Name_____ Date_____

LAB 2D: Queue it up!
Response Sheet

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

Where we left off

Back to songs

- **Write a sentence comparing your estimated probability to the actual probability.**

With or Without?

- **Run `tally(without)` and describe the output. Does something similar happen if you sample** *with replacement***?**

- **What happens if `size = 101` and `replace = FALSE`?**

Sample with? Or without?

- **Which of these scenarios would you sample** *with replacement* **and which would you sample** *without replacement***? Why?**

    - **Write down the line of code you would run to `sample` from the candy jar. Assume the simulated jar is named `candies`.**

Simulations at work

- **What are the variable names? What happened in the first simulation? Did any of your 10 simulations contain two rap songs?**

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Simulations and probability

Counting similar outcomes

- **Let's break down the code above by running each part of the code one piece at a time. As you run each line of code below describe the output.**
    - `draws == "rap "`
    - `rowSums(draws == "rap ")`
    - `mutate(draws, nrap = rowSums(draws == "rap"))`

Counting other outcomes

Step 1: Creating a subset

Estimating probabilities

- **Calculate estimated probabilities for the following situations:**
    - **You draw two "`rap`" songs.**
    - **You draw a "`rap`" song in the first draw and a "`country`" song in the 2nd.**

- **Create a histogram that displays the number of times a "`rap`" song occurred in each simulation. That is, how often were zero rap songs drawn? A single rap song? Two rap songs?**

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On your own

- ***If we draw 5 songs from a playlist of 30 rap, 23 country and 47 rock songs, how does the estimated probability of all 5 songs being rap songs change if we draw the songs with or without replacement?***
    - **Create a histogram for the number of *rap* songs that occurred for each of the 500 repetitions.**
    - **Describe how the distribution of the number of *rap* songs changes depending on if we use replacement or not.**