Estructura del Libro

Official Google Cloud Certified Professional Machine Learning Engineer Study Guide

Índice de Contenidos

Cover

Table of Contents

Title Page

Copyright

Dedication

Acknowledgments

About the Author

About the Technical Editors

- About the Technical Proofreader
- Google Technical Reviewer

Introduction

- Google Cloud Professional Machine Learning Engineer Certification
- Who Should Buy This Book

How This Book Is Organized

Bonus Digital Contents

Conventions Used in This Book

Google Cloud Professional ML Engineer Objective Map

How to Contact the Publisher

Assessment Test

Answers to Assessment Test

Chapter 1: Framing ML Problems

Translating Business Use Cases

Machine Learning Approaches

ML Success Metrics

Responsible AI Practices

Summary

Exam Essentials

Review Questions

Chapter 2: Exploring Data and Building Data Pipelines

Visualization

Statistics Fundamentals

Data Quality and Reliability

Establishing Data Constraints

Running TFDV on Google Cloud Platform

Organizing and Optimizing Training Datasets

Handling Missing Data

Data Leakage

Summary

Exam Essentials

Review Questions

Chapter 3: Feature Engineering

Consistent Data Preprocessing

Encoding Structured Data Types

Class Imbalance

Feature Crosses

TensorFlow Transform

GCP Data and ETL Tools

Summary

Exam Essentials

Review Questions

Chapter 4: Choosing the Right ML Infrastructure

Pretrained vs. AutoML vs. Custom Models

Pretrained Models

AutoML

Custom Training

Provisioning for Predictions

Summary

Exam Essentials

Review Questions

Chapter 5: Architecting ML Solutions

Designing Reliable, Scalable, and Highly Available ML Solutions

Choosing an Appropriate ML Service

Data Collection and Data Management

Automation and Orchestration

Serving

Summary

Exam Essentials

Review Questions

Chapter 6: Building Secure ML Pipelines

Building Secure ML Systems

Identity and Access Management

Privacy Implications of Data Usage and Collection

Summary

Exam Essentials

Review Questions

Chapter 7: Model Building

Choice of Framework and Model Parallelism

Modeling Techniques

Transfer Learning

Semi■supervised Learning

Data Augmentation

Model Generalization and Strategies to Handle Overfitting and Underfitting

Summary

Exam Essentials

Review Questions

Chapter 8: Model Training and Hyperparameter Tuning

Ingestion of Various File Types into Training

Developing Models in Vertex AI Workbench by Using Common Frameworks

Training a Model as a Job in Different Environments

Hyperparameter Tuning

Tracking Metrics During Training

Retraining/Redeployment Evaluation

Unit Testing for Model Training and Serving

Summary

Exam Essentials

Review Questions

Chapter 9: Model Explainability on Vertex AI

Model Explainability on Vertex AI

Summary

Exam Essentials

Review Questions

Chapter 10: Scaling Models in Production

Scaling Prediction Service

Serving (Online, Batch, and Caching)

Google Cloud Serving Options

Hosting Third■Party Pipelines (MLflow) on Google Cloud

Testing for Target Performance

Configuring Triggers and Pipeline Schedules

Summary

Exam Essentials

Review Questions

Chapter 11: Designing ML Training Pipelines

Orchestration Frameworks

Identification of Components, Parameters, Triggers, and Compute Needs

System Design with Kubeflow/TFX

Hybrid or Multicloud Strategies

Summary

Exam Essentials

Review Questions

Chapter 12: Model Monitoring, Tracking, and Auditing Metadata

Model Monitoring

Model Monitoring on Vertex AI

Logging Strategy

Model and Dataset Lineage

Vertex AI Experiments

Vertex AI Debugging

Summary

Exam Essentials

Review Questions

Chapter 13: Maintaining ML Solutions

MLOps Maturity

Retraining and Versioning Models

Feature Store

Vertex AI Permissions Model

Common Training and Serving Errors

Summary

Exam Essentials

Review Questions

Chapter 14: BigQuery ML

BigQuery – Data Access

BigQuery ML Algorithms

Explainability in BigQuery ML

BigQuery ML vs. Vertex AI Tables

Interoperability with Vertex AI

BigQuery Design Patterns

Summary

Exam Essentials

Review Questions

Appendix: Answers to Review Questions

Chapter 1: Framing ML Problems

Chapter 2: Exploring Data and Building Data Pipelines

Chapter 3: Feature Engineering

Chapter 4: Choosing the Right ML Infrastructure

Chapter 5: Architecting ML Solutions

Chapter 6: Building Secure ML Pipelines

Chapter 7: Model Building

Chapter 8: Model Training and Hyperparameter Tuning

Chapter 9: Model Explainability on Vertex AI

Chapter 10: Scaling Models in Production

Chapter 11: Designing ML Training Pipelines

Chapter 12: Model Monitoring, Tracking, and Auditing Metadata

Chapter 13: Maintaining ML Solutions

Chapter 14: BigQuery ML

Index

End User License Agreement

Total de capítulos encontrados: 165

Archivo EPUB: my_epub.epub