Neon Security - Technical Challenge

Objective:

As part of the HR evaluation process at Neon Security, an identity-focused AI company, this challenge is designed to assess your ability to build a practical, intelligent system that combines your engineering and AI/ML understanding with thoughtful design choices.
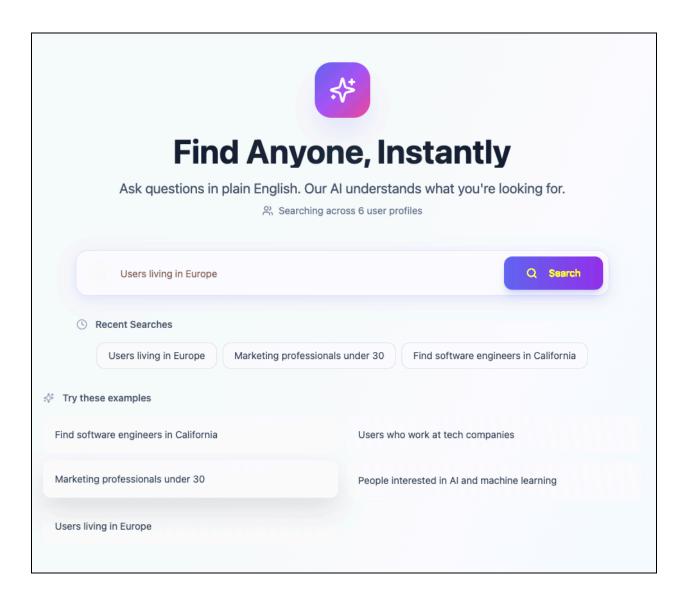
Problem Statement:

Build an AI-based search engine that allows users to issue natural language queries in order to retrieve relevant user profiles or entities from a set of heterogeneous data sources.

These "user profiles" can come in a variety of formats:

- Free-form text notes
- CSV files with tabular user data
- JSON files containing semi-structured user details

Your system should interpret the search query in **natural language,** process the different data formats, and return the most relevant users based on semantic meaning, not just keyword matching.

Find Anyone, Instantly

Ask questions in plain English. Our AI understands what you're looking for.

👥 Searching across 6 user profiles

| Users living in Europe | 🔍 Search |

🕐 Recent Searches

Users living in Europe   Marketing professionals under 30   Find software engineers in California

✨ Try these examples

Find software engineers in California   Users who work at tech companies

Marketing professionals under 30   People interested in AI and machine learning

Users living in Europe

Example: search engine that allows natural language search queries

Data Input Examples:

The input data may contain multiple files. Here are a few examples of what the content might look like:

1. Free-form Note (Text)

```
John Doe is a backend engineer based in Berlin. He has experience
with Kubernetes, Python, and cloud infrastructure. Formerly worked
at Google and loves open-source.
```

2. CSV File

name	location	role	skills	experience_years
Alice Chen	New York	ML Engineer	PyTorch, NLP, TensorFlow	4
Bob Smith	San Diego	Frontend Developer	React, TypeScript	5

3. JSON Format

```json
{

  "user_id": "u123",

  "full_name": "Eva Müller",

  "job_title": "Data Scientist",

  "location": "Munich",

  "skills": ["SQL", "Python", "scikit-learn", "data
visualization"],

  "notes": "Worked in healthcare analytics. Strong
communication skills."

}
```
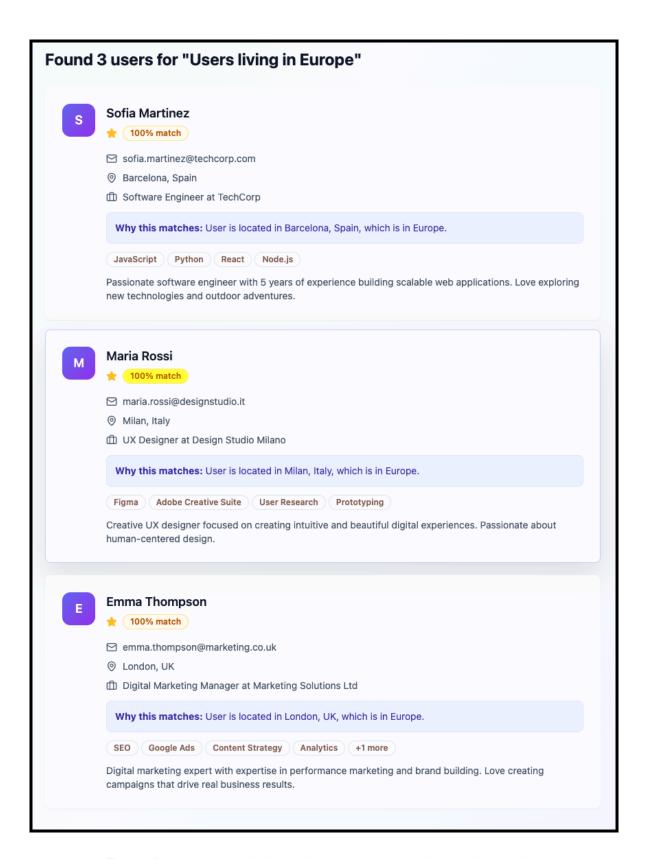
Sample Queries

Your search engine should accept queries like:

- "Find users with experience in cloud infrastructure and Kubernetes"

- "Who are the data scientists located in Germany?"

- "Show me frontend developers with 5+ years of experience"

- "People who worked in healthcare analytics and know scikit-learn"

Your system should return the most relevant users regardless of whether the match occurs in a note, a row in a table, or a JSON field.

Found 3 users for "Users living in Europe"

Sofia Martinez
⭐ 100% match

✉ sofia.martinez@techcorp.com
◎ Barcelona, Spain
🗋 Software Engineer at TechCorp

Why this matches: User is located in Barcelona, Spain, which is in Europe.

JavaScript | Python | React | Node.js

Passionate software engineer with 5 years of experience building scalable web applications. Love exploring new technologies and outdoor adventures.

Maria Rossi
⭐ 100% match

✉ maria.rossi@designstudio.it
◎ Milan, Italy
🗋 UX Designer at Design Studio Milano

Why this matches: User is located in Milan, Italy, which is in Europe.

Figma | Adobe Creative Suite | User Research | Prototyping

Creative UX designer focused on creating intuitive and beautiful digital experiences. Passionate about human-centered design.

Emma Thompson
⭐ 100% match

✉ emma.thompson@marketing.co.uk
◎ London, UK
🗋 Digital Marketing Manager at Marketing Solutions Ltd

Why this matches: User is located in London, UK, which is in Europe.

SEO | Google Ads | Content Strategy | Analytics | +1 more

Digital marketing expert with expertise in performance marketing and brand building. Love creating campaigns that drive real business results.

Example: the system finds 3 relevant users according to the search query

- You may use any tool or programming language of your choice.

- Your system must use AI or LLM-based techniques to understand and interpret the query and user data.

- Your submission will be evaluated based on the following prioritized criteria:

  1. Approach and solution design: How you thought through and tackled the problem. In your solution, please consider:

     - Scalability - support up to millions of users

     - AI costs

     - Search speed

     - Flexibility = both the search query and the input data

     - Technical complexity of the system

  2. Technical proficiency: Effectiveness, efficiency, and clarity of your implementation

- This challenge could be expanded into weeks of work. Please focus on the most important core components of the system. A polished UI or end-to-end production readiness is not expected at this stage.

- This is a challenging task, and the aim is to assess your software development skills rather than to create a complete, functional platform. **Please don't hesitate to ask any questions you may have.**

Let us see your thinking, even if some parts are stubbed or left as notes.

Good luck !