Assignment 9: Birth Times

FirstName LastName

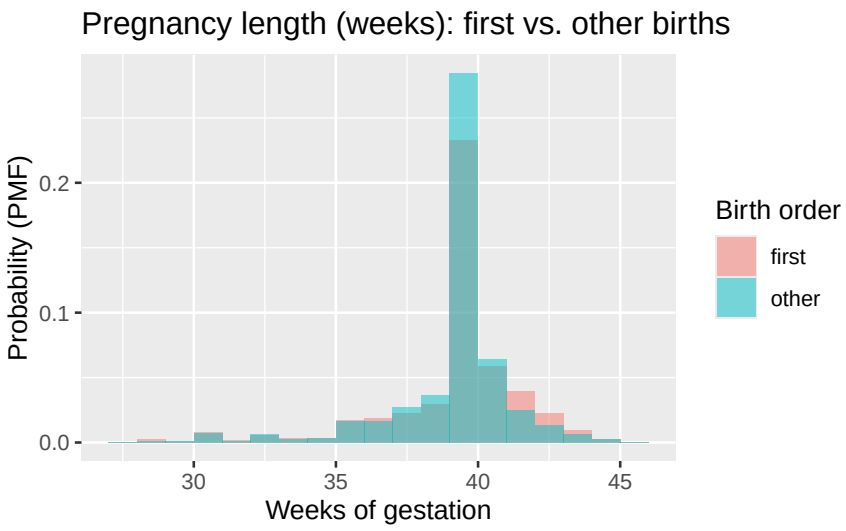
2025-10-22

Exercise 1

```
live_births <- dplyr::filter(nsfg6, outcome == 1)
pregnancy_length <- dplyr::mutate(
  live_births,
  birth_order = dplyr::if_else(birthord == 1, "first", "other")
) |>
  dplyr::select(prglngth, birth_order)
```

Exercise 2

```
## Warning: Removed 80 rows containing non-finite outside the scale range
## (‘stat_bin()‘).
```



Exercise 3

birth_order	mean	median	sd	IQR	min	max
first	38.60095	39	2.791901	1	0	48
other	38.52291	39	2.615852	0	4	50

Exercise 4

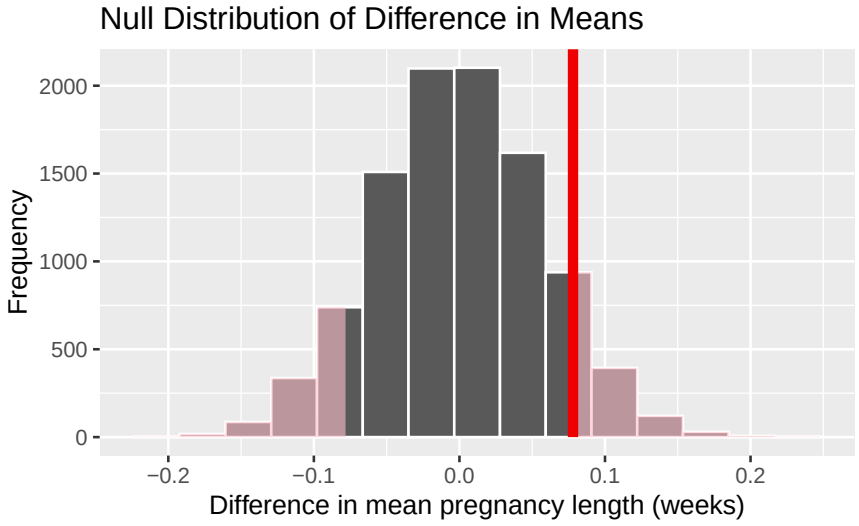
```
## Message: The independence null hypothesis does not inform calculation of the
## observed statistic (a difference in means) and will be ignored.
```

stat
0.0780373

-The test statistic is the difference in average pregnancy length between first and other births. The null hypothesis says there is no difference between the two groups. The alternative hypothesis says there is some difference. I used a two-sided test because the direction of the difference is not known.

Exercise 5

p_value
0.166



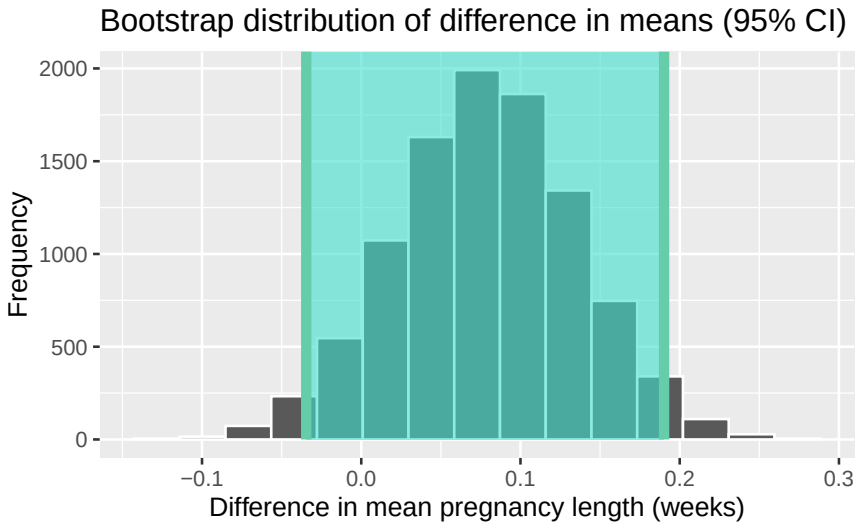
Exercise 6

lower_ci	upper_ci
-0.0345438	0.1901824

```
## Warning: Unknown or uninitialised column: `lower`.
```

```
## Warning: Unknown or uninitialised column: `upper`.
```

```
## logical(0)
```



Exercise 7

```
## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS
## Based on 5000 bootstrap replicates
##
## CALL :
## boot::boot.ci(boot.out = cohens_d_bootstrap_sim, type = c("perc"))
##
## Intervals :
## Level     Percentile
## 95%   (-0.0124,  0.0708 )
## Calculations and Intervals on Original Scale
##
## Response variable
## prglngth
##
## Explanatory variable
## birth_order
##
## Explanatory category with larger mean
```

```
## first
##
## Explanatory category with smaller mean
## other
##
## Cohen's d observed value
## 0.0288791
```

```
## Warning: Using 'size' aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use 'linewidth' instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```

```
## Warning: The dot-dot notation ('..density..') was deprecated in ggplot2 3.4.0.
## i Please use 'after_stat(density)' instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```