

اَلْحَمْدُ لِلّٰهِ

# Final Class

Lecture 24 (Final) – HCCDA-AI

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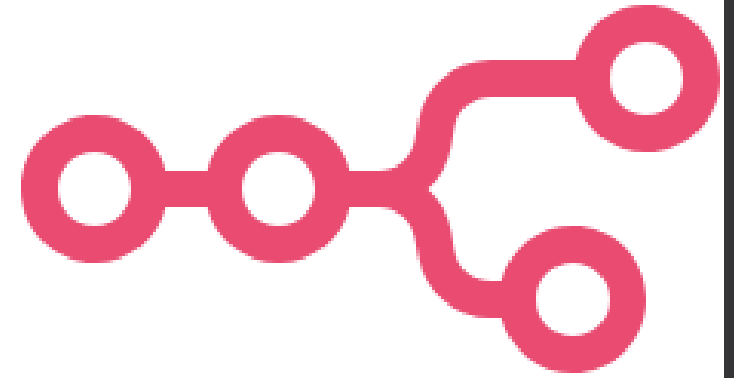
# Introduction to n8n

## What is n8n?

- A **workflow automation tool** (no-code / low-code) for building AI agents and integrations.
- Lets you connect apps, APIs, and AI models without writing full code.
- Useful for quick prototyping and agentic AI projects.
- Supports both **simple automation** (e.g., sending emails) and **complex workflows** (AI + APIs + databases).

- **Key Strength**

- **Integrates with 422+ services and platforms:**
  - Email providers
  - Social media apps
  - Databases
  - AI & LLMs (Gemini, OpenAI, Hugging Face)
  - Many, many more

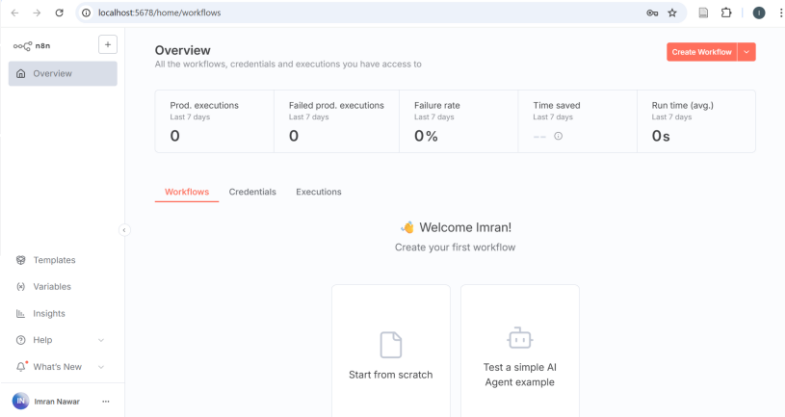
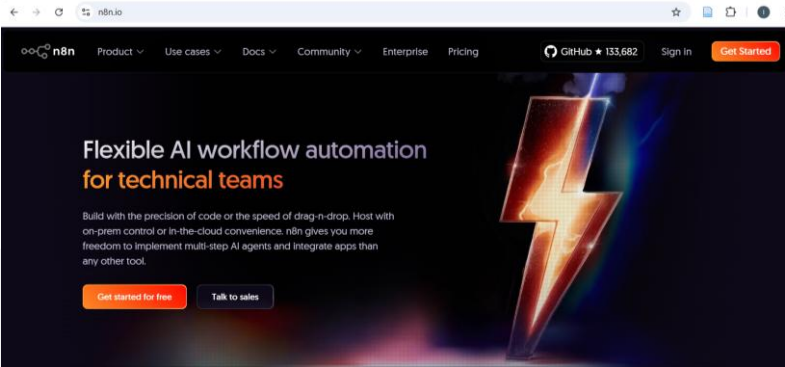


# n8n.io vs Self-Hosted (Local)

## Does it work the same?

Yes – both run the same n8n software.

Feature	Self-Hosted (Local)	n8n.io (Cloud)
Cost	Free (your hardware)	Paid subscription
Setup	You install & configure	Fully managed by n8n team
Uptime & Scaling	Your responsibility	Handled by n8n
Updates	Manual updates	Automatic updates
Backups	You configure	Included
Security	Your responsibility	Managed by n8n team



# Getting Started with Self-Hosted n8n

- **Prerequisite**

- Install Node.js → [nodejs.org](https://nodejs.org)

- **Steps to Install & Run Locally**

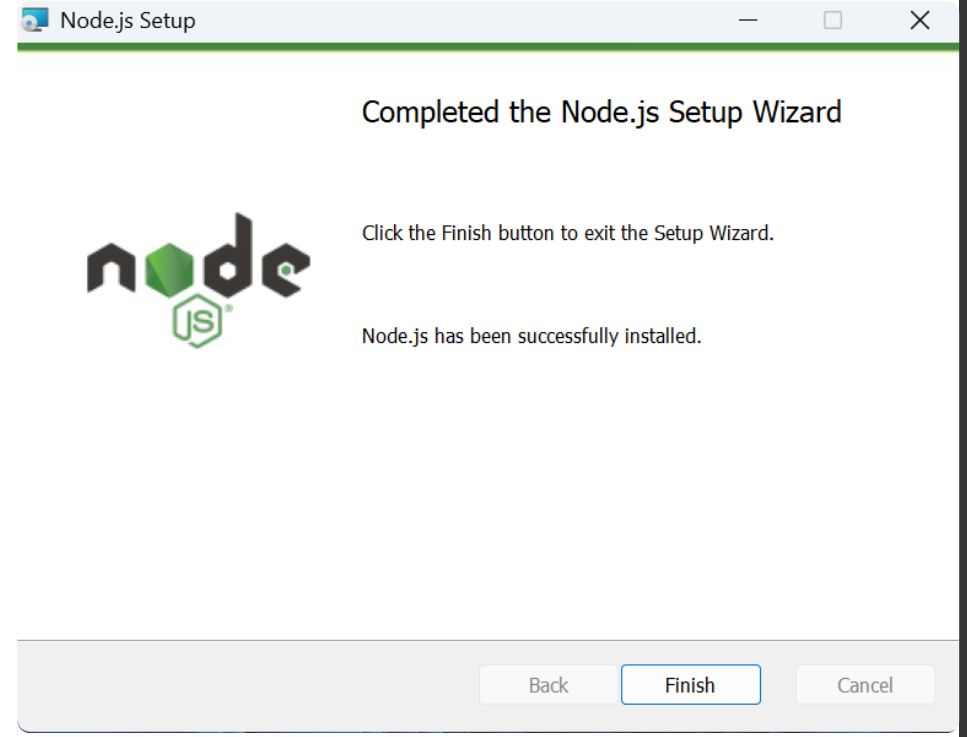
- Open your terminal (Command Prompt / Mac/Linux Terminal).
- **Install n8n globally:**  
*npm install -g n8n*
- **Start n8n:**  
*n8n*
- Open browser → <http://localhost:5678> to access the n8n editor.

- **Updating n8n:**

*npm update -g n8n*

Community is very active → new features keep coming.

**Reminder:** n8n is a Node.js package.



```
PS C:\Users\PC> node --version
v22.19.0
PS C:\Users\PC> npm --version
10.5.0
PS C:\Users\PC> npm install n8n -g
npm WARN ERESOLVE overriding peer dependency
npm WARN While resolving: @n8n/typeorm@0.3.20-12
npm WARN Found: @sentry/node@9.46.0
changed 1978 packages in 12m
230 packages are looking for funding
  run `npm fund` for details
PS C:\Users\PC> n8n
No encryption key found - Auto-generating and saving to: C:\Users\PC\.n8n\config
Initializing n8n process
n8n ready on ::, port 5678
Migrations in progress, please do NOT stop the process.
```



# AI Hackathon: Build Your Own Project

**Build – Learn - Showcase**

Final Project Challenge

4 Hours to Transform Your AI  
Knowledge into Reality

# Why This Matters



- You have learned concepts from **Python** → **AI Agents**.
- True learning comes when you create something on your own.
- This project is your first step towards real-world AI innovation.
- In 4 hours, you will turn ideas into working prototypes.

# Instructions

- **Duration:** 4 hours of focused development.
- **Individual Work:** Your unique vision and implementation.
- **Instructor Support:** Guidance available when needed.
- Use **tools & skills** from the course: Python, ML, DL, CV, NLP, Agents.
- You can use [n8n](#), [Google AI Studio](#), [Gemini models](#), [Huawei Cloud](#).
- Focus on a working prototype, not perfection.

# Project Ideation



## How to come up with an idea?

- Think of **real problems around you** (education, health, business, community).
- Use AI to brainstorm/refine ideas.
- Keep it small + achievable.

### Sample prompt:

*“Generate project ideas in X field, using Y method, to solve Z problem.”*

*“Help me refine this idea for an AI project that can be built in 4 hours”*

### Examples:

- Smart Assistants
- Content Generators
- Data Analyzers
- Chatbots
- Image Processors
- Automation Tools



# Steps to build a Successful Project

- 1. Define the Problem:**  
what issue are you solving?
- 2. Select Tools & Models:**  
(Python, Gemini, n8n, APIs, libraries).
- 3. Build MVP (Minimum Viable Prototype):**  
Keep it simple.
- 4. Test Quickly:**  
Refine with feedback.
- 5. Present Demo:**  
Explain problem, solution, tools, and impact.



# True Success

وَيَرْزُقُهُ مِنْ حَيْثُ لَا يَحْتَسِبُ ۚ وَمَنْ يَتَوَكَّلْ عَلَى اللَّهِ فَهُوَ حَسْبُهُ ۚ إِنَّ اللَّهَ بَلِّغُ أَمْرِهِ ۚ قَدْ جَعَلَ اللَّهُ لِكُلِّ شَيْءٍ قَدْرًا

*“and provide for them from sources they could never imagine. And whoever puts their trust in Allah, then He ‘alone’ is sufficient for them. Certainly Allah achieves His Will. Allah has already set a destiny for everything.”*

**Remember:** Success comes from Allah. Work with sincerity, seek His guidance, and trust in His plan.

- **Intentions (*Niyyah*):** Use knowledge for good.
- **Excellence (*Ihsan*):** Strive for quality in all work.
- **Service (*Khidmah*):** Use your skills to benefit humanity.
- **Gratitude (*Shukr*):** To Allah for knowledge & opportunity.

Stay humble in achievements!



## Your AI Journey Continues

From Python basics to building intelligent agents – you have mastered the foundations.

وَقُلْ رَبِّ زِدْنِي عِلْمًا

*“And say: My Lord, increase me in knowledge”*

Today you build, tomorrow you innovate, and always you learn.

May Allah bless your future endeavors!

# JazakAllahu Khairan

Thank you for an incredible AI learning journey together.

## Course Review Request

Your feedback is valuable!!

Barakallahu feekum & Happy Building!