Final Project Checkpoint 2: Model Construction

Objective: Build and evaluate a multiple linear regression model for your dataset from checkpoint 1. We will be using standard R functions in place of the functions you used in the online tutorials.

📌 Task 1: Build a Multiple Linear Regression Model (8 points)

1. Load your dataset into **RStudio** (if not already loaded from Checkpoint 1).
2. Train a multiple linear regression model using the `lm()` function, similar to `model_train()` function from the homework tutorials. Your model should include:
    - **One response variable (dependent variable).**
    - **At least two explanatory variables (independent variables).**
3. Use the following structure to train your model (add more explanatory variables as desired):

```
dataset <- read.csv("~/path/to/dataset.csv")

model <- lm(Response_Variable ~ Explanatory_Variable1 + Explanatory_Variable2,
data = dataset)

summary(model)
```

In the answer submission form, respond to the following prompt:

✍️Explain why you selected these explanatory variables.

📌 Task 2: Evaluate the Model Fit Using R^2 (5 points)

1. Calculate **R^2**, which measures how well the model explains the variation in the response variable.

```
rsq <- summary(model)$r.squared
print(rsq)
```

In the answer submission form, respond to the following question:

✍️ Record your **R^2** value.

✍️ Interpret the **R^2** value in context**.** What does it tell you about the strength of the model?

📌 Task 3: Analyze Effect Sizes Using Model Coefficients (7 points)

1. Extract the model coefficients using the `conf_interval()` function:

```
coefficients <- summary(model)$coefficients

print(coefficients)
```

In the answer submission form, respond to the following question:

📸Attach a table of your model coefficient values. Column 1 is the explanatory variable name. Column 2 is the coefficient value.

✍️ Explain the significance of the coefficients in relation to your dataset.

After all tasks are complete:

📸 Attach the R Script from RStudio that contains your code from Tasks 1-3.

Submit answers on this Google Form