MATU9D2 : PRACTICAL STATISTICS

Spring 2017

PRACTICAL SESSION 1

- Hand Calculations I :
  Exploratory Data Analysis

- Handout 1 of 2

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ANSWER THE FOLLOWING QUESTIONS USING PEN, PAPER AND CALCULATOR - NOT COMPUTER

1. The following yields (kg) were obtained from plots of a fixed size in a field of potatoes growing under the same fertiliser treatments.

28	21	14	17	24	19	22	21	16	26
20	24	21	19	17	15	18	22	23	20
26	18	24	20	19	23	22	18	20	22

(i) Draw a Stem and Leaf plot.
(ii) Calculate the Five Number Summary of the data
(iii) Are there any outliers?
(iv) Draw a Box and Whisker plot.
(v) Calculate the mean and standard deviation.
(vi) Refer to (ii), how do the mean and median compare? What does this suggest about the shape of the distribution? (Look at the stem & leaf plot and check).
(vii) What are the appropriate measures of location and spread for this data?

2. A scientist called Cavendish measured the density of the earth using the same measure 29 times. The data are as follows:

5.5	5.6	4.9	5.1	5.3	5.6	5.4	5.3	5.6	5.6
5.6	5.5	5.6	5.3	5.4	5.3	5.8	5.1	5.3	5.4
5.4	5.5	5.6	5.3	5.5	5.3	5.8	5.7	5.9	

(i) Draw an appropriate plot.
(ii) Calculate the five number summary.
(iii) Compute the mean and standard deviation.
(iv) Based on the general shape of this distribution, would you be willing to report the mean and standard deviation as helpful descriptive measures? If so, the mean would be used to estimate the actual density of the earth. How do the mean and median compare for this data? What does this suggest about the shape of the distribution? (Look at the stem & leaf and check).