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AI Agents with n8n

Automation with self-hosted workflows and intelligent agents - 2 / 3 days

FA-0052 · 2 / 3 days

Agentic & Generative AI · Automation, RPA & Power Platform

Introduction

AI automation isn't just the future anymore—it's happening right now, and companies that aren't using it are falling behind. In this course, you'll skip the fluff and theory to build actual AI agents that you can deploy immediately in real work environments.

We'll use n8n (a powerful automation platform you can run on your own servers) combined with Microsoft Outlook to create systems that actually notify you when things happen. No toy examples or academic exercises—just practical tools that solve real business problems.

Your instructor has been working in tech for over three decades and knows what actually works in the field versus what just sounds good on paper. By the end of this course, you'll have hands-on experience building automation workflows that you can literally start using at work the next day.

Learning Outcome

By the end of this course, participants will be able to:

1. Set up and maintain a self-hosted n8n instance (Docker, VPS, or platform).
2. Integrate local or remote LLMs into n8n workflows.

3. Build AI agents capable of reacting to email and other triggers.
4. Implement Outlook-triggered workflows with automated analysis and responses.
5. Send real-time Outlook notifications based on LLM agent results.
6. Apply best practices in prompt engineering, debugging, and secure deployment.
7. Design scalable, real-world AI agents in self-hosted environments.

Prerequisite

- Good experience with POSIX systems such as linux.
- Access to a server or Docker for self-hosted n8n.
- Microsoft 365 account with Outlook API access.
- Local LLM instance (e.g. Hugging Face token or saved models).

Training outline

1. 1. Self-hosted n8n Setup & Configuration

- Installing n8n via Docker or VPS.
- Persistent storage (SQLite vs. Postgres) and optimizing for durability.
- Security fundamentals: HTTPS, env vars, basic authentication.
- Testing and validating a local workflow.

2. 2. Introducing AI Agents

- Overview of LLMs: cloud vs self-hosted (Ollama, Hugging Face).
- Integrating an LLM node in n8n workflows.
- Building a “Hello, AI Agent” pipeline.

3. 3. Building a Triggered AI Agent

Triggering workflows from Outlook:

- Using Outlook node in n8n
- Real-time email detection.

- Processing content: summarization, sentiment, action recommendation.

  Using the Microsoft Outlook Send node for notifications:

  - Formatting actionable email updates.

4. 4. Prompt Engineering & Workflow Logic

- Designing prompts for email comprehension.
- Managing token limits and embedding contexts.
- Branching logic based on LLM result types (e.g. sentiment thresholds).

5. 5. Advanced Use Cases: Mini Projects*

- **Task Router Agent**: Automatic task creation from flagged emails.
- **Weekly Digest Bot**: Scheduled summarization and Outlook distribution.
- **Q&A Support Agent**: On-demand reply generation via email.

6. 6. Debugging, Testing & Best Practices

- Utilizing n8n execution logs and retry/error handling.
- Version control: JSON export/import and workspace migration.
- Ethical and compliance considerations (e.g. data handling, GDPR).

7. 7. Deployment & Scalability

- Choosing storage backend (SQLite vs Postgres) for scale.
- Deploying workers for load distribution.
- Monitoring and alert strategies.

8. 8. Business Integration & Wrap-up

- Monetizing AI agents: packaged service offerings.
- Marketing your bots: elevator pitch and client demos.
- Course summary and recommended next steps.

*May vary depending on the decision of the trainer.

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