The Ultimate Intro to Ruby Coding Challenge

1) Copy and past the following Ruby code into a file called carl_sagan.rb and follow the self-contained instructions.

```
# Using a single puts statement build the following
# sentence using only data from the carl hash and the
# sagan array along with some string interpolation.
#
# We are a way for the cosmos to know itself.

carl  = {
          :toast => 'cosmos',
          :punctuation => [ ',', '.', '?' ],
          :words => [ 'know', 'for', 'we']
        }

sagan = [
          { :are => 'are', 'A' => 'a' },
          { 'waaaaaay' => 'way', :th3 => 'the' },
          'itself',
          { 2 => ['to']}
        ]

# Here is an example of building a setence out of array/hash pieces.
example = [ 'test', 'a', 'is']
time    = { :that => 'This', :period => '.'}
puts "#{time[:that]} #{example[2]} #{example[1]} #{example[0]}#
{time[:period]}"
```

2) Create an array of hashes named ‘ghosts’ to hold the following information:

Inky is 4 years old, loves reindeers and has 25 dollars in the bank.

Pinky is 5 years old, loves garden tools and has 14 dollars in the bank.

Blinky is 7 years old, loves ninjas and has 18.03 dollars in the bank.

Clyde is 6 years old, loves yarn and has 0 dollars in the bank.

The following snippet of code should be able to process your ghosts array and generate the above italicized text.

```
ghosts.each do |ghost|
    ghost_info  = "#{ghost[:name]} is #{ghost[:age]} years old, "
    ghost_info += "loves #{ghost[:loves]} and "
    ghost_info += "has #{ghost[:net_worth]} dollars in the bank."
    puts ghost_info
end
```

3) Write a script that uses the JSON provided by the dog.ceo API to print out a nicely formatted list of dog breeds and sub-breeds.

Some starter code:

```
require 'net/http'
require 'json'
require 'pp'

url = 'https://dog.ceo/api/breeds/list/all'
uri = URI(url)
response = Net::HTTP.get(uri)
```

```
dog_breeds = JSON.parse(response) # Convert JSON data into Ruby data.
pp dog_breeds # pp stands for pretty print.
```

Run the script and investigate the pretty print output to figure out how to access the array of returned dog breeds. Then replace the last line of the script with a nested loop that prints out all the dog breeds and associated sub-breeds. The output might look something like this:

* Brabancon
* Briard
* Buhund
  * Norwegian
* Bulldog
  * Boston
  * English
  * French
* Bullterrier
  * Staffordshire

👆 This is just a sub-set of the actual full list. This is just an example of what a" Nicely Formatted List" might look like. Feel free to format your list differently.

4) Using data from the city's open data set figure out how many of our trees may die now that the Emerald Ash Borer has been found here. In other words, how many Ash trees do we have in the city?

A subset of tree dataset can be found here: https://data.winnipeg.ca/resource/d3jk-hb6j.json
The full tree dataset can be found here: https://data.winnipeg.ca/resource/d3jk-hb6j.json?$limit=306000

Using code similar to what was provided in question three, load up the tree JSON data and use JSON.parse to convert it to Ruby data. Investigate the data using the pretty print command and then write a program to automatically count all the Ash trees in the dataset. Remember that there are different types of ash trees.

To speed up your investigation start using the first URL (the subset of tree data) and then when you get things working try switching to the full tree dataset.