

Unit 6 - Week 5

Course outline
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Assignment 5

The due date for submitting this assignment has passed. **Due on 2020-04-01, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Questions 1 to 11 are based on the following data set. 1 point

Following insurance premium (in thousands Rupees) were paid annually by 300 employees and the data is stored in a data vector **premium**

Annual Premium:
31.4, 34.2, 21.3, 31.2, 39.4, 38.2, 31.4, 31.7, 25.3, 13.1, 18.2, 22.6, 22.3, 33.3, 30.2, 33.0, 17.3, 37.7, 24.7, 21.3, 38.2, 27.5, 18.0, 24.4, 12.3, 32.9, 25.1, 25.2, 16.0, 15.1, 32.3, 25.2, 22.6, 21.4, 29.3, 10.1, 28.1, 10.7, 38.0, 25.3, 30.2, 24.2, 35.5, 20.6, 34.3, 13.1, 32.7, 17.5, 31.5, 14.3, 10.5, 12.7, 36.5, 15.9, 22.5, 24.1, 36.9, 12.4, 18.0, 38.4, 22.5, 24.2, 29.5, 37.6, 16.2, 21.0, 33.5, 13.1, 40.0, 28.4, 13.8, 17.6, 18.7, 19.6, 39.6, 21.6, 28.7, 14.1, 34.8, 38.4, 22.0, 27.1, 17.7, 18.1, 38.0, 36.7, 38.7, 27.0, 35.1, 26.6, 12.5, 37.1, 17.6, 32.4, 20.0, 21.6, 21.3, 25.1, 12.9, 10.5, 27.9, 11.0, 19.8, 10.8, 21.9, 30.2, 20.7, 17.9, 14.8, 25.9, 24.1, 25.9, 37.1, 37.6, 29.3, 35.4, 33.9, 28.5, 22.9, 38.5, 21.1, 13.7, 14.9, 11.6, 23.0, 17.4, 21.3, 24.5, 30.4, 33.3, 15.2, 28.9, 38.3, 38.4, 14.4, 34.7, 10.9, 35.7, 18.0, 26.6, 20.7, 25.1, 16.6, 38.5, 34.1, 21.9, 22.7, 31.4, 21.0, 34.4, 39.5, 17.2, 25.5, 14.5, 28.4, 16.8, 17.9, 17.2, 21.9, 16.7, 34.3, 32.1, 32.6, 21.3, 23.6, 33.6, 32.4, 25.5, 35.8, 16.5, 10.9, 39.9, 32.8, 15.4, 35.1, 29.1, 16.6, 23.6, 13.0, 36.1, 23.4, 34.6, 15.3, 20.9, 31.2, 24.8, 11.5, 32.3, 22.4, 19.8, 28.9, 16.0, 17.0, 32.0, 29.2, 21.3, 21.3, 31.4, 30.2, 12.9, 39.3, 31.6, 23.0, 34.3, 17.5, 24.7, 39.3, 30.3, 12.9, 33.4, 12.2, 35.4, 21.6, 16.3, 31.8, 29.6, 21.6, 32.7, 31.2, 20.5, 13.5, 14.6, 14.5, 35.9, 13.0, 36.3, 14.5, 21.3, 10.7, 10.2, 25.5, 21.2, 20.0, 22.5, 18.8, 25.3, 30.8, 18.2, 37.0, 11.3, 13.0, 21.0, 10.4, 31.5, 29.2, 13.6, 31.8, 27.0, 24.1, 35.7, 25.0, 38.3, 29.7, 37.1, 14.0, 17.3, 20.3, 23.9, 10.8, 19.4, 29.4, 15.2, 11.0, 27.6, 24.7, 24.6, 29.9, 22.3, 11.8, 12.3, 38.2, 27.0

The absolute mean deviation around median of the data on **premium** is

- 6.57252e-14
- 0.1693333
- 7.247053
- 7.24533

No, the answer is incorrect. Score: 0 Accepted Answers: 7.24533

2) The absolute mean deviation around arithmetic mean of the data on **premium** is 1 point

- 6.57252e-14
- 0.1693333
- 7.247053
- 7.24533

No, the answer is incorrect. Score: 0 Accepted Answers: 7.247053

3) The value of $s^2 = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2$ of the data on **premium** is 1 point

- 71.40276
- 71.64156
- 8.450015
- 8.464134

No, the answer is incorrect. Score: 0 Accepted Answers: 71.40276

4) The value of $\sigma^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$ of the data on **premium** is 1 point

- 71.40276
- 71.64156
- 8.450015
- 8.464134

No, the answer is incorrect. Score: 0 Accepted Answers: 71.64156

5) The value of coefficient of variation of the data on **premium** is 1 point

- 0.3438003
- 0.3438003
- 2.909972
- 2.909972

No, the answer is incorrect. Score: 0 Accepted Answers: 0.3438003

6) The outcome of the **summary** command when executed over the data on **premium** is **summary(premium)** 1 point

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
10.10	17.58	24.45	24.62	31.83	40.00

The quartile deviation based on this outcome is

- 3.425
- 3.69
- 7.125
- 14.25

No, the answer is incorrect. Score: 0 Accepted Answers: 7.125

7) The outcome of the **summary** command when executed over the data on **premium** is **summary(premium)** 1 point

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
10.10	17.58	24.45	24.62	31.83	40.00

The interquartile range based on this outcome is

- 3.425
- 3.69
- 7.125
- 14.25

No, the answer is incorrect. Score: 0 Accepted Answers: 14.25

8) The outcome of the **summary** command when executed over the data on **premium** is **summary(premium)** 1 point

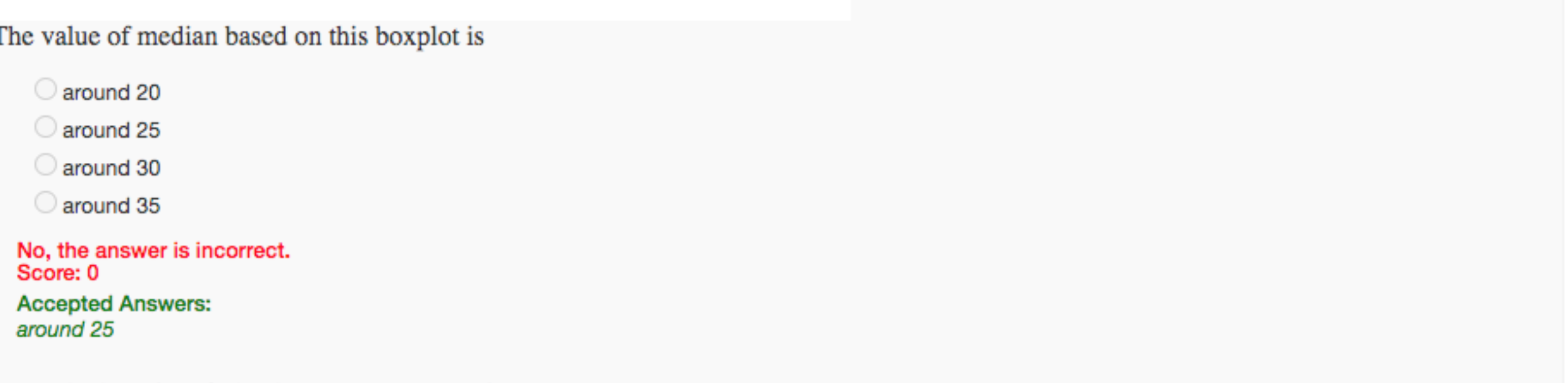
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
10.10	17.58	24.45	24.62	31.83	40.00

The value of range based on this outcome is

- 6.38
- 6.87
- 7.125
- 29.9

No, the answer is incorrect. Score: 0 Accepted Answers: 29.9

9) The boxplot of the data on **premium** is 1 point

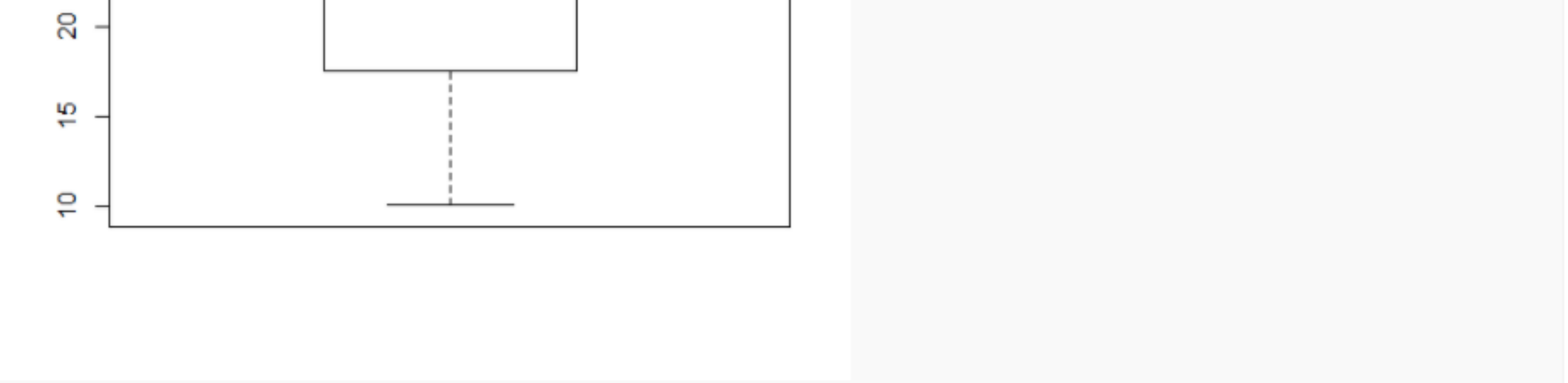


The value of median based on this boxplot is

- around 20
- around 25
- around 30
- around 35

No, the answer is incorrect. Score: 0 Accepted Answers: around 25

10) The boxplot of the data on **premium** is 1 point



The value of third quartile on this boxplot is

- around 17
- around 25
- around 32
- around 40

No, the answer is incorrect. Score: 0 Accepted Answers: around 32

11) The arithmetic means and variances of the two data sets on volume of medicine in different bottles are obtained as follows. Based on the information provided by the coefficient of variations, which of the data set has more variability? 1 point

Data set	Arithmetic mean	Variance
First	200 milliliters	36 milliliters
Second	180 milliliters	81 milliliters

- Both data sets have the same variability.
- Second data sets has more variability.
- First data sets has more variability.
- Inadequate data to compute the coefficient of variation.

No, the answer is incorrect. Score: 0 Accepted Answers: Second data sets has more variability.

12) Questions 12 to 17 are based on the following data set. 1 point

Following insurance premium (in thousands of Rupees) were paid annually by 300 employees where 8 values are missing and are expressed as **NA**. The data is stored in a data vector **premiumna**.

Annual Premium:
31.4, 34.2, 21.3, 31.2, 39.4, 38.2, 31.4, 31.7, 25.3, 13.1, 18.2, 22.6, 22.3, 33.3, 30.2, 33.0, 17.3, 37.7, 24.7, 21.3, 38.2, 27.5, 18.0, 24.4, 12.3, 32.9, 25.1, 25.2, 16.0, 15.1, 32.3, 25.2, 22.6, 21.4, 29.3, 10.1, 28.1, NA, 38.0, 25.3, 30.2, 24.2, 35.5, 20.6, 34.3, 13.1, 32.7, 17.5, 31.5, 14.3, 10.5, 12.7, 36.5, 15.9, 22.5, 24.1, 36.9, 12.4, 18.0, 38.4, 22.5, 24.2, 29.5, 37.6, 16.2, 21.0, 33.5, 13.1, 40.0, 28.4, 13.8, NA, 18.7, 19.6, 39.6, 21.6, 28.7, 14.1, 34.8, 38.4, 22.0, 27.1, 17.7, 18.1, 38.0, 36.7, 38.7, 27.0, 35.1, 26.6, 12.5, 37.1, 17.6, 32.4, 20.0, 21.6, 21.3, 25.1, 12.9, 10.5, 27.9, 11.0, 19.8, 10.8, 21.9, 30.2, 20.7, 17.9, 14.8, 25.9, 24.1, 25.9, 37.1, 37.6, 29.3, 35.4, 33.9, NA, 22.9, 38.5, 21.1, 13.7, 14.9, 11.6, 23.0, 17.4, 21.3, 24.5, 30.4, 33.3, 15.2, 26.9, 38.3, 38.4, 14.4, 34.7, 10.9, 35.7, 18.0, 26.6, 20.7, 25.1, 16.6, NA, 34.1, 21.9, 22.7, 31.4, 21.0, 34.4, 39.5, 17.2, 25.5, 14.5, 28.4, 16.8, 17.9, 17.2, 21.9, 15.7, 34.3, 32.1, 32.6, 21.3, 23.5, 33.6, 32.4, 25.5, 35.8, 16.5, 10.9, 39.9, 32.8, 15.4, 35.1, 29.1, 16.6, 23.6, 13.0, 36.1, 23.4, 34.6, NA, 20.9, 31.2, 24.8, 11.5, 32.3, 22.4, 19.8, 28.9, 16.0, 17.0, 32.0, 29.2, 21.3, 21.3, 31.4, 30.2, 12.9, 39.3, 31.6, 23.0, 34.3, 17.5, 24.7, 39.3, 30.3, 12.9, 33.4, 12.2, 35.4, 21.6, 16.3, 31.8, 29.6, 21.6, 32.7, 31.2, 20.5, NA, 14.6, 14.5, 35.9, 13.0, 36.3, 14.5, 21.3, 10.7, 10.2, 25.5, 21.2, 20.0, 22.5, 18.8, 25.3, 30.8, 18.2, 37.0, 11.3, 13.0, 21.0, 10.4, 31.5, 29.2, 13.6, 31.8, 27.0, 24.1, 35.7, 25.0, 38.3, 29.7, 37.1, 14.0, 17.3, 20.3, 23.9, 10.8, 19.4, NA, 15.2, 11.0, 27.6, 24.7, 24.6, 29.9, 22.3, 11.8, 12.3, 38.2, 27.0

The correct command to find the absolute mean deviation around median of the data on **premiumna** is

- mean(abs (premiumna - median (premiumna, na.rm = TRUE)))
- mean (abs (premiumna - median (premiumna))) , na.rm = TRUE)
- mean (abs (premiumna - median (premiumna)))
- mean (abs (premiumna - median (premiumna, na.rm = TRUE))) , na.rm = TRUE)

No, the answer is incorrect. Score: 0 Accepted Answers: mean (abs (premiumna - median (premiumna, na.rm = TRUE))) , na.rm = TRUE

13) The absolute mean deviation around median of the data on **premiumna** is 1 point

- 4.343344e-17
- 0.2277397
- 7.221803
- 7.218803

No, the answer is incorrect. Score: 0 Accepted Answers: 7.218803

14) The absolute mean deviation around arithmetic mean of the data on **premiumna** is 1 point

- 4.343344e-17
- 0.2277397
- 7.221803
- 7.218803

No, the answer is incorrect. Score: 0 Accepted Answers: 7.221803

15) The value of variance of the data on **premiumna** is 1 point

- 8.44073
- 18.44073
- 71.24593
- 171.24593

No, the answer is incorrect. Score: 0 Accepted Answers: 71.24593

16) The value of standard deviation of the data on **premiumna** is 1 point

- 8.44073
- 18.44073
- 71.24593
- 171.24593

No, the answer is incorrect. Score: 0 Accepted Answers: 8.44073

17) The value of coefficient of variation of the data on **premiumna** is 1 point

- 2.887052
- 0.3420382
- 0.3420382
- 2.887052

No, the answer is incorrect. Score: 0 Accepted Answers: 0.3420382

18) Suppose the arithmetic means of two different data sets are known and the arithmetic mean of data set 1 is more than the arithmetic mean of data set 2. Which of the following statement is true? 1 point

- Variance of data set 1 is more than the variance of data set 2.
- Variance of data set 1 is less than the variance of data set 2.
- Variance of data sets 1 and 2 are equal.
- Nothing can be concluded about the variances of data sets 1 and 2.

No, the answer is incorrect. Score: 0 Accepted Answers: Nothing can be concluded about the variances of data sets 1 and 2.

19) Suppose the variances of two different data sets are known and the variance of data set 1 is more than the variance of data set 2. Which of the following statement is true? 1 point

- Arithmetic mean of data set 1 is more than the arithmetic mean of data set 2.
- Arithmetic means of data set 1 is less than the arithmetic mean of data set 2.
- Arithmetic means of data sets 1 and 2 are equal.
- Nothing can be concluded about the arithmetic means of data sets 1 and 2.

No, the answer is incorrect. Score: 0 Accepted Answers: Nothing can be concluded about the arithmetic means of data sets 1 and 2.

20) The value of $\frac{1}{n} \sum_{i=1}^n (x_i - c)^2$ is minimum when c is the 1 point

- arithmetic mean (\bar{x}) of the sample data x_1, x_2, \dots, x_n .
- median of the sample data x_1, x_2, \dots, x_n .
- geometric mean of the sample data x_1, x_2, \dots, x_n .
- harmonic mean of the sample data x_1, x_2, \dots, x_n .

No, the answer is incorrect. Score: 0 Accepted Answers: arithmetic mean (\bar{x}) of the sample data x_1, x_2, \dots, x_n .