Name_____ Date_____

# LAB 3D: Are you sure about that?
## *Response Sheet*

Directions: Record your responses to the lab questions in the spaces provided.

### Confidence and intervals

### In this lab

- **The United States has an estimated population of 336,302,171 (as of April 15, 2024 9:10 a.m. PDT). How many people were surveyed for this particular dataset?**

- **Why is it important that the ATUS is a random sample?**

- **Use our `atus` data to calculate an estimate for the average age of people older than 15 living in the U.S.**

### One bootstrap

### Our first bootstrap

### Take a look

- **Write a paragraph that explains to someone that's not familiar with `R` how you created `bs_rows` and `bs_atus`. Be sure to include an explanation of what the *values* of `bs_rows` mean and how those values are used to create `bs_atus`. Also, be sure to explain what each argument of each function does.**

### One strap, two strap

- **Compare this second *bootstrapped* sample with three other classmates and write a sentence about how similar or different the *bootstrapped* sample means were.**

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### Many bootstraps

### Bootstrap function

### Visualizing our bootstraps

- **Create a `histogram` for your bootstrapped samples and describe the *center*, *shape* and *spread* of its distribution.**

### Bootstrapped confidence intervals

- **Using your `histogram`, fill in the statement below:**

  The lowest 5% of our estimates are below _____ years and the highest 5% of our estimates are above _____ years.

- **Based on your bootstrapped estimates, between which two ages are we 90% confident the actual `mean` age of people living in the U.S. is contained?**

### On your own

- **Why is the 95% confidence interval wider than the 90% interval?**

- **Write down how you would explain what a 95% confidence interval means to someone not taking *Introduction to Data Science*.**