

# STA 235H - Homework 1

Name 1

Name 2

Name 3

Name 4

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## Task 1: How much should insurance cost? (25 points)

```
# Load insurance data
insurance <- read.csv("https://raw.githubusercontent.com/maibennett/sta235/main/exampleSite/content/Ass
```

### Question 1.1:

Describe the relationship between age and charges based on the previous plot.

*[Answer here]*

### Question 1.2:

Make a new plot that colors these points by whether a person is a smoker or not. What can you tell about the relationship between age and charges for these groups?

*[Answer here]*

```
#Insert the code for your first plot here
```

### Question 1.3:

Now, show a new plot with the relationship between BMI and charges. What can you say about that relationship? Does the relationship look linear?

*[Answer here]*

```
#Insert the code for your second plot here. Remmeber to show your code! (echo = TRUE)
```

### Question 1.4:

Fit a model that regresses charges on BMI, smoking, and its interaction. Interpret the coefficients. Do these results align with what you expected? Why or why not?

*[Answer here]*

```
# Include models here
```

**Question 1.5:**

Using the previous information, build a regression using age, body mass index, smoker category, and sex as covariates, and charges as the dependent variable. Include an interaction between age and BMI. What is the interpretation for the partial relationship between BMI and insurance charges for someone who is 25 years of age versus someone who is 70, holding other variables constant?

*[Answer here]*

```
# Include models here
```