



# **End of Module Test (Module 5)**

**Visualising Data with R**

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## Day 15: Break Day & Data Storytelling Test

### Take a Break!

Congratulations on completing 15 days of learning R! Take some time to relax and review what you've learned.

### Instructions For Submission

- Answer all the questions provided in an R script
- Save the finished work with your last name and module number separated by an underscore (e.g. if your name is **Benjamin Owusu**, you save the script file as `Owusu_Module5.R` )
- Submit the saved script to me via email at `gkagyen@ghana-rusers.org` with the subject **Module 5 Test**
- You have one day to complete this test and submit by end of day on **Wednesday 23rd April 2024**

### Data Storytelling Test

To reinforce your skills, try these tasks using the `ChickWeight` dataset:

#### 1. Base R Plots

- a) Create a scatter plot of weight vs. time for all chicks
- b) Make a histogram of weights at day 21 only
- c) Generate a boxplot comparing weights across different diets
- d) Create a bar chart showing mean weight per diet

#### 2. Basic ggplot2

- a) Make a scatter plot of weight vs. time with diet-specific colours
- b) Create a line plot showing average weight over time for each diet
- c) Generate a histogram of all weights with 15 bins
- d) Make a boxplot of weights by diet with flipped coordinates

#### 3. Customizing ggplot2

- a) Add a title “Chick Growth by Diet” and axis labels to any plot from Q2
- b) Make points larger (`size=3`) and semi-transparent (`alpha=0.6`) in the scatter plot
- c) Change line type to dashed in the line plot

d) Apply the `theme_classic()` to one of your plots

#### 4. Faceting

- a) Create faceted histograms showing weight distributions per diet
- b) Make a faceted scatter plot (time vs. weight) with one facet per chick
- c) Add free y-scales to the faceted histograms

#### 5. Theme Customization

- a) Create a custom theme that:
  - Has a light blue panel background
  - Uses bold, dark red axis titles
  - Removes minor grid line
- b) Apply this theme to your line plot from Question 2

#### 6. Annotations

- a) Add a text annotation at day 10, weight 150 saying “Growth Spurt”
- b) Place a horizontal reference line at the overall mean weight
- c) Highlight the maximum weight value with a point annotation