

Welcome Back!

Day 2: n8n Automation & AI Workflows

Today's Journey:

- ✓ From Code → No-Code Automation
- ✓ Build workflows visually with n8n
- ✓ Create real-world AI automations
- ✓ Connect services without coding!

Same Power, Less Code! 

Quick Recap: What We Learned



Day 1 Achievements:

- Made API calls to LLMs
- Learned prompt engineering
- Built chatbot with memory
- Understood AI fundamentals

Today We'll:

- Build same things faster
- Connect multiple services
- Create real automations
- No code required!

 **Key Question:** Can we build the same chatbot from Day 1 in 15 minutes instead of 1 hour? Let's find out! 

What is Automation?

**Doing repetitive tasks
automatically, so you don't
have to!**

Manual Work



- Check email →
Read → Reply
- Download file
→ Process →
Upload
- Copy data →
Paste →
Format
- Repeat...
Repeat...
Repeat...

Automated Work



- Email arrives
→ Auto-analyze →
Draft reply
- File uploaded
→ Auto-process →
Save result
- Data changes
→ Auto-sync
→ Notify
- You focus on
important
stuff!

Real-World Examples:

-  Email assistant that drafts responses

-  Data sync between tools
-  Chatbot that answers questions
-  Document processing workflows
-  Smart notifications and alerts

What Automation Actually Means in Business



Definition:

Automation = Taking repetitive, rule-based tasks and having systems execute them automatically instead of humans doing them manually every time.

The Three Types of Tasks We Automate:

1. Data Movement

- Copying information between systems
- Syncing databases
- Generating reports from multiple sources

• Example:

Customer data from website → CRM → Email system

2. Decision-Making (Rule-Based)

- If X happens, do Y
 - Routing requests to right department
 - Categorizing incoming requests
-
- Example: If email contains "refund" → route to billing team

3. Communication & Notifications

- Sending status updates

- Creating draft responses
- Alerting teams about events
- **Example:** When order ships → auto-notify customer

Why This Matters: These tasks consume 40-60% of knowledge workers' time. That's 3-4 hours daily on repetitive work instead of strategic thinking.

Real Customer Pain

Points We See 😢

Pain Point #1: Time Waste

- Support teams: 200+ emails daily per agent
- Data entry: 2-3 hours copying between systems
- Report generation: 5 hours weekly for routine reports
- **Customer says:** "My team spends

Pain Point #2: Human Error

- Manual data entry: 3-5% error rate
- Copy-paste mistakes in forms
- Forgot to notify someone important
- **Customer says:** "We keep missing critical updates because someone

half their day
on repetitive
tasks"

forgot to
check"

Pain Point #3: Slow Response Times

- Email responses: 24-48 hour delays
- Data not synced: Teams work with outdated info
- Approvals stuck: Waiting for manual routing
- **Customer says:** "Our customers complain we're

Pain Point #4: Scaling Problems

- Need to hire 10 more people just to handle volume
- Can't grow without proportional headcount increase
- Bottlenecks everywhere
- **Customer says:** "We're growing but our processes can't keep up"

too slow to
respond"

The Cost:

- Average company: \$5,000-\$10,000 per employee annually lost to manual tasks
- Customer support: 70% of time on routine questions
- Sales teams: 64% of time on non-selling activities

How Automation Solves These

Problems



Solution to Time Waste:

- Automate routine responses → 90% time reduction
- Auto-sync data → eliminate 2-3 hours daily
- Generate reports automatically → 5 hours → 5 minutes

Solution to Human Error:

- Systems don't forget steps
- Consistent execution every time
- Automatic validation checks
- **Result:** Error rates drop from 3-5% to <0.1%

- **Result:** Teams focus on high-value work

Solution to Slow Response:

- Instant processing 24/7
- No waiting for "business hours"
- Immediate routing to right person
- **Result:** Response time: 24 hours → 2 minutes

Solution to Scaling Problems:

- Handle 10x volume with same team
- Add automation, not headcount
- Scale without proportional costs
- **Result:** Grow efficiently

Real Numbers:

- 1 automation = 750 hours/month saved
(real Red Pocket Mobile data)
- ROI typically 5-10x in first year
- Team satisfaction increases (no boring work)

What is n8n?

n8n = Visual Workflow Automation

Connect services, automate tasks, build workflows - all with a visual interface. No coding required!

Think of it as:

-  LEGO blocks for automation
-  Connect services visually
-  Build workflows fast
-  Same power as code, easier!

What You Can Do:

- Connect 400+ services
- Build complex workflows
- Automate repetitive tasks
- Integrate AI into everything!



Popular Alternatives: Zapier, Make.com, Microsoft Power Automate. n8n is open-source and powerful!

Code vs No-Code: The Comparison



Aspect	Code (Day 1)	n8n (Day 2)
Time to Build	~1 hour	~15 minutes
Visual	Text-based	Drag & drop
Learning Curve	Steeper	Gentler
Flexibility	Very high	High
Integrations	Manual coding	Built-in (400+)
Best For	Complex logic, custom needs	Quick automations, integrations

**Both have their place! Use
the right tool for the job** 

Setting Up n8n



Option 1: n8n Cloud



**Recommended
for Workshop!**

1. Go to
n8n.cloud
2. Sign up for
free account
3. Get your
workspace
URL
4. Start
building!

- No installation
- Access from
anywhere

Option 2: Local Installation



For offline work

```
npx n8n  
# Access at:  
http://localhost:5678
```

- Works offline
- No limits
- Requires Node.js

 Free tier
available

 **Let's do this together!** Take 10-15 minutes to get everyone set up.
Raise your hand if you need help!

Industry Use Cases

- Who Uses

Automation



Telecom/Mobile (like Red Pocket Mobile):

- Customer switches carriers → 50+ manual steps
- **Automation:**
 - Validate account →
 - Port number →
 - Activate SIM →
 - Send confirmations
- **Before:** 2-3 days, 40% error rate
- **After:** 2 hours, <1% error rate

E-commerce:

- Order placed → 10 systems need updating
- **Automation:**
 - Order →
 - Inventory →
 - Shipping →
 - Customer notification →
 - Accounting
- **Result:**
 - Process 5,000 orders/day with 3-person team

Customer Support:

- 1,000 tickets daily, repetitive questions
- **Automation:**
AI categorizes
 - Routes to specialist → Drafts
 - response → Human reviews
- **Result:**
Handle 3x volume, same team size

Healthcare:

- Patient appointment
→ Insurance verification → Reminder calls → Follow-ups
- **Automation:**
All steps happen automatically
- **Result:** No-show rate drops 40%

SaaS Companies:

- New user signs up → 20 onboarding steps
- **Automation:** Welcome email → Trial activation → Tutorial sequences → Sales notification
- **Result:** Conversion rate increases 35%

Financial Services:

- Loan application → Verification → Credit check → Approval routing
- **Automation:** Process 500 apps/day instead of 50
- **Result:** 90% faster approvals

n8n Interface: Quick Tour



Key Areas:

- **Workflows** - Your automation projects
- **Credentials** - API keys & auth (like .env file)
- **Executions** - See workflow runs & logs
- **Canvas** - Where you build (drag & drop)

Building a Workflow:

1. Click + to create workflow
2. Drag nodes from left panel
3. Connect nodes (output → input)
4. Configure each node
5. Test with "Execute Workflow"
6. Toggle **Active** to run!

Common Nodes:

-  **Webhook** - Receive HTTP requests
-  **OpenAI** - AI/LLM calls
-  **Gmail** - Email operations
-  **Slack** - Messaging
-  **HTTP Request** - Call any API
-  **IF/Switch** - Conditional logic



Exercise 1: Basic AI Chatbot



What We'll Build:

The same chatbot from Day 1, but built in **15 minutes** instead of 1 hour!

Workflow Steps:

1. Webhook receives message
2. OpenAI processes it
3. Response sent back

Learning Goals:

- Understand n8n workflow structure
- Use Webhook nodes
- Connect OpenAI node
- Compare code vs no-code

File: **01_basic_chatbot.json**

Exercise 1: Step-by-Step



Step 1: Import Workflow

1. In n8n, click **Workflows**
2. Click **Import from File**
3. Select `01_basic_chatbot.json`
4. Workflow appears in your workspace!

Step 2: Add OpenAI Credential

1. Click **Credentials** (left sidebar)
2. Click **Add Credential**
3. Search for **OpenAI**
4. Enter your API key (from Day 1)
5. Save it!

Step 3: Connect & Activate

1. Open the workflow
2. Click on **OpenAI Chat** node
3. Select your credential
4. Toggle **Active** switch (top right)
5. Copy the webhook URL

Exercise 1: Test Your Chatbot!



Method 1: Using curl

```
curl -X POST YOUR_WEBHOOK_URL \  
-H "Content-Type: application/json" \  
-d '{"message": "Hello! What can you do?"}'
```

Method 2: Using Test HTML File

1. Open `test_webhook_chatbot.html`
2. Replace `YOUR_WEBHOOK_URL` with your actual URL
3. Open in browser
4. Type a message and click Send!

 **Pro Tip:** Use "Execute Workflow" button to test without activating.
Great for debugging!

**Did it work? 🎉 Same
chatbot, way faster!**

Decision Framework

- When to Automate



Good Automation Candidates:



- **High Volume**

Happens 10+
times per day

Example:
Processing
customer emails

- **Clear Rules**

If-then logic
works

Example: If
order > \$1000,
notify manager

- **Time-
Consuming**

Takes 10+

Bad Automation Candidates:



- **Needs
Human
Judgment**

Unique
situations every
time

Example:
Complex
customer
complaints

- **Rare Events**

Happens once
per month
Not worth
automation
effort

minutes per
instance
Example:
Generating
weekly reports

- **Error-Prone**

Humans make
mistakes often
Example: Data
entry between
systems

- **Bottleneck**

Blocks other
work
Example:
Approval
workflows

- **Constantly
Changing**

Rules change
weekly
Automation
becomes
maintenance
burden

- **Creative
Work**

Requires original
thinking
Example:
Marketing
strategy

The ROI Calculation We Do:

1. How many hours monthly does this task take?
2. What's the hourly cost (salary/hours)?
3. How long to build automation?
4. Payback period < 6 months? → Automate

Example:

- **Task:** Email triage ($30 \text{ min/day} \times 20 \text{ people}$
 $= 10 \text{ hrs/day}$)
- **Cost:** $10 \text{ hrs} \times \$30/\text{hr} \times 250 \text{ days} =$
 $\$75,000/\text{year}$
- **Automation cost:** \$10,000 to build
- **Payback:** 1.5 months  DO IT

Understanding the Workflow



Workflow Flow:

Webhook → OpenAI → Respond
to Webhook

Node 1: Webhook

- Receives HTTP POST requests
- Extracts message from JSON
- Passes to next node
- Like a door for your workflow!

Node 2: OpenAI Chat

- Sends message to AI
- Uses your API key
- Returns AI response
- Same as Day 1, but visual!

Node 3: Respond to Webhook

- Sends response back to caller
- Formats as JSON
- Completes the request

 **Key Insight:** Each node does one thing. Connect them to build complex workflows!

Pre-Planning Before Building Automation



Step 1: Map the Current Process

- Document every step manually done today
- Talk to the people who actually do the work
- Find hidden steps they forgot to mention
- **Output:** Complete process flowchart

Step 2: Identify the Pain Points

- Which steps take longest?
- Where do errors happen?
- What frustrates users most?
- Which steps are bottlenecks?
- **Output:** Priority list of problems to solve

Step 3: Define Success Metrics

- What does "better" look like?
- How will we measure improvement?
- What's the baseline today?
- **Output:** Specific, measurable goals

Example metrics: Time: 45 min → 5 min per task | Error rate: 5% → <1% | Volume: 100 → 500 tasks/day | Satisfaction: NPS 20 → NPS 50

Step 4: Design the Automation

- What triggers it? (new email, time-based, manual)
- What data does it need?
- What decisions does it make?
- What's the output?
- What happens if it fails?
- **Output:** Technical specification

Step 5: Plan for Edge Cases

- What if data is missing?
- What if external API is down?
- How do we handle errors?
- When does human review happen?
- **Output:** Error handling plan

Common Mistakes to Avoid:

- **✗** Automating a bad process (fix process first!)
- **✗** No error handling (automation breaks, nobody knows)
- **✗** Automating without measuring (can't prove ROI)
- **✗** Not involving end users (they won't use it)

Time Investment: Planning: 40% | Building: 30% | Testing: 20% | Training/rollout: 10%

Exercise 2: Email AI Assistant



Real-World Automation!

Build an automation that reads emails, analyzes them with AI, and creates draft responses automatically!

What It Does:

- 📧 Watches for new emails
- 🤖 Analyzes with AI
- ✎ Creates draft response
- 💾 Saves to Gmail drafts

Learning Goals:

- Use Gmail trigger nodes
- Process email content
- Integrate multiple services
- Build real automation

File:

02_email_ai_assistant.json

Exercise 2: **Workflow Structure**



Workflow Flow:

New Email → Get Full Email → Extract
Content →
AI Analyze → Save Draft

Step 1: Gmail Trigger

- Watches for new emails
- Triggers automatically
- Passes email ID

Step 2: Get Email

- Retrieves full content
- Gets subject, body, sender
- Prepares for processing

Step 3: AI Analysis

- OpenAI analyzes email
- Generates response/summary
- Uses context-aware prompts

Step 4: Save Draft

- Creates email draft
- Saves to Gmail
- Ready for you to review!

Exercise 2: Setup Steps



Step 1: Gmail OAuth Setup

1. Go to **Credentials** in n8n
2. Add **Gmail OAuth2** credential
3. Follow OAuth setup (instructor may help)
4. Authorize Gmail access



Note: For workshop, instructor may provide pre-configured credentials to save time!

Step 2: Import & Configure

1. Import 02_email_ai_assistant.json
2. Connect Gmail credentials to all Gmail nodes
3. Connect OpenAI credential
4. Toggle **Active** switch

Step 3: Test It!

1. Send yourself a test email
2. Wait a few seconds
3. Check Gmail drafts folder
4. You should see AI-generated draft! 🎉

⚠ Safety First: Always use `sendToDraft: true` - never auto-send emails!
Review drafts before sending.

More Automation Ideas



Data & Integrations:

- Sync data between tools
- Backup to cloud storage
- Keep databases in sync

Notifications & Alerts:

- Smart Slack notifications
- Email digests
- SMS alerts for important events
- Discord/Teams integration

Content & Processing:

-  Auto-generate reports
-  Image processing workflows
-  Document conversion
-  Video processing pipelines

AI-Powered:

-  Multi-step AI workflows
-  Decision-making automations
-  Multi-channel chatbots
-  AI data analysis pipelines

 **The Limit is Your Imagination!** n8n connects 400+ services. What can you automate?

Recommending Automation to

Customers



Our Assessment Process:

Step 1: Discovery Questions

- What tasks consume most time daily?
- Where do errors happen most frequently?
- What causes customer complaints?
- Where are the bottlenecks in your process?
- What keeps you from scaling?

Step 2: Quantify the Problem

- How many hours/month on this task?
- What's the error rate?
- How many people involved?
- What's the business impact of delays?
- **Output:** Dollar cost of current state

Step 3: Identify Quick Wins

- High volume + Simple rules = Automate first
- Find the 20% that will give 80% impact
- Start with painful bottlenecks
- **Output:** Priority roadmap

Step 4: Estimate ROI

- Time/cost savings
- Error reduction value
- Scaling benefits
- Employee satisfaction improvement
- **Output:** Business case

Step 5: Prototype & Validate

- Build minimal version quickly
- Test with 5-10 users
- Measure actual impact
- Iterate based on feedback

- **Output:** Proof of concept

Red Flags - When We Say "Not Yet":

- **✗** Process isn't standardized - "Everyone does it differently" → Fix the process first, then automate
- **✗** Requirements constantly changing - "We're still figuring out the workflow" → Wait until process is stable
- **✗** No clear success metrics - "We just want to save time" → Define specific goals first
- **✗** No executive buy-in - "Let's just try it" → Need commitment for success
- **✗** Automation more complex than task - "Can we automate this 5-minute monthly task?" → Manual is fine for rare tasks

Recommending Automation to Customers💡 (Part 2)

How We Position It:

*"Think of automation as hiring a digital employee:
Never sleeps, never makes mistakes, costs 10x less
than human, frees your team for strategic work, scales
infinitely. But needs training and management."*

Typical Customer Journey:

1. Awareness:
"We waste time on repetitive tasks"
2. Exploration:
"Could automation help?"
3. Proof: "Let's test with one workflow"
4. Adoption: "It works! What else can we automate?"
5. Scale:
"Automation is

Success Metrics We Track:

- Time saved (hours/month)
- Error rate reduction (%)
- Cost savings (\$/year)
- Volume increase (tasks handled)
- Employee satisfaction (survey scores)
- Customer satisfaction (NPS/CSAT)

core to our
operations"

Key Takeaway:

The assessment process helps identify the right opportunities, while positioning and tracking ensure successful adoption and measurable ROI.

When to Use Code vs n8n? 🤔

Use Code

When:



- Complex business logic
- Custom algorithms needed
- Performance critical
- Full control required
- Building products/apps

Use n8n

When:



- Quick automations
- Connecting services
- Prototyping fast
- Non-technical team
- Workflow automation

Best Practice: Use Both!



- Build core logic in code
- Connect & automate with n8n
- Best of both worlds!

No-code doesn't mean no thinking! 🧠

You still need to design workflows and understand logic.

n8n Best Practices



Workflow Design:

- Test each node as you build
- Use "Execute Workflow" for testing
- Add error handling (IF nodes)
- Name nodes clearly
- Add comments/notes

Security & Safety:

- Store credentials securely
- Never auto-send emails
- Review before sending
- Test with your own data first
- Document your workflows

Performance:

- ⚡ Use webhooks efficiently
- ⏱ Avoid infinite loops
- 💾 Cache when possible
- 📈 Monitor executions

Maintenance:

- 💾 Export workflows regularly
- 📖 Keep documentation updated
- 🔍 Version control workflows
- 🪢 Clean up old executions

The Automation Maturity Model



Level 1: Manual Everything

- All tasks done by humans
- Excel spreadsheets everywhere
- Lots of copy-paste
- **Problem:** Doesn't scale, high error rate

Level 2: Basic Scripts

- Some tasks automated with simple scripts
- Scheduled reports
- Basic data sync
- **Problem:** Fragile, hard to maintain

Level 3: Workflow Automation (You are here!)

- Visual automation tools (n8n, Zapier)
- Connected systems
- AI integration
- **Benefit:** Fast to build, easy to maintain

Level 4: Intelligent Automation

- AI makes decisions
- Machine learning improves over time
- Predictive automation
- **Benefit:** Handles complex scenarios

Level 5: Autonomous Operations

- Systems run themselves
- Self-healing automation
- Minimal human intervention
- **Benefit:** True scale, 24/7 operations

Where Most Companies

Are:

- 60% still at Level 1-2
- 30% moving to Level 3 (where you are now!)
- 8% at Level 4
- 2% approaching Level 5

The Automation Maturity Model



(Part 2)

Your Competitive Advantage:

You now understand Level 3 automation. Most of your peers don't.

What This Means for Your Career:

- Companies are desperately hiring people who understand automation
- You can identify opportunities others miss
- You can build solutions quickly
- You speak the language of both technical

The Skills You Have Now:

- Understand when to automate vs when not to
- Can design workflow automations
- Know how to integrate AI into processes
- Understand business ROI of automation
- Can prototype solutions quickly

and business
teams

Next Steps in Real World:

1. Look for automation opportunities in current role/internship
2. Build 2-3 portfolio projects solving real problems
3. Talk to businesses about their pain points
4. Propose automation solutions with ROI
5. Build credibility through results

Remember:

You're ahead of 60% of companies. Use this knowledge to create value and advance your career! 

Congratulations!



What You've Accomplished:

- ✓ Set up n8n (cloud or local)
- ✓ Built AI chatbot visually (15 min vs 1 hour!)
- ✓ Created email AI assistant automation
- ✓ Understood code vs no-code trade-offs
- ✓ Learned workflow automation basics

Key Takeaways:

- Automation saves time
- Visual workflows are powerful
- n8n connects 400+ services
- Code and no-code both have place

Next Steps:

- Experiment with more workflows
- Explore n8n integrations
- Build your own automations
- Check n8n community & docs

You're now an automation builder!



Questions? Let's discuss what you learned and any questions you have!

 **Resources:** n8n Docs (docs.n8n.io) | Community (community.n8n.io) | Workflow Templates (n8n.io/workflows)