Features in TensorFlow 2.0

TensorFlow 2.0 comes with new features for building machine learning models. Some of these new features include

- A more pythonic feel to model design and debugging with eager execution as the de facto execution mode.
- Eager execution enables instant evaluation of TensorFlow operations. This is opposed to previous versions of Tensorflow where we first construct a computational graph and then execute it in a session.
- Using tf.function to transform a Python method into high-performance TensorFlow graphs.
- Using Keras as the core high-level API for model design.
- Using FeatureColumns to parse data as input into Keras models.
- The ease of training on distributed architectures and devices.

To install and work with TensorFlow 2.0 on Google Colab, run

```
!pip install -q tensorflow==2.0.0-beta0
```

The GCP Deep Learning VM has images with TensorFlow 2.0 pre-configured.

A Simple TensorFlow Program

Let's start by building a simple TF program. Here, we will build a graph to find the roots of the quadratic expression $x^2 + 3x - 4 = 0$.

```
# import tensorflow
import tensorflow as tf

# Quadratic expression: x**2 + 3x - 4 = 0.
a = tf.constant(1.0)
b = tf.constant(3.0)
c = tf.constant(-4.0)
```