



مدرسه هوش مصنوعی فیلاگر



دکتر سید مجتبی ذبیحین پور

مدرس بخش دیتاساینس و ماشین لرنینگ



filogger

مدرسہ هوش مصنوعی فیلاگر

بخش اول: دیتاساینس و ماشین لرنینگ

جلسہ دوم

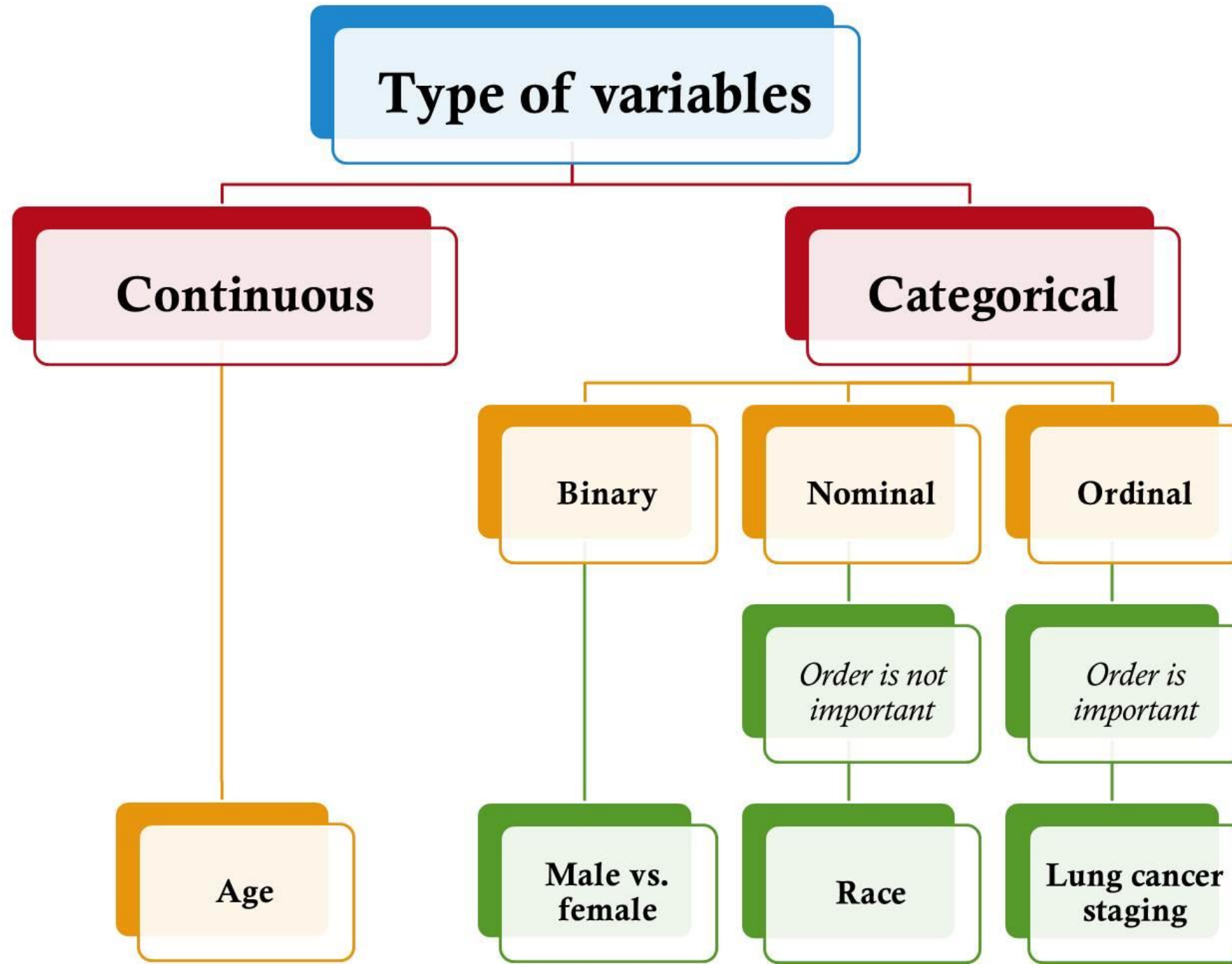
تابستان ۱۴۰۱

دکتر سید مجتبیٰ ذبیحین پور

Statistics

Descriptive

Inferential



Descriptive Statistics

Summarization

Visualization

Summarization

Location

Dispersion

Shape

Location Parameters

Mean

(μ)

Median

(Med)

Mode

(Mod)

Quartiles

$(Q1 - Q2 - Q3)$

Dispersion Parameters

Range

(R)

Variance

(σ^2)

**Standard
Deviation**

(Std)

**Interquartile
range**

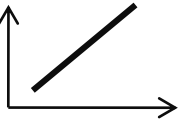

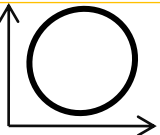
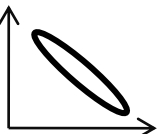
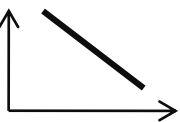
(IQR)

Shape Parameters

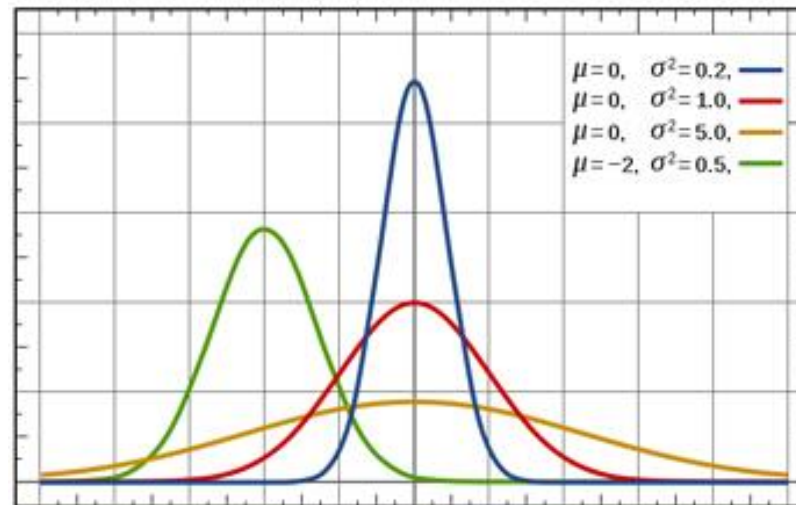
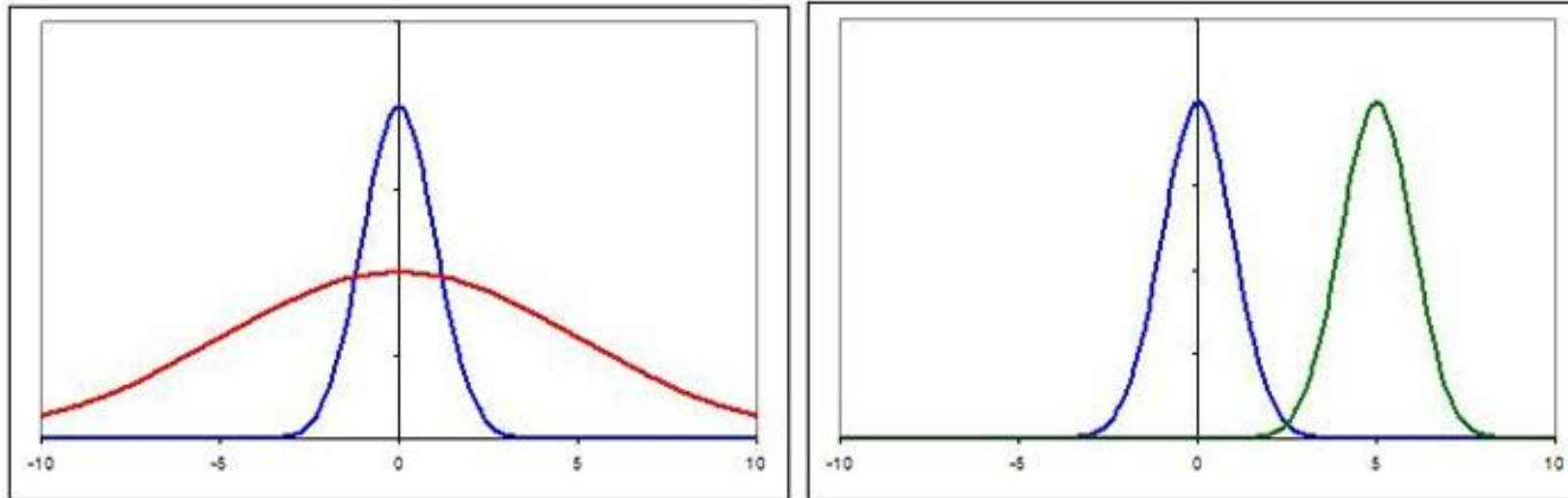
Skewness

Kurtosis

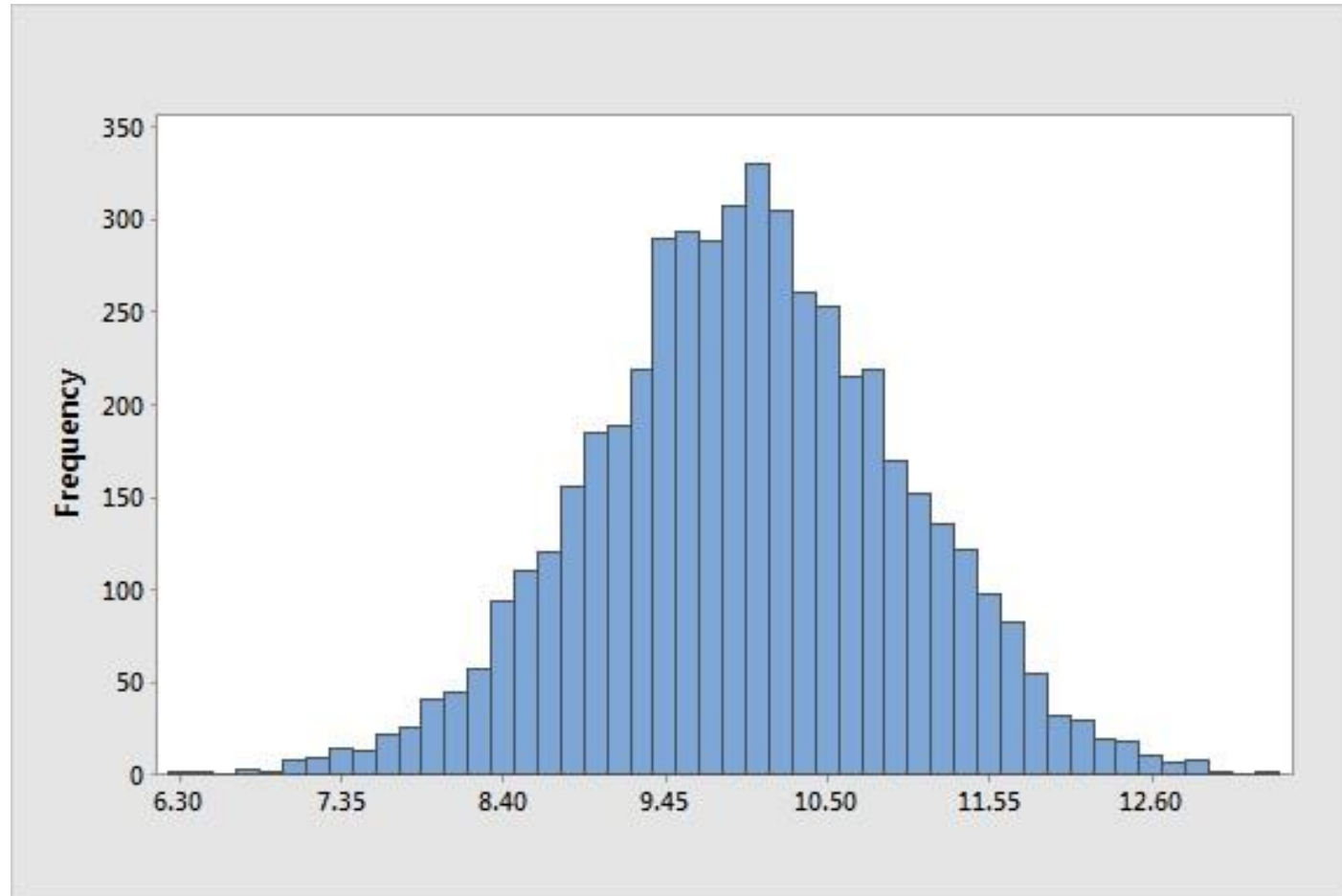
Correlation

تفسیر	نمودار پراکنش	ضریب همبستگی
همبستگی دو متغیر کامل و مستقیم است		$\rho_{xy} = 1$
همبستگی دو متغیر ناقص و مستقیم است		$0 < \rho_{xy} < 1$
دو متغیر همبستگی ندارند. (ناهمبسته)		$\rho_{xy} = 0$
همبستگی دو متغیر ناقص و معکوس است		$-1 < \rho_{xy} < 0$
همبستگی دو متغیر کامل و معکوس است		$\rho_{xy} = -1$

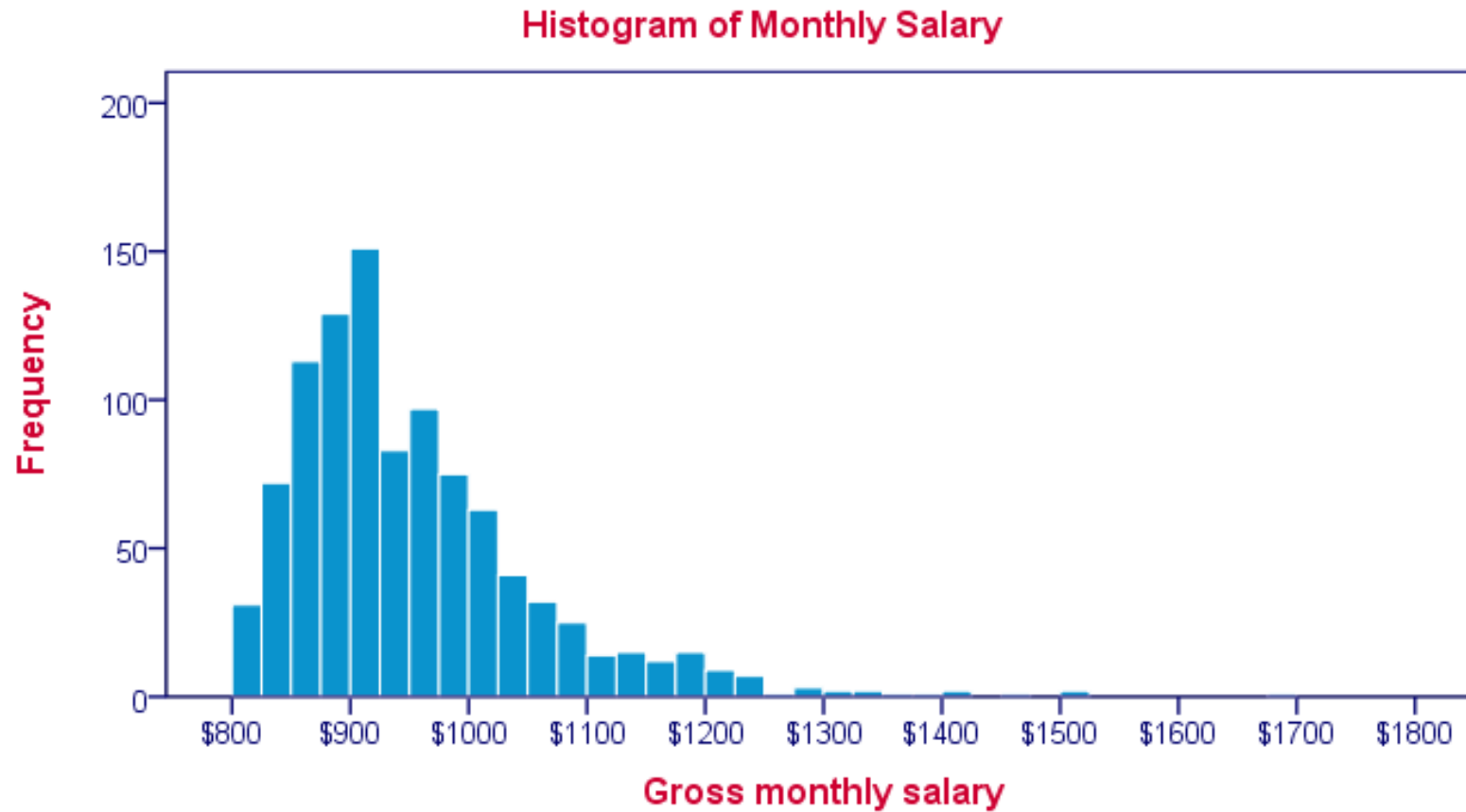
Visualization



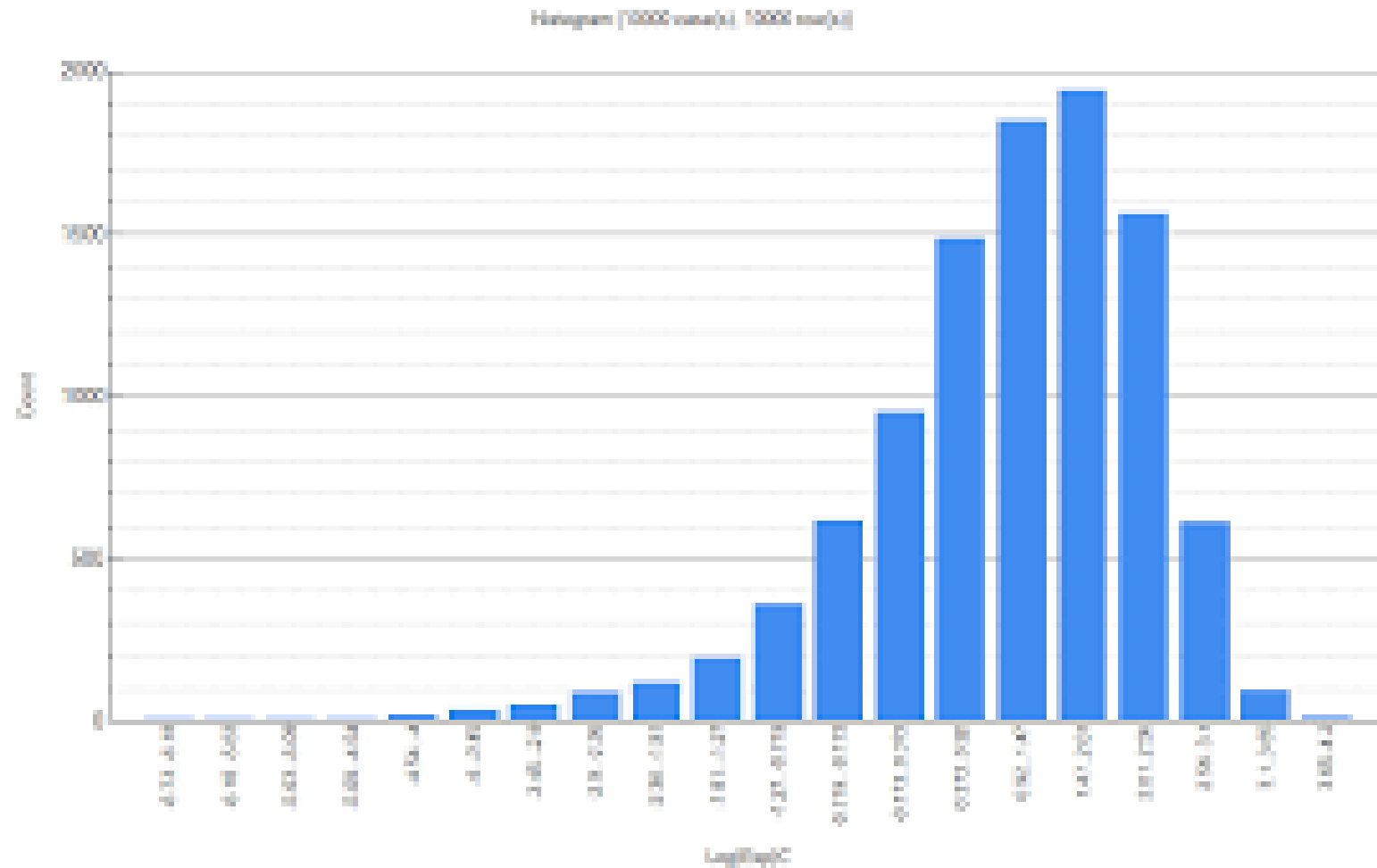
Visualization



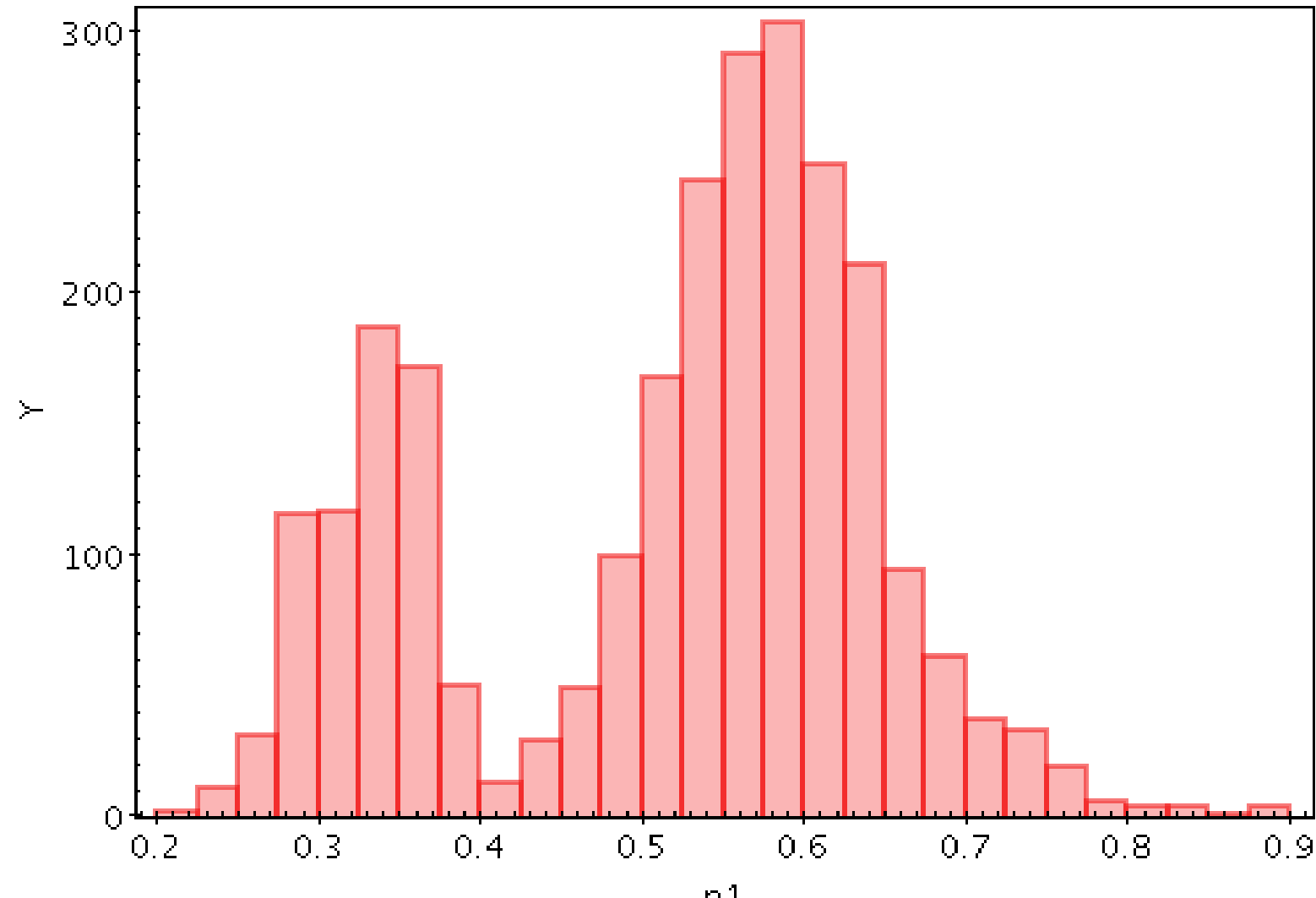
Visualization



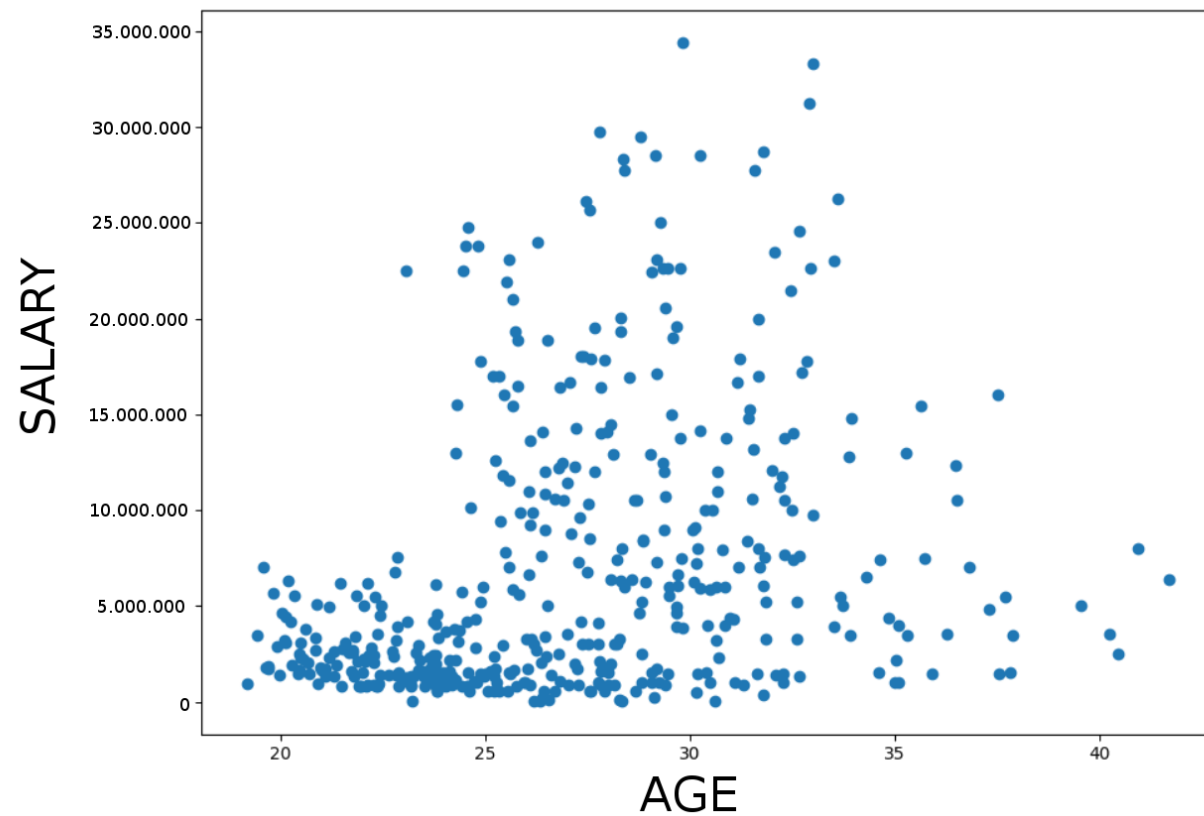
Visualization



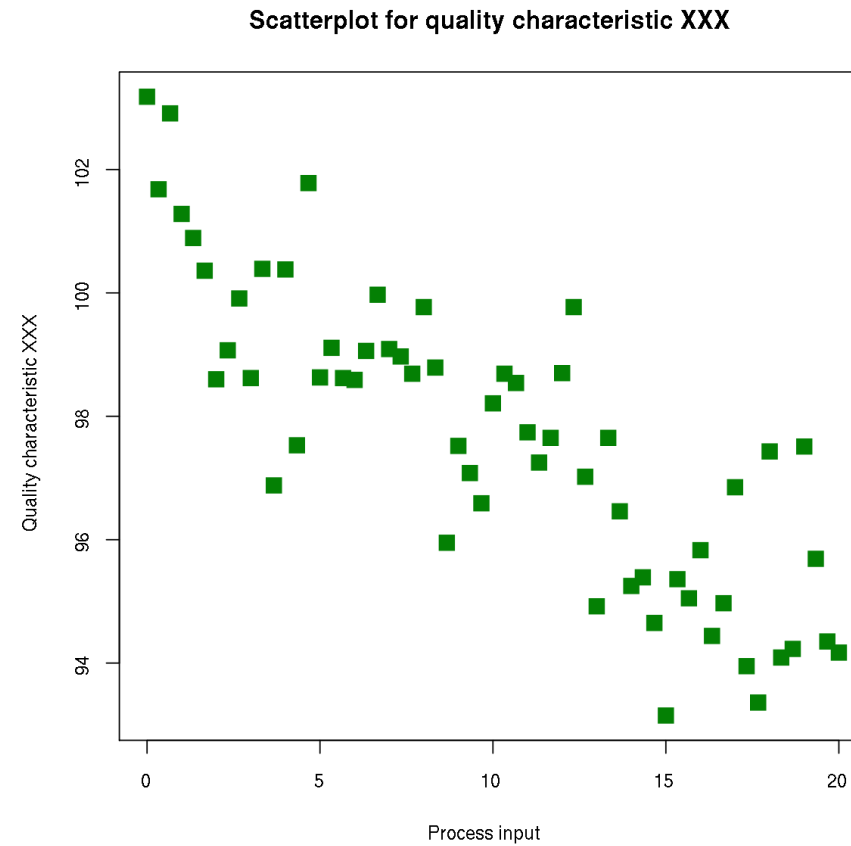
Visualization



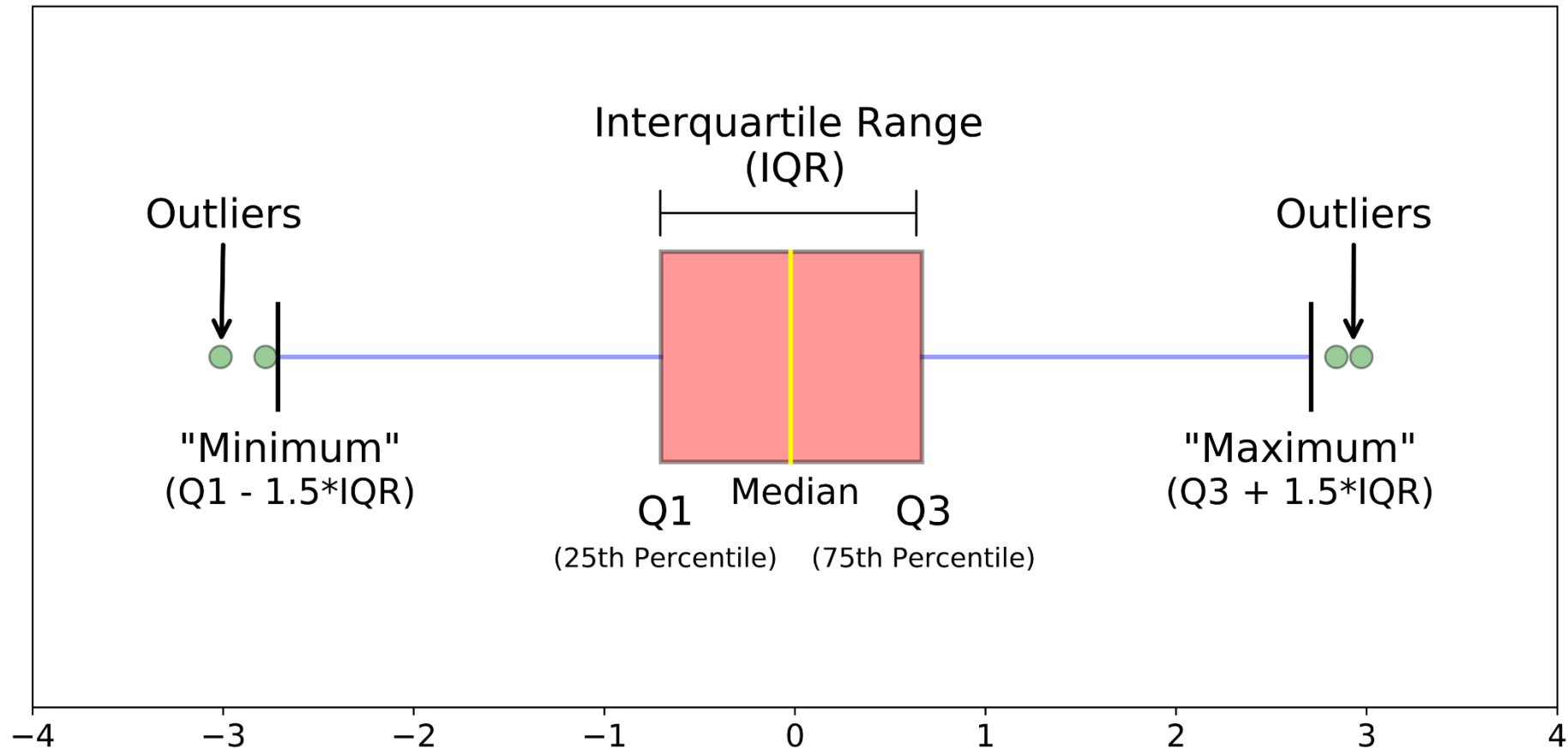
Visualization



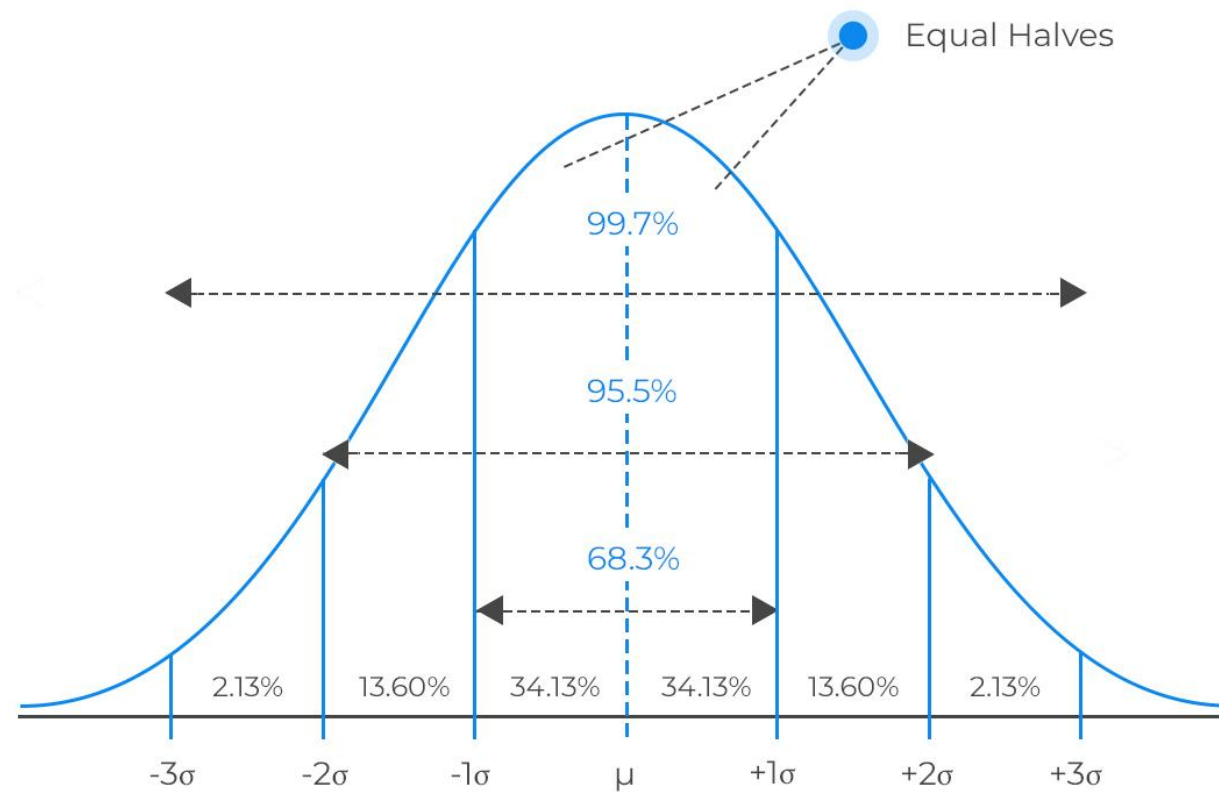
Visualization



Visualization

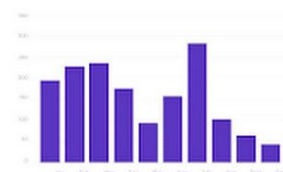


Visualization

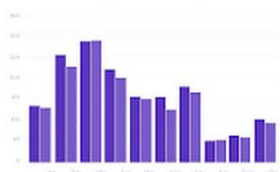


No. of standard deviations from the mean

Among Categories



Column Chart



Grouped Column



Bar Chart

Over Time



Line Chart



Overlay Line

Exact Values

State	2014	2015	2016	2017
Alabama	10	10	10	10
Alaska	10	10	10	10
Arizona	10	10	10	10
Arkansas	10	10	10	10
California	10	10	10	10
Colorado	10	10	10	10
Connecticut	10	10	10	10
Delaware	10	10	10	10
District of Columbia	10	10	10	10
Florida	10	10	10	10
Georgia	10	10	10	10
Hawaii	10	10	10	10
Idaho	10	10	10	10
Illinois	10	10	10	10
Indiana	10	10	10	10
Iowa	10	10	10	10
Kansas	10	10	10	10
Kentucky	10	10	10	10
Louisiana	10	10	10	10
Maine	10	10	10	10
Maryland	10	10	10	10
Massachusetts	10	10	10	10
Michigan	10	10	10	10
Minnesota	10	10	10	10
Mississippi	10	10	10	10
Missouri	10	10	10	10
Montana	10	10	10	10
Nebraska	10	10	10	10
Nevada	10	10	10	10
New Hampshire	10	10	10	10
New Jersey	10	10	10	10
New Mexico	10	10	10	10
New York	10	10	10	10
North Carolina	10	10	10	10
North Dakota	10	10	10	10
Ohio	10	10	10	10
Oklahoma	10	10	10	10
Oregon	10	10	10	10
Pennsylvania	10	10	10	10
Rhode Island	10	10	10	10
South Carolina	10	10	10	10
South Dakota	10	10	10	10
Tennessee	10	10	10	10
Texas	10	10	10	10
Utah	10	10	10	10
Vermont	10	10	10	10
Virginia	10	10	10	10
Washington	10	10	10	10
West Virginia	10	10	10	10
Wisconsin	10	10	10	10
Wyoming	10	10	10	10

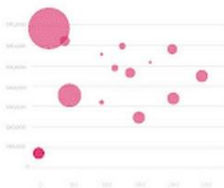
Table

How the Values Compare to Each Other

looker

What are you trying to show?

How Values Relate to Each Other



Bubble Chart

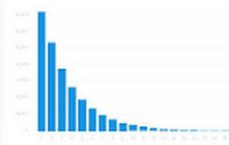


Heat Map

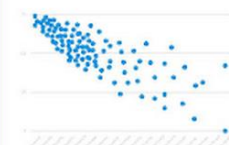
How the Data is Distributed



Box Plot



Column Histogram



Scatter Plot

How the Data is Composed

Among Categories

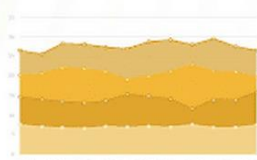


Donut Chart



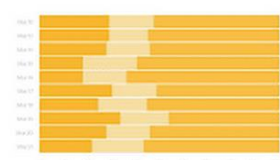
Pie Chart

Over Time

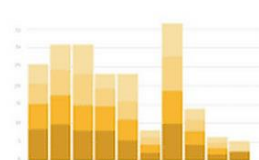


Area Chart

Two Dimensions



Stacked Percent



Stacked Column



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