### **Assignment 1:** **Functions in Swift**

**Lab Assignment: Convert Celsius to Fahrenheit Using Swift Functions**

This lab assignment will help you understand how to define and use functions in Swift by creating a function to convert temperatures from Celsius to Fahrenheit. Follow the instructions below to complete the assignment.

**Objectives:**

* Define a function that converts Celsius to Fahrenheit.
* Test the function with various inputs.
* Extend the function to handle an array of temperatures.
* Handle invalid inputs gracefully.

**Instructions:**

**Step 1: Define the Conversion Function**

Write a function called celsiusToFahrenheit that takes a Double representing the temperature in Celsius and returns a Double representing the temperature in Fahrenheit. The formula to convert Celsius to Fahrenheit is:

​

**Step 2: Test the Function**

Test the celsiusToFahrenheit function with different Celsius values to ensure it works correctly.

**Step 3: Extend the Function to Handle an Array of Temperatures**

Write a function called convertTemperatures that takes an array of Double values representing temperatures in Celsius and returns an array of Double values representing temperatures in Fahrenheit.

**Step 4: Handle Invalid Inputs Gracefully**

Modify the celsiusToFahrenheit function to handle invalid inputs (e.g., non-numeric values) gracefully by returning an optional Double.

**Conclusion**

In this lab assignment, you learned how to:

* Define a basic function to convert Celsius to Fahrenheit.
* Test the function with various inputs.
* Extend the function to handle an array of temperatures.
* Handle invalid inputs gracefully.
* Make sure to test your functions thoroughly to ensure they handle various edge cases and inputs correctly. Document your code with comments explaining each part of the logic.