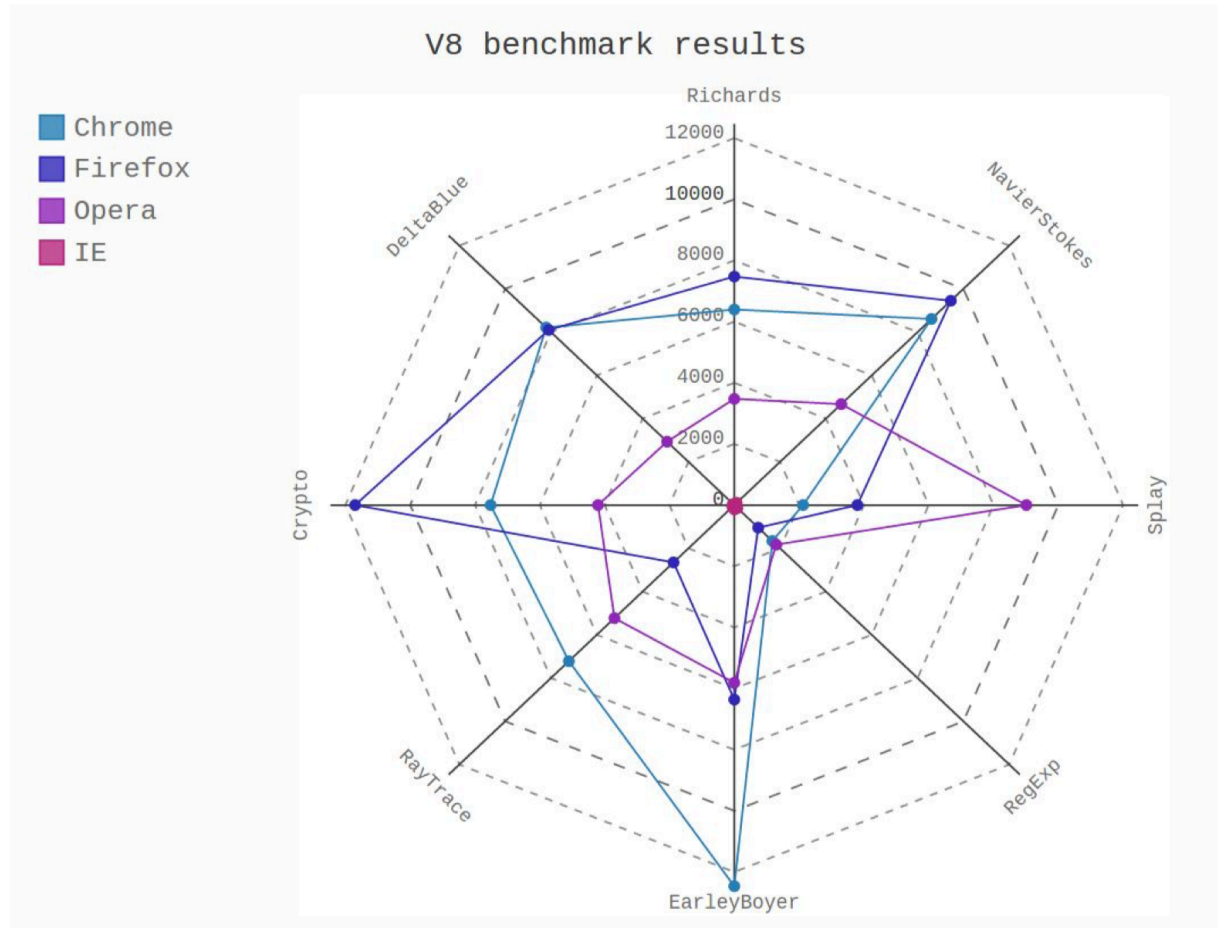
Pygal Line Plot

Browser usage evolution (in %)

Pygal Radar Plot

```python
import pygal

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()
```
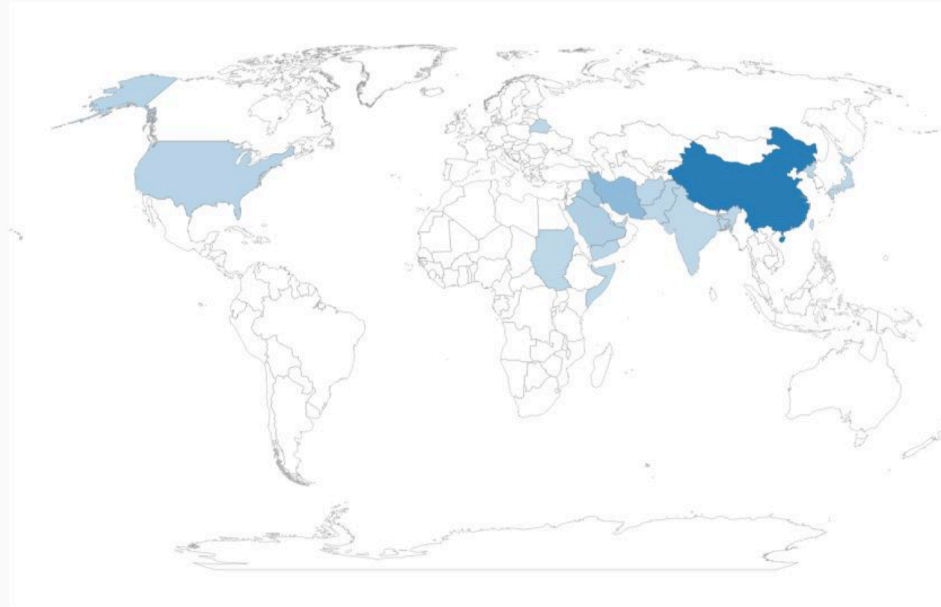
Pygal Radar Plot

Pygal World Map

```python
import pygal.maps.world

worldmap_chart = pygal.maps.world.World()
worldmap_chart.title = 'Minimum deaths by capital punishement (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()
```

Pygal World Map

Minimum deaths by capital punishement (source: Amnesty International)

In 2012

Exercise Population Visualization

- See comments in the exercise files