Automated Job Search & Cover Letter Generator with Match Scoring (n8n + Gemini)

Problem Explanation - Job hunting takes a lot of time and energy. You have to search for openings, filter by location and date, read through job descriptions, and write a new cover letter for each one. It can get repetitive and overwhelming leaving little time to actually prepare for interviews.

This project helps make that easier. Using automation with **n8n** and AI tools like **Google's Gemini**, it handles most of the work for you. It checks how well your resume matches each job, gives a score, and even writes a custom cover letter.

That way, you can focus on the best job matches and spend your time getting ready for interviews not stuck in search tabs.

n8n Workflow Breakdown:-

- **Schedule Trigger -** Starts the workflow every day at a set time (like 10:00 AM IST) so your job search always stays up to date.
- **RSS Read -** Pulls in new job listings from LinkedIn.
- **HTTP Request -** Opens each job link to grab full details from the job posting page.
- **Loop Over Items** - Goes through each job one by one to process them individually and efficiently reducing wait on API's and avoid code crash due to request overload
- **Wait Node -** Adds short pauses to avoid hitting any rate limits or getting blocked by services.
- **Gemini Model -** Uses AI to do three things at different levels of flow
    - Converting the job content to JSON format.
    - Scores on how well your resume matches the job out of 5.
    - Writes a personalized cover letter for the job.
- **Code Node -** Cleans up and formats the output so it is ready to use or store.
- **Google Sheet Update -** Saves all the job info, like Job Title , Job Description, Application link, Date of publish, Rating , Company Name , Benefits and Cover Letter.

- **Google Drive Node** - Handles saving and organizing the spreadsheet, making it ready to download or share.
- **Gmail Node -** Sends you a daily summary email with the top job matches and a link to the updated sheet so everything's right at your fingertips.

API & prompt usage explanation

Workflow fetches all job listings up to 25 with one HTTP request to RSS feed. Then it processes each job individually using AI models in a loop.

- The first AI API extract the key job details using prompt tailed to find the important info.
- The second API scores how well the job matches profile by comparing skills and job description.
- The third API creates a personalized cover letter based on the job and your resume.

Prompts are stored in your workflow with placeholders that fill in each job's info dynamically. This way, each job gets a custom AI response.
This setup balances efficiency (one big fetch) with personalized AI output per job, making your automation smart and fast.

Prompts are used in 3 ways here -
System Role - sets the AI's behaviour and expertise for each task.
Input Layer - Provides the actual data with dynamic placeholders.
Assistant Role - Defines the expected output format and instructions.

Challenges Faced

- **RSS.app Limitations:** RSS.app has a restriction on the number of days it can fetch page details. After the trial period, a subscription is required to

continue using the service.

- **Gemini Model API Rate Limiting:** Consecutive hits to the Gemini model API (three times in quick succession) resulted in errors. A delay was introduced between calls to prevent server overload and avoid code crashes.

- **JSON Output Handling:** The Gemini model did not return a nested JSON output as expected. A separate code node was implemented to extract and structure the required details.

Summary of learnings

- Combining workflow automation with AI to drastically reduce manual job search effort.
- Applied prompt engineering techniques to tailor AI outputs.
- Integrating multiple APIs and data sources cohesively into an end-to-end pipeline.
- Managing complexity and scale in n8n while maintaining transparent, maintainable automation logic.
- Delivering practical AI innovation that empowers users and improves job application efficacy.