STS 122 - Lab 1

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Working with Data Frames

Scenario

You are the proprietor of a very small bookstore. You currently have the following books:

- The Waste Land by T.S. Eliot (published 1922; 10 copies in stock; \$8 each)
- Lord of the Flies by William Golding (published 1954; 16 copies in stock; \$8 each)
- Grapes of Wrath by John Steinbeck (published 1939; 5 copies in stock; \$10 each)
- Pride and Prejudice by Jane Austen (published 1813; 7 copies in stock; \$15 each)
- Frankenstein by Mary Shelley (published 1818; 15 copies in stock; \$5 each)
- Little Women by Louisa May Alcott (published 1868; 9 copies in stock; \$20 each)
- Jane Eyre by Charlotte Bronte (published 1847; 12 copies in stock; \$25 each)
- The Things They Carried by Tim O'Brien (published 1990; 2 copies in stock; \$17 each)
- Huckleberry Finn by Mark Twain (published 1884; 21 copies in stock; \$12 each)
- Siddhartha by Hermann Hesse (published 1922; 4 copies in stock; \$22 each)

Inventory

```
title <- c("The Waste Land", "Lord of the Flies", "Grapes of Wrath", "Pride and Prejudice", "Frankenste author <- c("T.S. Eliot", "William Golding", "John Steinbeck", "Jane Austen", "Mary Shelley", "Louisa M pyear <- c(1922,1954,1939,1813,1818,1868,1847,1990,1884,1922)
nstock <- c(10,16,5,7,15,9,12,2,21,4)
price <- c(8,8,10,15,5,20,25,17,12,22)
bookstore <- data.frame(title, author, pyear, nstock, price)
```

Organization

```
library(dplyr)

## Warning: package 'dplyr' was built under R version 4.0.3

##

## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':

##

## filter, lag

## The following objects are masked from 'package:base':

##

## intersect, setdiff, setequal, union

books_sorted <- bookstore %>% arrange(pyear, price)
books_sorted
```

##		title	author	pyear	nstock	price
##	1	Pride and Prejudice	Jane Austen	1813	7	15
##	2	Frankenstein	Mary Shelley	1818	15	5
##	3	Jane Eyre	Charlotte Bronte	1847	12	25
##	4	Little Women	Louisa May Alcott	1868	9	20
##	5	Huckleberry Finn	Mark Twain	1884	21	12
##	6	The Waste Land	T.S. Eliot	1922	10	8
##	7	Siddhartha	Hermann Hesse	1922	4	22
##	8	Grapes of Wrath	John Steinbeck	1939	5	10
##	9	Lord of the Flies	William Golding	1954	16	8
##	10	The Things They Carried	Tim O'Brien	1990	2	17

Sale

Your bookstore is having a sale!

- Books published before 1900 are 25% off
- Books with more than 10 copies in stock are 40% off
- Books published before 1900 with more than 10 copies in stock are 50% off

```
## 3
                                 John Steinbeck 1939
                                                                        10.00
              Grapes of Wrath
                                                                10
## 4
         Pride and Prejudice
                                    Jane Austen 1813
                                                           7
                                                                15
                                                                        11.25
## 5
                Frankenstein
                                                                        2.50
                                   Mary Shelley 1818
                                                          15
                                                                5
## 6
                 Little Women Louisa May Alcott
                                                           9
                                                                20
                                                                        15.00
                                                1868
## 7
                    Jane Eyre Charlotte Bronte
                                                 1847
                                                          12
                                                                25
                                                                        12.50
## 8
     The Things They Carried
                                    Tim O'Brien 1990
                                                           2
                                                                17
                                                                        17.00
## 9
            Huckleberry Finn
                                     Mark Twain 1884
                                                          21
                                                                12
                                                                        6.00
## 10
                   Siddhartha
                                  Hermann Hesse 1922
                                                           4
                                                                        22.00
                                                                22
```

Sale price check

```
sale <- sale %>% mutate(sale_percent = 1 - (sale_price / price))
sale
```

```
##
                        title
                                          author pyear nstock price sale_price
## 1
               The Waste Land
                                     T.S. Eliot 1922
                                                           10
## 2
                                                                  8
            Lord of the Flies
                                William Golding 1954
                                                           16
                                                                          4.80
              Grapes of Wrath
## 3
                                  John Steinbeck 1939
                                                            5
                                                                 10
                                                                         10.00
## 4
          Pride and Prejudice
                                    Jane Austen 1813
                                                            7
                                                                 15
                                                                         11.25
## 5
                 Frankenstein
                                   Mary Shelley 1818
                                                           15
                                                                  5
                                                                          2.50
## 6
                 Little Women Louisa May Alcott
                                                            9
                                                 1868
                                                                 20
                                                                         15.00
## 7
                    Jane Eyre Charlotte Bronte
                                                 1847
                                                           12
                                                                 25
                                                                         12.50
                                                           2
                                    Tim O'Brien
                                                                         17.00
## 8
      The Things They Carried
                                                 1990
                                                                 17
## 9
             Huckleberry Finn
                                     Mark Twain 1884
                                                           21
                                                                 12
                                                                         6.00
## 10
                   Siddhartha
                                  Hermann Hesse 1922
                                                            4
                                                                 22
                                                                         22.00
##
      sale_percent
## 1
              0.00
## 2
              0.40
## 3
              0.00
              0.25
## 4
## 5
              0.50
## 6
              0.25
## 7
              0.50
## 8
              0.00
## 9
              0.50
## 10
              0.00
```

Sale list

```
salebooks <- sale %>% filter(sale_percent > 0) %>% select(author, title, sale_price)
salebooks
```

```
##
                author
                                      title sale price
## 1
       William Golding
                         Lord of the Flies
                                                  4.80
## 2
           Jane Austen Pride and Prejudice
                                                 11.25
                              Frankenstein
                                                  2.50
## 3
          Mary Shelley
## 4 Louisa May Alcott
                              Little Women
                                                 15.00
                                                 12.50
## 5 Charlotte Bronte
                                  Jane Eyre
## 6
            Mark Twain
                          Huckleberry Finn
                                                  6.00
```