Assignment: The "Arrangement" Challenge

Topic: Marks, Channels, and Tabular Arrangements (Chapters 5 & 7) **Time Estimate:** 60–90 Minutes **Dataset: Palmer Penguins**

- **Source:** https://huggingface.co/datasets/SIH/palmer-penguins
- **Attributes:** `flipper_length_mm` (Quantitative), `body_mass_g` (Quantitative), `species` (Categorical Key), `bill_length_mm` (Quantitative).

The Task

You will create two visualizations to explore the relationship between penguin size and species. You must use **D3.js** for both.

Part 1: Expressing Values (The Scatter Plot)

- **Goal:** Visualize the correlation between two quantitative values.
- **X-Axis:** `flipper_length_mm`
- **Y-Axis:** `body_mass_g`
- **Mark:** Circle (Point)
- **Channel:** Use **Color** to encode `species`.

Part 2: Separating Regions (The Strip Plot)

- **Goal:** Visualize the distribution of body mass across different species (Tabular View).
- **X-Axis:** `body_mass_g`
- **Y-Axis:** `species` (This is now a **Key**, not a Value!)
- **Mark:** Circle (Point)
- **Channel:** Use **Color** to encode `species` (Redundant encoding).

Submission Requirements

1. **Code:** `.html` or `.js` file (or Observable notebook link) containing both plots.
2. **Screenshots:** Images of your two final plots.
3. **Markdown Report (IMPORTANT) (PDF):** Briefly explain your design choices using course terminology:
   - Which **Visual Channels** did you use for the quantitative values? (e.g., Position, Length, Area?)
   - According to the **Effectiveness Ranking**, why is the Strip Plot (Part 2) better for comparing the *mass* of the three species than the Scatter Plot (Part 1)?