Applied AI: Building Recommendation Systems with Python - TTAI2360

Quick Start to Designing, Building and Deploying Scalable Recommendation Models using Python, Pandas, Pinecone and More

Duration: 2 Days
Skill Level: Intermediate
Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

You'll begin by exploring the core concepts and types of recommendation systems, understanding how they function to tailor content for individual users. From there, you'll engage with hands-on activities, setting the foundation for building your own recommenders.

What You'll Learn

Overview

In today's digital landscape, recommendation systems power many personalized experiences we encounter daily, from Netflix's content suggestions to Spotify's music playlists. Our two-day intensive course, ***Building Recommender Systems Using Python***, offers a deep dive into the world of data-driven personalization. You'll begin by exploring the core concepts and types of recommendation systems, understanding how they function to tailor content for individual users. From there, you'll engage with hands-on activities, setting the foundation for building your own recommenders.

On the first day, you'll work extensively with the Pandas library, learning how to manipulate and prepare data for recommendation systems. Through guided labs, you will build simple and knowledge-based recommenders and advance to creating sophisticated content-based recommenders using document vectors, cosine similarity, and metadata analysis. On day two, the course transitions to advanced data mining techniques, covering clustering, dimensionality reduction, and various similarity

measures. You will also dive into collaborative filtering, learning both user-based and item-based approaches to improve recommendation accuracy.

The course culminates in a **hands-on session** where you'll deploy your recommender as a microservice using Docker, allowing for real-world application and scalability. **By the end of the program,** you'll have mastered the tools and techniques necessary to design, implement, and optimize effective recommendation systems, enabling you to elevate user experiences, boost engagement, and drive smarter decision-making on digital platforms.

Objectives

Through a mix of instructor-led presentations, demonstrations, and hands-on labs, you will:

- Confidently distinguish between different types of recommendation systems.
- Master the Pandas library for data manipulation and preparation.
- Build both simple and advanced content-based recommendation systems.
- Understand key data mining techniques, such as clustering and dimensionality reduction.
- Gain hands-on experience with collaborative filtering, including user-based and item-based methods.
- Package and deploy a recommender system as a microservice using Docker, ensuring scalability and real-world applicability.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This Intermediate level course is geared for experienced technical professionals eager to meld the capabilities of AI with the dynamism of web applications. Roles might include experienced web developers, data analysts, machine learning engineers, UX Designers and digital product managers. If you're passionate about enhancing digital experiences, tailoring user interactions, or predicting online behaviors, this immersive journey into the intelligent web realm is tailor-made for you.

Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- **Basic Python Proficiency**: An understanding of Python's fundamental syntax, structures, and basic programming concepts is essential.
- **Familiarity with Basic Data Analysis**: Some exposure to elementary data analysis concepts, even if not in-depth, will be beneficial.

Next Steps / Follow-on Courses: We offer a wide varietyof follow-on courses and learning paths for Generative AI, AI for Business, GPT, Applied AI, Azure OpenAI, Google BARD, AI for developers, testers, data analytics, machine learning, deep learning, programming, intelligent automation and many other related topics. Please see our catalog for the current **AI & Machine Learning Courses, Learning Journeys& Skills Roadmaps**, list courses and programs.

TTML5503	Introduction to AI & Machine Learning JumpStart
TTPS4876	Next-Level (Intermediate) Python for Data Science and /or Machine Learning
TTPS4878	Hands-On Data Analysis with Panda

Agenda

Please note that this topics, agenda and labs are subject to change to cover the most recent technical trends or tools, and may adjust during live delivery based on audience skill level, interests and participation.

DAY ONE

Getting Started with Recommender Systems

- Technical requirements
- What is a recommender system?
- Types of recommender systems
- Hands-on Activity / Lab

Manipulating Data with the Pandas Library

- Technical requirements
- Setting up the environment
- The Pandas library
- The Pandas DataFrame
- The Pandas Series
- Lab

Building your First Recommender with Pandas

- Technical requirements
- The simple recommender
- The knowledge-based recommender
- Hands-on Activity / Lab

Building Content-Based Recommenders

- Technical requirements
- Exporting the clean DataFrame
- Document vectors
- The cosine similarity score
- Plot description-based recommender
- Metadata-based recommender
- Suggestions for improvements
- Hands-on Activity / Lab

DAY TWO

Getting Started with Data Mining Techniques

- Problem statement
- Similarity measures
- Clustering
- Dimensionality reduction
- Supervised learning
- Evaluation metrics
- Hands-on Activity / Lab

Building Collaborative Filters

- Technical requirements
- The framework
- User-based collaborative filtering
- Item-based collaborative filtering
- Model-based approaches
- Hands-on Activity / Lab

Deploy the Recommender as a Microservice

- Package the recommender as an API
- Load the Recommender into Docker
- Deploy the Recommender using Docker

- Hands-on Activity / Lab

Related Courses

TTPS4879	Hands-On Predictive Analytics with Python

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our "easy access, no install required" online **Learning Experience Platform (LXP),** remote lab and content environment. Access periods vary by course. We'll collaborate with you to ensure your team is set up and ready to go well in advance of the class.

For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.