Untitled

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```r
library('ggvis')
library('tidyverse')
```

```
## -- Attaching core tidyverse packages ----------------------- tidyverse 2.0.0 --
## v dplyr     1.1.4      v readr     2.1.5
## v forcats   1.0.0      v stringr   1.5.1
## v ggplot2   3.5.1      v tibble    3.2.1
## v lubridate 1.9.3      v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------- tidyverse_conflicts() --
## x dplyr::filter()     masks stats::filter()
## x dplyr::lag()        masks stats::lag()
## x ggplot2::resolution() masks ggvis::resolution()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```r
library('ggplot2')
library('stats')
library('dplyr')
library('corrplot')
```

```
## corrplot 0.94 loaded
```

```r
# read the file
fast_food= read.csv("C:\\Users\\Vrinda\\Downloads\\FastFoodNutritionScraped20241011V2.csv", header=T, na
```

State the hypothesis

1. Null Hypothesis(Ho) - Mean Trans Fat of the two companies is equal. i.e.$\mu 1 = \mu 2$

2. Alternative Hypothesis(H1) - Mean Trans fat of the two companies are unequal i.e.$\mu 1 \neq \mu 2$

```r
#visualisation to see how trans fat is different based on compnay
violin_plot <- ggplot(fast_food, aes(x = Company, y = Trans.Fat..g., fill = Company)) +
geom_violin(trim = FALSE, draw_quantiles = c(0.25, 0.5, 0.75), alpha = 0.7) +
geom_boxplot(width = 0.1, fill = "white", color = "black", outlier.shape = NA) +
labs(title = "Violin Plot of Trans Fat by Restaurant",
x = "Company",
y = "Trans Fat",
fill = "Company") +
theme_minimal()
print(violin_plot)
```

Violin Plot of Trans Fat by Restaurant
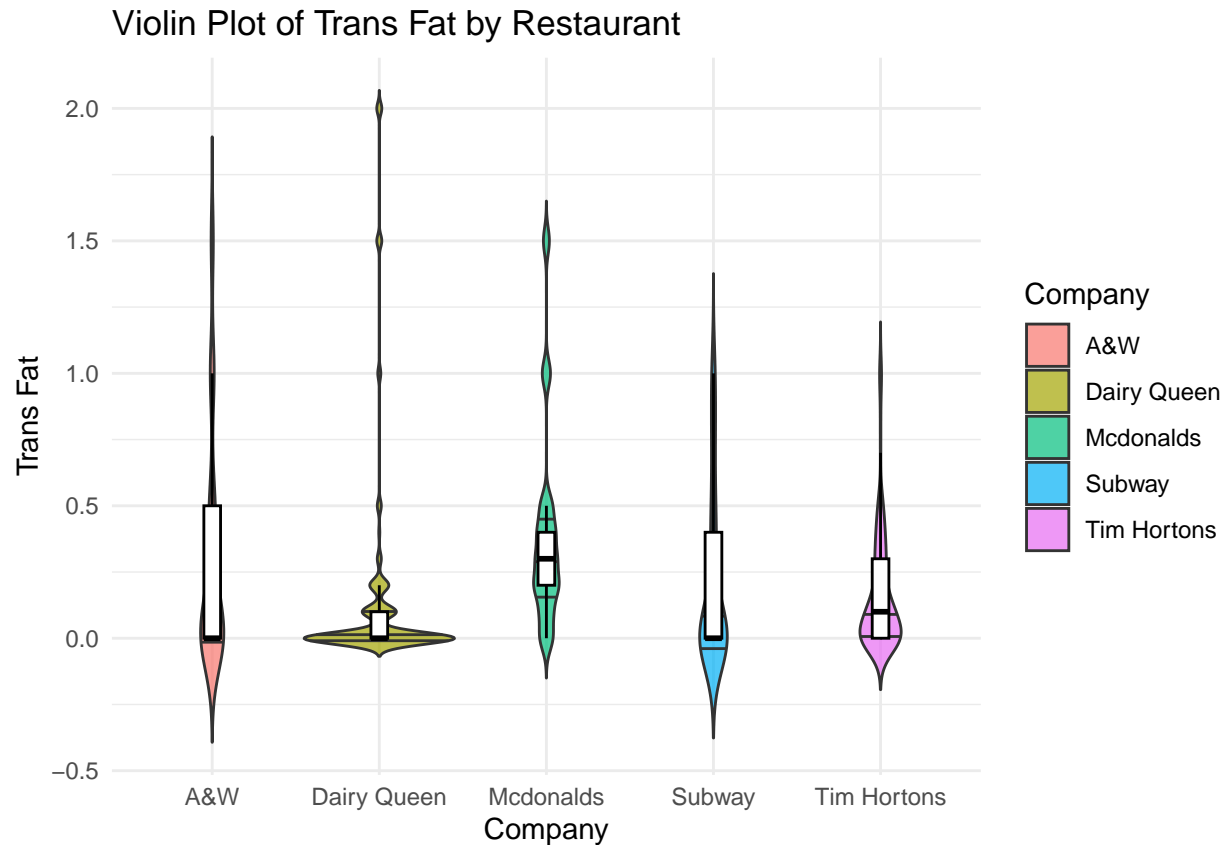

```r
#splitting the data based on company wise
company1_data <- fast_food$Trans.Fat..g.[fast_food$Company == 'A&W']
company2_data <- fast_food$Trans.Fat..g.[fast_food$Company == 'Dairy Queen']
company3_data <- fast_food$Trans.Fat..g.[fast_food$Company == 'Mcdonalds']
company4_data <- fast_food$Trans.Fat..g.[fast_food$Company == 'Subway']
company5_data <- fast_food$Trans.Fat..g.[fast_food$Company == 'Tim Hortons']


#check the t- test
# for A&W and Dairy Queen
t.test(company1_data, company2_data, alternative = "two.sided")
```

```
##
##  Welch Two Sample t-test
##
## data:  company1_data and company2_data
## t = 3.1064, df = 198.83, p-value = 0.002171
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  0.05414848 0.24240408
## sample estimates:
## mean of x mean of y
## 0.2873874 0.1391111
```

As p-value is less than significance level typically 0.05 , We are rejecting the null hypothesis Means there is

a significant difference in Trans Fat between A&W and Dairy Queen.