Keras Deep Dive Quiz

Test your knowledge on Keras model building, APIs, and deployment strategies.

Question 1: Which of the following is NOT a way to build models in Keras?

A. Sequential API

B. Functional API

C. Subclassing API

D. Pipeline API ✓

Explanation: Keras provides three main APIs for building models: Sequential, Functional, and Subclassing. Pipeline API is not a Keras model-building API.

Question 2: What is the main advantage of the Keras API design principle called 'progressive disclosure of complexity'?

A. It makes Keras only suitable for beginners.

B. It hides all complexity from the user.

C. It allows users to start simple and gradually handle more complex use cases. ✓

D. It restricts users to a single way of building models.

Explanation: The progressive disclosure of complexity principle allows users to start with simple workflows and incrementally learn to handle more complex use cases.

Question 3: Which Keras model-building API would you use if you need to create custom layers, metrics, and losses?

A. Sequential API

B. Functional API with built-in layers

C. Functional API with custom layers and metrics ✓

D. Only the Sequential API supports custom layers

Explanation: The Functional API supports using custom layers, metrics, and losses, allowing more flexibility than the Sequential API.

Question 4: What is the simplest way to build a Keras model?

A. Using the Sequential model ✓

B. Using the Functional API

C. Subclassing the Model class

D. Using TensorFlow GradientTape

Explanation: The Sequential model is the simplest way to build a Keras model, suitable for beginners and simple architectures.

Question 5: Which method is used to add layers incrementally to a Sequential model?

A. append()

B. add() ✓

C. insert()

D. extend()

Explanation: The add() method is used to add layers incrementally to a Sequential model, similar to the append() method of Python lists.

Question 6: If you want to deploy a Keras model on a smartphone or embedded device, which framework should you use?

A. TensorFlow.js

B. TensorFlow Lite ✓

C. Keras Sequential API

D. TensorFlow Extended (TFX)

Explanation: TensorFlow Lite is designed for efficient on-device deep learning inference on smartphones and embedded devices.

Question 7: Which of the following is true about Keras components across different workflows?

A. Components from one workflow cannot be used in another.

B. All workflows use completely different APIs.

C. Components from any workflow can be used in any other workflow. ✓

D. Only the Sequential API components are reusable.

Explanation: Keras components such as Layer and Model are shared across workflows, allowing interoperability.

Question 8: What is the purpose of the compile() method in Keras?

A. To build the model architecture

B. To configure the model for training by specifying optimizer, loss, and metrics ✓

C. To train the model on data

D. To evaluate the model performance

Explanation: The compile() method configures the model for training by specifying the optimizer, loss function, and metrics.

Question 9: Which Keras API allows you to write everything yourself from scratch, including the training loop?

A. Sequential API

B. Functional API

C. Subclassing API ✓

D. Keras Datasets API

Explanation: The Subclassing API allows full control by writing custom layers, models, and training loops from scratch.

Question 10: How can you use a saved Keras model in a browser-based JavaScript application?

A. By importing it directly into TensorFlow.js ✓

B. By converting it to TensorFlow Lite format

C. By rewriting the model in JavaScript manually

D. By using the Sequential API in JavaScript

Explanation: You can import a saved Keras model into TensorFlow.js to use it in browser-based JavaScript applications.