Congratulations! You passed!

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

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

- ○ True
- ◉ False

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

- [x] Mirrored Variable

Correct
That's right! When you copy the same variables in the model to multiple devices, they are called mirrored variables. Training methodologies keep these variables in sync across various devices.

- [ ] Copy
- [x] Worker

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

- [x] Device

Correct
That's right! The term device is very commonly used to refer to 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.

3. True or False: 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. True or False: TensorFlow offers techniques to optimize pipeline performance like prefetching, parallelizing data extraction and transformation, caching and reducing memory. These techniques are available through the **sklearn.decomposition** API.

1 / 1 point

- ○ True
- ◉ False

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

5. True Or False: 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**

- ○ Pandas
- ○ Scipy
- ◉ GPipe
- ○ Scikit-learn

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.