Distributions and Descriptives

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- Quiz 1: 0, 0, 100, 0, 100, 0, 100, 100

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- Quiz 1: 0, 0, 100, 0, 100, 0, 100, 100
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Mean: 50

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We need to consider more than just a mean

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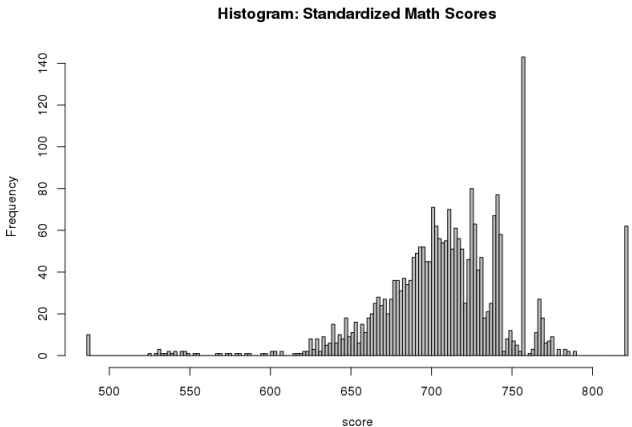
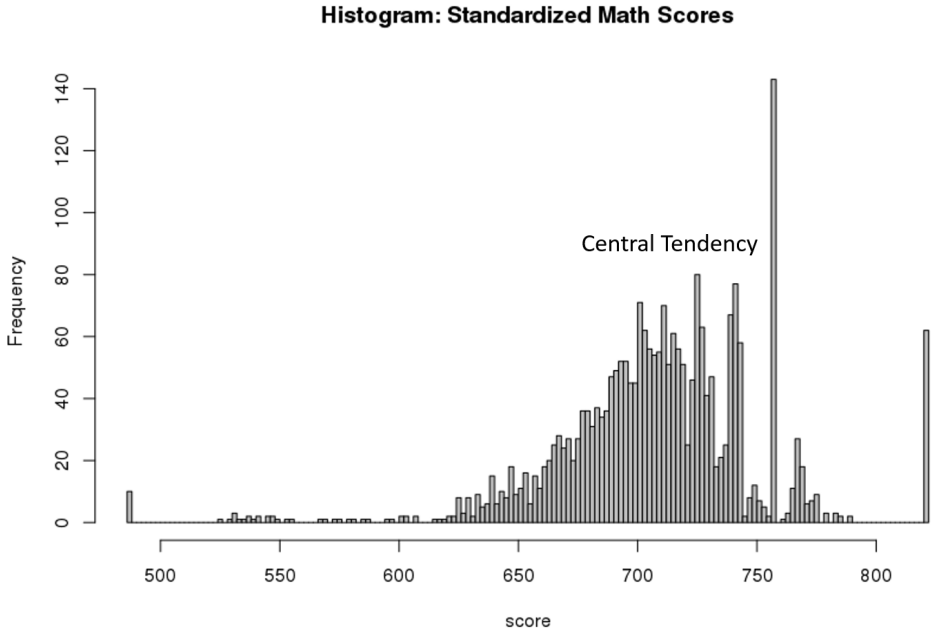
We may be interested in how observations fall along a scale:

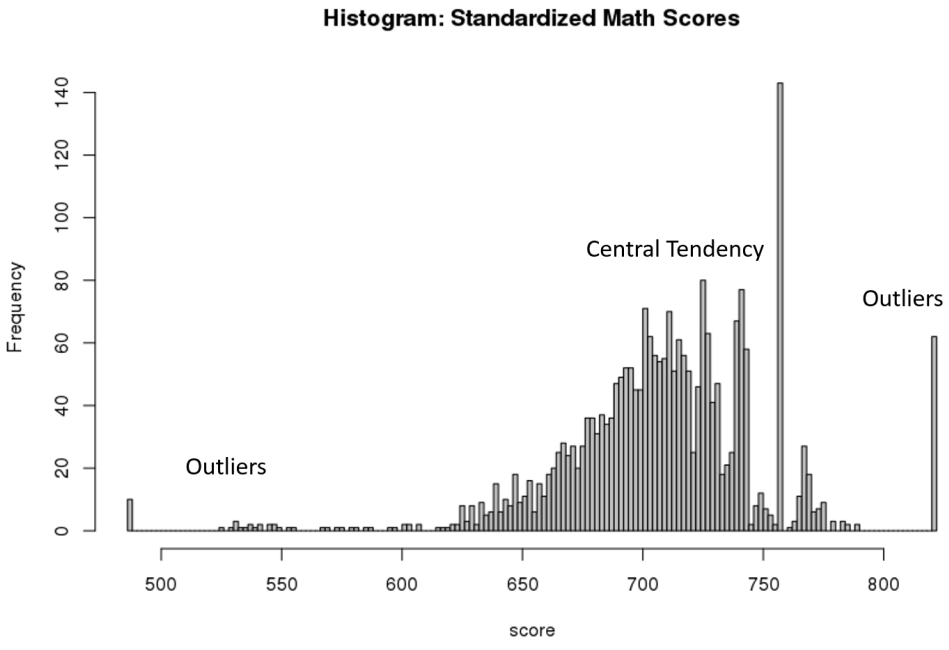
- How varied were student scores on a standardized math exam?

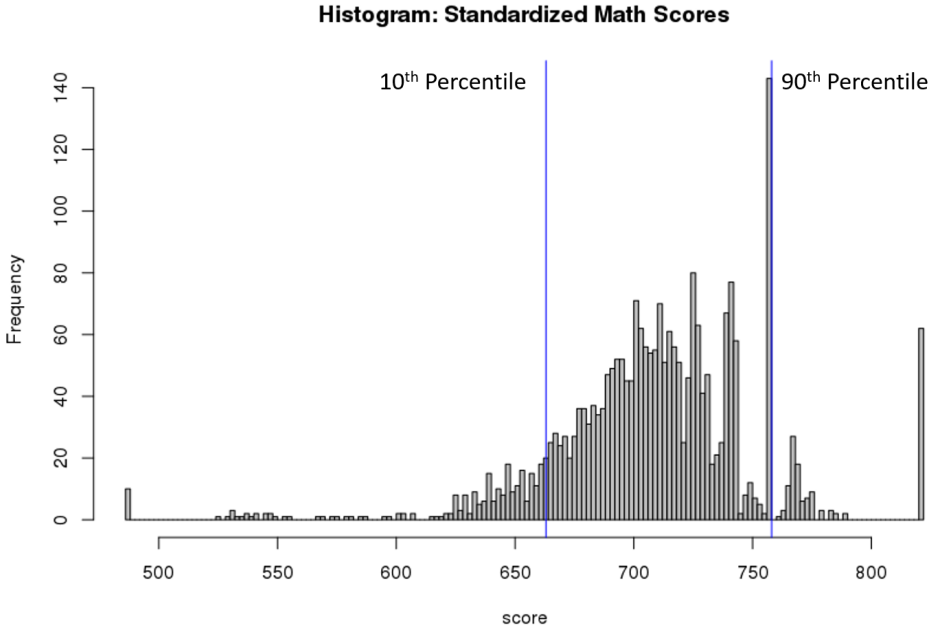
Consider

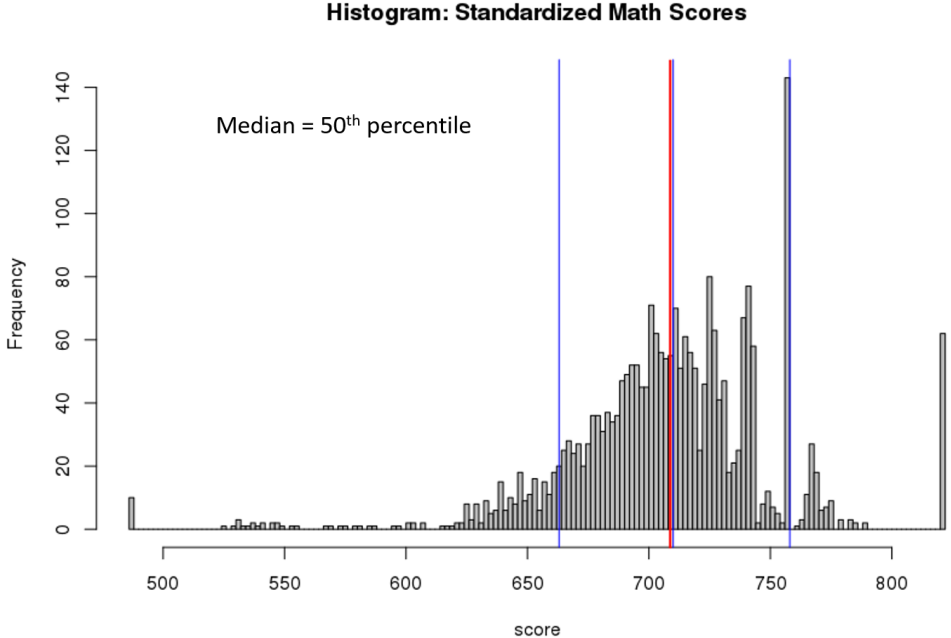


Does the mean reflect the data?


Histogram: Standardized Math Scores
Central Tendency
Frequency
0
20
40
60
80
100
120
140
500
550
600
650
700
750
800
score


Histogram: Standardized Math Scores
Frequency
0
20
40
60
80
100
120
140
500
550
600
650
700
750
800
score
Central Tendency
Outliers
Outliers


Histogram: Standardized Math Scores
10th Percentile
90th Percentile
Frequency
0
20
40
60
80
100
120
140
500
550
600
650
700
750
800
score


Histogram: Standardized Math Scores
Median = 50th percentile
Frequency
0
20
40
60
80
100
120
140
500
550
600
650
700
750
800
score

Descriptive Statistics

Skew:

When Mean $<$ Median

Skewed to the **left** (*long left tail*)

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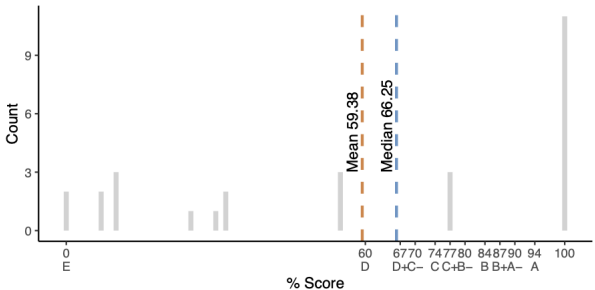

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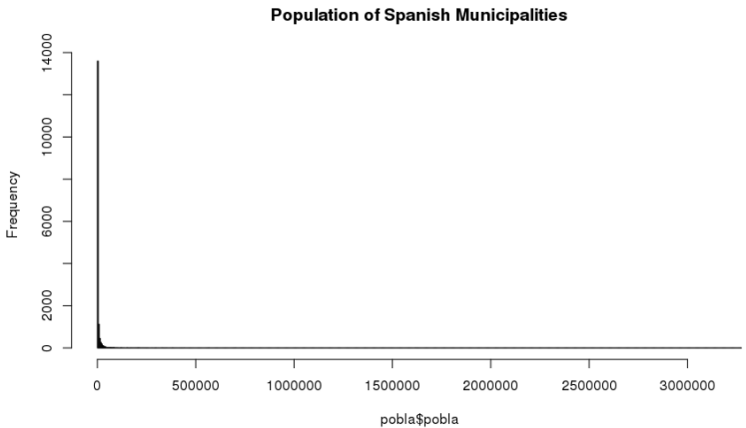

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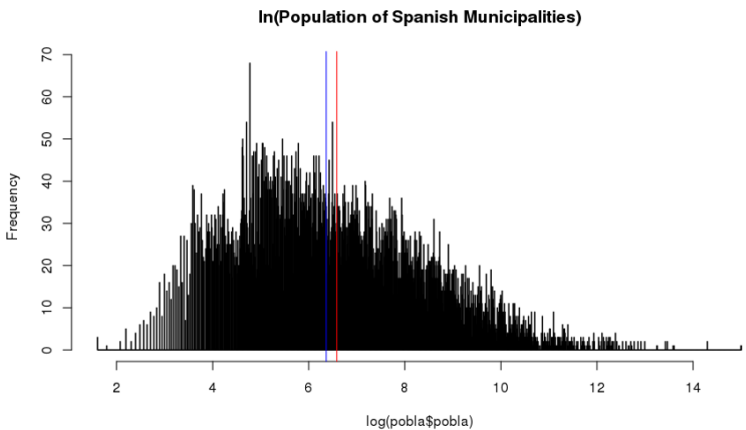

Descriptive statistics

Practice in R