Farm Store and Penguins

Get Started with Quarto

# Farm Store

CPP Farm store has a selected assortment of cool fruits and vegetables right from its on-campus farm.

## Featured Products:

Illustration of Multiple columns on a website

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| |  | | --- | | Figure 1: A sample of gift-pack prepared from CPP Grown produce | |  |

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| --- | --- |
| |  | | --- | | Figure 2: A sample of wine made from grapes grown right here on campus | |

Great gift for your loved ones. These fruits were raised by students in agriculture majors on CPP campus, processed and packed by student employees at Farm Store.

Fantastic wine produced right here CPP campus by students!

## Web site menu

Use panel-tabset to add multiple tabs to your website.

### Fruit gift packs



A Sample of gift-pack prepared from CPP-grown produce

### Rose Wine



A sample of wine made from grapes grown right here on campus

For the beautiful graphic of fruit gift pack, see [Figure 1](#fig-gift).

# Data Preparation

First, we need to:

1. load **packages**
2. read in **data**
3. check if that data is *in the right format*

By “right format”, we mean that the data is tidy, and ready to be summarized and graphed

## Choosing Data

Penguins are very cute!

… so let’s work with penguin data today.

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| --- |
| Source |
| For this analysis we will use the penguins dataset from the [palmerpenguins](https://allisonhorst.github.io/palmerpenguins/) package (Gorman, Williams, and Fraser 2014). |

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| Using the data without downloading it |
| Data were collected and made available by Dr. Kristen Gorman and the Palmer Station, Antarctica LTER, a member of the Long Term Ecological Research Network. |

## Loading packages and reading data

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| Using the data without downloading it |
| This same dataset is also available in the palmerpenguins package |

## Reading Data

head(penguins) |>   
 gt()

| species | island | bill\_length\_mm | bill\_depth\_mm | flipper\_length\_mm | body\_mass\_g | sex | year |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Adelie | Torgersen | 39.1 | 18.7 | 181 | 3750 | male | 2007 |
| Adelie | Torgersen | 39.5 | 17.4 | 186 | 3800 | female | 2007 |
| Adelie | Torgersen | 40.3 | 18.0 | 195 | 3250 | female | 2007 |
| Adelie | Torgersen | NA | NA | NA | NA | NA | 2007 |
| Adelie | Torgersen | 36.7 | 19.3 | 193 | 3450 | female | 2007 |
| Adelie | Torgersen | 39.3 | 20.6 | 190 | 3650 | male | 2007 |

## Cleaning Data

glimpse(penguins)

Rows: 344  
Columns: 8  
$ species <fct> Adelie, Adelie, Adelie, Adelie, Adelie, Adelie, Adel…  
$ island <fct> Torgersen, Torgersen, Torgersen, Torgersen, Torgerse…  
$ bill\_length\_mm <dbl> 39.1, 39.5, 40.3, NA, 36.7, 39.3, 38.9, 39.2, 34.1, …  
$ bill\_depth\_mm <dbl> 18.7, 17.4, 18.0, NA, 19.3, 20.6, 17.8, 19.6, 18.1, …  
$ flipper\_length\_mm <int> 181, 186, 195, NA, 193, 190, 181, 195, 193, 190, 186…  
$ body\_mass\_g <int> 3750, 3800, 3250, NA, 3450, 3650, 3625, 4675, 3475, …  
$ sex <fct> male, female, female, NA, female, male, female, male…  
$ year <int> 2007, 2007, 2007, 2007, 2007, 2007, 2007, 2007, 2007…

penguins |>   
 drop\_na() -> penguins\_no\_na  
  
penguins\_no\_na |>   
 head() |>   
 gt() |>   
 tab\_header(title = "Penguins Data After Removing NA's")

Table 1: Penguins Data After Removing NA's

| species | island | bill\_length\_mm | bill\_depth\_mm | flipper\_length\_mm | body\_mass\_g | sex | year |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Adelie | Torgersen | 39.1 | 18.7 | 181 | 3750 | male | 2007 |
| Adelie | Torgersen | 39.5 | 17.4 | 186 | 3800 | female | 2007 |
| Adelie | Torgersen | 40.3 | 18.0 | 195 | 3250 | female | 2007 |
| Adelie | Torgersen | 36.7 | 19.3 | 193 | 3450 | female | 2007 |
| Adelie | Torgersen | 39.3 | 20.6 | 190 | 3650 | male | 2007 |
| Adelie | Torgersen | 38.9 | 17.8 | 181 | 3625 | female | 2007 |

We have removed missing values here, which means that the data has now 333 rows. Note that previously there were 344 rows in the original data.[[1]](#footnote-48)

## Code Annotation

library(tidyverse)  
library(palmerpenguins)  
penguins |>  
 mutate(  
 bill\_ratio = bill\_depth\_mm / bill\_length\_mm,  
 bill\_area = bill\_depth\_mm \* bill\_length\_mm  
 )

Line 3

Take penguins, and then,

Lines 4-7

add new columns for the bill ratio and bill area.

# A tibble: 344 × 10  
 species island bill\_length\_mm bill\_depth\_mm flipper\_length\_mm body\_mass\_g  
 <fct> <fct> <dbl> <dbl> <int> <int>  
 1 Adelie Torgersen 39.1 18.7 181 3750  
 2 Adelie Torgersen 39.5 17.4 186 3800  
 3 Adelie Torgersen 40.3 18 195 3250  
 4 Adelie Torgersen NA NA NA NA  
 5 Adelie Torgersen 36.7 19.3 193 3450  
 6 Adelie Torgersen 39.3 20.6 190 3650  
 7 Adelie Torgersen 38.9 17.8 181 3625  
 8 Adelie Torgersen 39.2 19.6 195 4675  
 9 Adelie Torgersen 34.1 18.1 193 3475  
10 Adelie Torgersen 42 20.2 190 4250  
# ℹ 334 more rows  
# ℹ 4 more variables: sex <fct>, year <int>, bill\_ratio <dbl>, bill\_area <dbl>

# Charts by Species

[Figure 3](#fig-bi-dims-species) is a bar plot of species of penguins.

penguins |>   
 ggplot(aes(bill\_length\_mm, bill\_depth\_mm, color = species,  
 shape = species))+  
 geom\_point() +  
 theme\_minimal() +  
 scale\_color\_colorblind() +  
 labs(x = "Bill length (mm)",  
 y = "Bill depth (mm)")

|  |
| --- |
| Figure 3: Penguini bill dimensions |

# Tables

[Table 1](#tbl-penguins-top10) shows the first 10 penguins from the dataset.

penguins |>   
 slice\_head(n = 10) |>   
 select(species, island, bill\_length\_mm, bill\_depth\_mm) |>   
 gt()

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 1: Top 10 Penguins Sorted by Bill Lengths   | species | island | bill\_length\_mm | bill\_depth\_mm | | --- | --- | --- | --- | | Adelie | Torgersen | 39.1 | 18.7 | | Adelie | Torgersen | 39.5 | 17.4 | | Adelie | Torgersen | 40.3 | 18.0 | | Adelie | Torgersen | NA | NA | | Adelie | Torgersen | 36.7 | 19.3 | | Adelie | Torgersen | 39.3 | 20.6 | | Adelie | Torgersen | 38.9 | 17.8 | | Adelie | Torgersen | 39.2 | 19.6 | | Adelie | Torgersen | 34.1 | 18.1 | | Adelie | Torgersen | 42.0 | 20.2 | |

# How to publish online

1. Create your content in Quarto. You need at least three documents
   1. index.qmd
   2. another qmd file
   3. “\_quarto.yml” created in Text File.
2. Reload the4 project from the upper-right-hand corner. After this, you should see the “build” tab appear next to the environment tab.
3. Click “Render website” and confirm that you have a website with all the files combined.
4. Now it is time to publish
   1. Move to the terminal next to “Console” tab.
   2. Type “quarto publish quarto-pub” and follow the instructions on the pane.
   3. Go to your quarto-pub website and find it.

# Resources

* Authoring: <https://quarto.org/docs/authoring/markdown-basics.html>
* Creating a website: <https://quarto.org/docs/websites/>
* [Quarto Gallery](https://quarto.org/docs/websites/)
* Get started with Quarto | Mine Cetinkaya-Rundel: <https://www.youtube.com/watch?v=_f3latmOhew>
* Quarto for Academics | Mine Ãetinkaya-Rundel: <https://www.youtube.com/watch?v=EbAAmrB0luA&t=112s>

## References

Gorman, Kristen B., Tony D. Williams, and William R. Fraser. 2014. “Ecological Sexual Dimorphism and Environmental Variability Within a Community of Antarctic Penguins (Genus Pygoscelis).” Edited by André Chiaradia. *PLoS ONE* 9 (3): e90081. <https://doi.org/10.1371/journal.pone.0090081>.

1. Note that this removes any rows with missing values! [↑](#footnote-ref-48)