

## Box-and-Whisker Plots – Day 4

### Unit 8: Statistics

Draw a box-and-whisker plot for each data set.

1.

**Monthly Revenue**

\$53,760	\$77,530	\$56,840	\$63,330	\$53,340	\$73,310
\$59,980	\$62,230	\$56,340	\$71,190	\$43,720	\$57,400
\$47,720	\$55,170	\$77,880	\$55,830	\$47,130	\$71,260
\$45,420	\$71,500	\$66,540	\$69,950	\$43,980	

min  
43720

Q1  
53340

Q2  
57400

Q3  
71190

max  
77880

$$IQR = 17850$$

2.

**Injuries Due to Distracted Driving per Month**

5,332	10,310	5,396	5,833	8,442	8,515
8,272	9,217	5,743	6,315	3,916	7,106
7,812	7,411	7,897	7,067	7,457	8,930
7,911	4,319	7,509	8,142	7,949	

min  
3916

Q1  
5833

Q2  
7509

Q3  
8272

max  
10310

$$IQR = 2439$$

3.

**Average Lifespan**

Animal	Years	Animal	Years	Animal	Years
Mosquitofish	2	Cottontail	10	Domestic Pigeon	26
Leopard	17	Mynah	8	Kangaroo	9
Bear	40	Superb Parrot	36	Lion	35
Ferret	12	Rattlesnake	22		

min  
2

Q1  
9

Q2  
17

Q3  
35

max  
40

$$IQR = 26$$

Draw a box-and-whisker plot for each data set.

4.

**Boiling Point**

Substance	°C	Substance	°C	Substance	°C
Zinc	907	Copper	2,562	Chloroform	61.2
Aluminum	2,519	Sulphur	444.7	Plutonium	3,232
Silicon	2,357	Silver	2,162	Ethanol	78.4
Titanium	3,287	Lead	1,750	Nitric Acid	83
Sodium	882.8	Iron	2,862	Sea Water	100.7
Nickel	2,913	Calcium	1,484	Gold	2,856
Carbon	4,827	Tin	2,603	Sulphuric Acid	337
		Glycerol	290		

min  
61.2

Q1  
337

Q2  
1956

Q3  
2856

max  
4827

$$IQR = 2519$$

5.

**Hits in a Round of Hacky Sack**

5	5	15	3	5	2
4	11	11	6	11	19
5	3	9	10	8	12
18	2	3	4		

min  
2

Q1  
4

Q2  
5.5

Q3  
11

max  
19

$$IQR = 7$$

6.

**Campers at National Parks**

Park	Campers	Park	Campers	Park	Campers
Catoctin Mountain Park	4,091	Grand Teton	10	Prince William Forest Park	8,797
Haleakala	7,663	Bighorn Canyon	2,979	Olympic	104,546
Zion	106,819	Kenai Fjords	788	Rocky Mountain	75,796
Great Sand Dunes	17,060	Denali	20,586	Big Cypress	1,288
Craters of the Moon	6,402	Blue Ridge Parkway	39,817	Padre Island	16,120
Joshua Tree	172,026	New River Gorge River	6,603	Natural Bridges	3,633
Kings Canyon	73,413	Glacier	104,928	Big Bend	37,596

min  
10

Q1  
3862

Q2  
16120

Q3  
74604.5

max  
172026

$$IQR = 70742.5$$



② 23 total numbers

Lower half of data (11 numbers)

3916, 4319, 5332, 5396, 5743, 5833, 6315, 7067, 7106, 7411, 7457

min  $\nearrow$   $\uparrow$  Lower Quartile (Q1)

Median (Q2)

7509

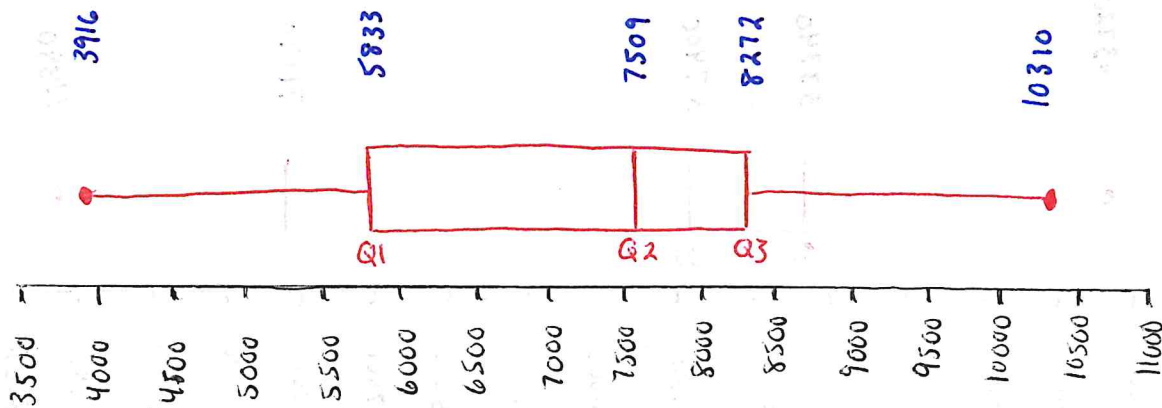
Upper half of data (11 numbers)

7812, 7897, 7911, 7949, 8142, 8272, 8442, 8515, 8930, 9217, 10310

$\uparrow$  Upper Quartile (Q3)  $\uparrow$  max

$$IQR = Q3 - Q1 = 8272 - 5833 = \boxed{2439}$$

$$\text{Range} = \text{Max} - \text{Min} = 10310 - 3916 = \boxed{6394}$$



③ 11 total numbers

Lower half of data (5 numbers)

2, 8, 9, 10, 12  
min → Lower Quartile (Q1)

Median (Q2)

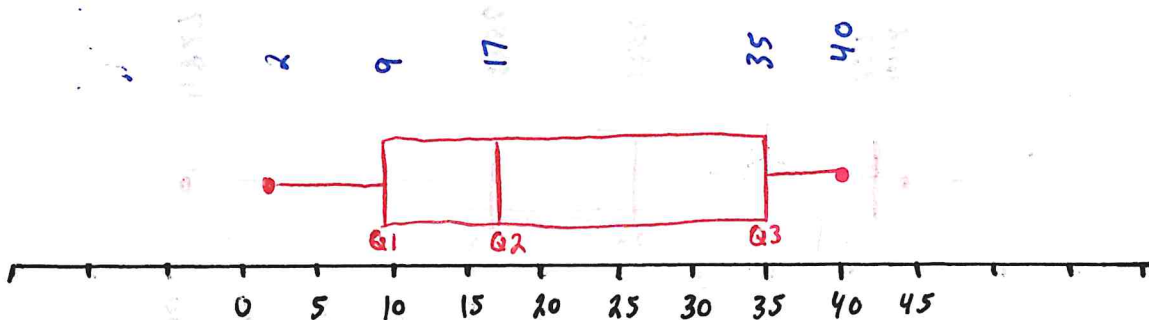
17

Upper half of data (5 numbers)

22, 26, 35, 36, 40  
Upper Quartile (Q3) ← max

$$IQR = Q3 - Q1 = 35 - 9 = 26$$

$$Range = Max - Min = 40 - 2 = 38$$



④ 22 total numbers

Lower half of data (11 numbers)

61.2, 78.4, 83, 100.7, 290, 337, 444.7, 882.8, 907, 1484, 1750  
min → Lower Quartile (Q1)

Median (Q2)

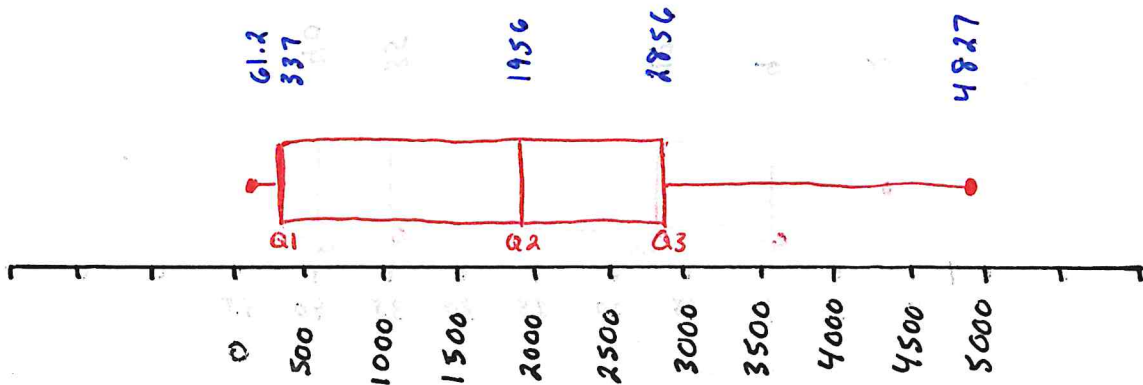
$$\frac{\text{Last of Lower} + \text{First of Upper}}{2} = \frac{1750 + 2162}{2} = \frac{3912}{2} = 1956$$

Upper half of data (11 members)

2162, 2357, 2519, 2562, 2603, 2856, 2862, 2913, 3232, 3287, 4827  
Upper Quartile (Q3) ↑ max

$$IQR = Q3 - Q1 = 2856 - 337 = 2519$$

$$\text{Range} = \text{Max} - \text{Min} = 4827 - 61.2 = 4765.8$$



⑤ 22 total numbers

Lower half (of data) (11 numbers)

2, 2, 3, 3, 3, 4, 4, 5, 5, 5, 5  
min ↑ Lower Quartile (Q1)

Median (Q2)

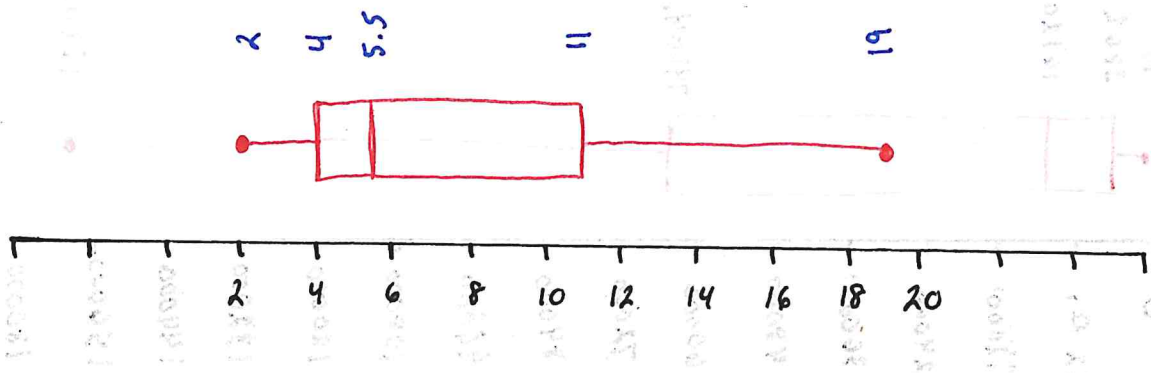
$$\frac{\text{last of lower} + \text{first of upper}}{2} = \frac{5 + 6}{2} = \frac{11}{2} = 5.5$$

Upper half of data (11 numbers)

6, 8, 9, 10, 11, 11, 11, 12, 15, 18, 19 ← max  
↑ Upper Quartile (Q3)

$$IQR = Q3 - Q1 = 11 - 4 = 7$$

$$\text{Range} = \text{Max} - \text{Min} = 19 - 2 = 17$$



⑥ 21 total numbers

Lower half of data (10 numbers)

10, 788, 1288, 2979, 3633, 4091, 6402, 6603, 7663, 8797

Lower Quartile (Q1)

$$\frac{3633 + 4091}{2} = \frac{7724}{2} = 3862$$

Median (Q2)

16120

Upper half of data (10 members)

17060, 20586, 37596, 39817, 73413, 75796, 104546, 104928, 106819,

Upper Quartile (Q3)

$$\frac{73413 + 75796}{2} = \frac{149209}{2} = 74604.5$$

172026

max

$$IQR = Q3 - Q1 = 74604.5 - 3862 = 70742.5$$

$$Range = Max - Min = 172026 - 10 = 172016$$

