

# My Tutorial

## Introduction

In this tutorial, we refactored the code into separate scripts corresponding to each section. The dataset comes from the `palmerpenguins` package, which contains measurements of penguins from three species. All results shown below are generated from scripts and saved outputs.

## Load Libraries and Data

We used the `palmerpenguins`, `tidyverse`, and `tidymodels` packages.  
Initial data cleaning (e.g., removing NA values) was handled in the scripts.

To inspect the data structure:

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Rows..333

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Columns: 8

\$ species Adelie, Adelie, Adelie, Adelie, Adelie, A...

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\$ island Torgersen, Torgersen, Torgersen, Torgersen, ... \$ bill\_length\_mm 39.1, 39.5, 40.3, 36.7, 39.3, 38.9, 39.2, 41.1, 38.6... \$ bill\_depth\_mm 18.7, 17.4, 18.0, 19.3, 20.6, 17.8, 19.6, 17.6, 21.2... \$ flipper\_length\_mm 181, 186, 195, 193, 190, 181, 195, 182, 191, 198, 18... \$ body\_mass\_g 3750, 3800, 3250, 3450, 3650, 3625, 4675, 3200, 3800... \$ sex male, female, female, female, male, femal... | \$ year 2007, 2007, 2007, 2007, 2007, 2007, 2007, 2007, 2007...  
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## Methods

In this section, we perform exploratory data analysis (EDA) and prepare the data for modeling.

mean_bill_length	mean_bill_depth
43.99279	17.16486

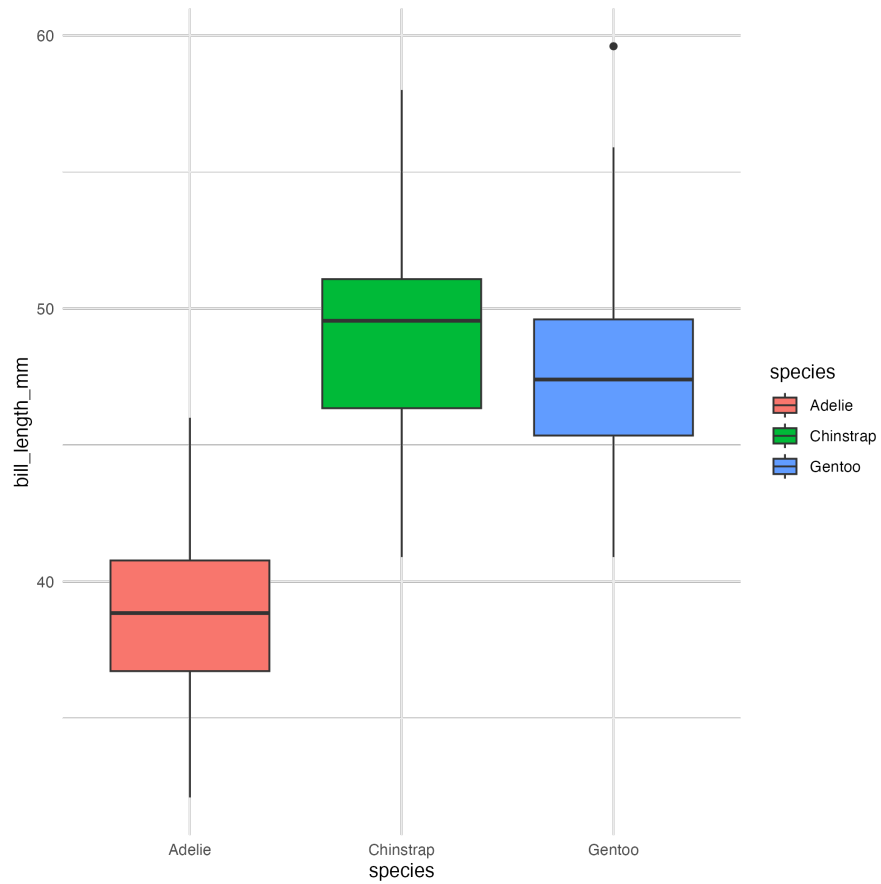


Figure 1: Bill Length Boxplot

## Model

We will fit a classification model using `tidymodels` to predict the species of a penguin based on its physical characteristics.

## Results

We evaluate the performance of the model using the test dataset.

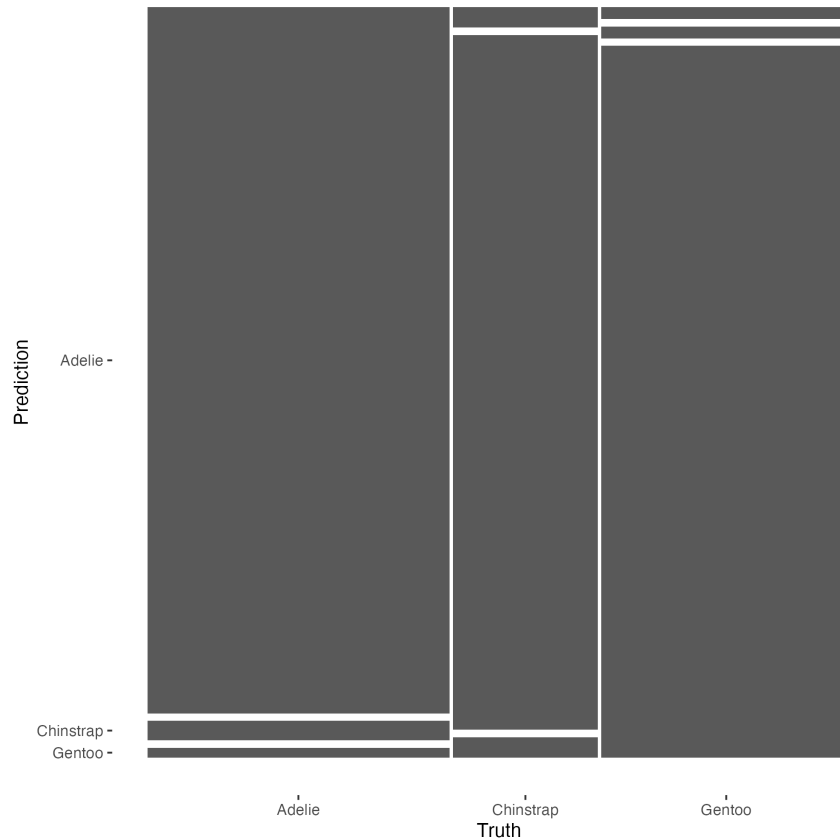


Figure 2: Confusion Matrix for our model

## Conclusion

In this tutorial, we:

- Loaded and cleaned the `palmerpenguins` dataset.
- Performed exploratory data analysis.
- Built a k-Nearest Neighbors classification model using `tidymodels`.
- Evaluated the model's performance.