

???

??

- [illegible]

?????

???"???"?????????????
 ??????????????????????????????

???

?????.png

???

• ???

```
{
  year: '1951',
  sales: 38
}, {
  year: '1952',
  sales: 52
}, {
  year: '1956',
  sales: 61
}, {
  year: '1957',
  sales: 145
}, {
  year: '1958',
  sales: 48
}, {
  year: '1959',
  sales: 38
}, {
  year: '1960',
  sales: 38
}, {
```

```
    year: '1962 年',  
    sales: 38  
  }  
}]
```

• ??

```
40,40,60,60
```

• ? Geom

???? interval ?

??	???
??	year*sales
??	???

?????

???

?????.png

???

• ???

```
[{
  "name": "London",
  "": "Jan.",
  "": 18.9
}, {
  "name": "London",
  "": "Feb.",
  "": 28.8
}, {
  "name": "London",
  "": "Mar.",
  "": 39.3
}, {
  "name": "London",
  "": "Apr.",
  "": 81.4
}, {
  "name": "London",
  "": "May",
  "": 47
}, {
  "name": "London",
  "": "Jun.",
  "": 20.3
}, {
```

```
    "name": "London",
    "month": "Jul.",
    "precipitation": 24
  }, {
    "name": "London",
    "month": "Aug.",
    "precipitation": 35.6
  }, {
    "name": "Berlin",
    "month": "Jan.",
    "precipitation": 12.4
  }, {
    "name": "Berlin",
    "month": "Feb.",
    "precipitation": 23.2
  }, {
    "name": "Berlin",
    "month": "Mar.",
    "precipitation": 34.5
  }, {
    "name": "Berlin",
    "month": "Apr.",
    "precipitation": 99.7
  }, {
    "name": "Berlin",
    "month": "May",
    "precipitation": 52.6
  }, {
    "name": "Berlin",
    "month": "Jun.",
    "precipitation": 35.5
  }, {
    "name": "Berlin",
    "month": "Jul.",
    "precipitation": 37.4
  }, {
    "name": "Berlin",
    "month": "Aug.",
    "precipitation": 42.4
  }
}]
```

• ??

40, 40, 100, 60

• ? Geom

???? interval ?

??	???
??	??*?????
??	???
????	name
????	?? dodge
dodgeRatio	0.5
marginRatio	0.1

• ?? Legend

??	???
??	??
??	name
??	?
??	??

?????

???

?????.png

???

• ???

```
[{
  name: 'London',
  'Jan.': 18.9,
  'Feb.': 28.8,
  'Mar.': 39.3,
  'Apr.': 81.4,
  'May': 47,
  'Jun.': 20.3,
  'Jul.': 24,
  'Aug.': 35.6
}, {
  name: 'Berlin',
  'Jan.': 12.4,
  'Feb.': 23.2,
  'Mar.': 34.5,
  'Apr.': 99.7,
  'May': 52.6,
  'Jun.': 35.5,
  'Jul.': 37.4,
  'Aug.': 42.4
}]
```

• ??

40, 40, 100, 60

• ?????? Transform

?????fold?

??	???
??	????
??????	Jan.,Feb.,Mar.,Apr.,May,Jun.,Jul.,Aug.
	name
key	key
value	value

• ? Geom

???? interval ?

??	???
??	key*value
??	???d
????	name
????	?? stack

• ?? Legend

??	???
??	??
??	key
??	?
??	??

?????

???

?????.png

???

• ???

```
[{
  x: '   ',
  y: [76, 100]
}, {
  x: '   ',
  y: [56, 108]
}, {
  x: '   ',
  y: [38, 129]
}, {
  x: '   ',
  y: [58, 155]
}, {
  x: '   ',
  y: [45, 120]
}, {
  x: '   ',
  y: [23, 99]
}, {
  x: '   ',
  y: [18, 56]
}, {
  x: '   ',
  y: [18, 34]
}]
```

• ??

40, 40, 60, 60

• ? Geom

???? interval ?

??	???
??	x^*y
??	???

?????

???

?????.png

???

• ???

```
[{
  country: ' ',
  population: 18203
}, {
  country: ' ',
  population: 23489
}, {
  country: ' ',
  population: 29034
}, {
  country: ' ',
  population: 104970
}, {
  country: ' ',
  population: 131744
}]
```

• ??

40, 60, 60, 70

• ? Geom

???? interval ?

??	???
??	country*population
??	???

• ??? Coord

??	???
??	?????
??	true

?????

???

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???

. ???

```
[{
  "label": "Mon.",
  "type": "series1",
  "value": 2800
}, {
  "label": "Mon.",
  "type": "series2",
  "value": 2260
}, {
  "label": "Tues.",
  "type": "series1",
  "value": 1800
}, {
  "label": "Tues.",
  "type": "series2",
  "value": 1300
}, {
  "label": "Wed.",
  "type": "series1",
  "value": 950
}, {
  "label": "Wed.",
  "type": "series2",
  "value": 900
}, {
```

```
  "label": "Thur.",
  "type": "series1",
  "value": 500
}, {
  "label": "Thur.",
  "type": "series2",
  "value": 390
}, {
  "label": "Fri.",
  "type": "series1",
  "value": 170
}, {
  "label": "Fri.",
  "type": "series2",
  "value": 100
}]
```

• ??

40, 60, 80, 70

• ??? Axis

value?Y??

??	???
??	value
??	??
??	right

• ? Geom

???? interval ?

??	???
??	label*value

??	???
????	type
????	?? dodge
dodgeRatio	0.35
marginRatio	0.5

• ?? Legend

??	???
??	??
??	type
??	?
??	??

• ??? Coord

??	???
??	?????
??	Y
??	true

?????

???

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???

• ???

```
[{
  'State': 'WY',
  '5000': 25635,
  '5130': 1890,
  '14170': 9314
}, {
  'State': 'DC',
  '5000': 30352,
  '5130': 20439,
  '14170': 10225
}, {
  'State': 'VT',
  '5000': 38253,
  '5130': 42538,
  '14170': 15757
}, {
  'State': 'ND',
  '5000': 51896,
  '5130': 67358,
  '14170': 18794
}, {
  'State': 'AK',
  '5000': 72083,
  '5130': 85640,
  '14170': 22153
}
```


}1

• ??

40, 60, 80, 70

• ?????? Transform

?????fold?

??	???
??	????
??????	??5?,5?13?,14?17?
????	State
key	???
value	????

• ? Geom

???? interval ?

??	???
??	State*????
??	???
????	???
????	?? stack

• ?? Legend

??	???
----	-----

??	??
??	???
??	?
??	??

• ??? Coord

??	???
??	?????
??	true

?????

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???

. ???

```
[{
  profession: '????????',
  highest: 110000,
  minimum: 23000,
  mean: 56636
}, {
  profession: '????',
  highest: 120000,
  minimum: 18000,
  mean: 66625
}, {
  profession: '??',
  highest: 125000,
  minimum: 24000,
  mean: 72536
}, {
  profession: '??',
  highest: 130000,
  minimum: 22500,
  mean: 75256
}, {
  profession: '????',
  highest: 131000,
  minimum: 23000,
  mean: 77031
}
```

```
}]
```

• ??

```
20, 80, 50, 150
```

• ?????? Transform

?????map?

??	???
??	????
????	<pre>function callback(row) { row.range = [row.minimum, row.highest]; return row; }</pre>

• ? Geom

???? interval ?

??	???
??	profession*range
??	???

• ??? Coord

??	???
??	?????
??	true