



## ◆ Problem Explanation

Job searching is time-consuming, involving tasks such as scanning multiple platforms, filtering postings, tailoring cover letters, and tracking applications.

This project automates the pipeline to **save time, improve organization, and ensure professional cover letters for every job application.**

## ◆ Workflow Breakdown (Node by Node)

- 1. Schedule Trigger:** Runs daily/hourly.
- 2. RSS Read:** Fetches job postings from LinkedIn RSS feed.
- 3. Loop Over Items:** Iterates through each job posting.
- 4. HTTP Request:** Pulls raw job HTML/text.
- 5. Gemini LLM #1 (Parser):** Extracts structured job details into JSON.
- 6. Edit Fields:** Adds candidate resume JSON.
- 7. Merge:** Combines job details with resume.
- 8. Gemini LLM #2 (Career Assistant):**
  - Summarizes job description
  - Generates tailored cover letter
  - Assigns **match score (1–5)**

**9. Code Node:** Cleans and validates JSON output.

## Edit JavaScript

```
1 // Get raw JSON string from model output
2 let rawText = $json["content"]["parts"][0]["text"];
3
4 // Clean the string (remove newlines and extra spaces)
5 rawText = rawText.trim();
6
7 // Try parsing it
8 let parsed;
9 try {
10   parsed = JSON.parse(rawText);
11 } catch (e) {
12   // If still not valid JSON, wrap as object so n8n doesn't break
13   parsed = { text: rawText };
14 }
15
16 // Ensure n8n always gets an object
17 return [
18   {
19     json: parsed
20   }
21];
```

**10. Google Sheets:** Appends/updates rows with all job data.

**11. Wait Node:** Manages API rate limits.

## ◆ API & Prompt Usage

**1. Gemini LLM 1 (Parser):** Extracts job fields (Company, Title, Description, Benefits, Link).

```
1 You are an intelligent parser. Extract job details from the provided job listing text/HTML and output in strict JSON format.
2 Job source: {{ $json.data }}
3
4 JSON format:
5 {
6   "Company Name": "",
7   "Benefits": "", // List separated by commas
8   "Job Description": "", // Concise summary of key responsibilities/requirements and skills
9   "Location": "",
10  "Link": ""
11 }
12
13 Guidelines:
14 - If a field is missing, leave it as "".
15 - Do not include extra text outside of JSON.
16 - Always return valid JSON.
```

**2. Gemini LLM 2 (Career Assistant):** Generates a cover letter and assigns a match score.

```

1 You are a professional career assistant. You will receive two inputs:
2 1. Job details (JSON from previous node)
3 2. Candidate resume (JSON from Set node)
4
5 Input Data: {{ $json.content.parts[0].text }}
6
7 Your tasks:
8 - Generate a professional, concise cover letter tailored to this job using the candidate's resume.
9 - Evaluate the candidate's fit for this job role based on required skills, projects, and experience.
10 - Give a "Match Score" out of 5 (5 = excellent match).
11
12 Return all results in strict JSON format.
13
14 Final JSON format:
15 {
16   "Title": "", // Job Title if available, else leave ""
17   "Job Description": "", // Summarized job description
18   "Link": "", // Job application link
19   "Date": "", // Posting date if available
20   "Rating": "", // Company rating if available
21   "Company Name": "",
22   "Benefits": "",
23   "Cover Letter": "",
24   "Match Score": "" // Score out of 5; example: n/5, where 'n' is the score
25 }
26
27 Rules:
28 - Always return valid JSON only.
29 - Keep cover letter professional (3-5 short paragraphs).
30 - Match Score must be an integer between 1-5.

```

### 3. Google Sheets API: Stores structured results.

## ◆ Challenges & Solutions

- Invalid JSON from LLM** → Solved with Code Node cleanup (fixing quotes, commas).
- API Rate Limits** → Solved using Wait Node to throttle requests.
- Duplicate Jobs** → Can be avoided by checking the job link before appending to the sheet.
- HTML Noise in Job Description** → Solved by refining the Gemini parser prompt.

## ◆ Example Output (Google Sheets)

Columns used:

- **Title**
- **Job Description**
- **Link**
- **Date**
- **Company Name**

- **Benefits**
- **Cover Letter**
- **Match Score**

The screenshot shows a Google Sheets spreadsheet with the title "LinkedIn job listings". The spreadsheet has a header row with columns labeled A through I. The columns are: Title, Job Description, Link, Date, Company Name, Benefits, Cover Letter, Match Score, and an empty column. There are four data rows below the header:

Title	Job Description	Link	Date	Company Name	Benefits	Cover Letter	Match Score	
Data Analyst	Seeking a Data Analyst to join [https://example.com/data-analyst]		2023-10-27	Tech Solutions Inc.	Competitive salary, health insurance	[Your Name] Sincerely, Dear Hiring Manager,	45	I am writing to express my keen interest in the Customer Service Representative position at Global Solutions Inc., as advertised. In my previous role at Tech Support Hub, I consistently exceeded customer satisfaction targets by effectively resolving high-priority issues within 24 hours. I am particularly drawn to Global Solutions Inc. due to its reputation for excellent customer service and its commitment to employee growth and development. Thank you for considering my application. I have attached my resume for your review and welcome the opportunity to discuss further.
Customer Service Rep	Seeking a dedicated Customer Service Rep [https://www.example.com/career]		2023-10-27	Global Solutions Inc.	Health insurance, paid time off, refresher training	[Your Name] Sincerely, Dear Hiring Manager,	45	I am writing to express my enthusiastic interest in the Machine Learning Engineer position at Innovatech Solutions, as advertised. My resume details my experience in data preprocessing, model selection, training, and evaluation, along with my proficiency in Python and TensorFlow. I am particularly drawn to Innovatech Solutions' commitment to innovation and its impactful work in [mention company's field]. Thank you for considering my application. I have attached my resume for your review and welcome the opportunity to discuss further.
Machine Learning Eng	We are seeking a talented Machine Learning Engineer [https://example.com/ml-engineer]		2023-10-27	Innovatech Solutions	Competitive salary, health insurance	[Your Name] Sincerely, Dear Hiring Manager,	45	I am writing to express my strong interest in the Cloud Engineer position at TechSolutions Inc., as advertised. With my background in AWS and GCP, I have successfully designed and deployed scalable and secure cloud solutions on platforms such as Amazon Lambda and AWS Lambda. My resume highlights projects where I have improved system reliability and performance through proactive monitoring and automation. Thank you for considering my application. I have attached my resume for your review and welcome the opportunity to discuss further.
Cloud Engineer	We are seeking a talented Cloud Engineer [https://example.com/cloud-engineer]		2023-10-27	TechSolutions Inc.	Competitive salary, comprehensive benefits	[Your Name] Sincerely, Dear Hiring Manager,	45	I am writing to express my enthusiastic interest in the Software Engineer II position at Tech Solutions Inc., as advertised or mentioned in the job listing. My resume highlights my experience in [mention specific skills or projects]. Thank you for considering my application. I have attached my resume for your review and welcome the opportunity to discuss further.

Count: 8 <

## ◆ Summary of Learnings

- Leveraged **n8n** for **workflow automation** across APIs.
- Applied **prompt engineering** for structured JSON outputs.
- Built resilience with **data cleaning and error handling**.
- Successfully combined **AI + automation tools** to simplify real-world job search.
- Gained experience in **Google Sheets integration** and scalable workflow design.