JavaScript Assignment 1

Deadline: September 30th

Question 1 [The Age Calculator]

Want to find out how old you'll be? Calculate it!

- Store your birth year in a variable.
- Store a future year in a variable.
- Calculate your 2 possible ages for that year based on the stored values.
  For example, if you were born in 1988, then in 2026 you'll be either 37 or 38, depending on what month it is in 2026.
- Output them to the screen like so: "I will be either NN or NN in YYYY", substituting the values.

Question 2 [The Lifetime Supply Calculator]

Ever wonder how much a "lifetime supply" of your favorite snack is? Wonder no more!

- Write a function named `calculateSupply` that:
  - takes 2 arguments: age, amount per day.
  - calculates the amount consumed for rest of the life (based on a constant max age).
  - outputs the result to the screen like so: "You will need NN to last you until the ripe old age of X"
- Call that function three times, passing in different values each time.
- **Bonus**: Accept floating point values for amount per day, and round the result to a round number.

Question 3 [The Geometrizer]

Create 2 functions that calculate properties of a circle, using the definitions here.

Create a function called `calcCircumfrence`:

- Pass the radius to the function.
- Calculate the circumference based on the radius, and output "The circumference for a circle with radius XX is NN".

Create a function called `calcArea`:

- Pass the radius to the function.
- Calculate the area based on the radius, and output "The area for a circle with radius XX is NN".

Question 4 [The Temperature Converter]

It's hot out! Let's make a converter based on the steps here.

Create a function called `celsiusToFahrenheit`:

- Store a celsius temperature into a variable.
- Convert it to fahrenheit and output "NN°C is NN°F".

Create a function called `fahrenheitToCelsius`:

- Now store a fahrenheit temperature into a variable.
- Convert it to celsius and output "NN°F is NN°C."

Question 5 [The Fortune Teller]

Why pay a fortune teller when you can just program your fortune yourself?

- Write a function named `tellFortune` that:
  - takes 4 arguments: number of children, partner's name, geographic location, job title.
  - outputs your fortune to the screen like so: "You will be a X in Y, and married to Z with N kids."
- Call that function 3 times with 3 different values for the arguments.

Question 6 [The puppy Age Calculator]

You know how old your dog is in human years, but what about dog years? Calculate it!

- Write a function named `calculateDogAge` that:
  - takes 1 argument: your puppy's age.
  - calculates your dog's age based on the conversion rate of 1 human year to 7 dog years.
  - outputs the result to the screen like so: "Your doggie is NN years old in dog years!"
- Call the function three times with different sets of values.
- **Bonus**: Add an additional argument to the function that takes the conversion rate of human to dog years.

Question 7 [The leap Year]

A leap year is a year containing one additional day added to keep the calendar year synchronized with the astronomical or seasonal year. Because seasons and astronomical events do not repeat in a whole number of days, calendars that have the same number of days in each year drift over time with respect to the event that the year is supposed to track. By inserting an additional day or month into the year, the drift can be corrected. A year that is not a leap year is called a common year. Every year that is exactly divisible by four is a leap year, except for years that are exactly divisible by 100, but these centurial years are leap years if they are exactly divisible by 400. For example, the years 1700, 1800, and 1900 are not leap years, but the year 2000 is. Write a JavaScript program to determine whether a given year is a leap year in the Gregorian calendar. You need to use dialog box to interact with user input.

Question 8 [Looping a triangle]

Write a loop that makes seven calls to console.log to output the following triangle:

#

##

###

####

#####

######

#######

It may be useful to know that you can find the length of a string by writing .length after it.

Var abc = “abc”;

console.log(abc.length); //output 3

Question 9 [FizzBuzz]

Write a program that uses console.log to print all the numbers from 1 to 100, with two exceptions. For numbers divisible by 3, print "Fizz" instead of the number, and for numbers divisible by 5 (and not 3), print "Buzz" instead. When you have that working, modify your program to print "FizzBuzz", for numbers that are divisible by both 3 and 5 (and still print "Fizz" or "Buzz" for numbers divisible by only one of those).

Question 10 [Palindrome]

A palindrome is word, phrase, or sequence that reads the same backward as forward, e.g., madam or nurses run. Write a JavaScript function that checks whether a passed string is palindrome or not?

Question 11 [Chess Board]

Write a program that creates a string that represents an 8×8 grid, using newline characters to separate lines. At each position of the grid there is either a space or a “#” character. The characters should form a chess board. Passing this string to console.log should show something like this:

	#		#		#		#
#		#		#		#	
	#		#		#		#
#		#		#		#	
	#		#		#		#
#		#		#		#	
	#		#		#		#
#		#		#		#	

When you have a program that generates this pattern, define a variable size = 8 and change the program so that it works for any size, outputting a grid of the given width and height