Problem 3 (10pts.)

To answer a numerical value, enter only the numerical value in the answer box and units are not required. If a problem statement says "up to N decimal places", answer by rounding off the N+1 decimal places.

In ai_mid3.csv, the real estate prices ("MEDV" column) and their characteristics ("CRIM" to "LSTAT" column) are recorded. Answer the following questions about this data. No variable selection, standardization or multicollinearity checking is required. You can use ai_mid3_sample.ipynb file if you need.

1.

Perform linear multiple regression with MEDV as the objective variable and TAX, PTRATIO, and LSTAT as the explanatory variables.

Answer the adjusted coefficient of determination and the partial regression coefficient of " LSTAT" up to the third decimal places.

the adjusted coefficient of determination

> 0.604

the partial regression coefficient of "LSTAT"

> -0.822

2.

Perform linear multiple regression with MEDV as the objective variable and CRIM, INDUS, and RM as the explanatory variables.

In the obtained model formula, answer the explanatory variable in which the objective variable changes the most when the variable increases by 1 while the other variables do not change. Additionally, answer the increment of the target variable in this case (negative value if it decreases) up to the third decimal places.

the explanatory variable in which the objective variable changes the most

> RM

the increment of the target variable

> 7.648

3.

For the above two types of multiple regression models, which is better in terms of AIC? Answer with the number 1 or 2.

- [x] 1
- [ ] 2

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