Javascript & Numeral System Challenge

Module 2 - C02

Coding Kata

Kata (方 literally: form) is a Japanese word describing a way of doing something or **a pattern of behaviour that is practiced to various levels of mastery**.

A **Code Kata** is an exercise in programming which helps hone your skills through practice and repetition. Overlearning the basics allows us to excel at more difficult tasks.

Part 1 – Kitty Kata

Start by creating a p5js sketch and delete all the initial content. Then write some code that prints every number from 1 to 100 to separate lines in the console using console.log() statements. Your code must use either a while loop or a for loop to accomplish this. Next, modify your code so that for multiples of three you print "Kitty" instead of the number and for the multiples of five you print "Kata". For numbers which are multiples of both three and five you print "KittyKata".

Sample Output:

```
1
2
Kitty
4
Kata
Kitty
7
8
Kitty
Kata
11
Kitty
13
14
KittyKata
16
... etc up to 100
```

Note: A straightforward way to determine if one number is a multiple of another is to use the modulo operator (represented by the % symbol in Javascript). The modulo operator returns the remainder after one number has been divided by another.

For example:

- (5 % 3) evaluates to 2 because 5 divided by 3 is 1 remainder 2.
  Because there is a remainder, 5 **is not** a multiple of 3.
- (17 % 4) evaluates to 1 because 17 divided by 4 is 4 remainder 1.
  Because there is a remainder, 17 **is not** a multiple of 4.
- (20 % 5) evaluates to 0 because 20 divided by 5 is 4 remainder 0.
  Because there is no remainder, 20 **is** a multiple of 5.

Part 2 – A Year That Leaps

Write a function to determine if a given year is a leap year.

It is a leap year when:

```
The year is evenly divisible by 4,
  except when the year is evenly divisible by 100,
    unless the year is also evenly divisible by 400.
```

For example, 1997 is not a leap year, but 1996 is. 1900 is not a leap year, but 2000 is.

Remember, this is kata. Resist googling for a strategy and don't use any built-in `Date` functionality. If you've coded many leap year tests in the past try coding one that is super elegant (whatever that means to you), or super readable, or super strange.

The function you write will be called isLeap. It must return a Boolean value. Use the provided starter code and test suite.

Part 3 – Will You Won't You

Your cell phone rings. Given three boolean function parameters (isMorning, isMom, isAsleep) return a boolean value to specify if you should answer your cell. True means you answer. False means you don't. Your returned value will depend on these three parameters along with the following rules. Normally you answer, except in the morning you only answer if it is your mom calling. In all cases, if you are asleep, you do not answer.

The function you write will be called shouldIAnswerThePhone. It must return a Boolean value. Use the provided starter code and test suite.

Part 4 – Temperature Check

Open the provided starter code and take a look at the temperature array. This array holds the daily mean temperature in Winnipeg for every day in 2019.

Write the code needed to:

- Find the length of the temperature array and print it out.
- Find and print out the highest temperature in the array.
- Find and print out the lowest temperature in the array.
- Create a new array called `integerTemperatures` that contains all the data from the temperatures array rounded to integers.
- Find and print out all the even temperatures in the `integerTemperatures` array.

Important: All responses should be generated using code. You should not, for example, be looking through the array yourself to find the largest value, nor should you be manually typing out the new `integerTemperatures` array.

Be sure to reference our array basics notes and array methods notes when working on this problem.

Submitting Your Work

When submitting your p5.js code for this challenge:

1. Each challenge question should be coded as a separate sketch using the p5.js Web Editor.
2. Make sure you have an account on the p5.js Web Editor so that you can save your work.
3. Create a new P5.js Web Editor collection:
    - Click on "Open" in the File Menu.
    - Navigate to "Collections".
    - Click the "Create Collection" button and create a collection for the challenge.
    - Save the URL of the collection you just created. (Use the collection's "Share" button to see the URL.)
4. Open each of your challenge sketches in the web editor and add them to your challenge collection from the File menu.
5. Submit the URL of your collection in a text file to the dropbox for the challenge.

Marking Rubric

Each of this challenge's four parts will be assigned a mark out of 1, for a total of 4 marks.

You will get full marks on each part if you’ve made a valiant effort to complete the requested work and explained any failures you encountered.

For each part:

- 1 out of 1 means you made a valiant effort to complete the requested work. (Even wrong answers will receive a 1 if it looks like you’ve put in the work!)

- 0 out of 1 means you either did not submit the requested work or the amount of work you submitted was minimal.