**Module 2 Notes**

* **Tensor** – multidimensional array. Rank-0 tensor is a scalar. Rank-1 tensor is a vector. Rank-2 tensor is a matrix. Rank-3 tensor is essentially a rectangular prism.
* **Imperative Programming** – specifically telling the computer what to do.   
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* **Declarative Programming** – code creates a description of the needed computation and lets the program determine how to perform the operation.   
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  Value of c is not 7, but rather a symbolic tensor. This code specifies the computation of adding two values together to create a new tensor. The actual computation isn’t executed until c.eval() is called.  
  A TensorFlow computation is a representation of an instance of the tf.Graph object. These graphs are a set of instances of tf.Tensor and tf.Operation objects. Calls to operations create a tf.Operation instance that tells the program to execute a matrix multiplication operation during the program run time.
* **Stateful Computations** – variables contain the state of the system. ensorFlow provides the tf.Variable() class as a wrapper for the tensors, which allows for stateful computations.

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* **Two Main Steps of TensorFlow** – define a data-flow graph encompassing the inputs, operations, and the outputs. Then, execute the graph by feeding values to the inputs and computing outputs.
* **TensorFlow 2 uses imperative execution (eagerly executing)**. Declaration and execution happen simultaneously.