Reasonix®

REASONIX ML50 • PROFESSIONAL TRAINING COURSE

APPLIED MACHINE LEARNING

From Data Preparation to Reliable Predictive Models

Data Preparation • Regression • Classification • Clustering • Model Evaluation

A 50-hour, practice-led pathway for framing Machine Learning problems, preparing data, training and comparing models, and turning evaluation evidence into reliable decisions.

50	15 + 35	2
TOTAL TRAINING HOURS	THEORY + PRACTICAL HOURS	MODELLING PROJECTS

COURSE OVERVIEW

Reasonix ML50 is a focused, standalone programme for building disciplined Machine Learning solutions with Python and scikit-learn. Learners progress from problem framing, features, labels, and data preparation to regression, classification, clustering, validation, tuning, and model interpretation.

The emphasis is not on memorising algorithms. Participants learn to compare alternatives, detect weak evaluation, diagnose errors, and justify model decisions with reproducible evidence.

WHAT PARTICIPANTS WILL BE ABLE TO DO

- frame practical tasks as regression, classification, or clustering problems;
- identify features and targets, prepare tabular data, and prevent data leakage;
- train and compare linear, neighbour-based, tree-based, ensemble, and margin-based models;
- apply K-Means to explore structure in unlabelled data and interpret clusters cautiously;
- select task-appropriate metrics for regression and classification;
- use cross-validation, tuning, and error analysis to improve generalisation;
- build, document, and present reproducible Machine Learning projects with defensible conclusions.

THE 50-HOUR LEARNING PATH

Six connected modules, sequenced from modelling foundations to evidence-based project delivery.

1	**Machine Learning Foundations & Workflow** Problem framing, features, labels, training, testing, baselines	6 H
2	**Supervised Learning Concepts & Applications** Data preparation, pipelines, fit, predict, generalisation	10 H
3	**Regression & Classification Modelling** Linear, logistic, k-NN, trees, forests, SVM	11 H
4	**Unsupervised Learning & Clustering** K-Means, scaling, cluster profiles, cautious interpretation	6 H
5	**Evaluation, Validation & Improvement** Metrics, cross-validation, tuning, overfitting, error analysis	10 H
6	**Applied Machine Learning Project** Compare, interpret, refine, document, present	7 H

WHO SHOULD ATTEND

Students, graduates, analysts, developers, researchers, and professionals seeking a rigorous applied route into predictive modelling.

ENTRY REQUIREMENTS

Basic Python and familiarity with tables, simple statistics, and data exploration. No prior Machine Learning experience is required.

TRAINING EXPERIENCE

Focused explanations, live modelling, guided labs, comparative experiments, evaluation clinics, a guided case study, and a final applied project.