Worksheet 4A

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```
#1.
sframe <- data.frame(</pre>
Shoe_size = c(6.5, 9.0, 8.5, 8.5, 10.5, 7.0, 9.5, 9.0, 13.0, 7.5, 10.5, 8.5, 12.0, 10.5, 13.0, 11.5, 8.5
 \text{Height} = \texttt{c(66.0, 68.0, 64.5, 65.0, 70.0, 64.0, 70.0, 71.0, 72.0, 64.0, 74.5, 67.0, 71.0, 71.0, 77.0, 72.0, 72.0, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5, 74.5,
sframe
##
                            Shoe_size Height Gender
## 1
                                                      6.5
                                                                                 66.0
## 2
                                                      9.0
                                                                                  68.0
## 3
                                                      8.5
                                                                                  64.5
                                                                                                                               F
## 4
                                                      8.5
                                                                                  65.0
                                                                                                                               F
## 5
                                                  10.5
                                                                                  70.0
                                                      7.0
                                                                                                                              F
## 6
                                                                                  64.0
                                                                                                                               F
## 7
                                                      9.5
                                                                                  70.0
## 8
                                                      9.0
                                                                                 71.0
                                                                                                                               F
## 9
                                                  13.0
                                                                                 72.0
                                                                                                                               М
                                                     7.5
## 10
                                                                                  64.0
                                                                                                                               F
## 11
                                                  10.5
                                                                                  74.5
                                                                                                                               Μ
```

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

8.5

12.0

10.5

13.0

11.5

8.5

5.0

10.0

6.5

7.5

8.5

10.5

8.5

10.5

11.0

9.0

13.0

67.0

71.0

71.0

77.0

72.0

59.0

62.0

72.0

66.0

64.0

67.0

73.0

69.0

72.0

70.0

69.0

70.0

F

Μ

М

Μ

М

F

Μ

F

F

М

М

F

Μ

М

М

a.

The data contains two sets of observations for shoe size, height, and gender.

b.

```
males <- sframe[sframe$Gender == "M", c("Shoe_size", "Height")]</pre>
females <- sframe[sframe$Gender == "F", c("Shoe_size", "Height")]</pre>
males
##
      Shoe_size Height
## 5
           10.5
                  70.0
## 9
           13.0
                  72.0
## 11
           10.5
                  74.5
## 13
           12.0
                  71.0
           10.5
## 14
                  71.0
## 15
           13.0
                  77.0
## 16
           11.5
                  72.0
## 19
           10.0
                  72.0
           8.5
                  67.0
## 22
## 23
           10.5
                  73.0
## 25
           10.5
                  72.0
## 26
           11.0
                  70.0
## 27
            9.0
                  69.0
           13.0
## 28
                  70.0
females
##
      Shoe_size Height
## 1
            6.5
                   66.0
## 2
            9.0
                  68.0
## 3
            8.5
                  64.5
## 4
            8.5
                  65.0
            7.0
## 6
                  64.0
## 7
            9.5
                  70.0
            9.0
                  71.0
## 8
## 10
            7.5
                  64.0
## 12
            8.5
                  67.0
## 17
            8.5
                  59.0
## 18
            5.0
                  62.0
## 20
            6.5
                  66.0
## 21
            7.5
                  64.0
## 24
            8.5
                  69.0
```