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Sign up

KNIME Analytics Training

2 days (14 hours)

Presentation

Master data analysis, workflow automation and machine learning with KNIME Analytics Platform. This comprehensive training course is designed for data analysts, data engineers and business teams wishing to transform their data into clear, actionable levers.

You'll start by getting to grips with the KNIME interface, manipulating raw data, cleansing, transforming and enriching it to facilitate analysis.

You'll learn how to create efficient workflows, automate your processes, manage conditional flows, and integrate dynamic variables and parameters to make your processing robust and reusable.

The training will then guide you through visual data exploration, the creation of predictive models (supervised and unsupervised), their evaluation and production release.

As with all our training courses, this one will be presented with the latest KNIME updates.

Objectives

- Understand the KNIME environment, its architecture, use cases and integration possibilities in a data ecosystem.
- Load, cleanse, transform and enrich data from multiple sources
- Design automated, dynamic workflows with flow control, loops, variables and error handling
- Explore, visualize and analyze data using descriptive statistics, interactive graphics and EDA tools
- Apply supervised and unsupervised machine learning models, evaluate performance and deploy predictions

- Create dynamic reports and share results through exports or integration with BI tools
- Validate skills by building a complete data project with ingestion, processing, analysis and restitution of results

Target audience

- Data analysts
- data scientists

Prerequisites

- Basic knowledge of data manipulation

KNIME Analytics training program

Introduction to KNIME Analytics Platform

- Architecture and key concepts
- Typical use cases: Data Science, ETL, Reporting, Machine Learning
- Positioning in relation to other tools
- Downloading and installing KNIME
- Introduction to the user interface
- Workspace configuration

Data manipulation

- Reading files
- Connecting to databases
- Accessing web data
- Access to Cloud sources
- Filters, joins, groupings
- Filling missing values
- Data type transformation
- String Manipulation, Math Formula
- Calculated column creation
- Time series and dates
- Aggregations and statistical operations

Building workflows

- Using base nodes
- Logical connectors and processing sequences
- Annotating and documenting workflows
- Best practices for readability
- Conditional nodes
- Loops and iterations
- Error handling
- Variable creation and propagation
- Dynamic configuration nodes
- Workflow parameterization with external inputs

Exploratory data analysis

- Mean, median, mode, variance, standard deviation
- Frequency table
- Correlation analysis
- Histograms, scatter plots, boxplots
- Heatmaps and bar charts
- Interactive visualization nodes
- Use of the "Data Explorer" component

Machine Learning with KNIME

- Encoding categorical variables
- Normalization and standardization
- Training/Test separation
- Feature Selection
- Linear and logistic regression
- Decision trees, Random Forest, SVM
- Simple neural networks
- K-Means Clustering
- DBSCAN
- Principal component analysis
- Confusion matrix, precision, recall, F1-score
- Cross-validation
- ROC/AUC
- Application of models to new data
- Export of models
- Integration into production workflows

Advanced automation and orchestration

- Component creation

- Node groups
- Dynamic parameterization
- Using the KNIME Server
- Automation with Cron, external scripts
- Command-line calls
- Python and R scripting in KNIME
- Executing SQL scripts
- REST API calls
- Connection to Power BI / Tableau via export or API

Advanced reporting and visualization

- KNIME Report Designer (BIRT)
- Creation of reporting templates
- PDF / HTML / Excel export
- Dashboards in KNIME WebPortal
- Integration with Jupyter Notebooks
- Export to Power BI or Google Data Studio

Companies concerned

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

Positioning at training start

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 with regard to 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 training: 60% hands-on, 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 is used to verify the correct acquisition

skills.

Certification

A certificate will be awarded to each trainee who has completed the entire course.