```r
# Assign each function a namespace
function_a <- expression(x ^ 2)
function_b <- expression(2 * (3 * a + 2) ^ 4 - 5)
function_c <- expression((-4 * t) / (t ^ 2 + 1) ^ 3)

# Find derivative of each function
derivative_a <- D(function_a, 'x')
derivative_b <- D(function_b, 'a')
derivative_c <- D(function_c, 't')

# Verify output of derivatives
derivative_a
```

```
## 2 * x
```

```r
derivative_b
```

```
## 2 * (4 * (3 * (3 * a + 2)^3))
```

```r
derivative_c
```

```
## -(4/(t^2 + 1)^3 + (-4 * t) * (3 * (2 * t * (t^2 + 1)^2))/((t^2 +
##     1)^3)^2)
```

```r
# Set variable values to determine slope at point on the function
x <- 3
a <- 1.2
t <- 0

# Verify output of derivatives
eval(derivative_a)
```

```
## [1] 6
```

```r
eval(derivative_b)
```

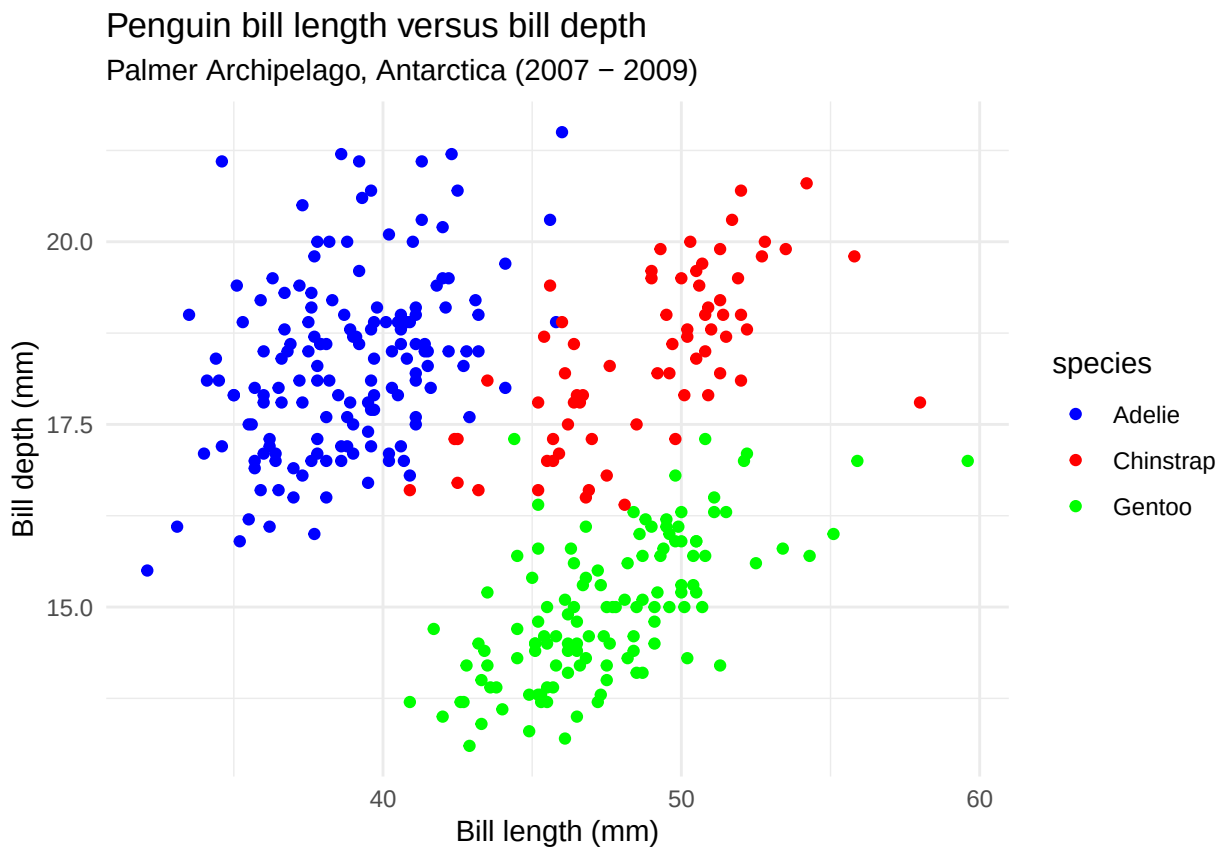
```
## [1] 4214.784
```

```r
eval(derivative_c)
```

```
## [1] -4
```

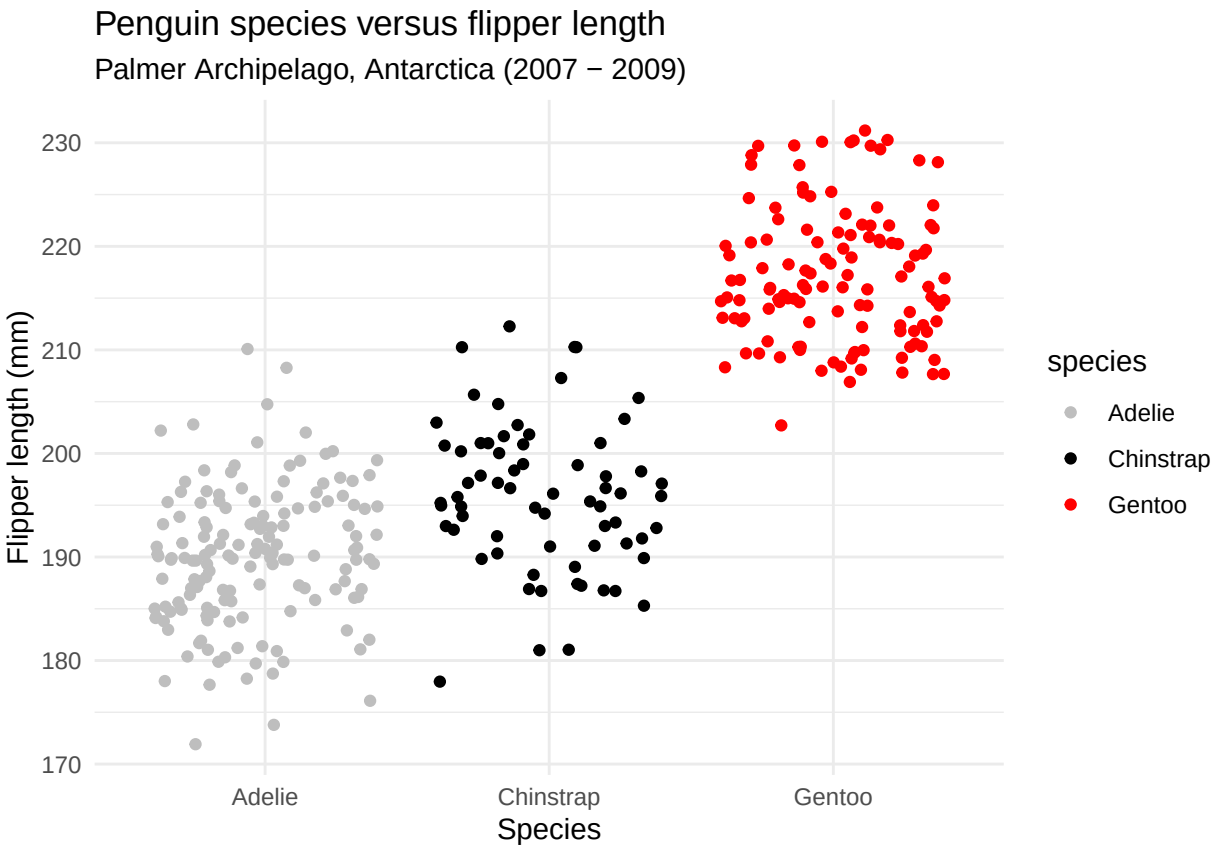
```r
# Make scatter plot of bill length versus bill depth for penguins sampled
ggplot(data = penguins, aes(x = bill_length_mm, y = bill_depth_mm)) +
  geom_point(aes(color = species)) +
  scale_color_manual(values = c('blue', 'red', 'green')) +
  labs(x = 'Bill length (mm)',
       y = 'Bill depth (mm)',
       title = 'Penguin bill length versus bill depth',
       subtitle = 'Palmer Archipelago, Antarctica (2007 - 2009)') +
  theme_minimal()
```

```
## Warning: Removed 2 rows containing missing values (`geom_point()`).
```




```
ggplot(data = penguins, aes(x = species, y = flipper_length_mm)) +
  geom_jitter(aes(color = species)) +
  scale_colour_manual(values = c('grey', 'black', 'red')) +
  labs(x = 'Species',
       y = 'Flipper length (mm)',
       title = 'Penguin species versus flipper length',
       subtitle = 'Palmer Archipelago, Antarctica (2007 - 2009)') +
  theme_minimal()
```

```
## Warning: Removed 2 rows containing missing values (`geom_point()`).
```


Penguin species versus flipper length
Palmer Archipelago, Antarctica (2007 − 2009)
Flipper length (mm)
230
220
210
200
190
180
170
Adelie
Chinstrap
Gentoo
Species
species
Adelie
Chinstrap
Gentoo