

**The University of Portland
Donald P. Shiley School of Engineering**

**EGR361
Analysis of Engineering Data**

HOMEWORK 2—Descriptive Statistics

Assigned: Monday, January 22, 2018
Due: Monday, January 29, 2018
Text: 2-1, 2-4

Problems:

- 1) The nominal shear strength measurements (in kN) taken for a sample of 18 prestressed concrete beams are as follows:

{410, 590, 438, 625, 580, 275, 660, 750, 663, 630, 410, 580, 625, 580, 843, 526, 500, 611}

Determine the following statistical parameters:

- a) MEAN; b) MEDIAN; c) MODE; d) MIN & MAX; e) RANGE;
- f) Q1 (first quartile); g) Q2 (second quartile); h) Q3 (third quartile);
- i) IQR (interquartile range);
- j) L-FENCE (lower fence); k) U-FENCE (upper fence);
- l) Sample Variance; m) Sample Std. Deviation.

Also, provide a Box & Whisker Plot.

- 2) There are 13 students taking a course and the following data shows the amount each student paid in US dollars to purchase the textbook:

{\$152, \$135, \$205, \$99, \$120, \$152, \$38, \$115, \$120, \$170, \$205, \$140, \$112}

Determine the following statistical parameters:

- a) MEAN; b) MEDIAN; c) MODE; d) MIN & MAX; e) RANGE;
- f) Q1 (first quartile); g) Q2 (second quartile); h) Q3 (third quartile);
- i) IQR (interquartile range);
- j) L-FENCE (lower fence); k) U-FENCE (upper fence);
- l) Sample Variance; m) Sample Std. Deviation.

Also, provide a Box & Whisker Plot.

- 3) The following are the total points made by Portland Pilots Men's Basketball team in their last dozen games:

{57, 68, 74, 61, 45, 78, 78, 76, 64, 66, 54, 112}

Determine the following statistical parameters:

- a) MEAN; b) MEDIAN; c) MODE; d) MIN & MAX; e) RANGE;
- f) Q1 (first quartile); g) Q2 (second quartile); h) Q3 (third quartile);
- i) IQR (interquartile range);
- j) L-FENCE (lower fence); k) U-FENCE (upper fence);
- l) Sample Variance; m) Sample Std. Deviation.

Also, provide a Box & Whisker Plot.

Resources for further reading:

<https://www.mathsisfun.com/data/quartiles.html>

<http://web.mnstate.edu/peil/MDEV102/U4/S36/S363.html>