

EoS - E-tutorial 01 - WiSe 2023/2024

StatRef.A.1.1.00025 (60 Punkte)

Sie haben die folgende Antwort gegeben:

The real estate agent Mr. Schaefer plans to open his own office in Trier. A market research study revealed that, in addition to the selling price, the colour and the energy efficiency class of a house are relevant factors in Trier as well. Hence, in order to have a successful start, Mr. Schaefer first needs to get an overview of the housing situation in Trier with regard to these variables. For this purpose, download the attached dataset and load it into R.

Hints:

The variable Colour is coded as follows: white = 1, beige = 2, red = 3, green = 4, yellow = 5, blue = 6.

The variable EfficiencyClass is coded as follows: AAA = 1, AA = 2, A = 3, B = 4, C = 5, D = 6, where AAA marks the best and D the worst energy efficiency class.

Notice the fact that always exactly one attribute is on a nominal, ordinal or metric scale, respectively.

Please round your results - if needed and not demanded otherwise - to **four** decimal places.

il_qst_32610[il_qst_32610.RData \(1.15 KB\)](#)

&nbsp;

a) (8 points) Calculate a suitable measure of location for the variable *EfficiencyClass*. 4

b) (12 points) The entropy is used to measure the variation of nominal as well as ordinal variables. Therefore, determine the entropy for the nominal variable. 0.7668

c) (8 points) Calculate a suitable measure of location for the metric variable. 204700

d) (14 points) Now, calculate the value of the empirical variance s^2 of the metric variable. 3359640000

e) (14 points) In addition, calculate the value of the mean linear deviation of the metric variable. 49737

f) (4 points) Please complete the following sentence: The median...
...minimises the mean linear deviation as a measure of distance.

Die bestmögliche Lösung lautet:

The real estate agent Mr. Schaefer plans to open his own office in Trier. A market research study revealed that, in addition to the selling price, the colour and the energy efficiency class of a house are relevant factors in Trier as well. Hence, in order to have a successful

start, Mr. Schaefer first needs to get an overview of the housing situation in Trier with regard to these variables. For this purpose, download the attached dataset and load it into R.

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il_qst_32610

[il_qst_32610.RData \(1.15 KB\)](#)

a) (8 points) Calculate a suitable measure of location for the variable *EfficiencyClass*. 4

b) (12 points) The entropy is used to measure the variation of nominal as well as ordinal variables. Therefore, determine the entropy for the nominal variable. 1.76556084840744

c) (8 points) Calculate a suitable measure of location for the metric variable. 204700

d) (14 points) Now, calculate the value of the empirical variance s^{*2} of the metric variable. 3359640000

e) (14 points) In addition, calculate the value of the mean linear deviation of the metric variable. 49720

f) (4 points) Please complete the following sentence: The median... ..minimises the mean linear deviation as a measure of distance.

Sie haben 34 von 60 möglichen Punkten erreicht.