Congratulations! You passed!

Grade received 100% **To pass** 80% or higher

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High-Performance Modeling

Total points 6

1. In the model parallelism, the models are replicated into different devices (GPU) and trained on data batches. **1 / 1 point**

- ○ Yes
- ◉ No

Correct
That's right! In model parallelism, you segment the model into different subsections, running concurrently in other nodes, and synchronize the shared parameters on the same training data.

2. Which ones of the following are terminologies used often in the world of distributed computing? (Select all that apply) **1 / 1 point**

- ☑ Device

Correct
That's right! The term device is very commonly referred to as a CPU or an accelerator like a GPU or TPU on any physical machine which runs machine learning models during different stages of its life cycle.

- ☑ Worker

Correct
That's right! The term worker is very common and is defined as the accelerator on which it performs some calculations that are performed in this replica.

- ☐ Copy
- ☑ Mirrored Variable

Correct
That's right! When you copy the same variables in the model to multiple devices. These variables are called mirrored variables when the training methodologies keep them in sync across various devices.

3. The pipeline performance can be optimized through parallelizing data extraction and transformation. **1 / 1 point**

- ◉ True
- ○ False

Correct
That's right! Parallelizing processes, like data extraction or data transformation or both, is a way to accelerate your pipeline performance.

4. TensorFlow offers techniques to optimize pipeline performance like prefetching, parallelizing data extraction and transformation, caching and reducing memory. Those techniques could be used from the **sklearn.decomposition** API. **1 / 1 point**

- ◉ False
- ○ True

Correct
That's correct! The API incorporating prefetching, parallelizing data extraction and transformation, caching and reducing memory is tf.data

5. As important developments in both model growth and hardware improvement have been made, parallelism becomes an alternative of greater importance. **1 / 1 point**

- ○ False
- ◉ True

Correct
That's correct! Even in recent years the size of machine learning models has been increasing, hardware accelerators (like GPUs and TPUs) have also been growing, but at a slower pace.

6. The _____ library uses synchronous mini-batch gradient descent for training in a distributed way. **1 / 1 point**

- ◉ GPipe
- ○ Pandas

- Scikit-learn
- Scipy

Correct
That's right! This distributed machine learning library allows you to make partition models across different accelerators and automatically splits a mini-batch of training examples into smaller micro-batches in a distributed way.