# Module 7.4 Data Structures - Tuples: Coding Questions

## Question 1: Write a function that takes a tuple of numbers and returns the sum and average as a tuple.

Hint: Iterate over the tuple to calculate the sum, then compute the average using the sum and the length of the tuple.

## Question 2: Create a function to convert a list of names into a tuple of names that start with a certain letter.

Hint: Use a loop or list comprehension with a conditional to filter names, then convert the result to a tuple.

## Question 3: Implement a function that takes a tuple of coordinates and returns a tuple with them scaled by a factor.

Hint: Use a loop or tuple comprehension to multiply each coordinate by the factor.

## Question 4: Write a function that merges two tuples of equal length into a tuple of pairs.

Hint: Use the zip function to pair elements from both tuples, then convert the result to a tuple.

## Question 5: Develop a function that searches for a given element in a tuple and returns its index or -1 if not found.

Hint: Iterate over the tuple with enumerate to find the element and its index.

## Question 6: Create a function to count the occurrences of all items in a tuple and return a dictionary with item-frequency pairs.

Hint: Use a loop to iterate over the tuple and a dictionary to track the frequency of each item.

## Question 7: Implement a function that takes a tuple of tuples (representing points) and calculates the distance from the origin for each, returning a tuple of distances.

Hint: Calculate the distance for each point using the Pythagorean theorem and store the results in a tuple.

## Question 8: Write a function that filters out non-numeric types from a tuple and returns a new tuple of only numeric types.

Hint: Use a loop with a conditional check for numeric types (int, float) and accumulate the numeric values in a new tuple.

## Question 9: Develop a function that accepts a tuple of strings and concatenates them into a single string, separated by a specific separator.

Hint: Iterate over the tuple to concatenate the strings, adding the separator between each element.

## Question 10: Create a function that takes multiple tuples, each representing a 2D point, and returns a tuple of points that are within a circle of a given radius centered at the origin.

Hint: Use a loop to iterate over the points and include only those whose distance from the origin is within the specified radius.