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## Section 3 Assessment

For questions 1-8, load the **dslabs** dataset `heights`:

```
library(dslabs)
data(heights)
options(digits = 3)    # report 3 significant digits for all answers
```

### Question 1

1/1 point (graded)

First, determine the average height in this dataset. Then create a logical vector `ind` with the indices for those individuals who are above average height.

How many individuals in the dataset are above average height?



You have used 1 of 10 attempts

### Question 2

1/1 point (graded)

How many individuals in the dataset are above average height and are female?



You have used 1 of 10 attempts



### Question 3

1/1 point (graded)

If you use `mean` on a logical vector, it returns the proportion of observations that are TRUE.

What proportion of individuals in the dataset are female?

(Report 3 significant digits)



Submit

You have used 1 of 10 attempts

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### Question 4

This question takes you through three steps to determine the sex of the individual with the minimum height.

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#### Question 4a

1/1 point (graded)

Determine the minimum height in the `heights` dataset.



Submit

You have used 1 of 10 attempts

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#### Question 4b

1/1 point (graded)

Use the `match()` function to determine the index of the individual with the minimum height.



Submit

You have used 1 of 10 attempts

## Question 4c

1/1 point (graded)

Subset the `sex` column of the dataset by the index in 4b to determine the individual's sex.

Male



Submit

You have used 1 of 1 attempt

## Question 5

This question takes you through three steps to determine how many of the integer height values between the minimum and maximum heights are not actual heights of individuals in the heights dataset.

## Question 5a

1/1 point (graded)

Determine the maximum height.  
(Report 3 significant digits.)

82.7



82.7

Submit

You have used 1 of 10 attempts

## Question 5b

1/1 point (graded)

Which integer values are between the maximum and minimum heights? For example, if the minimum height is 10.5 and the maximum height is 20.2, your answer should be `x <- 11:20` to capture the integers.

Write code to create a vector `x` that includes the *integers* between the minimum and maximum heights.

There are multiple ways to solve this problem, but the grader expects you to use the format in the problem description.



x <- 50:82



Submit

You have used 2 of 10 attempts

## Question 5c

1/1 point (graded)

How many of the integers in x are NOT heights in the dataset?

(Use the `sum()` and `%in%` functions in addition to the `!` operator.)

3



3

Submit

You have used 3 of 10 attempts

## Question 6

Using the `heights` dataset, create a new column of heights in centimeters named `ht_cm`. Recall that 1 inch =

2.54 centimeters. Save the resulting dataset as `heights2`.

## Question 6a

1/1 point (graded)

What is the height in centimeters of the 18th individual (index 18)?

163



163

Submit

You have used 1 of 10 attempts

## Question 6b

1/1 point (graded)

What is the mean height in centimeters?



174



174

Submit

You have used 1 of 10 attempts

---

Create a data frame `females` by filtering the `heights2` data to contain only female individuals.

---

## Question 7a

1/1 point (graded)

How many females are in the `heights2` dataset?

238



238

Submit

You have used 1 of 10 attempts

## Question 7b

1/1 point (graded)

What is the mean height of the females in centimeters?

165



165

Submit

You have used 1 of 10 attempts

## Question 8

1/1 point (graded)

The `olive` dataset in **dslabs** contains composition in percentage of eight fatty acids found in the lipid fraction of 572 Italian olive oils:



```
library(dslabs)
data(olive)
head(olive)
```

Plot the percent palmitic acid versus palmitoleic acid in a scatterplot. What relationship do you see?

- ☐ There is no relationship between palmitic and palmitoleic.
- ☒ There is a positive linear relationship between palmitic and palmitoleic. ✓
- ☐ There is a negative linear relationship between palmitic and palmitoleic.
- ☐ There is a positive exponential relationship between palmitic and palmitoleic.
- ☐ There is a negative exponential relationship between palmitic and palmitoleic.

Submit

You have used 1 of 2 attempts

## Question 9

1/1 point (graded)

Create a histogram of the percentage of eicosenoic acid in `olive`.

Which of the following is true?

- ☒ Most olive oils have no eicosenoic acid. ✓
- ☐ Most olive oils have 0.5% or greater eicosenoic acid.
- ☐ Most olive oils have around 0.3% eicosenoic acid.
- ☐ There are equal numbers of olive oils with no eicosenoic acid and 0.5% or greater eicosenoic acid.

Submit

You have used 1 of 2 attempts



# Question 10

2/2 points (graded)

Make a boxplot of palmitic acid percentage in olive with separate distributions for each region.

Which region has the highest median palmitic acid percentage?

Southern Italy  

Which region has the most variable palmitic acid percentage?

Southern Italy  

Submit

 You have used 1 of 2 attempts

