

3-Day Workshop Table of Contents

No-Code AI and Machine Learning: Building Data Science Solutions

Mode: Hands-on (No Programming Required)

Laptop Requirement: Standard laptop (no dedicated GPU required)

Day 1 – Foundations of AI, Machine Learning & Data

Module 1: Introduction to Artificial Intelligence

- Evolution of AI
- AI vs Machine Learning vs Deep Learning
- AI applications across industries
- Types of AI
- Responsible and Ethical AI
- AI limitations and misconceptions

Module 2: Understanding Data

- What is data?
- Structured, semi-structured and unstructured data
- Types of variables and features
- Data lifecycle
- Data quality challenges

Module 3: Data Preparation

- Data collection approaches
- Data cleaning concepts
- Missing values
- Duplicate records
- Outlier identification
- Data transformation
- Data normalization concepts

Module 4: Exploratory Data Analysis

- Understanding datasets
- Data summaries
- Basic statistics
- Data visualization concepts
- Identifying trends and patterns
- Correlation basics

Hands-on Activities

- Importing datasets
 - Cleaning real-world data
 - Creating visual summaries
 - Exploring relationships within data
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Day 2 – No-Code Machine Learning

Module 5: Machine Learning Fundamentals

- Machine learning workflow
- Supervised learning
- Unsupervised learning
- Reinforcement learning overview
- Training vs testing data
- Model lifecycle

Module 6: Classification Techniques

- Classification concepts
- Binary classification
- Multi-class classification
- Feature importance
- Model interpretation

Module 7: Regression Techniques

- Regression fundamentals
- Continuous prediction problems
- Understanding prediction errors

- Practical business scenarios

Module 8: Clustering and Pattern Discovery

- Clustering concepts
- Similarity and distance
- Customer segmentation
- Anomaly detection overview
- Pattern discovery

Hands-on Activities

- Building classification models
 - Building regression models
 - Creating clustering solutions
 - Comparing model performance
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Day 3 – Model Evaluation, Deployment & AI Applications

Module 9: Model Evaluation

- Why evaluation matters
- Training vs validation
- Accuracy and reliability
- Precision and recall concepts
- Confusion matrix
- Cross-validation overview
- Avoiding overfitting and underfitting

Module 10: Making AI Explainable

- Understanding predictions
- Feature influence
- Model transparency
- Fairness and bias
- Trustworthy AI

Module 11: Deploying No-Code AI Solutions

- AI workflow automation

- Integrating AI into business processes
- Monitoring AI performance
- Updating and maintaining models
- Governance basics

Module 12: AI Applications Across Domains

- Healthcare
- Education
- Finance
- Manufacturing
- Retail
- Marketing
- Human Resources
- Smart Cities
- Agriculture

Capstone Activity

- End-to-end no-code AI project
- Dataset preparation
- Model building
- Performance evaluation
- Result interpretation
- Presentation of findings

Learning Outcomes

By the end of the workshop, participants will be able to:

- Understand AI and Machine Learning fundamentals.
- Prepare and analyze datasets effectively.
- Build no-code machine learning solutions for classification, regression, and clustering.
- Evaluate and interpret AI model performance.
- Apply responsible AI principles.
- Develop complete end-to-end data science workflows without programming.
- Identify suitable AI solutions for real-world business and research problems.