



Introduction to Vertex AI Search for Commerce

Course description

In this course, you will gain a comprehensive understanding of Vertex AI Search for Commerce, a powerful Google Cloud solution designed to revolutionize e-commerce search experiences. You will learn how to move beyond traditional keyword-based search to leverage advanced AI and machine learning capabilities for delivering highly relevant, personalized, and performant search results. The course covers the core features, architectural components, data requirements, and practical implementation steps necessary to integrate and optimize Vertex AI Search for Commerce within your e-commerce platform. By the end of this course, you will be equipped to transform your online storefront's search functionality, driving improved customer engagement and conversion rates.

- Course level: Intermediate
- Duration: 1 day

Activities

This course includes presentations, hands-on labs, demonstrations, and group exercises.

Course objectives

In this course, you will learn to:

- Explain the limitations of traditional e-commerce search and how AI addresses them
- Summarize the core capabilities and benefits of Vertex AI Search for Commerce
- Describe the architectural components and data ingestion requirements
- Implement and integrate Vertex AI Search into an e-commerce application
- Optimize search relevance, merchandising rules, and personalization
- Analyze search performance and troubleshoot common issues
- Discuss best practices for deploying and maintaining the solution

Intended audience

This course is intended for those involved in e-commerce platform development, management, and strategy:

- E-commerce Developers
- Product Managers (E-commerce)
- Solution Architects
- Data Scientists
- E-commerce Platform Administrators
- Business Analysts focused on online retail

Prerequisites

We recommend that attendees of this course have:

- Basic understanding of e-commerce concepts and challenges
- Familiarity with Google Cloud Platform (GCP) fundamentals (e.g., IAM, Cloud Storage, BigQuery)
- Comfort with JSON data format and API concepts
- Basic programming knowledge (e.g., Python, JavaScript) for API integration labs

Course outline

Module 1: Understanding the E-commerce Search Challenge & Vertex AI Overview

- The evolution and limitations of traditional e-commerce search
- How AI and ML are transforming online retail experiences
- Introduction to Vertex AI Search for Commerce: Vision and purpose

- Key benefits: enhanced relevance, personalization, and conversion
- Overview of common use cases and success stories
- Demo: Experiencing the power of AI-driven commerce search

Module 2: Core Capabilities and Architectural Foundations

- AI-powered relevance ranking and semantic search
- Advanced query understanding (synonyms, spell correction, long-tail queries)
- Dynamic faceting, filtering, and sorting
- Merchandising and promotional tools
- Basic personalization features and intent recognition
- Vertex AI Search for Commerce service architecture overview
- Integration points within the Google Cloud ecosystem

Module 3: Data Ingestion and Product Catalog Management

- Defining the product catalog schema for Vertex AI Search
- Required and optional product attributes for optimal search performance
- Supported data sources and formats (e.g., CSV, JSON, BigQuery)
- Methods for data ingestion: batch import, real-time updates via API
- Strategies for maintaining an up-to-date and consistent product catalog
- Handling product variants, availability, and pricing
- Hands-on Lab: Preparing and Ingesting a Product Catalog from Cloud Storage

Module 4: Implementing Search and Browsing Experiences

- Integrating the Vertex AI Search API (REST and client libraries)
- Constructing effective search queries and request parameters
- Handling search responses, pagination, and result display
- Implementing category browsing and navigation with search functionalities
- Designing and developing a user interface for AI-powered search
- Best practices for front-end integration and user experience
- Hands-on Lab: Building a Basic E-commerce Search Frontend with Vertex AI Search

Module 5: Optimizing Relevance and Merchandising Strategies

- Advanced relevance tuning: boosting, burying, and custom ranking
- Creating and managing merchandising rules, banners, and promotions

- Implementing A/B testing for search configuration and performance evaluation
- Leveraging search analytics to identify areas for improvement
- Strategies for continuous optimization of search quality
- Understanding the interplay between search and recommendations
- Hands-on Lab: Configuring Advanced Merchandising Rules and Relevance Tuning

Module 6: Personalization and User Event Tracking

- Introduction to user event tracking for personalized experiences
- Types of user events (view, add-to-cart, purchase) and their importance
- Sending user events to Vertex AI Search and Recommendations
- How personalization influences search results and recommendations
- Integrating with Vertex AI Recommendations for a holistic customer journey
- Ethical considerations and privacy in personalization
- Demo: Personalized Search Results based on User History

Module 7: Monitoring, Analytics, and Advanced Considerations

- Monitoring search query performance, latency, and error rates
- Leveraging built-in analytics dashboards and reports
- Integrating search data with Google Analytics 4, BigQuery, and Looker
- Advanced query understanding: custom synonyms, stop words, and redirects
- Implementing multi-language and multi-currency search capabilities
- Scaling Vertex AI Search for high-traffic e-commerce platforms
- Hands-on Lab: Analyzing Search Performance and User Behavior Data

Module 8: Course Wrap-up

- Key takeaways and comprehensive summary of Vertex AI Search for Commerce
- Best practices for deployment, maintenance, and ongoing optimization
- Exploring future trends and roadmap of AI in commerce search
- Q&A session and discussion
- Additional resources, documentation, and next steps for continued learning

Your course overview ends here.
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Established in 2012, CloudThat is an award-winning company and the first in India to offer cloud training and consulting services for individuals and enterprises worldwide. Recently, it won Google Cloud's New Training Partner of the Year Award for 2025, becoming the first company in the world in 2025 to hold awards from all three major cloud giants: AWS, Microsoft, and Google. CloudThat notably won consecutive AWS Training Partner of the Year (APJ) awards in 2023 and 2024 and the Microsoft Training Services Partner of the Year Award in 2024, bringing its total award count to an impressive 12 awards in the last 8 years.

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