# **Descriptive Statistics Review**

### **Descriptive Measures**

Central Tendency

Variation

Relative Standing

### **Central Tendency**

Mean

Median

Mode

#### Mean

Feature 1
3
5
5
1
7
2
6
7
0
4
40

[3, 5, 5, 1, 7, 2, 6, 7, 0, 4]

Sum =

40/10 = 4

### Median

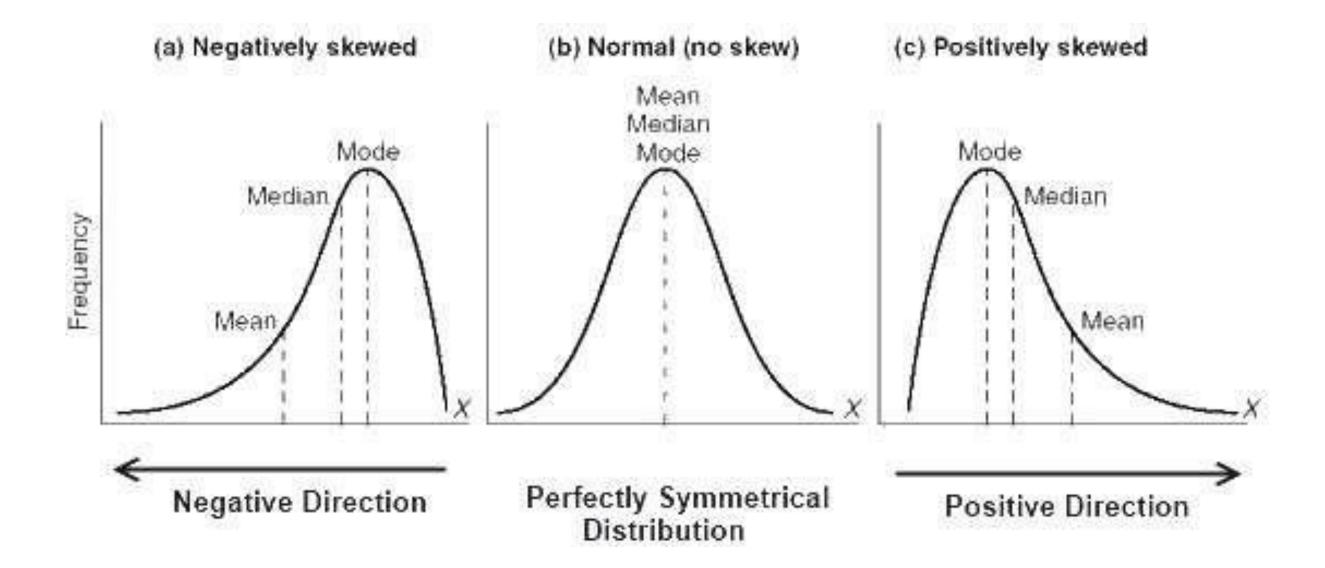
Sum =

Feature 1	
0	
1	
2	Put the numbers in order
3	Half of measures are above
4	_ 4 5
5	= 4.5
5	Half of measures are below
6	
7	
7	•
40	

### Mode

Sum =

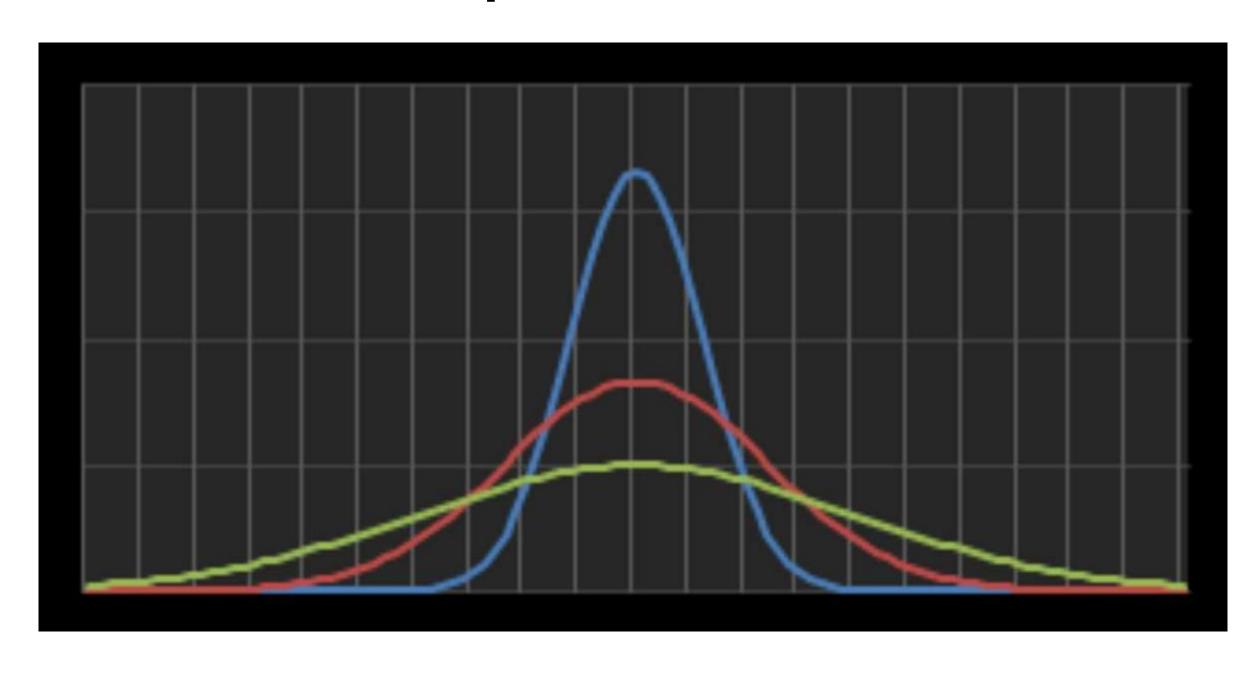
Feature 1	
0	
1	
2	
3	Number(s) which appears
4	most often
5	= 5 and 7
5	
6	
7	
7	
40	



#### **Variation**

Variance
Standard Deviation
Range
Quartiles
Interquartile Range

### The spread of the data



### **Variance**

Feature 1	Deviations	Squared Deviations
0	-4	16
1	-3	9
2	-2	4
3	-1	1
4	0	0
5	1	1
5	1	1
6	2	4
7	3	9
7	3	9
40	0	54

54/9 = **6** 

Mean = 4

### **Standard Deviation**

Feature 1	Deviations	Squared Deviations
0	-4	16
1	-3	9
2	-2	4
3	-1	1
4	0	0
5	1	1
5	1	1
6	2	4
7	3	9
7	3	9
40	0	54

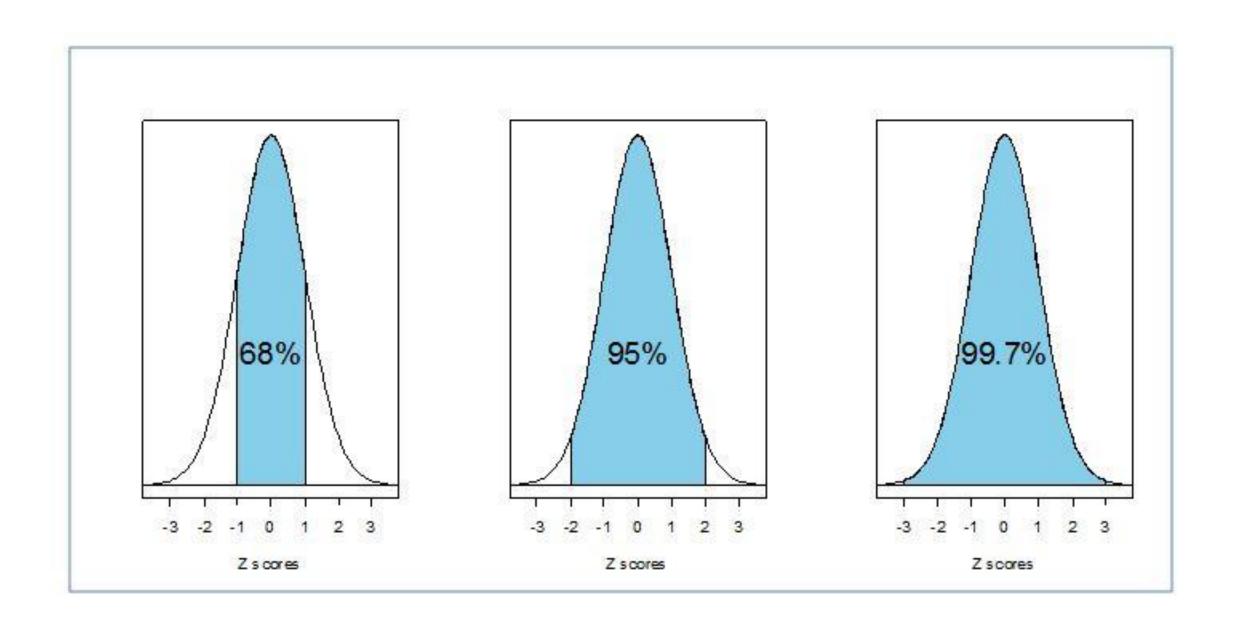
 $\sqrt{6} = 2.45$ 

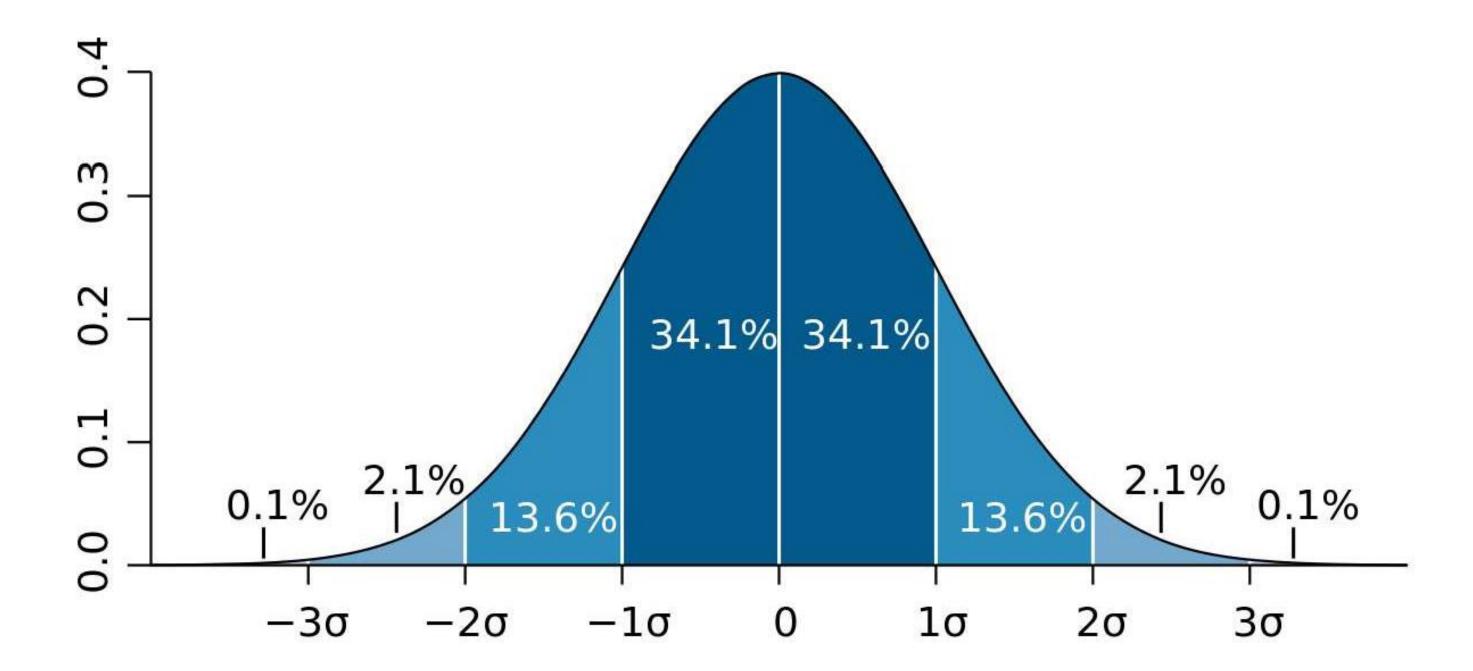
Mean = 4

#### **Standard Score**

(standardization)

# **Empirical Rule**

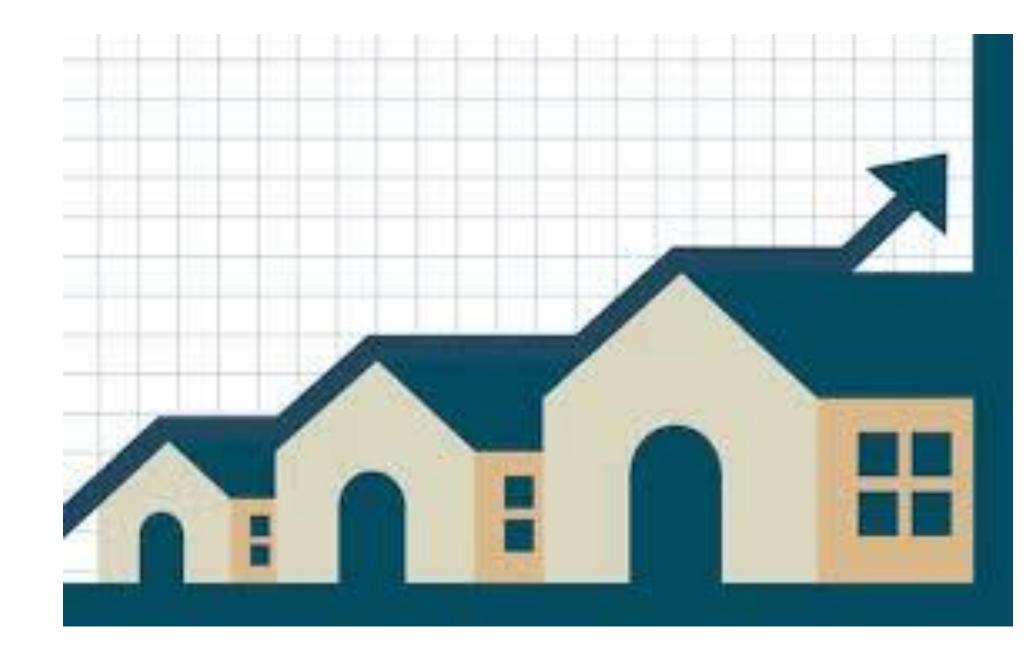




Measure	Qty
Price	1 million
Sq. Ft.	2,500
Neighborhood Rating	79
# Bedrooms	4



Measure	Qty
Price	1 million
Sq. Ft.	2,500
Neighborhood Rating	79
# Bedrooms	4



4 79 2500 1 m

0

Measure	Qty
Price	1 million
Sq. Ft.	2,500
Neighborhood Rating	79
# Bedrooms	4



Measure	Qty	Standardized (z-score)
Price	1 million	.89
Sq. Ft.	2,500	.96
Neighborhood Rating	79	14
# Bedrooms	4	1.32



Measure	Qty	Standardized (z-score)
Price	1 million	.89
Sq. Ft.	2,500	.96
Neighborhood Rating	79	14
# Bedrooms	4	1.32



Measure	Qty	Standardized (z-score)
Price	1 million	.89
Sq. Ft.	2,500	.96
Neighborhood Rating	79	14
# Bedrooms	4	1.32



**79** 

 $-2\sigma \qquad \qquad -1\sigma \qquad \qquad 0 \qquad \qquad 1\sigma \qquad \qquad 2\sigma$   $-.14 \qquad \qquad \qquad -.14$ 

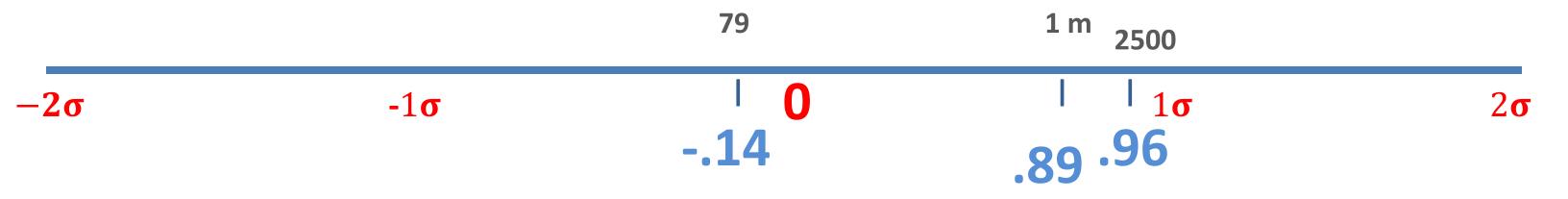
Measure	Qty	Standardized (z-score)
Price	1 million	.89
Sq. Ft.	2,500	.96
Neighborhood Rating	79	14
# Bedrooms	4	1.32





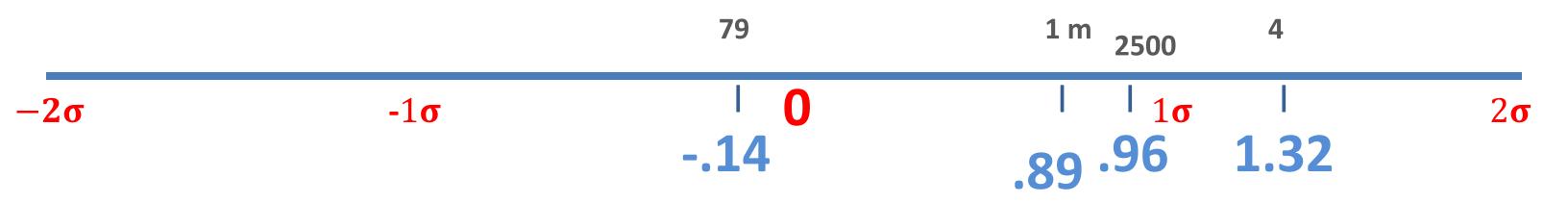
Measure	Qty	Standardized (z-score)
Price	1 million	.89
Sq. Ft.	2,500	.96
Neighborhood Rating	79	14
# Bedrooms	4	1.32





Measure	Qty	Standardized (z-score)
Price	1 million	.89
Sq. Ft.	2,500	.96
Neighborhood Rating	79	14
# Bedrooms	4	1.32





### Range

Feature 1	Deviations	Squared Deviations		
0	-4	16		
1	-3	9		
2	-2	4		
3	-1	1		
4	0	0		
5	1	1		
5	1			
6	2	4		
7	3	9		
7	3	9		
40	0	54		

7-0 = **7** 

Max value = 7

Min value = 0

### **Percentiles**

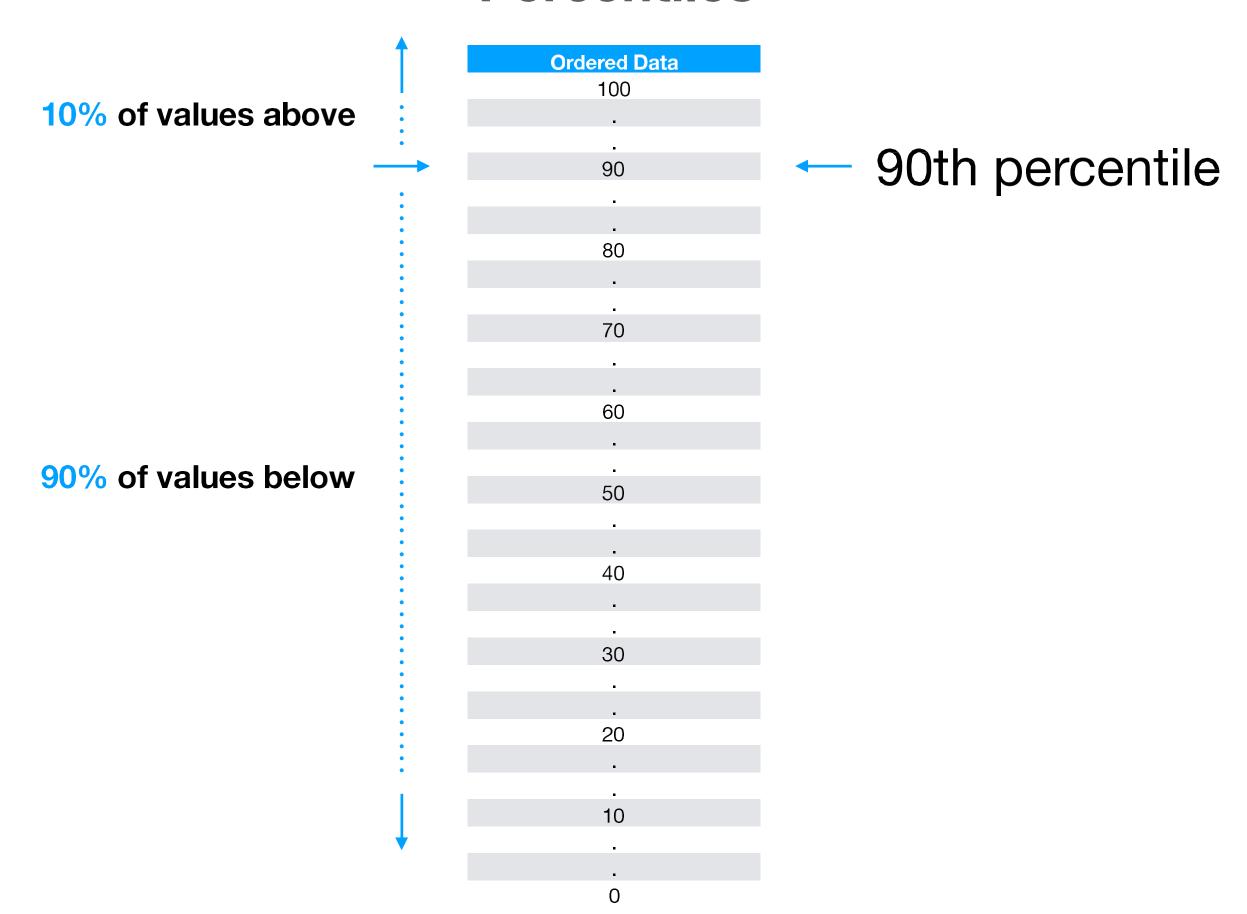
Ordered Data
100
90
80
<u>.</u>
70
60
50
40
30
<u>.</u>
20
20
10
10
·
0

#### **Percentiles**

90th percentile

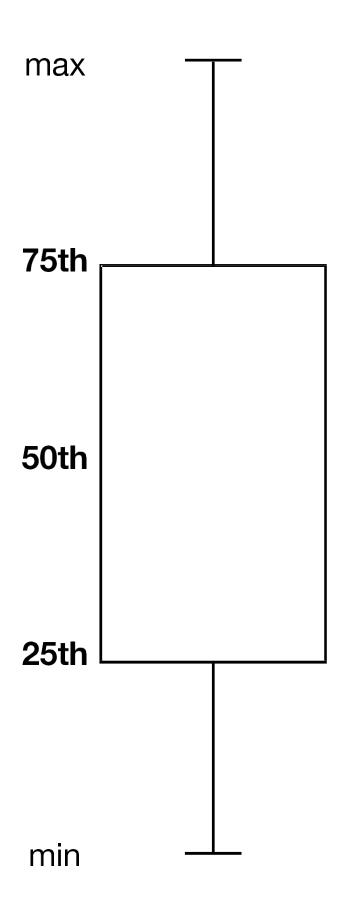
Ordered Data
100
90
80
70
60
•
50
30
·
40
30
20
10
0

#### **Percentiles**



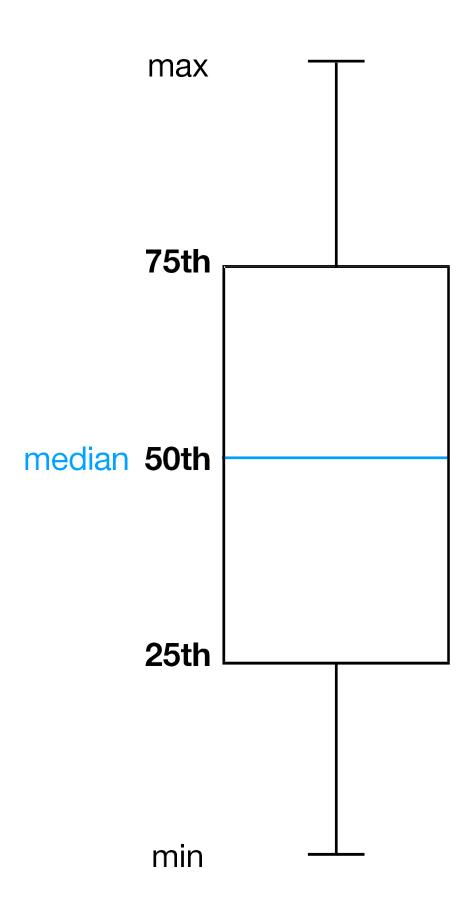
### **Quartiles**

Ordered Data
100
90
80
70
, 0
60
80
50
40
30
20
10
<u>.</u>
0



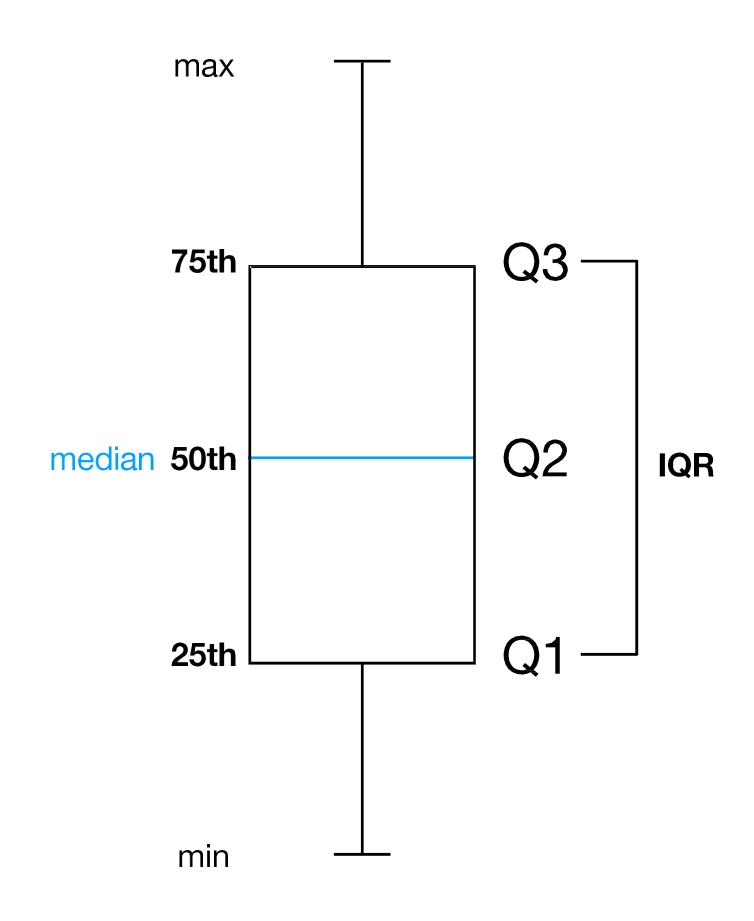
### **Quartiles**

Ordered Data
100
90
80
70
, 0
60
80
50
40
30
20
10
<u>.</u>
0



### **Quartiles**

Ordered Data
100
90
80
70
10
60
50
40
:
30
20
10
10
·
0



	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
<b>75</b> %	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
75%	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
<b>75</b> %	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct		Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
<b>75</b> %	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
75%	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
<b>75</b> %	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
75%	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
75%	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is.	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
75%	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80

	Black pct	Asian pct	Hispnic pct	Mixed pct	White pct	Am.Ind pct	Filipino pct	Pac. Is. pct	Grad Pct	UCCSU ReqPct	DpOut Pct
count	31	31	31	31	31	31	31	31	11	11	11
mean	1.64	27.22	33.54	6.02	26.20	0.32	3.58	0.50	90.46	58.49	5.03
std	1.07	18.26	23.73	3.54	20.15	0.40	3.93	0.46	5.98	15.27	4.74
min	0.00	0.60	4.20	0.90	1.60	0.00	0.20	0.00	75.70	28.40	1.10
25%	0.95	14.15	13.75	3.75	6.35	0.10	1.05	0.20	89.05	52.80	2.45
50%	1.50	25.90	28.30	5.20	23.20	0.20	2.30	0.40	90.00	54.80	3.40
<b>75%</b>	2.35	34.40	48.95	8.30	39.35	0.45	4.25	0.60	95.15	65.00	5.10
max	4.80	73.60	91.90	14.90	72.90	2.20	17.70	2.40	97.10	81.60	17.80