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```
[{
  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 □ ',
      sales: 38
    }]
```

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

· □ Geom

???? interval ?

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

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

```
    "□□□□□      ": 42.4
  }]
```

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```
40, 40, 100, 60
```

• □ Geom

???? interval ?

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

• □□ Legend

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

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```
[{
  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
}]
```

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```
40, 40, 100, 60
```

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?????fold?

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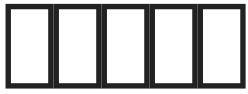
- ? Geom

???? interval ?

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

- ?? Legend

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

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```
[{
  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]
}]
```

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

- ? Geom

???? interval ?

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

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```
[{
  country: '□□  ',
  population: 18203
}, {
  country: '□□  ',
  population: 23489
}, {
  country: '□□  ',
  population: 29034
}, {
  country: '□□  ',
  population: 104970
}, {
  country: '□□  ',
  population: 131744
}]
```
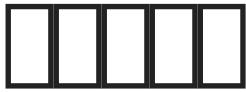
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```
40, 60, 60, 70
```

- ? 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
  }]
```

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```
40, 60, 80, 70
```

??? Axis

value?Y??

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

? Geom

???? interval ?

??	???
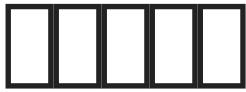
??	label*value
??	???
????	type
????	?? | dodge
dodgeRatio	0.35
marginRatio	0.5

?? Legend

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

??? Coord

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

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```
[{
  'State': 'WY',
  '□□  5□ ': 25635,
  '5□ 13□ ': 1890,
  '14□ 17□ ': 9314
}, {
  'State': 'DC',
  '□□  5□ ': 30352,
  '5□ 13□ ': 20439,
  '14□ 17□ ': 10225
}, {
  'State': 'VT',
  '□□  5□ ': 38253,
  '5□ 13□ ': 42538,
  '14□ 17□ ': 15757
}, {
  'State': 'ND',
  '□□  5□ ': 51896,
  '5□ 13□ ': 67358,
  '14□ 17□ ': 18794
}, {
  'State': 'AK',
  '□□  5□ ': 72083,
```

```
    '5□ 13□ ': 85640,
    '14□ 17□ ': 22153
  }]
```

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```
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

 }]
```

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

- ?????? Transform

🟦🟦🟦🟦   map🟦

??	???
??	????

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

- ? Geom

???? interval ?

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

- ??? Coord

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