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Astronomer training: Airflow's SaaS platform

3 days (21 hours)

Presentation

Our Airflow Astronomer training course will teach you how to take your Apache Airflow pipelines to the next level. Astronomer improves Airflow's capabilities by taking it to 100% availability, enabling data engineers to reduce operational costs while increasing the efficiency and security of their data pipelines.

Our program is designed to help you get the most out of Apache Airflow with Astronomer. It will enable you to dive into the world of data orchestration, learning how to create, manage and optimize data pipelines efficiently and securely.
Astronomer's servers are located in Europe, so you can be sure of optimum performance.

Our training course will introduce you to Astronomer, its main features and how it enhances the functionality of Apache Airflow.

Like all our training courses, it will be run on the latest version of the tool: Astronomer 10.3.

Objectives

- Master Astronomer to improve your Airflow pipelines
- Implement CI/CD pipelines
- Monitor and optimize pipelines
- Connecting external APIs

Target audience

- **Data engineers**
- Data analysts
- Data scientists

Prerequisites

- Master the Python language

OUR ASTRONOMER TRAINING PROGRAM

INTRODUCTION TO ASTRONOMER AND ITS INTERFACES

- Astronomer overview
- Navigating the IDE
- Creating your first data pipeline
- Database management

CODE MANAGEMENT AND DEPLOYMENT ON ASTRO

- Continuous integration (CI) and continuous deployment (CD)
- Version control systems (Github)
- Deploying an application on the Astro platform
- End-to-end deployment practice

SECURITY AND DATA MOVEMENT IN IDE

- Security and permissions
- Differences between SDK, IDE and classic pipeline creation
- Best practices for data security

INTERACTING WITH EXTERNAL API

- Connections to external services (SWAPI, RestfulBooker)
- HttpHook and HttpOperator for server interactions
- Practical exercises on API requests and web response filtering

USING SENSORS AND CRUD OPERATIONS

- Sensors to monitor HTTP response status
- Sensor installation
- Server response alerts
- CRUD operations

DEPLOYMENT MANAGEMENT AND ORGANIZATION

- Workspaces
- Use of AU resources
- Scheduler and automatic scalability

DEVELOPMENT AND DEPLOYMENT WITH ASTRO

- Connection management
- Environment variables
- KubernetesPodOperator
- Practice upgrading Astro Runtime
- Using the Airflow REST API

SECRET MANAGEMENT

- Secret managers (AWS Secrets Manager, Hashicorp Vault)
- Best practices for managing secrets

OBSERVABILITY AND ALERTS

- Log monitoring and interpretation
- Alert configuration
- Deployment health incident management
- Data lineage

ADMINISTRATION AND BEST PRACTICES

- SSO and SCIM
- Setting user permissions
- Domain management

INTEGRATION WITH OTHER DATA AND COST MANAGEMENT TOOLS

- Overview of integration with automation and CI/CD tools
- Using CI/CD templates
- Tips for optimizing costs and gaining an overview of invoicing

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.