Peer-graded Assignment: Assignment One: Descriptive Statistics

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Assignment one: Descriptive Statistics

Submitted on May 1, 2020

Shareable Link

PROMPT

Four observations are obtained: 7, 9, 10 and 11. For these four values, derive the following:

- the sample mean

sample mean = (7 + 9 + 10 + 11)/4
= 9.25

RUBRIC

Please select which of the below matches the learners answer.

- **1 point**
  The sample mean is $\bar{x} = 9.25$.
- 0 points
  Anything else

PROMPT

Four observations are obtained: 7, 9, 10 and 11. For these four values, derive the following:

- the sample median

Since the data set consists of even number of items we need to first arrange them in ascending order then we will find the mean of two middlemost number i.e. (9+10)/2 = 9.5
Hence the median is 9.5

RUBRIC

Please select which of the below matches the learners answer.

- **1 point**
  The sample median is (9+10)/2 = 9.5(9+10)/2=9.5.
- 0 points
  Anything else

PROMPT

Four observations are obtained: 7, 9, 10 and 11. For these four values, derive the following:

- show that \sum\limits_{i=1}^4 (x_i - \bar{x}) = 0 i=1 ∑ 4 (x i − x ¯)=0

i=1 ∑ 4 (x i − x ¯)=0
then x ¯ = 9.25 = mean
=(7-9.25) + (9-9.25) + (10 - 9.25) +(11-9.25)
= (-2.25) + (-0.25) + (0.75) + (1.75)
= 0

RUBRIC

Please select which of the below matches the learners answer.

- **2 points**
  ∑i=14(xi−x¯)=(7−9.25)+(9−9.25)+(10−9.25)+(11−9.25)=−2.25−0.25+0.75+1.75=0.
- 0 points
  Anything else

PROMPT

Four observations are obtained: 7, 9, 10 and 11. For these four values, derive the following:

compute the sample variance s^2 = \frac{1}{4-1}\sum\limits_{i=1}^4 (x_i - \bar{x})^2s2=4−11i=1∑4(xi−x¯)2

i=1 ∑ 4 (x i − x ¯)^2=0
then x ¯ = 9.25 = mean
=(7-9.25)^2 + (9-9.25)^2 + (10 - 9.25)^2 +(11-9.25)^2
= (-2.25) ^2+ (-0.25)^2 + (0.75)^2 + (1.75)^2
= 5.0625 + 0.0625 + 0.5625 + 3.0625
= 8.75

RUBRIC

Please select which of the below matches the learners answer.

- 2 points
  The sample variance is s^2 = \frac{1}{3}\left((7 - 9.25)^2 + (9 - 9.25)^2 + (10 - 9.25)^2 + (11 - 9.25^2\right) = 2.92s2=31((7−9.25)2+(9−9.25)2+(10−9.25)2+(11−9.252)=2.92
- **0 points**
  Anything else

PROMPT

Four observations are obtained: 7, 9, 10 and 11. For these four values, derive the following:

- compute the sample standard deviation, s = \sqrt{s^2}s= s 2

sample standard deviation = s^2 = Σ(xi - x̄)^2/(N - 1)

RUBRIC

Please select which of the below matches the learners answer.

- **1 point**
  The sample standard deviation is \sqrt{2.92} = 1.712.92=1.71.
- 0 points

PROMPT

Four observations are obtained: 7,9 10 and 11. For those four values, derive the following:

- compute \bar{x} - 2\times s x ¯ −2×s

x ¯ = 9.25
s = 1.707825127
then x ¯ −2×s = 9.25 - 2*(1.7078251276599)
= 5.83435

RUBRIC

Please select which of the below matches the learners answer.

- **1 point**
  x ¯ −2×s=9.25−2×1.71=5.83.
- 0 points
  Anything else

PROMPT

Four observations are obtained: 7,9 10 and 11. For those four values, derive the following:

- compute \bar{x} + 2\times s x ¯ +2×s

x ¯ = 9.25
s = 1.707825127
then x ¯ +2×s = 9.25 +2*(1.7078251276599)
= 12.665650255

RUBRIC

Please select which of the below matches the learners answer.

- **1 point**
  x ¯ +2×s=9.25+2×1.71=12.67.
- 0 points
  Anything else

PROMPT

Four observations are obtained: 7,9 10 and 11. For those four values, derive the following:

- state how many of the four observations lie in the interval (\bar{x} - 2\times s,\, \bar{x} + 2\times s)(x ¯ −2×s, x ¯ +2×s).

the interval consist of (5.83435 ,12.665650255)
hence all the four observation i.e. 7,9,10,11 lie in the interval

RUBRIC

Please select which of the below matches the learners answer.

- **1 point**
  All four observations lie in (5.83,\, 12.67).
- 0 points
  Anything else

Edit submission

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