🛠️ Beginner Build Guide: Credit Card Statement Automation with n8n + AI

📌 Project Objective

Build a fully automated system that:

- Reads credit card statements (PDFs)
- Extracts transactions, fees, and rewards using AI
- Pushes results into Google Sheets & Google Docs
- Provides credit card usage optimization using AI insights

🔧 Tools You'll Need

✅ No coding knowledge required — just basic tech comfort!

Tool	Purpose
🔧 **n8n (Self-hosted or desktop)**	No-code automation builder
📄 **Sample Credit Card PDFs**	Statements to analyze
🤖 **Google Gemini (Chat Model)**	For smart analysis & insights
📊 **Google Sheets**	Store transaction data
📄 **Google Docs**	Generate summary reports

✅ Workflow Structure (Overview)

We will create **3 workflows** inside n8n:

Flow	Purpose
🔷 **Flow 1**	Get credit card tips from AI
🟢 **Flow 2**	Extract and analyze PDF statements
🟣 **Flow 3**	Combine insights and generate reports

🔷 Flow 1 – AI Research (Industry Trends & Tips)

💡 This flow helps you get best practices and credit card suggestions using AI

🔷 Steps:

1. **Manual Trigger**
    - Add a “Manual Trigger” node to start the workflow.
2. **Set Research Context**
    - Add a “Set” node with these fields:
        - Company: BizPro Solutions
        - Time Period: Oct 2024 – Mar 2025
        - Categories: Travel, Dining, Office Supplies
        - Banks: Axis, HDFC, ICICI, etc.
        - Goals: Maximize rewards, reduce fees
3. **Prompt Builder**
    - Add another “Set” node to build a custom prompt string.
    - The prompt asks AI:
        - Best practices
        - Best card types
        - Reward programs
        - Mistakes to avoid
4. **AI Agent (Gemini or OpenAI)**
    - Use Gemini Node → paste prompt from previous step
    - Output format: Markdown or JSON

🟢 Flow 2 – PDF Extraction and Transaction Analysis

📄 This flow reads a credit card PDF and extracts data using AI.

🔷 Steps:

1. **Read Binary Files from Disk**
    - Load all credit card PDFs (e.g., 25 employees)
2. **Split in Batches**
    - Use “Item Lists” node → Split each PDF into one item
3. **Read File from Disk**
    - Convert PDF to binary data
4. **Set PDF Metadata Context**
    - Set Node with:
        - Employee Name
        - Bank
        - Card Name
        - Statement Month
5. **Extract from PDF**
    - Use “Extract from File” node → convert PDF to plain text
6. **AI Agent (Gemini)**
    - Send extracted text to AI model
    - Ask AI to return:
        - Total Spend, Rewards, Due Date, Fees
        - List of all transactions (date, merchant, amount)
7. **Split Transactions**
    - Use “Item Lists → Split Out” to break transaction list
8. **Write to Google Sheets**
    - Append transactions to “Transactions” tab
    - Append summary to “Summary” tab

🟣 Flow 3 – Report Generation (Per Employee)

🧠 This flow creates personalized Google Docs reports

🔷 Steps:

1. **Merge Data**
    - Use “Merge” node to combine:
        - Output from Flow 1 (AI Research)
        - Output from Flow 2 (AI Summary)
2. **Prepare Report Content**
    - Use “Set” node to bundle everything:
        - Trends + employee usage
3. **Strategic Report Generator**
    - AI Agent generates final report using smart prompt
    - Output: Formatted report text
4. **Create Google Document**
    - Use Google Docs node to save report
    - Title: EmployeeName_Card_Report_Q4.docx

🧠 Optional: Scale for All Employees

- Use **Loop** to process 25+ PDFs in one run
- Use **Wait/Delay node** to space out API calls
- Generate **final CFO report** using aggregated data from Sheets

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📝 Summary

✅ No-code tool (n8n)
✅ Google Gemini for intelligence
✅ Fully automated from PDF → AI → Google Sheets/Docs
✅ Saves hours of manual work
✅ Scalable for any size organization