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# Yannique Hecht
# Harvardx: PH125.3 - (3) Data Science: Probability
# SECTION 2: CONTINUOUS PROBABILITY
# ASSESSMENTS


# # # ASSESSMENT 2.1: CONTINUOUS PROBABILITY - DATA CAMP

# # EXERCISE 1 - Distribution of female heights - 1
# Assign a variable 'female_avg' as the average female height.
████████████████

# Assign a variable 'female_sd' as the standard deviation for female
 heights.
████████████

# Using variables 'female_avg' and 'female_sd', calculate the
 probability that a randomly selected female is shorter than 5 feet.
 Print this value to the consol
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# # EXERCISE 2 - Distribution of female heights - 2
# Assign a variable 'female_avg' as the average female height.
████████████████

# Assign a variable 'female_sd' as the standard deviation for female
 heights.
████████████

# Using variables 'female_avg' and 'female_sd', calculate the
 probability that a randomly selected female is 6 feet or taller.
 Print this value to the console.
██████████████████████████████████████

# # EXERCISE 3 - Distribution of female heights - 3
# Assign a variable 'female_avg' as the average female height.
████████████████

# Assign a variable 'female_sd' as the standard deviation for female
 heights.
████████████

# Using variables 'female_avg' and 'female_sd', calculate the
 probability that a randomly selected female is between the desired
 height range. Print this value to the console.
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# # EXERCISE 4 - Distribution of female heights - 4
# Assign a variable 'female_avg' as the average female height.
 Convert this value to centimeters.
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# Assign a variable 'female_sd' as the standard deviation for female
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heights. Convert this value to centimeters.

█████████████████

Using variables 'female_avg' and 'female_sd', calculate the
 probability that a randomly selected female is between the desired
 height range. Print this value to the console.

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EXERCISE 5 - Probability of 1 SD from average
Assign a variable 'female_avg' as the average female height.

█████████████████

Assign a variable 'female_sd' as the standard deviation for female
 heights.

██████████████

To a variable named 'taller', assign the value of a height that is
 one SD taller than average.

██████████████████████████

To a variable named 'shorter', assign the value of a height that is
 one SD shorter than average.

███████████████████████

Calculate the probability that a randomly selected female is
 between the desired height range. Print this value to the console.

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EXERCISE 6 - Distribution of male heights
Assign a variable 'male_avg' as the average male height.

████████████████

Assign a variable 'male_sd' as the standard deviation for male
 heights.

███████████

Determine the height of a man in the 99th percentile of the
 distribution.

█████████████████████████

EXERCISE 7 - Distribution of IQ scores
The variable `B` specifies the number of times we want the
 simulation to run.

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Use the `set.seed` function to make sure your answer matches the
 expected result after random number generation.

██████████████

Create an object called `highestIQ` that contains the highest IQ
 score from each random distribution of 10,000 people.

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Make a histogram of the highest IQ scores.

ASSESSMENT 2.2: CONTINUOUS PROBABILITY - Questions 1 and 2: ACT scores, part 1

EXERCISE 1a -

EXERCISE 1b -

EXERCISE 1c -

EXERCISE 1d -

EXERCISE 1e -

EXERCISE 2 -

ASSESSMENT 2.2: CONTINUOUS PROBABILITY - Questions 3 and 4: ACT scores, part 2

EXERCISE 3a -

EXERCISE 3b -

EXERCISE 3c -

EXERCISE 4a -

EXERCISE 4b -

EXERCISE 4c -

EXERCISE 4d -