

## 1 Setup

1. If you have not already done so, download and set up git by following the instructions here.
2. If you have not already done so, download and set up R and RStudio by following the instructions here. Open RStudio.
3. Create a folder on your computer called **stat-961-fall-2021**, and navigate to this directory in the RStudio "Files" pane. Click "More" -> "Set As Working Directory".
4. If you are on a Windows machine, go to Tools -> Global Options -> Terminal. In the drop down box for "New terminals open with", select "Git Bash".
5. Open the Terminal in RStudio, click the down arrow, and click "Go to Current Directory."
6. In the terminal, type

```
git clone https://github.com/katsevich-teaching/stat-961-fall-2021.git
```

This will copy the STAT 961 Github repository onto your local computer.

7. On Github, create a repository named **stat-961-fall-2021**.
8. Point push remote to above repo.
9. Install the **knitr** package by typing at the console:

```
install.packages("knitr")
```

10. Install the TinyTeX LaTeX distribution by typing at the console:

```
install.packages('tinytex')  
tinytex::install_tinytex()
```

11. Set the appropriate Sweave options.
12. Locate and open the file **homework-0/homework-0.Rnw**. Select "R Sweave" from the menu in the bottom right-hand corner of the editor pane.
13. Change "FirstName LastName" to your first and last name in line 24.
14. Click "Compile PDF" near the top of the editor pane, and make sure the PDF compiled.
15. Commit using the following command:
16. Push using the following command:
17. Submit compiled PDF to Gradescope.

## 2 LaTeX tutorial

1. Learn about LaTeX basics like formulas, cross-referencing

## 3 R tutorial

## 4 Rnw tutorial

**Problem 1.** How to reference R values within  $\text{\LaTeX}$  using  $\text{\textbackslash Sexpr\{}}$ .

**Solution 1.** Here is some R code...

```
x <- c(1, 2, 3, 4, 5)
y <- c(1, 2, 1.5, 3.5, 2.5)
x.mean <- mean(x); x.sd <- sd(x)
y.mean <- mean(y); y.sd <- sd(y)
```

The mean for  $x$  is 3 and the standard deviation is 1.58. The mean for  $y$  is 2.1 and the standard deviation is 0.96.

**Problem 2.** How to add regression tables to  $\text{\LaTeX}$  with  $xtable()$ .

**Solution 2.** Run the regression using the data above...

```
reg <- lm(y ~ x)
```

Table 1: This is a caption				
	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.7500	0.7837	0.96	0.4092
x	0.4500	0.2363	1.90	0.1530

Call: `lm(formula = y ~ x)`

Coefficients: (Intercept) x 0.75 0.45

**Problem 3.** How to add pdf plots to  $\text{\LaTeX}$  using knitr.

**Solution 3.** Still using the same data...

```
data <- data.frame(cbind(y, x))
library(ggplot2)
ggplot(data = data, aes(x = x, y = y)) +
  geom_point(shape = 1) +
  geom_smooth(method = lm) +
  ggtitle("This is a title")
```

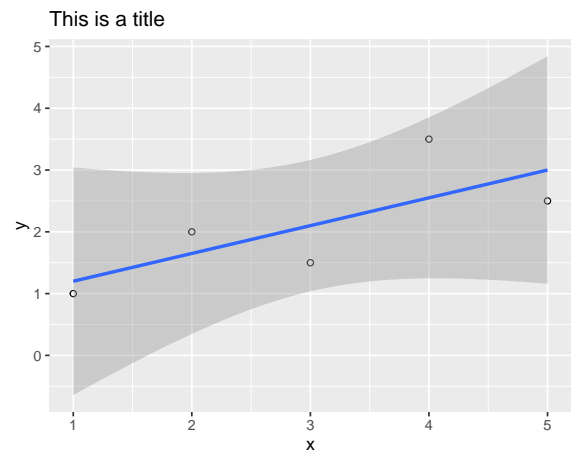


Figure 1: This is a caption