aggregations

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outline

- what aggregations are
- why we built them
- how they work
  what the trade-offs are

aggregations

- analytics
  histograms, distributions, statistics
- over any partition of your data
  anything that can be selected with queries/filters
- in near real time
  computed on the fly, ~1s refresh interval
- that can be composed
  unlike facets

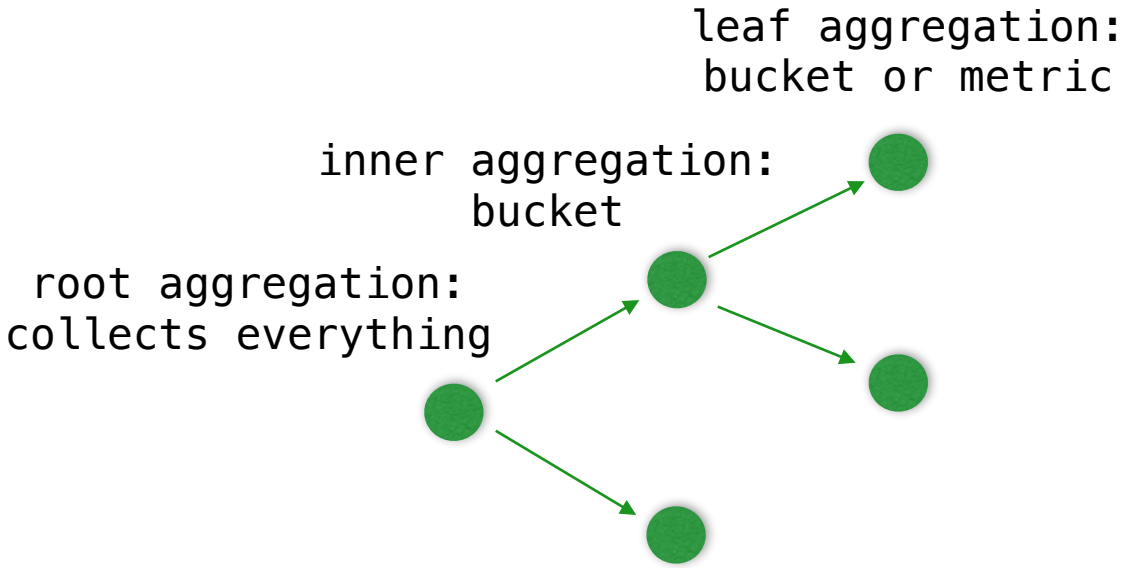
bucket / metrics

- bucket

  terms
  histogram
  range
  filter
  geohash grid

- metrics

  stats
  min / max / avg / sum
  percentiles
  cardinality



traffic analysis

```
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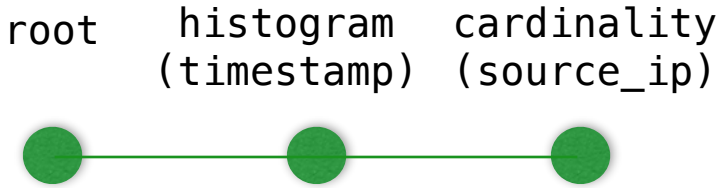
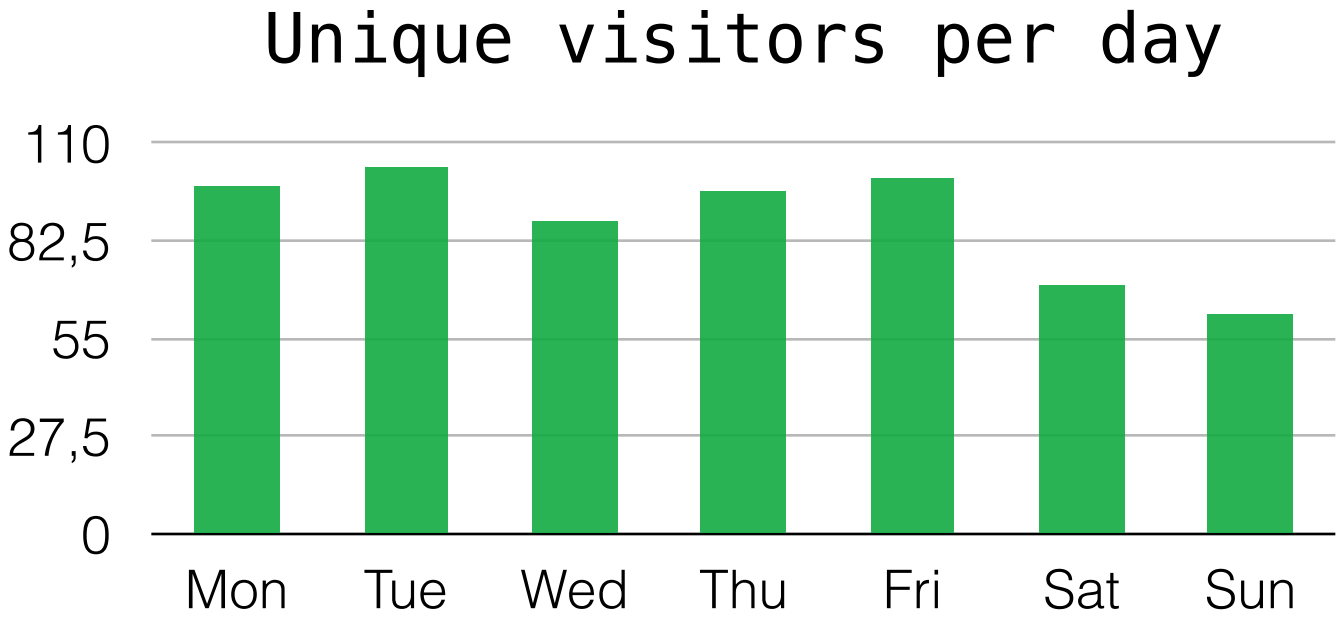
}
```

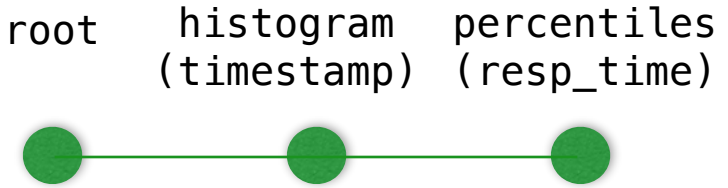


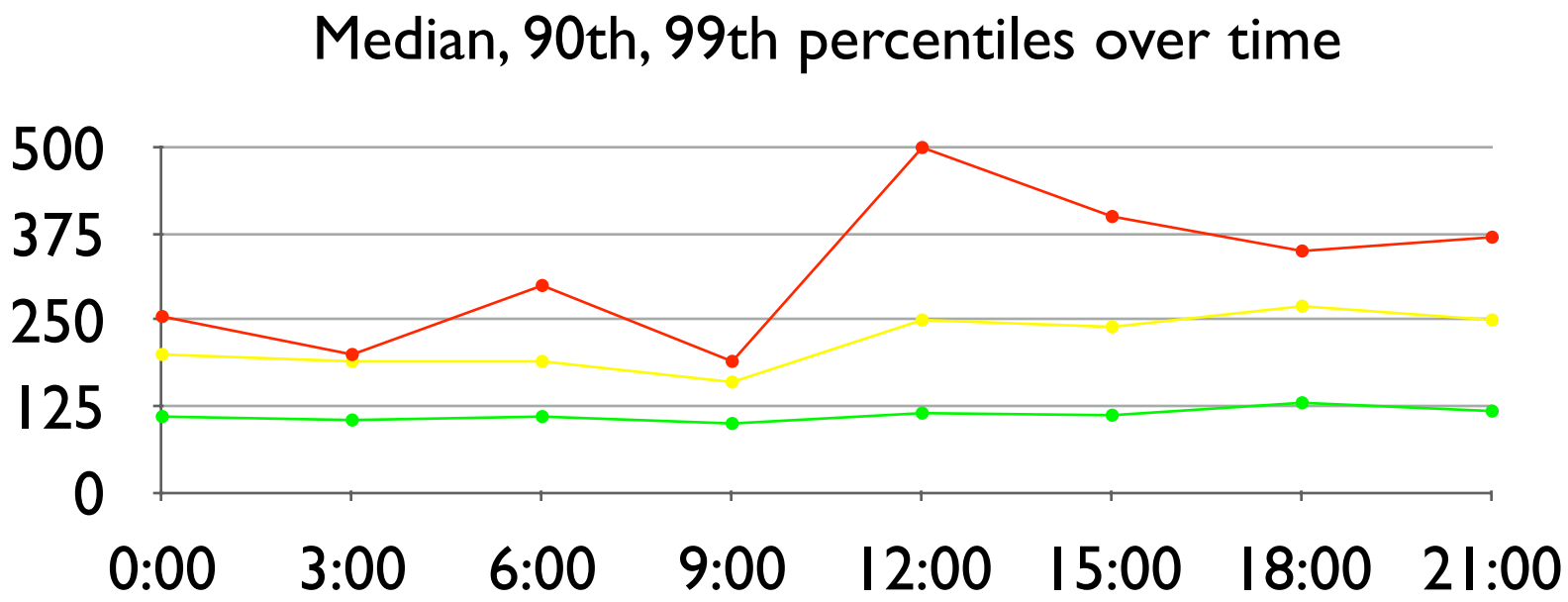


elasticsearch.

performance analysis

```
{
  “resp_time” : 205,
  “timestamp” : “2014-05-25T23:44:12.779Z”
}
```





elasticsearch.

e-commerce

```
{
    “category” : “Dresses”,
    “site” : “Zalando”,
    “brand” : “Desigual”,
    “designation”: “dress”,
    “price”: 85
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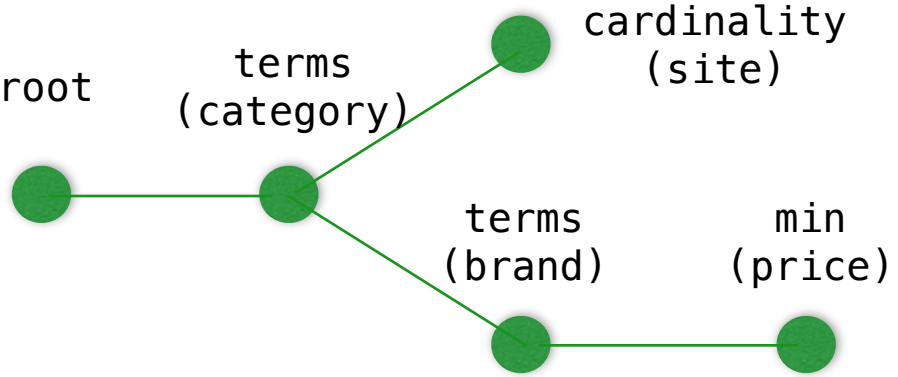

- Dresses: 23 offers, 9 sites
    - Urbanist: 12 min_price: 60
    - Desigual: 8 min_price: 85
    - Life: 3 min_price: 52
- Shoes: 19, 3 sites
- Skirts: 8, 5 sites

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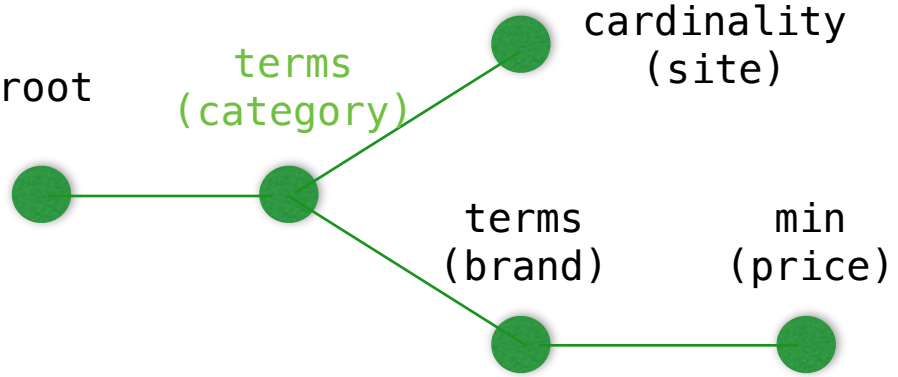

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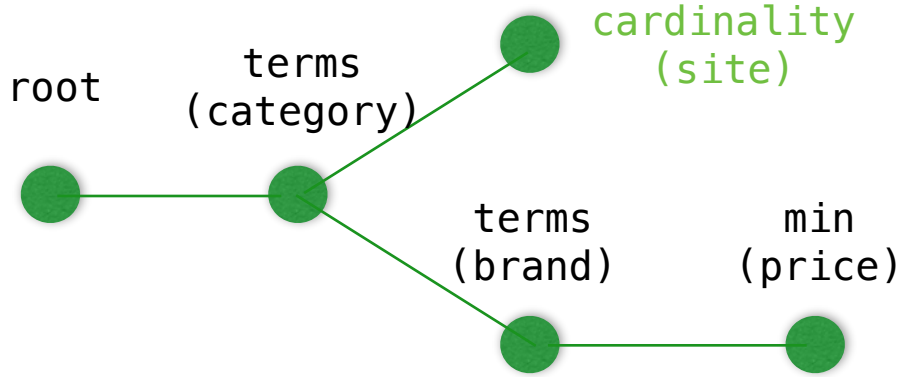

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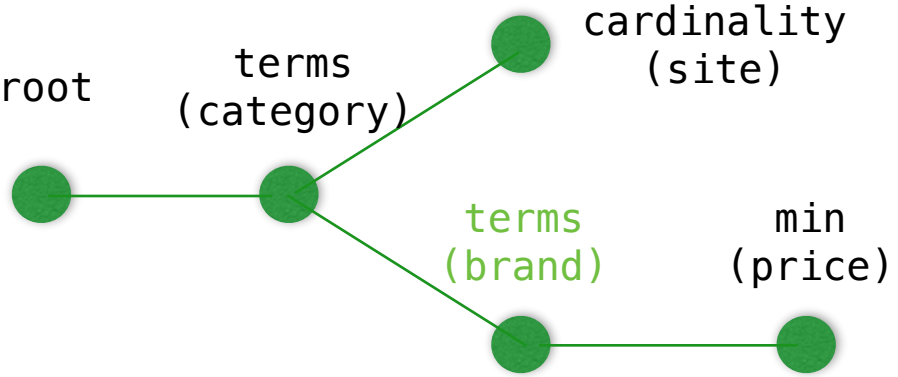

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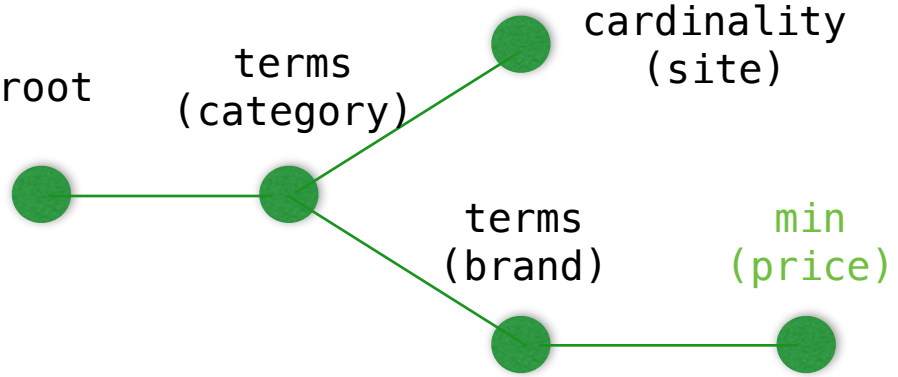

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why on elasticsearch?

- powerful when combined with search
  data exploration
- search engines have had faceted search for a very long time
  storage is optimized for such a workload
- aggregations are a new iteration
  with increased capabilities / flexibility

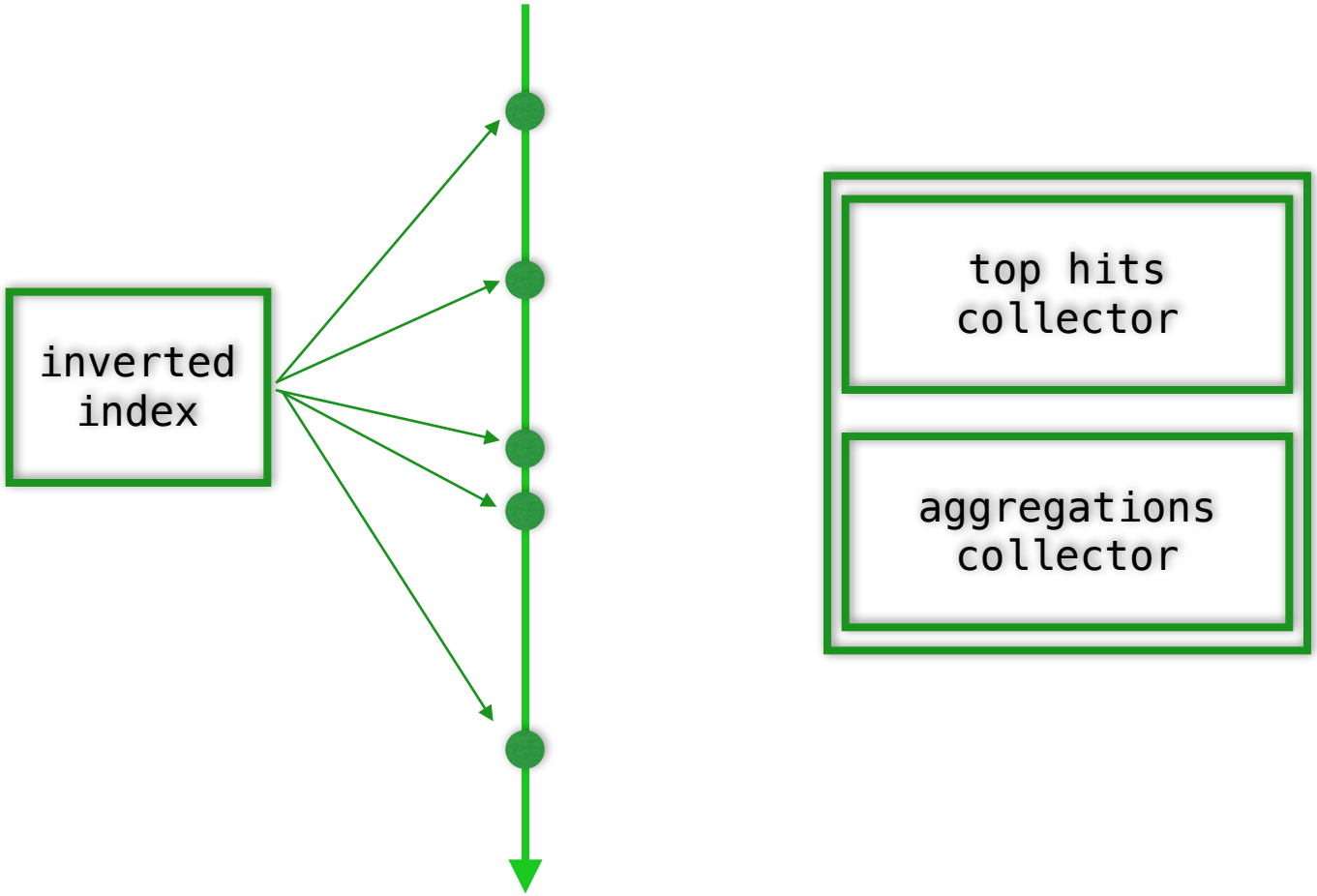
why is it fast?

- data stored to make information retrieval fast
  yet indexing remains faster than what you expect

- optimized data structures
  compressed columnar storage (field data / doc values)
  strings are enums (per segment)

- single pass on your data
  no matter how many levels of aggregations there are

how it works (shard level)



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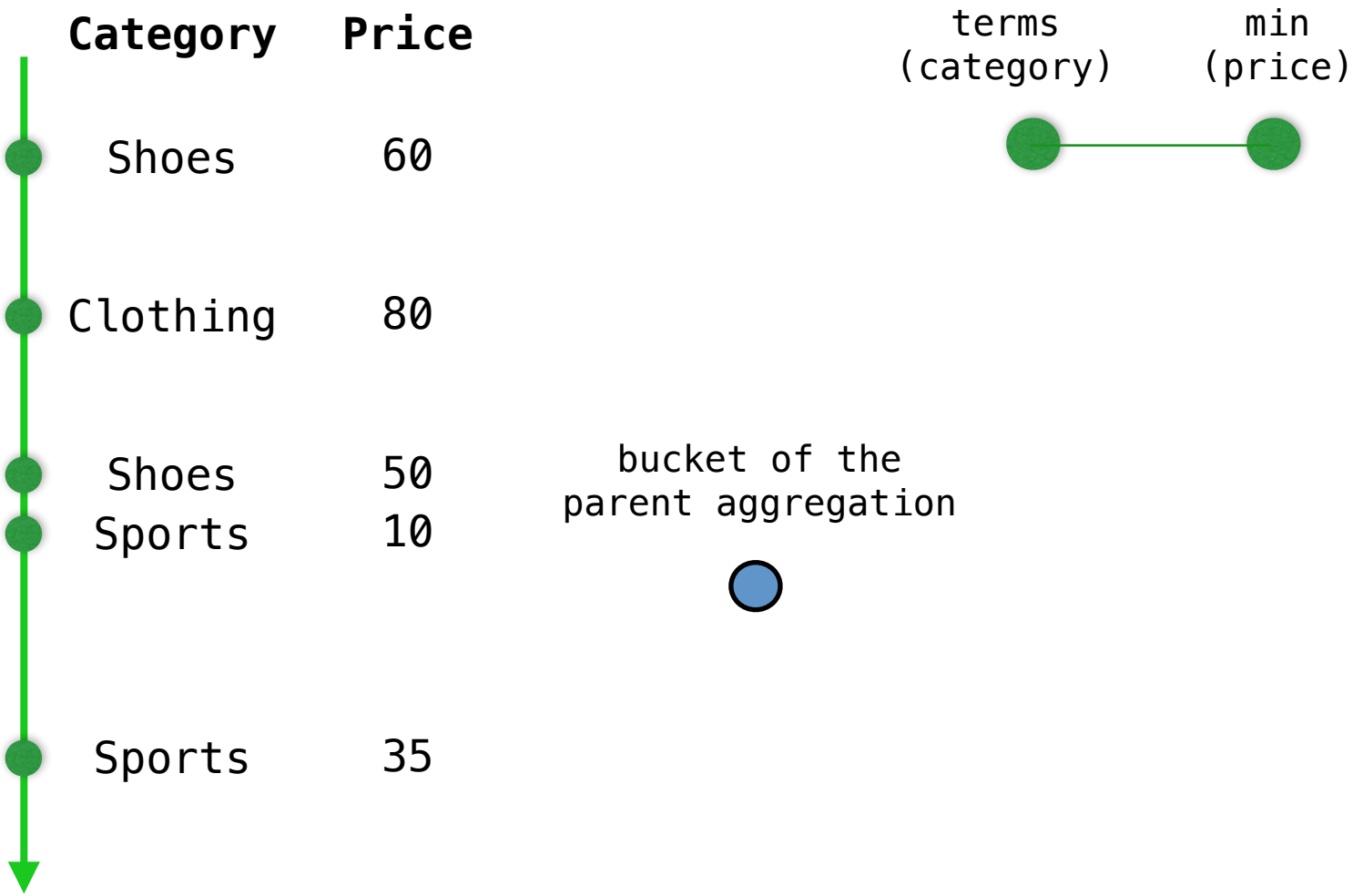

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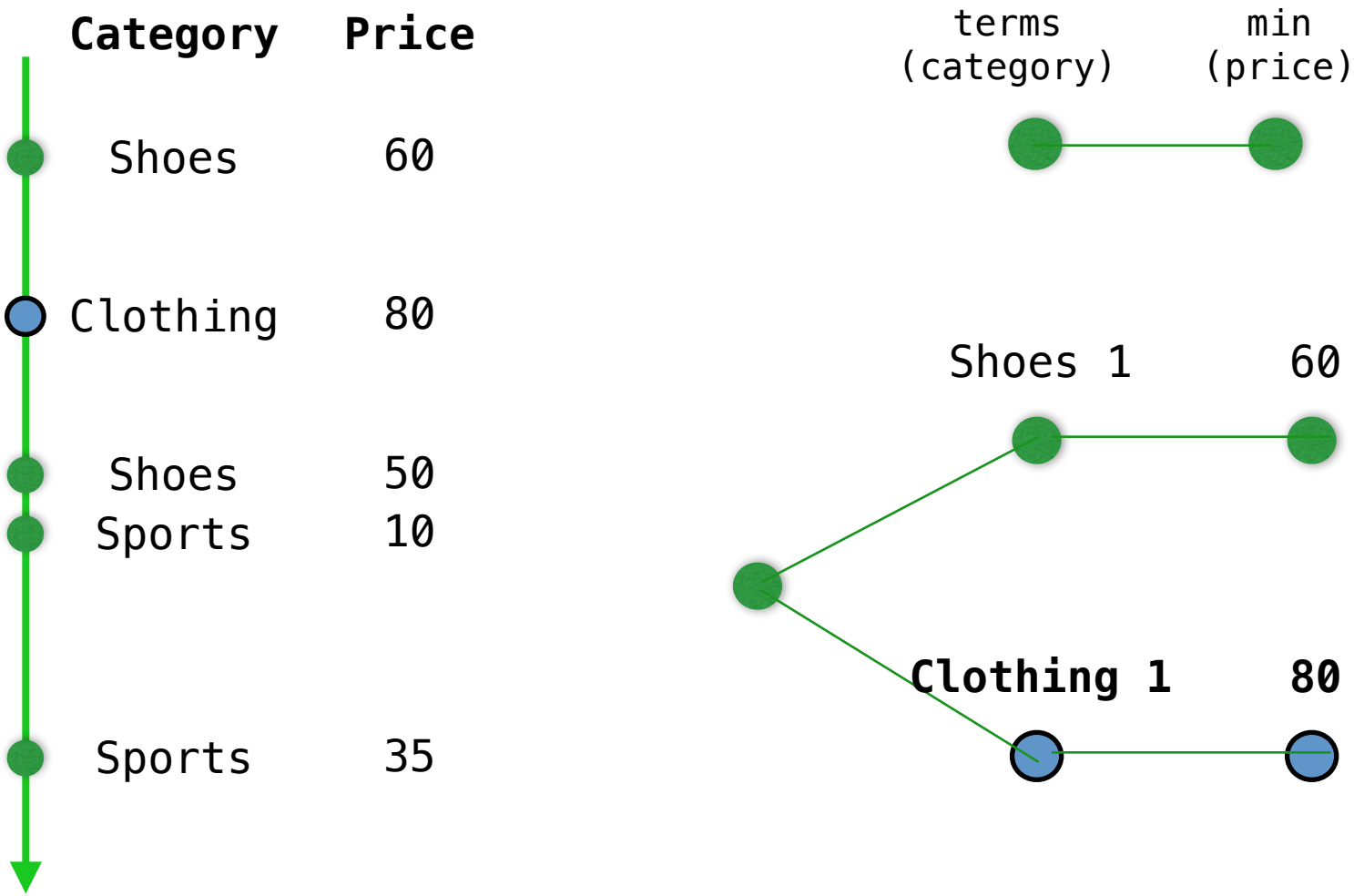

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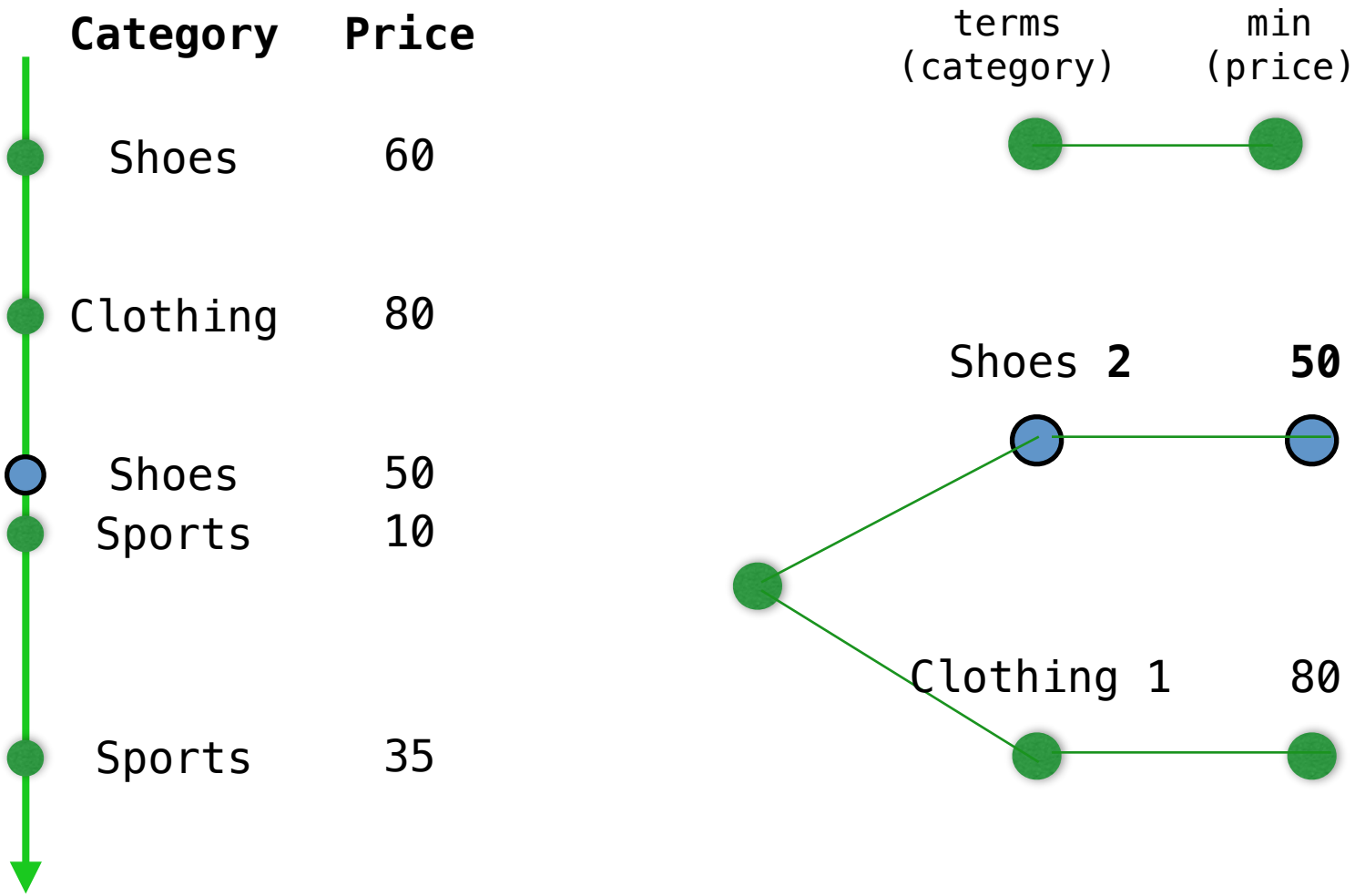

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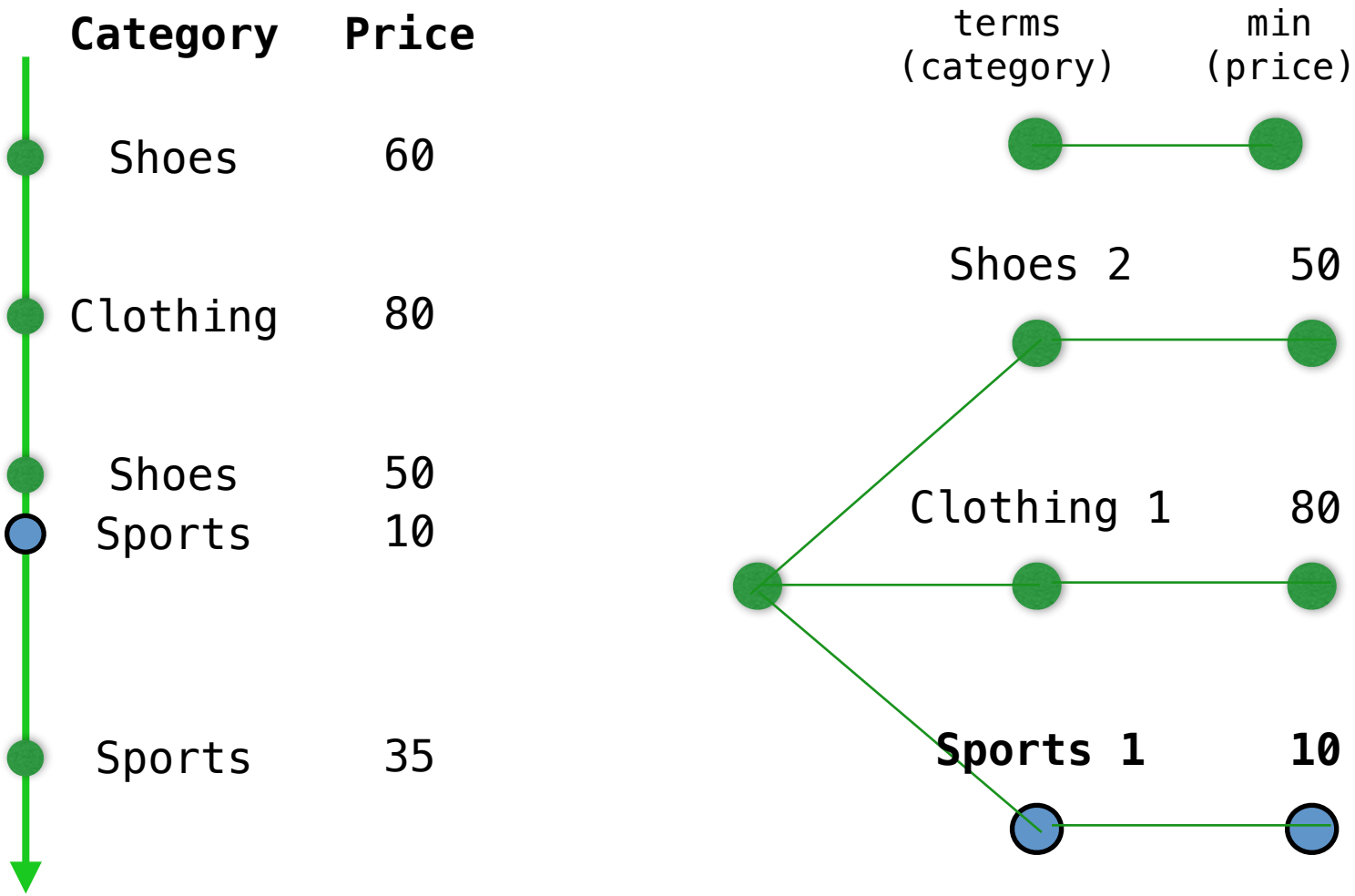

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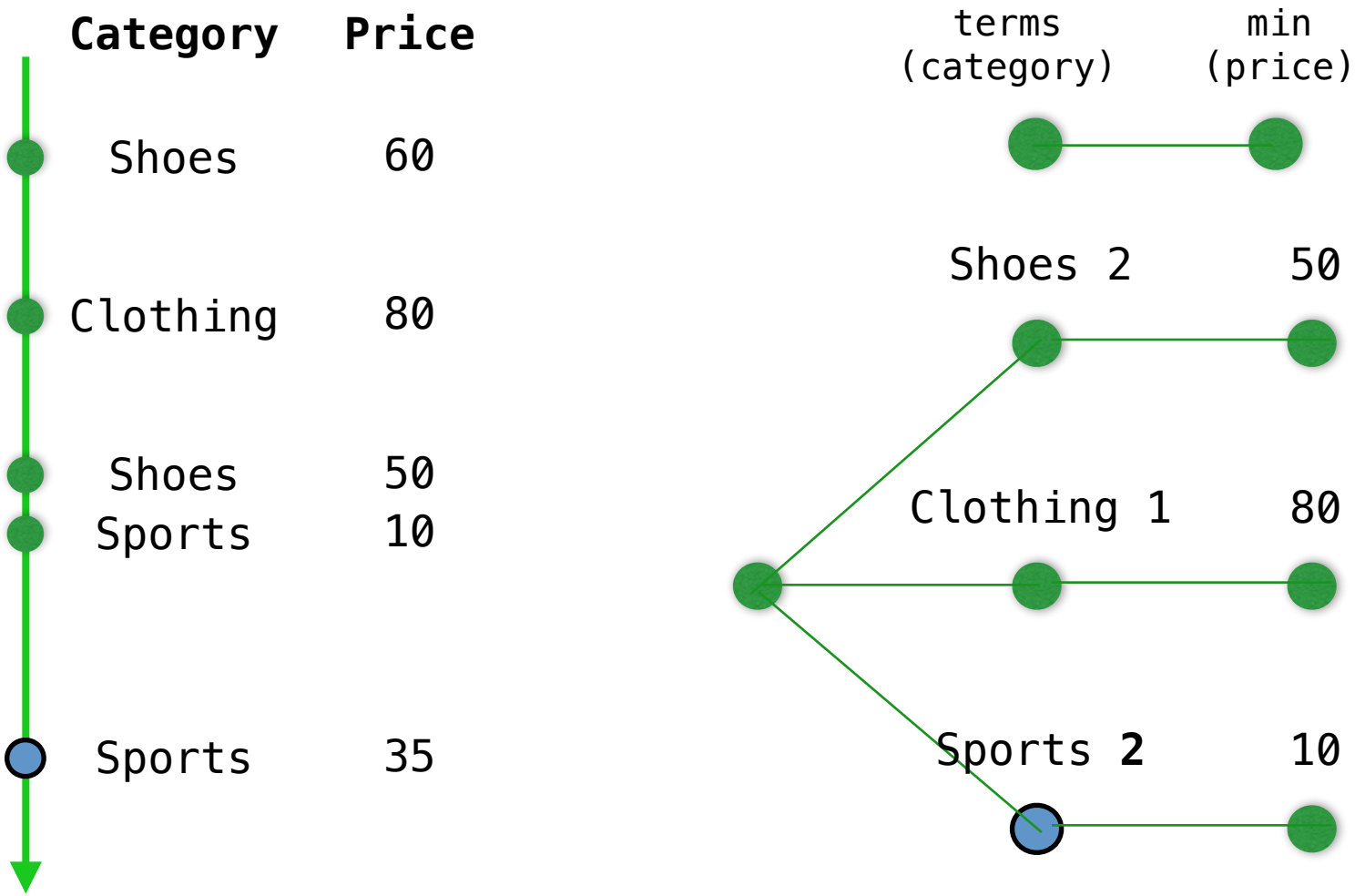
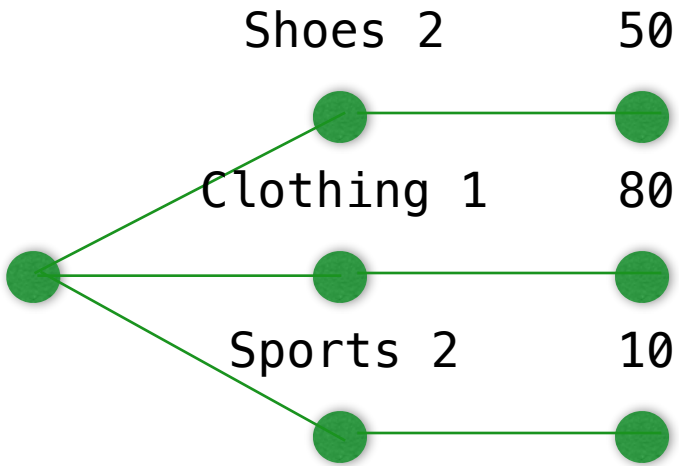
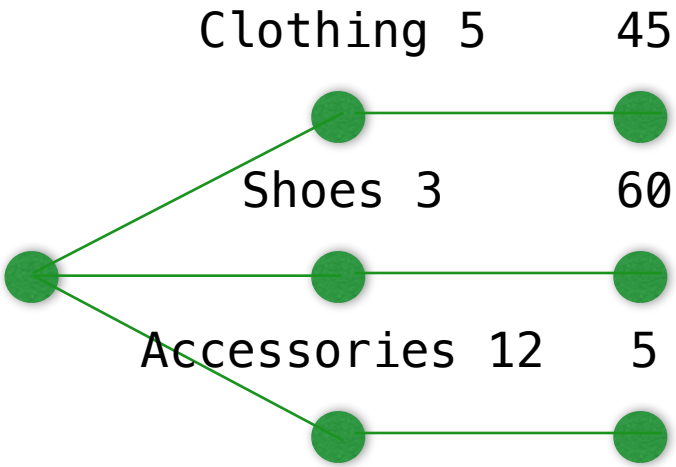


elasticsearch.

how it works (cluster level)





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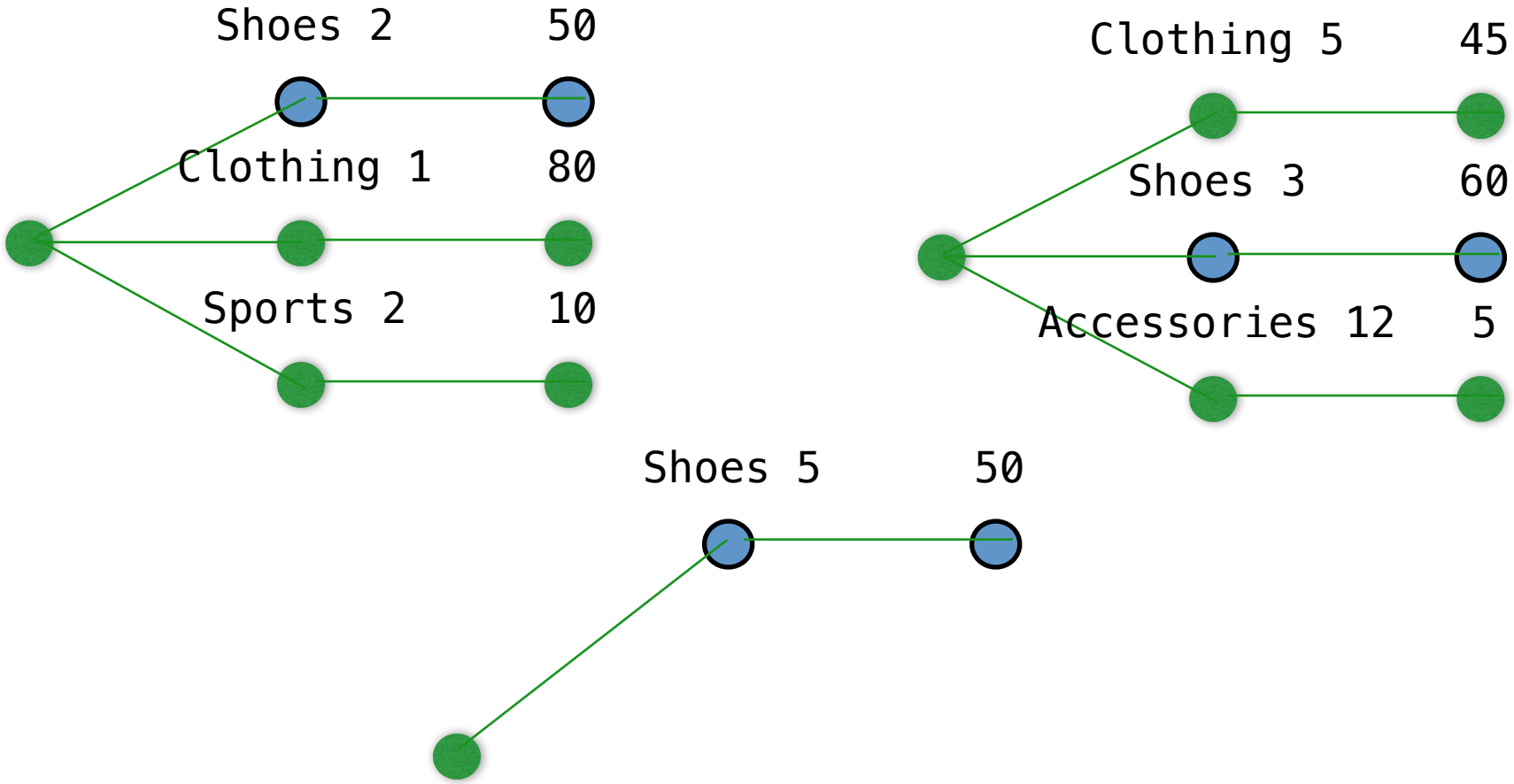

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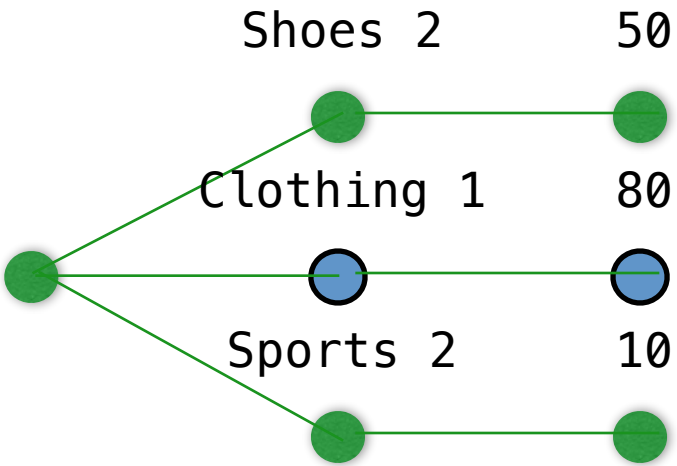

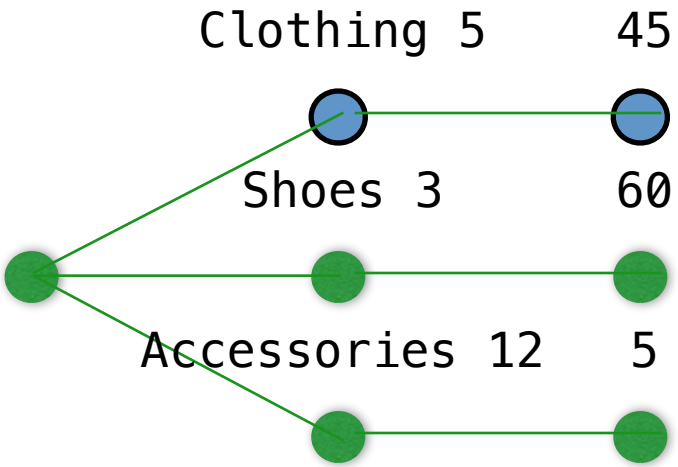

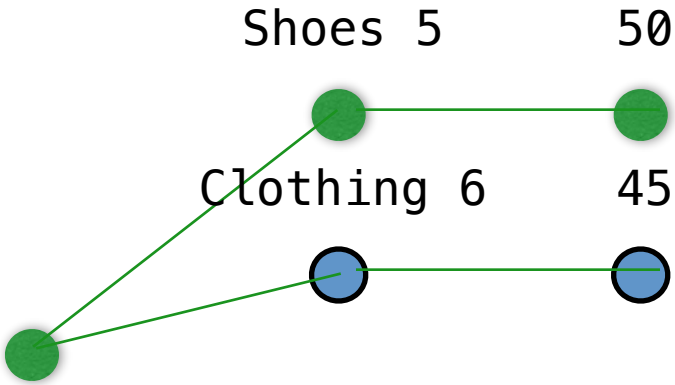

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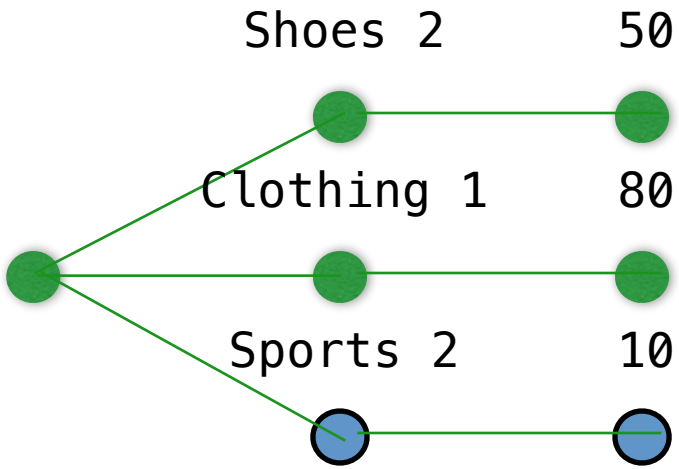

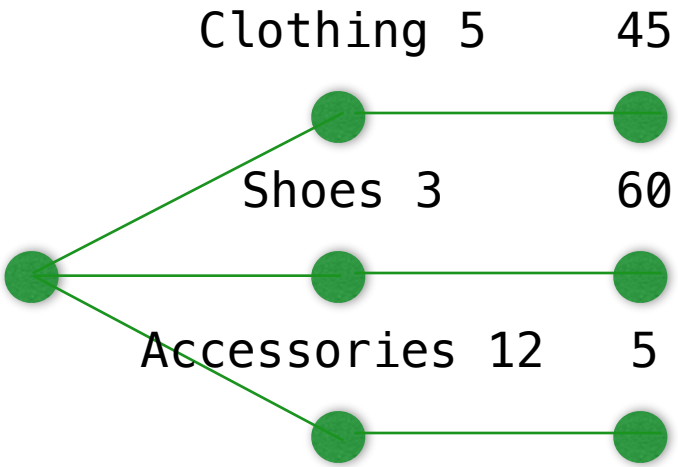

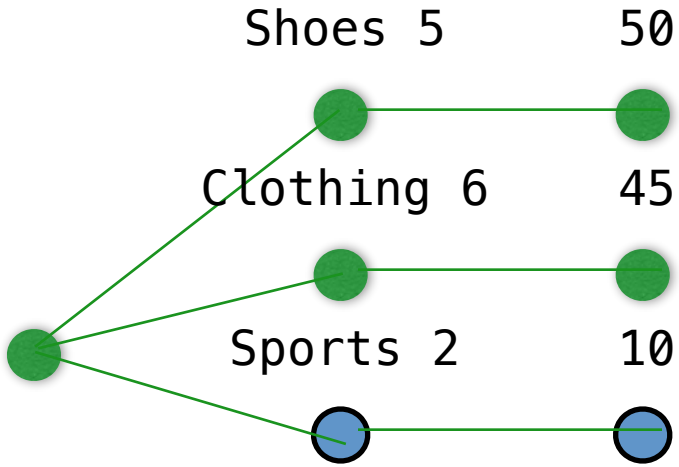

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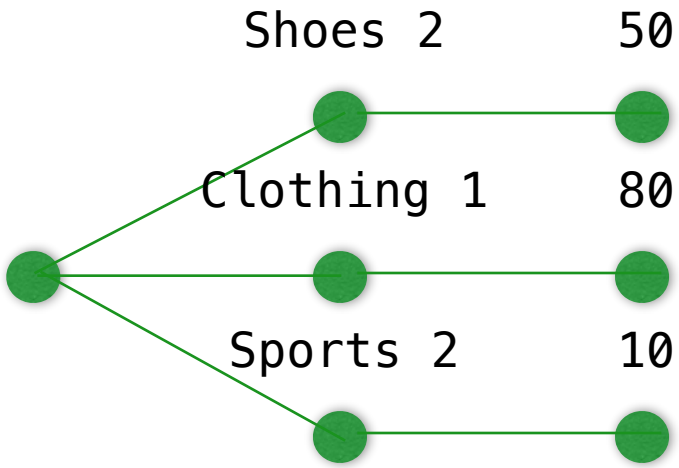

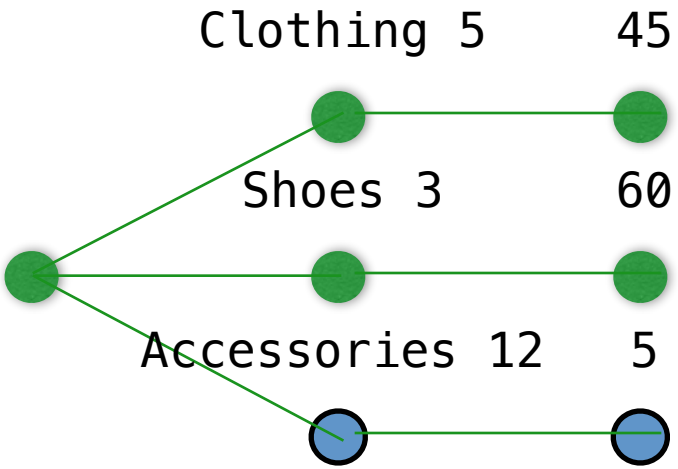

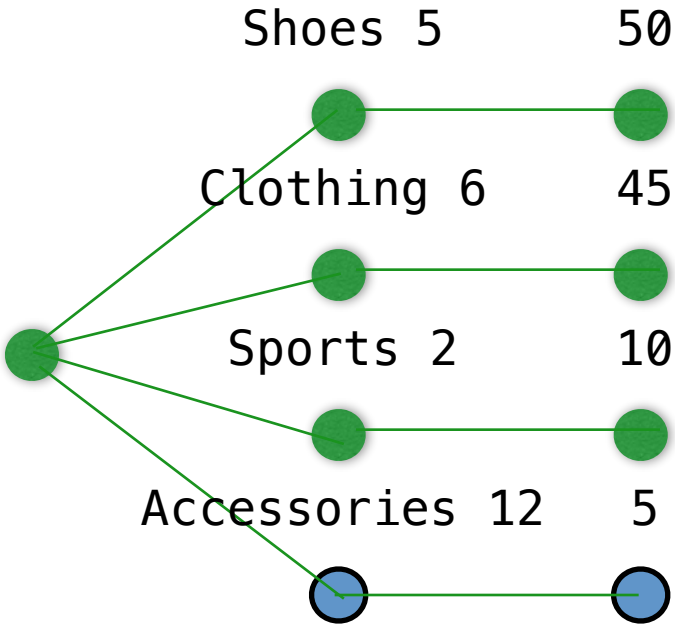

goodies

- support for document relations
  via nested documents and the nested/reverse_nested aggs
  no parent/child support (yet?)

- significant_terms
  find the uncommonly common

- upcoming top_hits aggregations in 1.3
  compute top hits on each bucket

- performance / memory usage improved in 1.2
  Upgrade if you rely on aggregations

thank you!