R version 4.0.2 (2020-06-22) -- "Taking Off Again"

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Platform: x86\_64-w64-mingw32/x64 (64-bit)

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Natural language support but running in an English locale

R is a collaborative project with many contributors.

Type 'contributors()' for more information and

'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or

'help.start()' for an HTML browser interface to help.

Type 'q()' to quit R.

> tinytex::install\_tinytex()

trying URL 'https://yihui.org/tinytex/TinyTeX-1.zip'

Content length 126 bytes

downloaded 94.3 MB

Use of uninitialized value in bitwise or (|) at C:\Users\binay\AppData\Roaming\TinyTeX\texmf-dist\scripts\texlive\tlmgr.pl line 1510.

tlmgr conf auxtrees add "C:/PROGRA~1/R/R-40~1.2/share/texmf"

Warning message:

In file(con, "r") :

cannot open file '/texmf-dist/web2c/fmtutil.cnf': No such file or directory

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> knitr::opts\_chunk$set(echo = TRUE)

> options(tinytex.verbose = TRUE)

> ## Set the working directory to the root of your DSC 520 directory

> setwd("C:/Users/binay/Documents/GitHub/dsc520/completed/assignment05/Exercise\_09/")

> ## Load the `completed/Exercise 9/student\_survey.csv` to

> students\_df <- read.csv("student-survey.csv")

> ## Use R to calculate the covariance of the Survey variables and provide an

> ## explanation of why you would use this calculation and what the results

> ## indicate.

> cov(students\_df)

TimeReading TimeTV Happiness Gender

TimeReading 3.05454545 -20.36363636 -10.350091 -0.08181818

TimeTV -20.36363636 174.09090909 114.377273 0.04545455

Happiness -10.35009091 114.37727273 185.451422 1.11663636

Gender -0.08181818 0.04545455 1.116636 0.27272727

> # default method is Pearson

> cor(students\_df)

TimeReading TimeTV Happiness Gender

TimeReading 1.00000000 -0.883067681 -0.4348663 -0.089642146

TimeTV -0.88306768 1.000000000 0.6365560 0.006596673

Happiness -0.43486633 0.636555986 1.0000000 0.157011838

Gender -0.08964215 0.006596673 0.1570118 1.000000000

> #cor(students\_df, method = "spearman")

> #cor(students\_df, method = "kendall")

> # default is Pearson

> cor(students\_df$TimeReading, students\_df$TimeTV)

[1] -0.8830677

> # This provides more details

> cor.test(students\_df$TimeReading, students\_df$TimeTV)

Pearson's product-moment correlation

data: students\_df$TimeReading and students\_df$TimeTV

t = -5.6457, df = 9, p-value = 0.0003153

alternative hypothesis: true correlation is not equal to 0

95 percent confidence interval:

-0.9694145 -0.6021920

sample estimates:

cor

-0.8830677

> # This provides more details

> cor.test(students\_df$TimeReading, students\_df$TimeTV, conf.level = 0.99)

Pearson's product-moment correlation

data: students\_df$TimeReading and students\_df$TimeTV

t = -5.6457, df = 9, p-value = 0.0003153

alternative hypothesis: true correlation is not equal to 0

99 percent confidence interval:

-0.9801052 -0.4453124

sample estimates:

cor

-0.8830677

> # Calculating Correlation Coefficient

> cor(students\_df)

TimeReading TimeTV Happiness Gender

TimeReading 1.00000000 -0.883067681 -0.4348663 -0.089642146

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Happiness -0.43486633 0.636555986 1.0000000 0.157011838

Gender -0.08964215 0.006596673 0.1570118 1.000000000

> # Calculating coefficent of determination - R^2

> cor(students\_df)^2

TimeReading TimeTV Happiness Gender

TimeReading 1.000000000 0.7798085292 0.18910873 0.0080357143

TimeTV 0.779808529 1.0000000000 0.40520352 0.0000435161

Happiness 0.189108726 0.4052035234 1.00000000 0.0246527174

Gender 0.008035714 0.0000435161 0.02465272 1.0000000000

> library(ggm)

> # Partial Correlation, controlling variable is Gender

> pcor(c("TimeReading","TimeTV", "Gender"), var(students\_df))

[1] -0.8860628

> # coefficient of determination - R^2

> pcor(c("TimeReading","TimeTV", "Gender"), var(students\_df))^2

[1] 0.7851073