## Week 1a – What It Means to be AI First

1. What would you use to replace user input by machine learning?
   1. Pre-trained models.
2. What types of data are used in machine learning models?
   1. Both labelled and unlabelled data.
3. What are best practices for data preparation?
   1. Avoid training-serving skew.
   2. Avoid target leakage.
   3. Provide a time signal.
4. What are parts of the machine learning training phase?
   1. Data management.
   2. Create the models.
   3. Evaluating the models.
5. What’s the most efficient way to transcribe speech?
   1. A speech API.

## Week 1b – How Google Does Machine Learning

1. What type of network is used to identify faces, objects and traffic signs?
   1. Convolutional Neural Networks.
2. What is true about machine learning systems?
   1. Almost every single one has a team of people reviewing the algorithm, reviewing their responses and doing random sub-samples and it generates a lot of value for the organisation, for customers and for end users.
3. What are facets that differentiate deep learning networks in multilayer networks?
   1. More complex ways of connecting layers.
   2. Cambrian explosion of computing power to train.
   3. Automatic feature extraction.
4. What’s correct?
   1. Nothing.

## Week 2 – Machine Learning Development with Vertex AI

1. In machine learning development, which phase identifies your use case?
   1. Framing the problem.
2. Typically, machine learning practitioners train models using different architectures, input datasets, hyperparameters and hardware. What architectural type would you use for cyber-security, pattern recognition, self-driving cars and reinforced learning?
   1. GANs or Generative Adversarial Networks.
3. Which Vertex AI service lets you access data, process data in a Dataproc cluster, train a model, share your results and more, all without leaving the JupyterLab interface?
   1. Workbench.
4. Moving from experimentation to production requires packaging, deploying and monitoring your model - which can give you confidence that your model is making useful predictions in production. Monitoring measures key model performance metrics and includes:
   1. Model drift, model performance, model outliers and quality.
5. The way you deploy a TensorFlow model is different from how you deploy a PyTorch model, and even TensorFlow models might differ based on whether they were created using AutoML or by means of code. In the unified set of APIs that Vertex AI provides, you can treat all these models in the same way.
   1. True.
6. Select the correct word below to fill in the blank: Vertex AI is flexible. You choose your training method. \_\_\_\_\_\_\_\_\_\_\_\_\_ lets you create a training application optimized for your targeted outcome. You have complete control over training application functionality; you can target any objective, use any algorithm, develop your own loss functions or metrics, or do any other customization.
   1. Custom training.
7. What is a managed dataset in Vertex AI?
   1. Data loaded into Vertex AI - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.