OSD2025 Quarto demo with knitr engine

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### Add a heading in your document

This is a sentence with some **bold text**, *italic text*, code, and a [link](https://quarto.org/).

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| Figure 1: The Quarto logo |

See [Figure 1](#fig-quarto) for the Quarto logo.

[Equation 1](#eq-mean) gives the formula for the population mean:

[Section 1](#sec-code) shows how to add R or Python code chunks.

The palmerpenguins package was developed by Horst, Hill, and Gorman (2020). We will create a document using Quarto (Allaire et al. 2025) and R (R Core Team 2024) or Python (Van Rossum and Drake 2009).

This sentence ends with a footnote.[[1]](#footnote-26)

## Add R/Python code chunks

## Add R code

library(palmerpenguins) # for data  
library(tidyverse) # for data wrangling and visualization  
library(knitr) # for tables  
  
ggplot(data = penguins,   
 aes(x = flipper\_length\_mm,   
 y = bill\_length\_mm)) +  
 geom\_point(aes(color = species,   
 shape = species))

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| Figure 2: Scatterplot of flipper and bill lengths in R |

## Add Python code

import numpy as np  
import matplotlib.pyplot as plt  
from palmerpenguins import load\_penguins  
  
penguins = load\_penguins()  
  
penguins['species\_color'] = penguins['species']  
penguins['species\_color'].replace(['Adelie', 'Chinstrap', 'Gentoo'],  
 ['red', 'green', 'blue'], inplace=True)  
  
penguins.plot.scatter(x='flipper\_length\_mm',   
 y='bill\_length\_mm',  
 c='species\_color')

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| Figure 3: Scatterplot of flipper and bill lengths in Python |

## Add inline code

The palmerpenguins package contains data for 344 penguins.

## Add tables

[Table 1](#tbl-md), [Table 2](#tbl-r), and [Table 3](#tbl-py) show different table options in Quarto.

## Markdown

| fruit | price |  
|--------|-------|  
| apple | 2.05 |  
| pear | 1.37 |  
| orange | 3.09 |  
  
: Fruit prices {#tbl-md .striped .hover}

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| Table 1: Fruit prices   | fruit | price | | --- | --- | | apple | 2.05 | | pear | 1.37 | | orange | 3.09 | |

## R

penguins %>%  
 group\_by(species) %>%  
 summarise(  
 `Mean bill length` = mean(bill\_length\_mm, na.rm = T),  
 `Min bill length` = min(bill\_length\_mm, na.rm = T),  
 `Max bill length` = max(bill\_length\_mm, na.rm = T),  
 `Mean flipper length` = mean(flipper\_length\_mm, na.rm = T),  
 `Min flipper length` = min(flipper\_length\_mm, na.rm = T),  
 `Max flipper length` = max(flipper\_length\_mm, na.rm = T),  
 `Correlation, r` = cor(flipper\_length\_mm, bill\_length\_mm, use = "complete")  
 ) %>%  
 kable(digits = c(2, 2, 2, 2, 2))

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| Table 2: Summary statistics for flipper and bill lengths   | species | Mean bill length | Min bill length | Max bill length | Mean flipper length | Min flipper length | Max flipper length | Correlation, r | | --- | --- | --- | --- | --- | --- | --- | --- | | Adelie | 38.79 | 32.1 | 46.0 | 189.95 | 172 | 210 | 0.33 | | Chinstrap | 48.83 | 40.9 | 58.0 | 195.82 | 178 | 212 | 0.47 | | Gentoo | 47.50 | 40.9 | 59.6 | 217.19 | 203 | 231 | 0.66 | |

## Python

from tabulate import tabulate  
from IPython.display import Markdown  
  
# Convert to markdown table  
Markdown(tabulate(penguins[["species", "island",   
 "bill\_length\_mm",   
 "flipper\_length\_mm"]].head(),   
 headers='keys', tablefmt='github'))

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| Table 3: First rows of penguins dataframe   |  | species | island | bill\_length\_mm | flipper\_length\_mm | | --- | --- | --- | --- | --- | | 0 | Adelie | Torgersen | 39.1 | 181 | | 1 | Adelie | Torgersen | 39.5 | 186 | | 2 | Adelie | Torgersen | 40.3 | 195 | | 3 | Adelie | Torgersen | nan | nan | | 4 | Adelie | Torgersen | 36.7 | 193 | |

## References

Allaire, J. J., Charles Teague, Carlos Scheidegger, Yihui Xie, Christophe Dervieux, and Gordon Woodhull. 2025. “Quarto.” <https://doi.org/10.5281/zenodo.5960048>.

Horst, Allison M, Alison Presmanes Hill, and Kristen B Gorman. 2020. *Allisonhorst/Palmerpenguins: V0.1.0*. Zenodo. <https://doi.org/10.5281/ZENODO.3960218>.

R Core Team. 2024. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.

Van Rossum, Guido, and Fred L. Drake. 2009. *Python 3 Reference Manual*. Scotts Valley, CA: CreateSpace.

1. This is an example footnote. [↑](#footnote-ref-26)